

IMPORTANT NOTICE

You must read the following disclaimer before continuing. The following disclaimer applies to the attached offering memorandum (the "Offering Memorandum"). You are therefore advised to read this disclaimer carefully before reading, accessing or making any other use of the attached. In accessing the attached, you agree to be bound by the following terms and conditions, including any modifications to them from time to time, each time you receive any information from us as a result of such access.

THE SECURITIES HAVE NOT BEEN, AND WILL NOT BE, REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR THE SECURITIES LAWS OF ANY OTHER JURISDICTION, AND MAY NOT BE OFFERED OR SOLD WITHIN THE UNITED STATES, EXCEPT PURSUANT TO AN EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND ANY APPLICABLE STATE OR LOCAL SECURITIES LAWS.

Restrictions: The attached Offering Memorandum is being furnished in connection with an offering exempt from registration under the Securities Act solely for the purpose of enabling a prospective investor to consider the purchase of the securities described in the Offering Memorandum. The materials relating to the offering do not constitute, and may not be used in connection with, an offer or solicitation in any place where offers or solicitations are not permitted by law.

Except with respect to eligible investors in jurisdictions where such offer is permitted by law, nothing in this electronic transmission constitutes an offer or an invitation by or on behalf of either the Issuer of the securities or the Joint Bookrunners, the Trustee and the Agents to subscribe for or purchase any of the securities described therein, and access has been limited so that it shall not constitute a general advertisement or general solicitation (as those terms are used in Regulation D under the Securities Act) or directed selling efforts (within the meaning of Regulation S under the Securities Act) in the United States or elsewhere. If a jurisdiction requires that the offering be made by a licensed broker or dealer and the underwriters or any affiliate of the underwriters is a licensed broker or dealer in that jurisdiction, the offering shall be deemed to be made by the underwriters or such affiliate on behalf of the Issuer in such jurisdiction.

You are reminded that you have accessed the attached Offering Memorandum on the basis that you are a person into whose possession this Offering Memorandum may be lawfully delivered in accordance with the laws of the jurisdiction in which you are located and you may not nor are you authorized to deliver or forward this document, electronically or otherwise, to any other person. If you have gained access to this transmission contrary to the foregoing restrictions, you will be unable to purchase any of the securities described therein.

If you receive this document by e-mail, you should not reply by e-mail to this announcement, and you may not purchase any securities by doing so. Any reply e-mail communications, including those you generate by using the "Reply" function on your e-mail software, will be ignored or rejected. If you receive this document by e-mail, your use of this e-mail is at your own risk and it is your responsibility to take precautions to ensure that it is free from viruses and other items of a destructive nature.

THE ATTACHED OFFERING MEMORANDUM MAY NOT BE FORWARDED OR DISTRIBUTED TO ANY OTHER PERSON AND MAY NOT BE REPRODUCED IN ANY MANNER WHATSOEVER. ANY FORWARDING, DISTRIBUTION OR REPRODUCTION OF THIS DOCUMENT IN WHOLE OR IN PART IS UNAUTHORIZED.

The attached document has been made available to you in electronic form. You are reminded that documents transmitted via this medium may be altered or changed during the process of transmission and consequently neither the Issuer of the securities, Joint Bookrunners, the Trustee and the Agents nor any of their employees, representatives or affiliates accepts any liability or responsibility whatsoever in respect of any discrepancies between the document distributed to you in electronic format and the hard copy version.

Confirmation of Your Representation: You have accessed the attached document on the basis that you have confirmed your representation that (1) you and any customers you represent are (i) qualified institutional buyers (as defined under Rule 144A under the Securities Act), or (ii) outside the United States (as defined under Regulation S under the Securities Act) and that the electronic mail address that you gave us and to which this e-mail has been delivered is not located in the United States, (2) that you consent to delivery of the attached Offering Memorandum and any amendments or supplements thereto by electronic transmission and (3) that you agree to the foregoing terms and conditions.



PT INDONESIA ASAHAN ALUMINIUM (PERSERO)

(a state-owned company incorporated in the Republic of Indonesia with limited liability)

US\$1,000,000,000 4.750% Notes due 2025

US\$1,000,000,000 5.450% Notes due 2030

US\$500,000,000 5.800% Notes due 2050

Issue Price for the 2025 Notes: 99.015%

Issue Price for the 2030 Notes: 97.742%

Issue Price for the 2050 Notes: 92.981%

PT Indonesia Asahan Aluminium (Persero) (the “Issuer”), a state-owned company established with limited liability under the laws of the Republic of Indonesia, is issuing US\$1,000,000,000 4.750% Notes due 2025 (the “2025 Notes”), US\$1,000,000,000 5.450% Notes due 2030 (the “2030 Notes”) and US\$500,000,000 5.800% Notes due 2050 (the “2050 Notes”) and, collectively with the 2025 Notes and the 2030 Notes, the “Notes”).

The 2025 Notes will bear interest at the rate of 4.750% per annum, payable semi-annually in arrears on May 15 and November 15 of each year, commencing on November 15, 2020, and will mature on May 15, 2025. The 2030 Notes will bear interest at the rate of 5.450% per annum, payable semi-annually in arrears on May 15 and November 15 of each year, commencing on November 15, 2020, and will mature on May 15, 2030. The 2050 Notes will bear interest at the rate of 5.800% per annum, payable semi-annually in arrears on May 15 and November 15 of each year, commencing on November 15, 2020, and will mature on May 15, 2050.

Each series of Notes will constitute senior, unsecured obligations of the Issuer. For a more detailed description of the Notes, see “Description of the 2025 Notes,” “Description of the 2030 Notes” and “Description of the 2050 Notes.”

Approval in-principle has been received from the Singapore Exchange Securities Trading Limited (the “SGX-ST”) for the listing and quotation of the 2030 Notes and the 2050 Notes on the SGX-ST. Application will be made to the SGX-ST for the listing and quotation of the 2025 Notes on the SGX-ST. The SGX-ST assumes no responsibility for the correctness of any of the statements made, opinions expressed or reports contained in this offering memorandum (this “Offering Memorandum”). Approval in-principle from, admission to the Official List of, and listing and quotation of the Notes on, the SGX-ST are not to be taken as an indication of the merits of the Issuer or the Notes.

The Notes are expected to be rated “Baa2” by Moody’s Investors Service, Inc. (“Moody’s”) and “BBB-” by Fitch Ratings Ltd. (“Fitch”). A security rating is not a recommendation to buy, sell or hold securities and may be subject to suspension, reduction or withdrawal at any time by the assigning rating agency.

Investing in the Notes involves risks. See “Risk Factors” beginning on page 22.

The Notes have not been and will not be registered under the U.S. Securities Act of 1933, as amended (the “Securities Act”), or the securities laws of any other jurisdiction and may not be offered or sold within the United States, except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act. Accordingly, the Notes are being offered and sold in the United States only to qualified institutional buyers (as defined in Rule 144A under the Securities Act (“Rule 144A”)) in accordance with Rule 144A and outside the United States in offshore transactions in accordance with Regulation S under the Securities Act (“Regulation S”). For a description of these and other restrictions on offers, resales and transfers of the Notes, see “Plan of Distribution” and “Transfer Restrictions.” The Notes do not constitute a public offering in Indonesia under Law No. 8 of 1995 on Capital Market (“Indonesian Capital Markets Law”). The Notes may not be offered or sold in Indonesia, to Indonesian citizens, whether domiciled in Indonesia or elsewhere, or to Indonesian residents, in a manner which constitutes a public offering under the laws and regulations in Indonesia.

It is expected that the Notes will be ready for delivery in book-entry form only through The Depository Trust Company, and its participants, on or about May 15, 2020 (the “Closing Date”). See “Plan of Distribution.”

BNP PARIBAS		<i>Joint Global Coordinators</i>					HSBC	
		Citigroup						
		<i>Joint Bookrunners and Joint Lead Managers</i>						
BNP PARIBAS	Citigroup	HSBC	DBS Bank Ltd.	Mandiri Securities	Maybank	Mizuho Securities	MUFG	SMBC Nikko

The date of this Offering Memorandum is May 11, 2020

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NOTICE TO INVESTORS

This Offering Memorandum is being furnished by us on a confidential basis in connection with an offering exempt from the registration requirements under the Securities Act, solely for the purpose of enabling a prospective investor to consider the purchase of the Notes. The offering is being made in reliance upon the exemptions from registration under the Securities Act. Prospective investors are hereby notified that sellers of the Notes may be relying on the exemption from the provisions of Section 5 of the Securities Act provided by Rule 144A. Each purchaser of the Notes will be deemed to have made certain acknowledgments, representations and agreements regarding the Notes and the offer, sale, reoffer, pledge or other transfer of the Notes. See “Transfer Restrictions.”

Distribution of this Offering Memorandum to any other person other than the prospective investor and any person retained to advise such prospective investor with respect to its purchase is unauthorized, and any disclosure of any of its contents, without our prior written consent, is prohibited. Each prospective investor, by accepting delivery of this Offering Memorandum, agrees to the foregoing and to make no photocopies of this Offering Memorandum or any part hereof.

This Offering Memorandum does not constitute an offer to, and may not be used for the purpose of an offer to or a solicitation by, anyone in any jurisdiction or in any circumstances in which such an offer or solicitation is not authorized or is unlawful. No action has been or will be taken to permit a public offering of the Notes in any jurisdiction where action would be required for that purpose. The Notes may not be offered or sold, directly or indirectly, and this Offering Memorandum may not be distributed in any jurisdiction, except in accordance with the legal requirements applicable in such jurisdiction.

No person has been authorized to give any information or to make any representation other than those contained in this Offering Memorandum in connection with the offering of the Notes, and any information or representation not contained in this Offering Memorandum must not be relied upon as having been authorized by us or BNP Paribas, Citigroup Global Markets Inc. (“Citigroup”), The Hongkong and Shanghai Banking Corporation Limited (“HSBC” and, together with BNP Paribas and Citigroup, the “Joint Global Coordinators”), DBS Bank Ltd. (“DBS”), Mandiri Securities Pte. Ltd. (“Mandiri Securities”), Malayan Banking Berhad (“Maybank”), Mizuho Securities Asia Limited (“Mizuho Securities”), MUFG Securities Asia Limited (“MUFG”) and SMBC Nikko Capital Markets Limited (“SMBC Nikko” and, together with the Joint Global Coordinators, DBS, Mandiri Securities, Maybank, Mizuho Securities and MUFG, the “Joint Bookrunners”). Neither the delivery of this Offering Memorandum nor any sale of the Notes pursuant to this offering shall, under any circumstances, constitute a representation or create any implication that the information contained herein is correct as of any time subsequent to the date hereof or that there has been no change in the affairs of any party mentioned herein since that date.

No representation, warranty or undertaking, express or implied, is made by any of the Joint Bookrunners, the Trustee or the Agents (in such capacity) (as defined herein), and no responsibility or liability is accepted by any thereof to the accuracy, adequacy, reasonableness or completeness of the information contained in this Offering Memorandum or any other information provided by us in connection with the Notes, their distribution or their future performance.

Neither this Offering Memorandum nor any other information supplied in connection with the Notes should be considered as a recommendation by us, the Joint Bookrunners, the Trustee or the Agents that any recipient of this Offering Memorandum should purchase any of the Notes. Each investor contemplating purchasing any Notes should make its own independent investigation of our business, results of operations, financial condition and affairs and its own appraisal of our creditworthiness.

Each person receiving this Offering Memorandum acknowledges that: (i) such person has been afforded an opportunity to request from us and to review, and has received, all additional information considered by it to be necessary to verify the accuracy of, or to supplement, the information contained herein; (ii) such person has not relied on the Joint Bookrunners, the Trustee, the Agents or any person affiliated with the Joint Bookrunners, the Trustee, or the Agents in connection with any investigation of the accuracy of such information or its investment decision; and (iii) no person has been authorized to give any information or to make any representation

concerning us or the Notes (other than as contained herein and information given by our duly authorized officers and employees in connection with investors' examination of our Company and the terms of the offering of the Notes) and, if given or made, any such other information or representation should not be relied upon as having been authorized by us, the Joint Bookrunners, the Trustee or the Agents.

The Notes have not been and will not be registered under the Securities Act, or the securities laws of any other jurisdiction, and may not be offered or sold within the United States, except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act. Accordingly, the Notes are being offered and sold in the United States only to qualified institutional buyers (as defined in Rule 144A) in accordance with Rule 144A and outside the United States in offshore transactions in accordance with Regulation S. For a description of these and other restrictions on offers, resales and transfers of the Notes, see "Plan of Distribution" and "Transfer Restrictions."

The Notes have not been approved or disapproved by the United States Securities and Exchange Commission ("SEC"), any state securities commission in the United States or any other U.S. regulatory authority, nor have any of the foregoing authorities passed upon or endorsed the merits of the offering of the Notes or the accuracy or adequacy of this Offering Memorandum. Any representation to the contrary is a criminal offense in the United States.

In connection with this offering, Citigroup, as stabilizing manager on behalf of the Joint Bookrunners, or any person acting for them (the "Stabilizing Manager") may over-allot Notes or effect transactions with a view to supporting the market price of the Notes at a level higher than that which might otherwise prevail. However, there is no assurance that the Stabilizing Manager, or any person acting on behalf of such Stabilizing Manager, will undertake stabilization action. Any stabilization action may begin on or after the date on which adequate disclosure of the terms of the offer of the Notes is made and, if begun, may be discontinued at any time, and must be brought to an end after a limited period. Any stabilization action or over-allotment must be conducted by the relevant Stabilizing Manager in accordance with all applicable laws, regulations and rules.

If a jurisdiction requires that the offering be made by a licensed broker or dealer and any of the Joint Bookrunners, or any affiliate of the Joint Bookrunners, is a licensed broker or dealer in that jurisdiction, the offering shall be deemed to be made by that Joint Bookrunners, or its affiliate on our behalf in such jurisdiction.

NOTICE TO PROSPECTIVE INVESTORS IN INDONESIA

The Notes have not been offered or sold and will not be offered or sold in Indonesia or to any Indonesian nationals, corporations or residents, including by way of invitation, offering or advertisement, and this Offering Memorandum and any other offering material relating to the Notes has not been distributed, and will not be distributed, in Indonesia or to any Indonesian nationals, corporations or residents in a manner which would constitute a public offering in Indonesia under the Indonesian Capital Markets Law and its implementing regulation. The Indonesian Financial Services Authority (*Otoritas Jasa Keuangan* or "OJK") does not review or declare its approval or disapproval of the issue of the Notes, nor does it make any determination as to the accuracy or adequacy of this Offering Memorandum. Any statement to the contrary is a violation of Indonesian law.

NOTIFICATION UNDER SECTION 309B(1)(C) OF THE SFA

In connection with Section 309B(1)(c) of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA") and the Securities and Futures (Capital Markets Products) Regulations 2018 (the "CMP Regulations 2018"), the Issuer has determined, and hereby notifies all relevant persons (as defined in Section 309A(1) of the SFA), that the Notes are prescribed capital markets products (as defined in the CMP Regulations 2018) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

ENFORCEABILITY OF FOREIGN JUDGMENTS IN INDONESIA

We are a state-owned limited liability company incorporated in Indonesia. All of our commissioners, directors and executive officers reside in Indonesia. Substantially all of the assets of the Issuer and these other persons are located outside the United States. As a result, it may be difficult for investors to effect service of process upon such persons within the United States, or to enforce against us in court, judgments obtained in U.S. courts, including judgments predicated upon the civil liability provisions of the federal securities laws of the United States.

We have been advised by our Indonesian legal advisor, Assegaf Hamzah & Partners, that judgments of courts outside Indonesia are not enforceable in Indonesian courts. A foreign court judgment could be offered and accepted into evidence in a proceeding on the underlying claim in an Indonesian court and may be given such evidentiary weight as the Indonesian court may deem appropriate in its sole discretion. A claimant may be required to pursue claims in Indonesian courts on the basis of Indonesian law. A purchaser of the Notes may not be able to enforce judgments against us obtained in the United States based upon certain of the civil liability provisions of the securities laws of the United States or any states thereof in Indonesian courts, and Indonesian courts may not enter judgments in original actions brought in Indonesian courts based solely upon the civil liability provision of the securities laws of the United States or any state thereof. Re-examination of the underlying claim would be required before the Indonesian court. We cannot assure you that the claims or remedies available under Indonesian law will be the same, or as extensive as those available in other jurisdictions. We cannot assure you that the claims or remedies available under Indonesian law will be the same, or as extensive as those available in other jurisdictions. For more details, see “Risk Factors — Risks Relating to Indonesia — It may not be possible for investors to effect service of process or to enforce certain judgments against us or our management” and “Risk Factors — Risks Relating to Indonesia — Noteholders may be exposed to a legal system subject to considerable discretion and uncertainty.”

INDONESIAN REGULATION OF OFFSHORE BORROWINGS

Pursuant to Presidential Decree No. 39/1991 on Coordination of the Management Commercial Offshore Loan dated September 4, 1991, we are required to obtain prior approval from the Offshore Commercial Borrowing Team (the “PKLN Team”) to receive offshore borrowings and must submit periodic reports to the PKLN Team. However, the decree does not stipulate either the time frame or the format and the content of the periodic report that must be submitted. Under Presidential Decree No. 59/1972 dated October 12, 1972 (“PD 59/1972”), we are required to obtain approval from the Minister of Finance of Indonesia and report the particulars of our offshore commercial borrowings to the Minister of Finance of Indonesia and Bank Indonesia, on the acceptance, implementation, and repayment of principal and interest. In practice, this approval from the Minister of Finance under PD 59/1972 is deemed to have been obtained when approval from the PKLN Team is received because the Minister of Finance of Indonesia, together with the Coordinating Minister for Economic Affairs and the Governor of Bank Indonesia, is a member of the PKLN Team. Ministry of Finance Decree No. KEP-261/MK/IV/5/1973 dated May 3, 1973, as amended by the Ministry of Finance Decree No. 417/KMK.013/1989 dated May 1, 1989 and the Ministry of Finance Decree No. 279/KMK.01/1991 dated March 18, 1991, is the implementing regulation for PD 59/1972 and sets forth the requirement to submit periodic reports to the Minister of Finance of Indonesia and Bank Indonesia on the effective date of the contract and each subsequent three-month period. Pursuant to the PKLN Team Letter No. S-95/D.I.M.EKON/02/2020 dated February 27, 2020, the Notes do not require the approval of the PKLN Team.

On December 31, 2014, Bank Indonesia issued Bank Indonesia Regulation No. 16/22/PBI/2014 regarding the Reporting on Foreign Exchange Activities and Reporting on the Implementation of Prudential Principles in the Management of Non-Bank Corporation’s Offshore Debt (“PBI 16/22”). PBI 16/22 requires any non-bank entity which applies prudential principles to submit reports which cover (i) the implementation of prudential principles which has complied with an attestation procedure; (ii) notification of compliance of credit ratings; (iii) financial statements; and (iv) a report on the implementation of prudential principles (the “Implementation of Prudential Principle Report”). The Implementation of Prudential Principle Report is required to be submitted

quarterly or on any other submission deadline as elaborated under PBI 16/22. However, on January 9, 2019, Bank Indonesia issued Bank Indonesia Regulation No. 21/2/PBI/2019 dated January 9, 2019 on Reporting of Foreign Exchange Activity (“PBI 21/2”) which came into effect on March 1, 2019. PBI 21/2 revokes all provisions on the reporting of foreign exchange activities under PBI 16/22. Pursuant to PBI 21/2, PBI 16/22 remains valid only in relation to the regulation of reports on the implementation of prudential principles.

PBI 21/2, and its implementing regulations, requires any entity engaged in activities that cause a movement of (i) financial assets and/or liabilities and/or risk participation transaction between an Indonesian resident and a non-Indonesian resident or (ii) offshore financial assets and/or liabilities and/or risk participation transaction between Indonesian residents, to submit a report on such foreign exchange activities to Bank Indonesia. PBI 21/2 applies to bank and non-bank financial entities, non-financial entities, individuals and entities other than enterprises, whether in the form of legal entities or non-legal entities established by government or public. The report must include, among other things, information relating to (i) trade activities in goods, services or other transactions between an Indonesian resident and a non-Indonesian resident; (ii) principal data of risk participation transaction and/or offshore loan; and/or (iii) any plans to draw on and/or repay the offshore loan and/or risk participation transactions, (iv) realization from drawing and/or repaying the offshore loan and/or risk participation transactions, (v) the position and changes of offshore financial assets, offshore financial liabilities and/or risk participation transactions, and/or (vi) any plans to incur new offshore loans and/or amendments to such plans. Bank Indonesia has issued implementing regulations for PBI 21/2, namely (i) the Members of the Board of Governor of Bank Indonesia Regulation No. 21/3/PADG/2019 dated February 15, 2019 on Offshore Debt of Bank and Other Bank’s Liabilities in Foreign Exchange (“PADG 21/3”); and (ii) the Members of the Board of Governor of Bank Indonesia Regulation No. 21/4/PADG/2019 dated February 28, 2019 on the Reporting of Foreign Exchange Activities in the form of Offshore Debt and Risk Participation Transactions (“PADG 21/4”). Both implementing regulations came into effect on March 1, 2019. The report on foreign exchange activities must be submitted using an online system in accordance with the implementing regulations of PBI 21/2 as applicable, namely PADG 21/4.

According to PADG 21/4, any individual or entity that obtains offshore debt in a foreign currency and/or Rupiah and conducts risk participation transactions pursuant to loan agreements, debt securities, trade credits or other loans, such as dividend loans and royalty loans, must report such activities to Bank Indonesia. There is no minimum loan amount threshold to trigger the reporting obligation with regard to offshore debt obtained by an entity (whether a financial or non-financial institution). In contrast, an individual’s offshore debt is only required to be reported if such debt exceeds an amount of US\$200,000 or its equivalent in any other currency. The reports consist of the main data report and/or amendments, the monthly recapitulation data report and the offshore debt plan data report. The main data report must be submitted to Bank Indonesia by no later than the 15th day of the following month between 07:10 and 16:15 Western Indonesia time after the signing of the loan agreement or the issuance of the debt securities and/or the debt acknowledgment over the trade credits and/or other loans, and a monthly recapitulation data report must be submitted to Bank Indonesia by no later than the 15th day of the following month at 24:00 Western Indonesia time, until the offshore debt has been repaid in full. In addition, data reports for new offshore debt plans must be submitted to Bank Indonesia by no later than the March 15th of the respective year, and any changes to an existing offshore debt plan must be submitted by June 15th of the respective year.

On April 12, 2019, Members of the Board of Governor of Bank Indonesia issued another implementing regulation of PBI 21/2, namely Members of the Board of Governor of Bank Indonesia Regulation No. 21/7/PADG/2019 dated April 12, 2019 on the Reporting of Foreign Exchange Activities for Non-Bank Corporations (“PADG 21/7”). PADG 21/7 replaced Bank Indonesia Circular No. 17/26/DSta dated October 15, 2015 on the Reporting of Foreign Exchange Activities Other than Offshore Loan.

In addition to reporting on foreign exchange activities, for the purpose of PBI 16/21 (as defined below), PBI 16/22 also requires reporting on the implementation of the prudential principles. Under the implementing regulation of PBI 16/22, namely Bank Indonesia Circular No. 17/3/DSta dated March 6, 2015 on the Reporting of the Implementation of Prudential Principles in the Offshore Loan Management for Non-Bank Corporations, as

lastly amended by Bank Indonesia Circular No. 17/24/DStA dated October 12, 2015 (“SEBI 17/3/DStA”), non-bank corporations must submit:

- (1) the prudential principle implementation activity report (“KPPK report”) including (i) a non-attested KPPK Report, which is to be submitted on quarterly basis, no later than the end of the third month after the end of the relevant quarter; and (ii) an attested KPPK report (attested by a public accountant), which is to be submitted no later than the end of June of the following year;
- (2) information on the fulfillment of credit ratings, which is to be submitted at the latest at the end of the month following the execution or issuance of the offshore debt; and
- (3) the financial statements of the company, consisting of: (i) unaudited financial statements, to be submitted on a quarterly basis, by no later than the end of the third month after the end of the relevant quarter; and (ii) annual audited financial statements, which must be submitted by no later than end of June of the following year.

Bank Indonesia examines the accuracy of the foreign exchange activities report and the prudential principle implementation activity report. It can also request clarifications, evidence, records or other supporting documents from the relevant party or institutions, including direct inspection to the company or appoint a third party to do so.

As of January 1, 2016, submissions of and corrections to the prudential principle implementation activity report shall be made online. The requirement to submit credit ratings fulfillment only applies to offshore debt executed or issued as of January 1, 2016.

On December 23, 2015, Bank Indonesia issued Bank Indonesia Regulation No. 17/23/PBI/2015 to amend Bank Indonesia Regulation No. 16/10/PBI/2014 on Foreign Exchange Export Revenue and Drawdown of Offshore Debt which was issued on May 14, 2014 (“PBI 16/10/2014”). PBI 16/10/2014 revokes and replaces Bank Indonesia Regulation No. 13/22/PBI/2011 and Bank Indonesia Regulation No. 14/25/PBI/2012. On April 6, 2015, Bank Indonesia issued Bank Indonesia Circular Letter No. 18/5/DStA on the Receipt of Offshore Debt to revoke and replace Bank Indonesia Circular Letter No. 16/10/DStA dated May 26, 2014 on Drawdown of Offshore Debt, as the implementing regulation of PBI 16/10/2014. Based on PBI 16/10/2014, any drawdown from offshore debt (in foreign currencies) originating from (i) a non-revolving loan agreement (including offshore debt originating from a difference between the refinanced debt and the previous debt) or (ii) offshore debt securities (including acknowledgments of debt which is tradable in domestic or international financial and capital markets, among others, in the form of bonds, medium term notes, floating rate notes, promissory notes and commercial paper) must be withdrawn through foreign exchange banks (which include offshore bank branches in Indonesia) and must be reported to Bank Indonesia with the relevant supporting documents. The aggregate face amount of the offshore debt should be equal to the local commitments provided under such debt and every receipt of offshore debt through a foreign exchange bank should be equal to each offshore debt withdrawal. In the event that the aggregate face amount of the offshore debt is less than the local commitments in excess of Rp.50.0 million (or its equivalent in foreign currencies), the borrower must submit a written explanation and sufficient supporting documentation to Bank Indonesia before the expiration of the term of such debt. In the event that each receipt amount of offshore debt received through foreign exchange banks is less the amount of each offshore debt withdrawal, such receipt amount of offshore debt received through foreign exchange banks will be deemed equal to the amount of each offshore debt withdrawal if the borrower submits sufficient supporting documents to Bank Indonesia. Withdrawals of the above offshore debt must be reported to Bank Indonesia monthly using the recapitulation data report as regulated under PADG 21/4. These reports shall include supporting documents detailing that the receipt of offshore debt was withdrawn from the foreign exchange bank. Administrative sanctions will be imposed on companies that fail to comply with such reporting obligations. In addition, on January 18, 2019, Bank Indonesia issued Bank Indonesia Regulation No. 21/3/PBI/2019, which revoked certain provisions of PBI 17/23/2015 and PBI 16/10/2014 with respect to the receipt of export proceeds from the exploitation, management, and/or processing of the natural resources activities (which are now regulated under a separate set of provisions).

With respect to the foregoing reporting obligations to Bank Indonesia, the sanction that may be imposed by Bank Indonesia is as follows:

- (1) any (i) delay or failure to submit and (ii) incompleteness and/or inaccuracy of information on a foreign exchange report on an offshore debt plan is an administrative sanction in the form of warning letter and/or notification to the relevant authority or institution which will be issued by Bank Indonesia;
- (2) any incompleteness and/or inaccuracy of information on the KPPK Report is subject to an administrative sanction in the form of a penalty at the amount of Rp.500,000 (five hundred thousand Rupiah) per incompleteness and/or inaccuracy;
- (3) any delay to submit the foreign exchange report (except for offshore debt plan) and the KPPK Report (whether non-attested or attested), including its supporting documents and financial statements (except for information on credit rating), is an administrative sanction in the form of a penalty at the amount of Rp.500,000 (five hundred thousand Rupiah) per day of delay, provided that the maximum amount of penalty imposed shall not exceed Rp.5,000,000 (five million Rupiah);
- (4) any failure to submit the foreign exchange report (except for offshore debt plan) and the KPPK Report (whether non-attested or attested), including its supporting documents and financial statements (except for information on credit rating), is subject to an administrative sanction in the form of a penalty at the amount of Rp.10,000,000 (ten million Rupiah);
- (5) in addition to a penalty, an administrative sanction in the form of a warning letter and/or notification to the relevant authority or institution will be issued by Bank Indonesia for any delay or failure to submit the KPPK Report (whether non-attested or attested), including its supporting documents and financial statement (except for information on credit rating);
- (6) any delay or failure to submit information on credit rating is subject to an administrative sanction in the form of a warning letter and/or notification to the relevant authority or institution which will be issued by Bank Indonesia; and
- (7) any failure to comply with the obligation to withdraw the offshore debt through a foreign exchange bank in Indonesia is an administrative sanction in the form of a penalty of 0.25% (zero point two five percent) of the withdrawal amount which does not pass through a foreign exchange bank in Indonesia, provided that the maximum amount of the penalty imposed will not exceed Rp.50,000,000 (fifty million Rupiah).

The sanction imposed by Bank Indonesia in connection with the report on prudential principle implementation activity, including the supporting documents (except for information on credit rating) has been effective since the delivery of third quarter data reports for 2015, while the sanction in connection with the report on prudential principles implementation with respect to credit rating has been effective since January 1, 2016.

Details on the report on prudential principles implementation is regulated by Bank Indonesia Regulation No. 16/21/PBI/2014 on the Implementation of Prudential Principles in the Management of Non-Bank Corporation's Offshore Debt as amended by Bank Indonesia Regulation No. 18/4/PBI/2016 dated April 22, 2016 ("PBI 16/21"), which is applicable to non-bank corporations that obtain offshore debt in a foreign currency (non-Indonesian Rupiah). PBI 16/21 effectively replaces PBI 16/20/PBI/2014, which was issued on October 28, 2014. With respect to the implementation of PBI 16/21, Bank Indonesia also issued (i) Bank Indonesia Circular Letter No. 16/24/DKEM dated December 30, 2014, as initially amended by Bank Indonesia Circular Letter No. 17/18/DKEM dated June 30, 2015 ("SEBI 16/24/DKEM") and lastly amended by Bank Indonesia Circular Letter No. 18/6/DKEM dated April 22, 2016 ("SEBI 18/6/DKEM") and (ii) SEBI 17/3/DSta.

PBI 16/21 requires non-bank corporations that have offshore debt in a foreign currency (non-Indonesian Rupiah) to maintain the following prudential principles, namely: (i) minimum hedging requirement, (ii) minimum liquidity requirement and (iii) minimum credit ratings. The minimum hedging requirement does not apply to non-bank corporations whose financial statements are presented in U.S. dollars and who fulfill the following criteria: (i) having an export revenue to business revenue ratio of more than 50.0% in the previous

calendar year, and (ii) having obtained approval from the Ministry of Finance to use U.S. dollars in their financial statement, which approval shall be evidenced by submitting supporting documents to Bank Indonesia. The minimum hedging requirement is applied with a two-stage approach to avoid unnecessary difficulties for corporations having existing offshore debt. Foreign currency assets comprise of cash, demand deposits, regular deposits, term deposits, account receivables, inventories, marketable securities and receivables from forwards, swaps and/or options transactions in a foreign currency (non-Indonesian Rupiah) calculated based on position at the end of the relevant quarter. The account receivables which may be calculated as foreign currency assets are account receivables to resident and non-resident which will be due (a) within three months from the end of the relevant quarter and/or (b) in the period of more than three months up to six months after the end of the relevant quarter, which are true-sale in nature or non-refundable and after deducted with amortization. Accounts receivable may be calculated as foreign currency assets if such underlying agreement was executed prior to July 1, 2015. Account receivables with underlying agreements executed on or after July 1, 2015 may be counted as foreign exchange assets if (a) they are related to strategic infrastructure projects and have obtained Bank Indonesia approval or (b) the transaction which underlies the foreign currency assets is permitted to be in foreign currency pursuant to Bank Indonesia Regulation No. 17/3/PBI/2015 on the Mandatory Use of Rupiah in the territory of the Republic of Indonesia ("PBI 17/3"). Inventory which may be calculated as a foreign currency asset is inventory from exporters with export income to business revenue ratio of more than 50.0% in the previous calendar year.

SEBI 16/24/DKEM defines foreign currency liabilities as liabilities in foreign currency to residents and non-residents, including liability deriving from forwards, swaps and/or options transactions maturing (a) within three months from the end of the relevant quarter; and (b) between three and six months from the end of the relevant quarter. Foreign currency liability which will be due may not be calculated as foreign currency liability if (a) it is in the process of roll over, revolving, or refinancing, to the extent the transaction which underlies it is in accordance with PBI 17/3; and/or (b) it constitutes foreign currency liability with respect to project financing which will be due within the next six months to the extent secured by offshore debt drawdown in foreign currency where the schedule of such drawdown is adjusted to the payable foreign currency liabilities and the transaction activities are in accordance with PBI 17/3. These two points must be proven by sufficient supporting documentation. SEBI 16/24/DKEM determines that only corporations that have negative difference of more than US\$100,000.0 are obliged to fulfill the minimum hedging requirement. In addition, PBI 16/21 also regulates that hedging transactions for the fulfillment of the minimum hedging requirement shall be conducted with banks in Indonesia and became effective in 2017.

On the minimum liquidity requirement, non-bank corporations that have offshore debt in foreign currency are also required to comply with the minimum liquidity ratio of at least 70.0% by providing sufficient foreign exchange assets against foreign exchange liabilities that will become due within three months from the end of the relevant quarter. The minimum liquidity ratio of 70.0% was effective on January 1, 2016, while the applicable minimum liquidity ratio in 2015 was 50.0%.

The minimum credit rating requirement is BB- (BB minus) or an equivalent rating from a rating agency recognized by Bank Indonesia. Such credit rating will be in the form of the applicable rating over the relevant corporation (issuer rating) and/or bonds (issue rating) in accordance with the type and period of such foreign currency offshore debt. Such rating shall be valid for two years as of the rating issuance. PBI 16/21 sets additional provisions where corporation may use their parent company credit rating if (i) such corporation enters into an offshore debt in foreign currency with its parent company, or if the offshore debt is guaranteed by the parent company, or (ii) such corporation is a newly established corporation with a maximum three years since the corporation begins its commercial operation. The requirement to fulfill the minimum credit rating requirement is exempted for (i) the refinancing of offshore debt in foreign currency (such exemption is limited to refinancing which does not increase the outstanding amount of the previous debt or if it increases, such increase shall not exceed (a) US\$2,000,000.0 or its equivalent or (b) 5.0% of the outstanding of such refinanced debt if such 5.0% figure is higher than US\$2,000,000 or its equivalent); (ii) offshore debt in foreign currency for infrastructure project financing derived (a) all from an international bilateral/multilateral lending agency or (b) from syndications loan where more than 50.0% of the contribution comes from international bilateral/multilateral

institutions; (iii) offshore debt in foreign currency for central or regional government infrastructure project financing; (iv) offshore debt in foreign currency which is secured by international bilateral/multilateral institutions; (v) offshore debt in foreign currency in form of trade credits; (vi) offshore debt in foreign currency in form of other loans; (vii) offshore debt in foreign currency by a finance company (a business entity which conducts financing activities for the procurement of goods and services) to the extent (a) such finance company has minimum financial soundness of “healthy” as lastly issued by OJK; (b) such finance company fulfills the maximum gearing ratio as regulated by OJK; or (viii) offshore debt in foreign currency by *Lembaga Pembiayaan Ekspor Indonesia* (“Indonesia Eximbank”). Non-bank corporations that have offshore debt in foreign currency are obliged to submit report to Bank Indonesia on the implementation of prudential principles and the exemptions, together with the relevant supporting documents. Non-compliance of the requirements will be subject to administrative sanction in the form of warning letter. PBI 16/21 does not specify any other sanction in the event the non-bank corporations ignore such warning letter, however Bank Indonesia may inform related parties, such as relevant offshore creditors, the Ministry of State-Owned Companies (for state-owned non-bank corporation), the Ministry of Finance on behalf of Directorate General of Tax, OJK and the Indonesian Stock Exchange (the “IDX”) (for publicly listed non-bank corporation) on the implementation of administrative sanctions. PBI 16/21 became effective as of January 1, 2015, with exceptions for the implementation of (i) the administrative sanction requirement, which became effective starting from the delivery of the fourth quarter report of 2015, and (ii) the minimum credit rating requirement, which applies to offshore debt that is signed or issued on or after January 1, 2016.

LANGUAGE OF TRANSACTION DOCUMENTS

Pursuant to Law No. 24 of 2009, regarding Flag, Language, Coat of Arms and National Anthem enacted on July 9, 2009 (“Law No. 24”), agreements to which Indonesian entities are a party are required to be executed in Bahasa Indonesia, although dual language documents are permitted when a foreign entity is a party. On September 30, 2019, the Government issued Presidential Regulation No. 63 of 2019 on Use of Indonesian Language as the implementing regulation of Law No. 24/2009 (“Regulation No. 63/2019”). Regulation No. 63/2019 stipulates that if an agreement is made in both Bahasa Indonesia language and a foreign language, parties to the agreement may choose either the Bahasa Indonesia language version or the foreign language version as the controlling language of such agreement. We will execute dual English and Bahasa Indonesia versions of all transaction agreements to which the Issuer is a party. All of these documents will provide that in the event of a discrepancy or inconsistency, the parties intend that the English version would prevail. However, some concepts in the English language may not have corresponding terms in the Bahasa Indonesia language and the exact meaning of the English text may not be fully captured by or accurately translated into such Bahasa Indonesia language version. Further, we cannot assure you that the Bahasa Indonesia language version will reflect the original intent of the parties or that the English version as the prevailing language in such transaction documents will be interpreted and enforced by the Indonesian courts as intended.

In addition to this implementing regulation, the Minister of State-Owned Enterprises has also issued a Circular Letter No. SE-12/MBU/2009 dated November 3, 2009, which recommends that any state-owned enterprise must use Bahasa Indonesia in every memorandum of understanding or agreement to which such state-owned enterprise is a party. See “Risk Factors — Risks Relating to the Notes — Indonesian law requires agreements involving Indonesian parties to be written in Bahasa Indonesia and allows parties thereto to elect a foreign language version of such agreement as the governing language; however, in the event of proceedings in an Indonesian court there can be no assurance that the judges will render their decision based on the foreign language version.”

CERTAIN DEFINED TERMS AND CONVENTIONS

As used in this Offering Memorandum, unless the context otherwise requires, the terms “we,” “us,” “our” and “our Group” refer to PT Indonesia Asahan Aluminium (Persero) and its subsidiaries, including PT Aneka Tambang Tbk (“Antam”), PT Bukit Asam Tbk (“Bukit Asam”) and PT Timah Tbk (“Timah”), taken as a whole

as of the date of this Offering Memorandum; the terms “our Company,” “Issuer” and “Inalum” refer only to PT Indonesia Asahan Aluminium (Persero); and the term “PTFI” refers to PT Freeport Indonesia, our unconsolidated subsidiary.

References to “US\$,” “\$” and “U.S. dollars” are to United States dollars, the legal currency of the United States, and references to “Rupiah” and “Rp.” are to Indonesian Rupiah, the legal currency of Indonesia. Unless otherwise specified or the context otherwise requires, all references to “Indonesia” are references to the Republic of Indonesia, all references to the “Government” herein are references to the Government of the Republic of Indonesia and all references to “United States” or “U.S.” herein are references to the United States of America. Certain terms used herein are defined in the “Glossary” contained elsewhere in this Offering Memorandum.

References to “Noteholders” and “Holders” are to the holders of the Notes.

INDUSTRY AND MARKET DATA

This Offering Memorandum includes certain industry and market data (including forecasts and other forward-looking information) obtained from, among others, CRU Consulting (“CRU”), reports of governmental agencies, industry publications and surveys, and internal company surveys. Such industry publications and surveys and forecasts generally state that the data contained therein has been obtained from sources believed to be reliable, but except for any data we have provided to CRU, we cannot assure you that such data is complete or accurate. Such data has not been independently verified, and neither we, except with respect to any data we have provided to CRU, nor the Joint Bookrunners, make any representation as to the accuracy or completeness of such data or any assumptions relied upon therein.

Financial data with respect to Indonesia provided in this Offering Memorandum may be subsequently revised in accordance with Indonesia’s ongoing maintenance of its economic data, and such revised data will not be distributed by us to any holder of the Notes.

PRESENTATION OF FINANCIAL INFORMATION AND OTHER DATA

Presentation of Our Group’s Financial Information

This Offering Memorandum contains our audited consolidated financial statements as of and for the years ended December 31, 2019, 2018 and 2017, prepared in accordance with Indonesian Financial Accounting Standards (“IFAS”) and presented in Rupiah (our “Audited Consolidated Financial Statements”). Our Audited Consolidated Financial Statements have been audited by Kantor Akuntan Publik Tanudiredja, Wibisana, Rintis & Rekan (a member of the PricewaterhouseCoopers network of firms), independent accountants, in accordance with Standards on Auditing established by the Indonesian Institute of Certified Public Accountants (“IICPA”), as stated in their audit report dated April 17, 2020 appearing elsewhere in this Offering Memorandum.

Our Audited Consolidated Financial Statements includes our consolidated financial information as of and for the years ended December 31, 2018 and 2017, which have been restated from our previously issued consolidated financial statements for the years then ended. For a description of the restatement and reclassification adjustments made to such financial information, see Note 49 to our Audited Consolidated Financial Statements. See also “Risk Factors — Risks Common to All our Businesses — We have restated our consolidated financial statements for prior periods, which may lead to additional risks and uncertainties, including loss of investor confidence and negative impacts on our business, financial condition and results of operations.”

In connection with our Audited Consolidated Financial Statements, Kantor Akuntan Publik Tanudiredja, Wibisana, Rintis & Rekan have, without modifying their audit opinion, included an emphasis-of-matter paragraph in respect of the current COVID-19 pandemic, as stated in their audit report dated April 17, 2020 appearing elsewhere in this Offering Memorandum. See also Note 48d to our Audited Consolidated Financial Statements and “Risk Factors — Risks Common to All Our Businesses — Outbreak of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia, and elsewhere may adversely impact our business, financial condition and results of operations.”

Our Audited Consolidated Financial Statements and, unless otherwise indicated, our financial information included in this Offering Memorandum, have been prepared in accordance with IFAS, which differ in certain respects from generally accepted accounting principles in the United States (“U.S. GAAP”), see “Summary of Certain Differences Between Indonesian Financial Accounting Standards and U.S. GAAP.” Except as otherwise indicated or the context otherwise requires, our financial information included in this Offering Memorandum is presented on a consolidated basis.

Presentation of PTFI’s Financial Information

In November 2017, the Government transferred its 9.36% equity interests in PTFI to us. At that time, Freeport-McMoran Inc. (“FCX”) held 90.64% equity interests in PTFI, of which 9.36% was indirectly held through FCX’s then wholly-owned subsidiary, PT Indocopper Investama (“PTII”). In December 2018, as part of our acquisition of a majority beneficial stake in PTFI (the “PTFI Share Acquisition”), we entered into a series of agreements pursuant to which we first acquired PTII, which we renamed PT Indonesia Papua Metal dan Mineral (“IPMM”), from FCX (the “PTII Acquisition”), thereby increasing our beneficial equity interests in PTFI to 18.72%, and subsequently subscribed for shares in PTFI (the “PTFI Share Subscription”), which further increased our beneficial equity interests in PTFI to 51.24%. See “PT Freeport Indonesia.”

Although we and FCX currently respectively own 51.24% and 48.76% of beneficial equity interests in PTFI, pursuant to the agreements we entered into as part of the PTFI Share Acquisition, during the Initial Period (as defined herein), we are entitled to 18.72% of economic interests in PTFI and, following the Initial Period, we expect to be entitled to 41.24% of economic interests in PTFI (assuming the participation of the Papua Provincial Government and the Mimika Regency in the ownership of PTFI). In addition, FCX will continue to manage the mining operations of PTFI. Accordingly, the results of operations of PTFI are accounted for in our Audited Consolidated Financial Statements using the equity method. For more details, see “PT Freeport Indonesia — Economic Interests In and Management of PTFI.”

This Offering Memorandum contains PTFI’s audited consolidated financial statements as of and for the years ended December 31, 2019, 2018 and 2017, prepared in accordance with IFAS and presented in U.S. dollars (“PTFI’s Audited Consolidated Financial Statements”). PTFI’s Audited Consolidated Financial Statements have been audited by Kantor Akuntan Publik Purwantono, Sungkoro & Surja (a member firm of Ernst & Young Global Limited), independent accountants, in accordance with Standards on Auditing established by the IICPA, as stated in their audit report dated April 2, 2020 appearing elsewhere in this Offering Memorandum.

PTFI’s Audited Consolidated Financial Statements and, unless otherwise indicated, PTFI’s financial information included in this Offering Memorandum, have been prepared in accordance with IFAS, which differ in certain respects from U.S. GAAP, see “Summary of Certain Differences Between Indonesian Financial Accounting Standards and U.S. GAAP.” Except as otherwise indicated or the context otherwise requires, PTFI’s financial information included in this Offering Memorandum is presented on a consolidated basis.

Exchange Rate Information

We publish our consolidated financial statements in Rupiah. Solely for convenience, this Offering Memorandum contains translations of certain Rupiah amounts into U.S. dollars at the exchange rate of Rp.13,901 = US\$1.00 which was the middle exchange rate announced by Bank Indonesia as of December 31, 2019. These translations should not be construed as representations that the Rupiah amounts represent such U.S. dollar amounts or could be, or could have been, converted into U.S. dollars at the rates indicated or at all. See “Exchange Rates and Exchange Controls” for further information regarding the rates of exchange between the Rupiah and the U.S. dollar.

Rounding

Rounding adjustments have been made in calculating some of the financial information included in this Offering Memorandum. As a result, numerical figures shown as totals in some tables may not be exact arithmetic aggregations of the figures that precede them.

Non-GAAP Financial Measures

This Offering Memorandum includes certain non-GAAP financial measures for our Group, including earnings before interest, taxes, depreciation and amortization (“EBITDA”) and adjusted EBITDA. We calculate our EBITDA, a non-GAAP financial measure, beginning with profit for the year, and adjusting for (i) income tax expenses, (ii) finance costs, and (iii) depreciation and amortization. We calculate our adjusted EBITDA, a non-GAAP financial measure, beginning with EBITDA, and deducting (i) dividend from PTFI, (ii) finance income and (iii) other income, net, and adding (i) loss/(gain) on foreign exchange, net and (ii) provision for impairment of investment. EBITDA and adjusted EBITDA, as well as the related ratios presented in this Offering Memorandum, are supplemental measures of our performance and liquidity that are not required by, or presented in accordance with, IFAS or U.S. GAAP. EBITDA and adjusted EBITDA are not measurements of financial performance or liquidity under IFAS or U.S. GAAP and should not be considered as alternatives to net income, operating income or any other performance measures derived in accordance with IFAS or U.S. GAAP or as alternatives to cash flow from operating activities or as measures of liquidity. In addition, EBITDA and adjusted EBITDA are not standardized terms, hence a direct comparison between companies using such terms may not be possible.

We believe that EBITDA and adjusted EBITDA serve as useful indicators of our operating performance and are measures commonly used by analysts, investors and peers in our industry. Accordingly, we have disclosed this information to permit a more complete analysis of our operating performance. EBITDA and adjusted EBITDA, as calculated by us, may not be comparable to similarly titled measures reported by other companies. See “Summary Consolidated Financial Information and Other Data” and “Selected Consolidated Financial Information and Other Data” for a reconciliation of our profit for the year under IFAS to our definitions of EBITDA and adjusted EBITDA.

RESERVES STATEMENTS

We report our coal, nickel, gold, silver, bauxite, tin reserves in accordance with Kode – KCMi 2017 (the “2017 KCMi Code”), prepared by the Indonesian Joint Committee for Mineral Reserves (*Komite Cadangan Mineral Indonesia*). PTFI also reports its copper, gold and silver reserves in accordance with the 2017 KCMi Code. The 2017 KCMi Code, discussed below, is largely based on translations of and substantially adopts the definition of “mineral resource,” “inferred mineral resource,” “indicated mineral resource,” “measured mineral resource,” “ore reserve,” “probable ore reserve” and “proved ore reserve” under the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 Edition (the “2012 JORC Code”), prepared by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (“JORC”). The terms “mineral reserve,” “probable mineral reserve” and “proved mineral reserve” are used in the 2017 KCMi Code in place of the terms “ore reserve,” “probable ore reserve” and “proved ore reserve” used in the 2012 JORC Code, respectively. In addition, the 2017 KCMi Code provides that where companies prefer to use the term “ore reserve” they should state that it is being used with the same meaning as the 2017 KCMi Code’s definition of “mineral reserve,” and that “mineral reserve” and “mineral resource” estimates for coal may be reported as “coal reserve” and “coal resource” estimates.

Pursuant to the 2017 KCMi Code:

- a “mineral resource” is a concentration or occurrence of material of intrinsic economic interest in or on the earth’s crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a mineral resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. The term mineral resource covers mineralization, including dumps and tailings, which has been identified and estimated through exploration and sampling and within which mineral reserves may be defined by the consideration and application of modifying factors, including but not restricted to mining, processing, metallurgical, economic, marketing, legal, environmental, infrastructure, social and governmental factors. Mineral resources are sub-divided, in order of increasing geological confidence, into inferred, indicated and measured categories;

- an “inferred mineral resource” is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An inferred mineral resource has a lower level of confidence than that applying to an indicated mineral resource and must not be converted to a mineral reserve. It is reasonable to expect that the majority of inferred mineral resources could be upgraded to indicated mineral resources with continued exploration;
- an “indicated mineral resource” is that part of a mineral resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of modifying factors, including but not restricted to mining, processing, metallurgical, economic, marketing, legal, environmental, infrastructure, social and governmental factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. The geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation. An indicated mineral resource has a lower level of confidence than that applying to a measured mineral resource, but has a higher level of confidence than that applying to an inferred mineral resource;
- a “measured mineral resource” is that part of a mineral resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with confidence sufficient to allow the application of modifying factors, including but not restricted to mining, processing, metallurgical, economic, marketing, legal, environmental, infrastructure, social and governmental factors to support detailed mine planning and final evaluation of the economic viability of the deposit. The geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A measured mineral resource has a higher level of confidence than that applying to either an indicated mineral resource or an inferred mineral resource. It may be converted to a proved mineral reserve or to a probable mineral reserve.
- a “mineral reserve” is the economically mineable part of a measured and/or indicated mineral resource. Mineral reserves are those portions of mineral resources which, after the application of all mining factors, result in an estimated tonnage and grade which, in the opinion of a Competent Person Indonesia (as defined in the 2017 KCMi Code, a “Competent Person”) making the estimates, can be the basis of a viable project, after taking account of all relevant modifying factors, including but not restricted to mining, processing, metallurgical, economic, marketing, legal, environmental, infrastructure, social and governmental factors. Mineral reserve includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at pre-feasibility or feasibility level as appropriate that include application of modifying factors, including but not restricted to mining, processing, metallurgical, economic, marketing, legal, environmental, infrastructure, social and governmental factors. These studies demonstrate that, at the time of reporting, extraction could reasonably be justified. Mineral reserves are sub-divided in order of increasing confidence into probable mineral reserves and proved mineral reserves;
- a “probable mineral reserve” is the economically mineable part of an indicated, and in some circumstances, a measured mineral resource. A probable mineral reserve has a lower level of confidence than a proved mineral reserve but is of sufficient quality to serve as the basis for a decision on the development of the deposit; and
- a “proved mineral reserve” is the economically mineable part of a measured mineral resource. A proved mineral reserve represents the highest confidence category of reserve estimate. The style of mineralization or other factors could mean that proved mineral reserves are not achievable in some deposits.

Reserves/Resources Statements

In this Offering Memorandum, we have derived the information relating to our estimates of:

- coal reserves and resources from the Bukit Asam — Coal Resources and Reserves Statement as per December 31, 2019 (the “2019 Coal Reserves Statement”), attached as Appendix A to this Offering Memorandum, which was prepared by our in-house Competent Persons in accordance with the 2017 KCMCI Code;
- nickel, gold, silver and bauxite reserves and resources from the Antam — Mineral Resources & Ore Reserves Statement as per December 31, 2019 (the “2019 Nickel, Gold, Silver and Bauxite Reserves Statement”), attached as Appendix B to this Offering Memorandum, which was prepared by our in-house Competent Persons in accordance with the 2017 KCMCI Code;
- tin reserves and resources from the Timah — Tin Resources and Reserves Statement as per December 31, 2019 (the “2019 Tin Reserves Statement”), attached as Appendix C to this Offering Memorandum, which was prepared by our in-house Competent Persons in accordance with the 2017 KCMCI Code; and
- PTFI’s copper, gold and silver reserves and resources from the PT Freeport Indonesia — Mineral Resources and Ore Reserves Statement, December 31, 2019 (the “2019 Grasberg Reserves Statement”), attached as Appendix D to this Offering Memorandum, which was prepared by PTFI’s in-house Competent Person in accordance with the 2017 KCMCI Code.

Estimates of mineral reserves, resources, recoveries and operating costs are largely dependent on the interpretation of geological data obtained from drill holes and other sampling techniques, and feasibility studies which derive estimates of operating costs based on anticipated tonnage, expected recovery rates, equipment operating costs and other factors. We cannot assure you that the reserves and resources presented in this Offering Memorandum will be recovered at the quality or yield presented. In addition, investors should not assume that the resource estimates are capable of being directly reclassified as reserves under the 2017 KCMCI Code. The inclusion of resource estimates should not be regarded as a representation that these amounts can be economically exploited, particularly, inferred resources, and you are cautioned not to place undue reliance on those estimates.

Our and our mining contractors’ ability to achieve forward-looking production and economic targets is dependent on numerous factors that are beyond the control of and cannot be fully anticipated by our in-house Competent Persons. These factors include the site-specific mining and geological conditions, the capabilities of management and employees, availability of funding to properly operate and capitalize the operation, variations in cost elements and market conditions, development and operation of the mine in an efficient manner and others. Any unforeseen changes in the legislation and new industry developments could also substantially alter the performance of any mining operation.

Assumptions Underlying Mineral Reserves Estimates

We estimate our mineral reserves using various assumptions regarding loss and dilution, drilling depth and other geotechnical constraints. Our reserves are sensitive to the cost and revenue assumptions used due to the geological structure of our deposits, which means that, all other factors being the same, if the cost assumption is higher or the price assumption is lower, we estimate lower reserves, and if the cost assumption is lower or the price assumption is higher, we estimate more reserves. Some of our deposits are more sensitive to the cost and revenue assumptions used than others due to the characteristics and geological structure of those deposits. For more information regarding the factors used to estimate our mineral reserves presented in this Offering Memorandum, see the reserves statements attached as Appendix A, Appendix B, Appendix C and Appendix D to this Offering Memorandum.

Cautionary Note to United States Investors Concerning Estimates of Measured, Indicated and Inferred Resources

There are differences between reporting regimes for reserve estimates in the United States, Australia and Indonesia. The principal difference between the reporting regimes in (i) Australia under the 2012 JORC Code and Indonesia under the 2017 KCMCI Code and in (ii) the United States under the requirements as adopted by the SEC in its Industry Guide 7 is the absence in the United States of any provision for the reporting of estimates other than proved (measured) or probable (indicated) reserves. There is, therefore, no equivalent for “resources” under the SEC’s Industry Guide 7. The SEC has applied the following reporting definitions to reserves under Industry Guide 7:

- a “reserve” is “that part of a mineral deposit which could be economically and legally extracted or produced at the time of the reserve determination. Reserves are customarily stated in terms of “ore” when dealing with metalliferous minerals; when other materials such as coal, oil, shale, tar, sands, limestone, etc. are involved, an appropriate term such as “recoverable coal” may be substituted;”
- “proven (measured) reserves” are “reserves for which:
 - (a) quantity is computed from dimensions revealed in outcrops, trenches, workings or drill holes; grade and/or quality are computed from the results of detailed sampling; and
 - (b) the sites for inspection, sampling and measurement are spaced so closely and the geologic character is so well defined that size, shape, depth and mineral content of reserves are well established;” and
- “probable (indicated) reserves” are “reserves for which quantity and grade and/or quality are computed from information similar to that used for proven (measured) reserves, but the sites for inspection, sampling, and measurement are farther apart or are otherwise less adequately spaced. The degree of assurance, although lower than that for proven (measured) reserves, is high enough to assume continuity between points of observation.”

On October 31, 2018, the SEC adopted amendments to modernize the property disclosure requirements and related guidance for an SEC registrant with mining operations (a “mining registrant”), which are currently set forth in Item 102 of Regulation S-K under the Securities Act and the Securities Exchange Act of 1934, and in Industry Guide 7. The amendments seek to align disclosure requirements and policies for mining registrants with current industry and global regulatory practices and standards, and consolidate mining property disclosure requirements under the new Regulation S-K Subpart 1300. In particular, the new Regulation S-K Subpart 1300 provides that a mining registrant must disclose specified information on mineral resources that have been determined to exist based on information and supporting documentation from a “qualified person” (defined as an individual who is (a) a mineral industry professional with at least five years of relevant experience in the type of mineralization and type of deposit under consideration and in the specific type of activity that person is undertaking on behalf of the registrant; and (b) an eligible member or licensee in good standing of a recognized professional organization at the time the technical report is prepared); whereas under both Item 102 of Regulation S-K and Guide 7, mining registrants are generally not permitted to disclose estimates of mineral resources in SEC filings. Under these new rules, Industry Guide 7 will be rescinded and replaced with the disclosure standards under the new Regulation S-K Subpart 1300. Industry Guide 7 remains in effect, subject to a two-year transition period. Mining registrants must comply with the new rules for the first fiscal year beginning on or after January 1, 2021.

This Offering Memorandum, including Appendix A, Appendix B, Appendix C and Appendix D, uses the terms “measured,” “indicated” and “inferred” resources. United States investors are advised that while such terms are recognized by some investors, the SEC does not recognize them. “Inferred resources” have a great amount of uncertainty as to their existence and great uncertainty as to their economic and legal feasibility. It cannot be assumed that all or any part of an inferred resource will ever be upgraded to a higher category. Under SEC rules, estimates of inferred mineral resources may not form the basis of feasibility or other economic studies. **You should not assume that all or any part of measured or indicated resources will ever be**

converted into reserves. You are also cautioned not to assume that all or any part of an inferred resource exists or is economically or legally mineable.

AVAILABLE INFORMATION

While any Notes remains outstanding and is “restricted securities” within the meaning of Rule 144(a)(3) of the Securities Act, we shall, during any period in which we are not subject to Section 13 or 15(d) of the U.S. Securities Exchange Act of 1934, as amended (the “Exchange Act”), or exempt from reporting pursuant to Rule 12g3-2(b) under the Exchange Act, make available to any qualified institutional buyer (as defined in Rule 144A) who is a holder and any prospective purchaser of a Note who is a qualified institutional buyer (as so defined) designated by such holder, upon the request of such holder or prospective purchasers, the information concerning us required to be provided to such holder or prospective purchaser by Rule 144A(d)(4) under the Securities Act.

FORWARD-LOOKING STATEMENTS

This Offering Memorandum includes, and any amendment or supplement, may include forward-looking statements. All statements other than statements of historical facts included in this Offering Memorandum and any amendment or supplement regarding, among other things, our future financial position and results of operations, business, strategy, plans, developments and prospects, the condition and prospects of the mining and aluminum smelting industries, and Indonesia’s economy, fiscal condition, debt or prospects may constitute forward-looking statements. Forward-looking statements can generally be identified by the use of forward-looking terminology such as “may,” “will,” “expect,” “intend,” “estimate,” “anticipate,” “believe,” “continue” or similar terminology. Specifically, statements under the captions “Summary,” “Industry Overview,” “Risk Factors,” “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” “Business,” “Indonesian Regulatory Framework” and “Relationship with the Government” relating to the following matters may include forward-looking statements relating to:

- the expected increases in capacity and revenue from our expansion plans and related capital expenditures and investments;
- our strategic, business and financial plans and objectives, including budgeted and future capital expenditures, acquisitions and investments, in respect of future construction, expansion, production capacity and utilization of certain of our facilities;
- the anticipated demand and fees chargeable for cargo services, ship services and other services;
- sales to existing and potential customers, whether under offtake or long-term contract or not, and generation of future receivables;
- our ability to be and remain competitive;
- our financial position, business strategy and budget, including projected financial and operating data;
- existing and future regulatory requirements applicable to us and our businesses; and
- existing and future obligations in respect of environmental compliance and remediation.

These forward-looking statements involve a number of risks and uncertainties that could cause actual results to differ materially from those suggested by the forward-looking statements. Forward-looking statements should therefore be considered in light of various important factors, including those set out in this Offering Memorandum. Factors that could cause actual results to differ include, but are not limited to, the following:

- economic, social and political conditions in Indonesia and other countries in which our customers operate;
- increases or other changes in regulatory burdens and obligations in Indonesia and other countries, dividend obligations, and environmental regulations and compliance costs;

- accidents, natural disasters, and other catastrophes;
- changes and volatility in market prices of or demand for key commodities produced or consumed by us, as a result of competitive actions, economic factors such as inflation or exchange rate fluctuations, or otherwise;
- changes in our relationship with the Ministry of State-Owned Enterprises, the Government, the Ministry of Energy and Mineral Resources (the “MEMR”), other government authorities in Indonesia and other countries in which our customers operate, our joint venture partners, our shareholders, our co-investors and other counterparties, in Indonesia and other countries in which our customers operate;
- changes in terms and conditions of the agreements under which we operate our businesses and the ability of third parties to perform in accordance with contractual terms and specifications;
- changes in import or export controls, duties, levies or taxes, either in international markets or in Indonesia;
- changes in laws and regulations and their interpretation, applicable taxes and tax rates, accounting standards or practices, and reserve reporting guidelines;
- the outbreak of infectious diseases, including the current COVID-19 pandemic; and
- our ability to manage the risks described above and in the section entitled “Risk Factors.”

Although we believe that the expectations of our management as reflected by such forward-looking statements are reasonable based on information currently available to us, no assurances can be given that such expectations will prove to be correct.

Our ability to grow our revenues, net income and cash flows depends upon continued capital expenditure. In addition, our capital expenditure and investment plans are subject to a number of risks, contingencies and other factors, such as fluctuations in the price of, or demand for, the commodities we sell, unexpected or prolonged disruptions at our production or other facilities, and our inability to obtain, maintain or renew necessary government permits and approvals for our operations, some of which are beyond our control. Our ability to obtain adequate financing to satisfy our capital expenditure and investment budget and debt service requirements may be limited by our financial condition, results of operations, legal and regulatory issues and the liquidity of international and domestic financial markets. We may make additional capital expenditures and investments as opportunities or needs arise, and may increase, reduce or suspend our planned capital expenditures or investments or change the timing and use of our capital expenditures from what is currently planned in response to market conditions, feasibility studies, changes in government policies, or for other reasons.

Should one or more of these uncertainties or risks, among others, materialize, our actual results may vary materially from those estimated, anticipated or projected. Specifically, but without limitation, capital costs could increase, expansion projects could be delayed, and anticipated improvements in capacity or performance might not be fully realized or realized at all.

Accordingly, prospective purchasers are cautioned not to place undue reliance on forward-looking statements. In any event, these statements speak only as of their dates, and we undertake no obligation to update or revise any of them, whether as a result of new information, future events or otherwise.

SUMMARY

This summary highlights information contained elsewhere in this Offering Memorandum. This summary is qualified by, and must be read in conjunction with, the more detailed information and the consolidated financial statements appearing elsewhere in this Offering Memorandum. Prospective investors should read this entire Offering Memorandum carefully, including the information set forth in the section entitled “Risk Factors” and our Audited Consolidated Financial Statements and the related notes thereto included in this Offering Memorandum.

Overview

We are the state-owned national mining company appointed by the Government as the holding company for Indonesia’s mining operators. We engage in mining and processing coal, gold, tin, nickel and bauxite, and aluminum smelting and production. PTFI, our unconsolidated subsidiary in which we hold a majority beneficial stake, engages in mining and processing copper and gold, see “PT Freeport Indonesia.”

According to CRU, we are (i) the largest holder of coal reserves in Indonesia, as of December 31, 2019, and the fifth largest coal producer in Southeast Asia in terms of coal production volume in the year ended December 31, 2019; (ii) the sixth largest gold producer in Southeast Asia and, after taking into account 100.0% of PTFI’s gold production, the largest gold producer in Southeast Asia in terms of gold production volume in the year ended December 31, 2019; (iii) the largest tin producer in the world in terms of refined tin production volume in the year ended December 31, 2019; and (iv) the only primary aluminum producer in Indonesia and the second largest aluminum producer in Southeast Asia in terms of aluminum production volume in the year ended December 31, 2019.

We commenced business operations in 1979 as an aluminum smelter and have, over the course of 40 years, acquired in-depth expertise in managing and operating downstream production plants and supporting facilities for the refining of minerals and production of downstream mineral products. As the holding company for Antam, Bukit Asam and Timah, following the Government’s transfer of its 65.0% equity interests in each of these entities to us in 2017, we oversee the management and exploitation of the coal and mineral resources held by these entities and aim to leverage our expertise to develop the various downstream businesses of these entities so as to achieve stronger financial performance and growth of our Group. Concurrent with the Government’s transfer of its equity interests in Antam, Bukit Asam and Timah, the Government also transferred its 9.36% equity interests in PTFI to us, and, in December 2018, we increased our beneficial equity interests in PTFI to 51.24%. See “PT Freeport Indonesia.”

Our business operations are divided into six main segments, namely (i) coal, (ii) gold, (iii) tin, (iv) nickel, (v) bauxite and (vi) aluminum smelting.

- **Coal.** We are the largest holder of coal reserves in Indonesia as of December 31, 2019, and the fifth largest coal producer in Southeast Asia in terms of coal production volume in the year ended December 31, 2019, according to CRU. Our coal business is vertically integrated and we undertake all stages of mining and processing coal, starting from exploration, mining and processing coal to marketing our coal products. We own and operate four coal mines located on the islands of Sumatra and Kalimantan, Indonesia, which span an aggregate total area of approximately 65,632 hectares. Our coal products benefit from having a relatively low ash and low sulfur content, and high Hardgrove Grindability Index (“HGI”) and Ash Fusion Temperature (“AFT”). We sell a large proportion of our coal domestically to PLN, the state-owned electricity generation and distribution company, and internationally to commodity traders and coal-fired power producers. For the years ended December 31, 2017, 2018 and 2019, we produced 24.2 million tonnes, 26.4 million tonnes and 29.1 million tonnes of coal, respectively, and sold 23.6 million tonnes, 24.7 million tonnes and 27.8 million tonnes of coal, respectively. For the same years, our revenue from sale of coal was Rp.19,133.5 billion, Rp.20,792.7 billion and Rp.21,420.1 billion (US\$1,540.9 million), respectively.

- Gold.** We are the sixth largest gold producer in Southeast Asia in terms of gold production volume in the year ended December 31, 2019, according to CRU. After taking into account 100.0% of PTFI's gold production, we are the largest gold producer in Southeast Asia in terms of gold production volume in the year ended December 31, 2019, according to CRU, see "PT Freeport Indonesia." We own and operate three gold mines located in West Java and Banten, Indonesia, which span an aggregate total area of approximately 11,540 hectares, and PTFI owns mining assets in the Grasberg minerals district in Papua, Indonesia (the "Grasberg Mine"), which holds the largest amount of gold reserves in the world as of December 31, 2019 and is the largest gold mine in the world in terms of gold production volume in the year ended December 31, 2018, according to CRU. Our gold and precious metals business is vertically integrated and we undertake all stages of mining and processing gold and precious metals. We produce and sell fine gold, mainly in the form of gold bars, as well as other precious metal products such as platinum and fine silver. Our fine gold is produced at our Logam Mulia Precious Metals Refinery, the only precious metals refinery in Indonesia that is accredited by the London Bullion Market Association ("LBMA"), from gold doré bullion, which we purchase from third-party precious metals trading companies, and gold doré, which we produce at our gold mines. In addition to producing and selling fine gold and other precious metal products, we provide precious metals refining services to other third-party mining companies. For the years ended December 31, 2017, 2018 and 2019, we produced 63,240 oz t, 62,887 oz t and 63,080 oz t of gold, respectively, and sold 424,454 oz t, 896,812 oz t and 1.1 million oz t of gold, respectively. For the same years, our revenue from sale of gold was Rp.7,375.5 billion, Rp.16,693.4 billion and Rp.22,465.8 billion (US\$1,616.1 million), respectively.
- Tin.** We are the largest refined tin producer in the world in terms of refined tin production volume in the year ended December 31, 2019, according to CRU. Our tin business is vertically integrated and we undertake all stages of mining and processing tin, starting from exploration, mining and processing of tin to marketing of our tin products. We own and operate tin mines in Indonesia across the Bangka Belitung Islands, the Riau Islands and Riau, which span an aggregate total area of approximately 473,388 hectares. We produce refined tin products, such as tin metal, as well as other downstream tin products, including tin solder and tin chemical, which we primarily sell in international markets, including Japan, South Korea, Singapore, India, Taiwan, France, Germany and the United States, mainly to the trading arms of automobile manufacturers and customers in the manufacturing industry. Our Banka tin, Mentok tin and Kundur tin are registered and traded on the London Metal Exchange ("LME"), which requires our refined tin products to be of at least "Grade A" quality. For the years ended December 31, 2017, 2018 and 2019, we produced 30,249 tonnes, 33,444 tonnes and 76,389 tonnes of refined tin, respectively, and sold 29,914 tonnes, 33,818 tonnes and 67,704 tonnes of refined tin, respectively. For the same years, our revenue from sale of tin metal and tin solder was Rp.8,481.7 billion, Rp.10,152.9 billion and Rp.18,107.5 billion (US\$1,302.6 million), respectively, and our revenue from sale of tin chemical was Rp.428.5 billion, Rp.428.0 billion and Rp.335.0 billion (US\$24.1 million), respectively.
- Nickel.** We are the second largest producer of nickel ore and the third largest producer of ferronickel in Southeast Asia in terms of production volumes in the year ended December 31, 2019, according to CRU. Our nickel business is vertically integrated and we undertake all stages of mining and processing nickel ore. We also produce ferronickel from the nickel ore we mine and process. We own and operate ten nickel mines located in Indonesia across the Southeast Sulawesi, North Maluku and West Papua provinces, which span an aggregate total area of approximately 81,438 hectares. We operate three ferronickel plants, FeNi II, FeNi III and FeNi IV ("Pomalaa Ferronickel Plants") located in Southeast Sulawesi, which have a combined production capacity of approximately 27,000 TNi to 30,000 TNi per year. Our ferronickel products generally consist of approximately 20.0% nickel content and 80.0% iron content and are sold in the form of shots or pellets, either with high or low carbon content. For the years ended December 31, 2017, 2018 and 2019, we produced 5.6 million wmt, 9.3 million wmt and

8.7 million wmt of nickel ore, respectively, and sold 2.9 million wmt, 6.3 million wmt and 7.6 million wmt of nickel ore, respectively. For the same years, we produced 21,762 TNi, 24,868 TNi and 25,713 TNi of ferronickel, respectively, and sold 21,878 TNi, 24,135 TNi and 26,349 TNi of ferronickel, respectively. For the same years, our revenue from sale of nickel ore and ferronickel was Rp.4,592.4 billion, Rp.7,675.5 billion and Rp.8,651.4 billion (US\$622.4 million), respectively.

- **Bauxite.** Our bauxite business is vertically integrated and we undertake all stages of mining and processing bauxite. We own and operate a bauxite mine located in Tayan, West Kalimantan, spanning a total area of approximately 34,360 hectares. We sell bauxite of varying alumina content based on our customers' requirements, although we typically sell bauxite with a minimum alumina content of 42.0%. We also use the bauxite ore we produce as raw material for the production of chemical grade alumina at our alumina production plant located near our bauxite mine in Tayan. For the years ended December 31, 2017, 2018 and 2019, we produced 0.6 million wmt, 1.1 million wmt and 1.7 million wmt of bauxite ore, respectively, and sold 0.8 million wmt, 0.9 million wmt and 1.7 million wmt of bauxite ore, respectively. For the year ended December 31, 2019, we produced and sold 104,537 tonnes and 70,517 tonnes of alumina, respectively. For the years ended December 31, 2017, 2018 and 2019, our revenue from sale of bauxite ore was Rp.398.1 billion, Rp.482.4 billion and Rp.758.1 billion (US\$54.5 million), respectively, and for the year ended December 31, 2019, our revenue from sale of alumina was Rp.547.3 billion (US\$39.4 million).
- **Aluminum smelting.** We produce, smelt and sell aluminum products such as aluminum ingots, aluminum billets and aluminum alloys. We are the second largest aluminum producer in Southeast Asia in terms of aluminum production volume in the year ended December 31, 2019, according to CRU. Our aluminum production plants and facilities, comprising our aluminum smelter, casting plant, power plants, regulating dams and ports, are located at Kuala Tanjung, North Sumatra. We are able to produce our aluminum products more cost effectively as compared to other aluminum producers as we have access to hydroelectric power that we generate at our two hydroelectric power plants, our Siguragura Power Plant and Tangga Power Plant, which are located along the Asahan River. For the years ended December 31, 2017, 2018 and 2019, we produced 218,816 tonnes, 242,043 tonnes and 249,531 tonnes of aluminum, respectively, and sold 207,276 tonnes, 246,892 tonnes and 254,083 tonnes of aluminum, respectively. For the same years, our revenue from sale of aluminum products was Rp.5,744.3 billion, Rp.7,802.3 billion and Rp.6,910.2 billion (US\$497.1 million), respectively.

For the years ended December 31, 2017, 2018 and 2019, our total revenue was Rp.47,184.3 billion, Rp.65,277.4 billion and Rp.80,628.7 billion (US\$5,800.2 million), respectively, and our gross profit was Rp.14,223.4 billion, Rp.16,470.3 billion and Rp.14,497.8 billion (US\$1,042.9 million), respectively. For the same years, our EBITDA was Rp.11,500.3 billion, Rp.18,511.2 billion and Rp.10,696.2 billion (US\$769.5 million), respectively, and our adjusted EBITDA was Rp.10,273.3 billion, Rp.10,746.4 billion and Rp.8,415.3 billion (US\$605.4 million), respectively.

Strengths

We believe that we have the following key competitive strengths:

Leading state-owned national mining company with a mandate to manage and develop domestic reserves

We are the state-owned national mining company with a mandate from the Government to productively and sustainably utilize and develop value-added downstream businesses for Indonesia's domestic reserves. We own and control a significant proportion of Indonesia's coal and mineral reserves, and own and operate mining assets and production facilities that are strategically distributed across Indonesia. According to CRU, as of December 31, 2019, we held approximately 90.0%, 31.1%, 12.0% and 7.8% of Indonesia's tin, nickel, bauxite and coal reserves, respectively, and, after taking into account 100.0% of reserves held by PTPI, we held 67.3% and 57.6% of Indonesia's copper and gold reserves, respectively. In addition to having ownership and control

over a significant proportion of Indonesia's coal and mineral reserves, we are also a leading commodities producer and a significant contributor to Indonesia's commodity exports. According to CRU, in 2019, we accounted for (i) all of Indonesia's total aluminum production and exports; (ii) approximately 97.2% and 94.8% of Indonesia's total refined tin production and exports, respectively; (iii) approximately 78.3% and 86.9% of Indonesia's total copper production and exports, respectively, after taking into account 100.0% of PTFI's copper production and exports; (iv) approximately 27.1% and 10.1% of Indonesia's total gold production and exports, respectively, after taking into account 100.0% of PTFI's gold production and exports; (v) approximately 16.5% and 12.2% of Indonesia's total nickel ore production and exports, respectively; (vi) approximately 7.4% and 7.7% of Indonesia's total ferronickel production and exports, respectively; and (vii) approximately 5.2% and 4.1% of Indonesia's total coal production and exports, respectively.

Diversified and integrated business to minimize cash flow volatility from commodity cycles

We believe that our diversified and integrated business structure, which provides us with exposure to several major commodities, namely coal, gold and silver, tin, nickel and ferronickel, bauxite and alumina, and aluminum products, as well as copper through PTFI, allows us to maintain steady cash flows across commodity cycles. Further, stemming from the vertically integrated nature of our businesses, we produce multiple commodities across the value chain of the coal and minerals that we mine, allowing us to capture increasing margins as we move downstream, minimize our exposure to cyclical demand for commodities generally, and reduce our customer concentration risk. For example, we mine and sell processed nickel ore, which our customers use to produce ferronickel, and we also produce higher margin downstream nickel products, such as ferronickel, which is used as feed material for stainless steel production.

Our ability to manufacture a combination of products processed from the same underlying mineral allows us to not only benefit from the sale of downstream products from which we derive higher margins, but also adapt to shifting demand and supply cycles so as to maintain steady cash flows for our business operations. For the year ended December 31, 2019, our revenue from our upstream businesses, comprising our revenue from sale of coal, nickel ore and bauxite, was Rp.25,958.2 billion (US\$1,867.3 million), representing 32.2% of our total revenue. For the same year, our revenue from our downstream businesses, comprising our revenue from sale of gold and silver, refined tin and tin chemical, aluminum, ferronickel, alumina and other products, and our revenue from provision of services, was Rp.54,670.5 billion (US\$3,932.9 million), representing 67.8% of our total revenue.

Through our broad range of upstream and downstream commodity products, we benefit from having a geographically diverse customer base, with customers from Indonesia, Singapore, China, India, South Korea and Japan accounting for 40.9%, 24.8%, 8.1%, 6.7%, 4.7% and 3.8%, respectively, of our total revenue for the year ended December 31, 2019. For the same year, our top three customers, namely ICBC Standard Bank PLC, PLN (including its subsidiary, PT Indonesia Power ("Indonesia Power")) and Raffemet Pte Ltd, accounted for 15.0%, 13.2% and 3.3%, respectively, of our total revenue, and substantially all of our remaining customers each accounted for less than 3.0% of our total revenue. We believe that our diverse customer base also provides us with steady cash flows across commodity cycles.

Competitively positioned in the global commodity market

We believe that our fast growing production volumes and large range of commodity products well-positions us to be competitive in the global commodity market. According to CRU, we are the largest producer of refined tin in the world, the second largest producer of nickel ore and the third largest producer of ferronickel in Southeast Asia, and ninth largest producer of thermal coal in the world, in terms of production volumes of each respective commodity in the year ended December 31, 2019. Between 2017 and 2019, (i) our annual refined tin production grew at a CAGR of approximately 58.9% from 30,249 tonnes to 76,389 tonnes; (ii) our annual nickel ore production grew at a CAGR of approximately 24.6% from 5.6 million wmt to 8.7 million wmt; (iii) our annual ferronickel production grew at a CAGR of approximately 8.7% from 21,762 TNi to 25,713 TNi; and (iv) our annual coal production grew at a CAGR of approximately 9.5% from 24.2 million tonnes to 29.1 million tonnes.

Low cost structure

We benefit from a low cost structure for most of our commodity products, which we believe allows us to enjoy stronger margins as compared to other commodity producers and provides us with a buffer against individual commodity price cycles. According to CRU, our coal production cost was within the second quartile of the 2019 global seaborne Free On Board (“FOB”) coal cost curve. Unlike most of the other Indonesian coal producers who rely on barging as part of the transportation chain to export coal, we utilize rail and port facilities similar to those used by our international peers for the export of coal. Further, according to CRU, our Pomalaa Ferronickel Plants make us the sixth lowest cost ferronickel producers in the world, which is mainly attributable to the higher grade of nickel ore feedstock used and captive nickel ore supply, along with a low cost captive power supply. We are able to produce our aluminum products more cost effectively as compared to other aluminum producers as our aluminum smelter is powered by our Siguragura Power Plant and Tangga Power Plant, hydroelectric power plants which we own and operate.

Majority beneficial stake in the world-class Grasberg Mine

PTFI owns the Grasberg Mine in Papua, Indonesia, see “PT Freeport Indonesia.” The Grasberg Mine holds the largest amount of gold reserves and third largest amount of copper reserves in the world as of December 31, 2019, and is the largest gold mine and second largest copper mine in the world in terms of production volumes in the year ended December 31, 2018, according to CRU. In 2019, PTFI was in the process of mining the final phase of the Grasberg open-pit mine and transitioning production operations to its underground ore bodies and, as a result, gold and copper production volumes at the Grasberg Mine were lower than usual during the year. According to CRU, PTFI is expected to resume gold and copper production levels at previous levels by 2023, upon which the Grasberg Mine is expected to return to being the largest gold mine and one of the largest copper mines in the world in terms of production volumes as well as one of the lowest cost gold mines and copper mines in the world with expected pro-rata cash costs in 2023 of approximately US\$700/oz for its gold production and approximately US\$2,482/tonne for its copper production.

The Grasberg Mine is operated by FCX, which holds the remaining 48.76% beneficial equity interests in PTFI. Operations at the Grasberg Mine require strong technical expertise, especially in light of current development of the underground, more complex, phase of the mine. We expect the Grasberg Mine’s substantial amount of ore reserves to, following PTFI’s completion of its planned infrastructure projects in 2020, support production at its previous 2018 production levels through 2041 and we believe that continued control of operations at the Grasberg Mine by FCX, an experienced operator of the Grasberg Mine, will ensure that the high technical requirements of the Grasberg Mine will be met and will optimize production during the remainder of its mine life.

Led by a highly-experienced management team with high standards of corporate governance

Our management team has extensive experience in the mining and metals industry, geology and engineering, as well as accounting, law, economics, and business and financial management. We believe that the extensive experience of our management team gives us the ability to manage our operations efficiently, maintain profitability through commodity price cycles and develop new downstream projects strategically. We also believe that our management team was instrumental in transitioning our Group into a fully integrated diversified coal and metals mining company in 2017, when we became the holding company of Antam, Bukit Asam and Timah.

Our management team is committed to actively monitoring, evaluating and refining the corporate governance practices throughout our corporate structure. Stemming from our high standards in corporate governance, we were granted “Gold” status for the Indonesia Good Corporate Governance Award-III-2017, in the non-listed state-owned enterprise category, from the Indonesia Economic Review, and “Trusted Company” status from the Indonesia Institute for Corporate Governance in 2018 and 2019. Antam, Bukit Asam and Timah

also maintain high corporate governance standards in compliance with the listing rules of the IDX and the Indonesian Capital Markets Law. In the past three years, Antam, Bukit Asam and Timah have each achieved recognition as The Most Trusted Company by the Indonesia Institute of Corporate Governance. In addition, as part of the corporate governance processes of our Group, business decisions made by Antam, Bukit Asam and Timah relating to certain matters must be approved by (i) the respective company's Board of Commissioners, (ii) both the respective company's Board of Commissioners and the Government, by virtue of the Series A Dwiwarna share it holds in each of Antam, Bukit Asam and Timah, or (iii) us, as their majority shareholder, as the case may be, depending on the nature and commercial significance for our Group. See "Management — Good Corporate Governance and Risk Management Committee." We believe that such processes allow us to maintain our operational excellence and safeguard the interests of all our stakeholders.

Strategies

The main elements of our business strategy include the following:

Transform into a first-class holding company that oversees Indonesia's mining reserves and resources

In line with the Government's mandate to establish an ultimate parent company for Indonesia's mining sector that would productively and sustainably manage Indonesia's mining reserves and resources as well as develop value-added downstream coal and mineral products, we are in the process of strategically reorganizing our Group.

In August 2019, we established the "Mining Industry Indonesia" ("MIND ID") brand, with a plan to use this brand as the name of the ultimate parent company of our Group, which would function as a holding company, without directly operating mining and mineral processing businesses. To achieve this, we may establish a new wholly Government-owned holding company that would directly hold shares of our Company and our directly-held subsidiaries and minority-owned companies, or transfer our Company's aluminum smelting business into a newly established subsidiary. We believe that this would allow our Group to harness significant synergies among Group companies through, among other things, centralizing certain functions, including trading activities for all our business lines, and implementing standardized supply chain management guidelines and procedures in order to increase cost efficiency.

To deliver on the Government's mandate, we have also established various strategic initiative committees that are working together to formulate a cohesive plan and to provide guidance to our management team in relation to the reorganization of our Group. These committees, comprising the Executive Committee, the Integrated Management Office Team, the Accounting and Finance Committee, the Information Technology Committee, the Marketing Committee, the Operational and Logistics Committee, the Exploration Committee, the Human Resource Committee, the Risk Management and Audit Committee, the Legal and Governance Committee and the Business Development and Investment Committee, meet monthly to develop internal processes and protocols for each of their respective functions, which we plan to incorporate as components of our Group reorganization plan.

We also plan to continue to undertake targeted exploration activities in our mining concession areas and increase our holdings of key minerals and resources. We plan to acquire other Indonesian mining companies and additional mining concessions and to own between approximately 15.0% and 20.0% of the domestic reserves and resources, respectively, for coal and the minerals that we currently mine. For example, on October 11, 2019 (as subsequently amended on December 16, 2019 and March 27, 2020), we entered into a heads of agreement with PT Vale Indonesia Tbk ("PTVI"), a publicly-listed nickel mining company in Indonesia, and certain of PTVI's shareholders, to acquire 20.0% of PTVI's outstanding shares. We believe that our strategic initiatives to transform into a first-class holding company for Indonesia's mining sector, including our continued consolidation and increase of control over domestic mining reserves and resources, will solidify our position as the state-owned national mining company and allow us to become an impactful Fortune 500 global mining company by 2035.

Develop production facilities to increase production capacity and expand into new capabilities

We plan to expand our existing production facilities and construct new production facilities to grow our production capacity and develop downstream value chains of relevant industries. For example, we are in the process of upgrading works at our aluminum reduction plant at Kuala Tanjung, North Sumatra, to increase the plant's aluminum production capacity from 260 ktpa to 280 ktpa. We are also exploring the development of a coal gasification plant, which we expect will enable us to convert the coal we produce into final products with higher selling value than coal. In addition, we are in the process of converting an idle primary aluminum billet plant located next to our existing aluminum smelter in Kuala Tanjung into a secondary aluminum billet plant that will have a production capacity of 50,000 tonnes of secondary aluminum billets per year. See "Business — Our Aluminum Smelting Business — Aluminum development projects" and "Business — Our Coal Business — Downstream coal businesses — Coal gasification plant project."

We also aim to develop our integrated capabilities with respect to our bauxite business and aluminum smelting business. We are in the process of constructing a refinery in Mempawah, West Kalimantan, which we expect to have a production capacity of up to 1.0 million tonnes of smelter grade alumina per year. We plan to use the bauxite produced as part of our bauxite business as ore feed for the plant, and the alumina produced at the plant as supply for our aluminum smelting business. We believe that the new alumina refinery will significantly facilitate our growth into a fully integrated aluminum smelter, allowing us to exercise better control of our supply chain and reduce our aluminum production costs. See "Business — Our Bauxite Business — Alumina production plants — Mempawah Smelter Grade Alumina Refinery project."

Facilitate higher coal production by increasing transportation capacity and expanding our coal downstream business

We are undertaking several infrastructure projects with the goal of substantially increasing our coal transportation capacity. In order to support higher levels of coal production, we are in the process of building two new railway tracks to transport coal from our Tanjung Enim Coal Mine. We also recently completed the upgrade of one of our existing railways, our Kertapati Line, and are in the process of upgrading another one of our existing railways, our Tarahan Line. Our railway expansion projects are expected to allow us to transport and thereby increase coal production to approximately 60.0 mtpa of coal by 2024 as compared to our existing transportation capacity of 25.0 mtpa. See "Business — Our Coal Business — Infrastructure development projects."

Further, given our substantial coal reserves and strong potential to increase production capacity, we believe that we are well placed to exploit opportunities for downstream growth. We are currently constructing the Sumsel 8 CFPP, a coal-fired power plant with a planned output capacity of 2x620 MW that is expected to consume coal at a rate of 5.4 mtpa and is intended to be fueled by coal from our Tanjung Enim Coal Mine. Upon commencing commercial operations, the Sumsel 8 CFPP is expected to be the biggest coal-fired power plant in Indonesia, in terms of output capacity. In addition, we are exploring the development of a coal gasification plant, which we expect will enable us to convert the coal we produce into final products with higher selling value than coal. We believe that growing our coal downstream business will allow us to further optimize coal production and extract maximum value from our coal reserves. See "Business — Our Coal Business — Downstream coal businesses."

Leverage our position as the state-owned holding company for Indonesia's mining operators and selectively collaborate and grow our business with experienced world-class partners

We believe that our status as a state-owned entity gives us an advantage when acquiring domestic mining concessions and also makes us as an attractive domestic partner for experienced world-class mining and commodity producing companies. As the owner of Indonesia's mineral reserves and resources, the Government, through the MEMR, in accordance with MEMR Regulation No. 7 of 2020 on Procedures for Granting of Areas,

Licensing, and Reporting in Mineral and Coal Mining Business Activities (“MEMR Regulation 7/2020”), conducts a priority bidding process for mining concessions among state-owned entities and regional government-owned entities, before opening the opportunity to bid for such mining concessions to the public. We have in the past leveraged and intend to continue capitalizing on our priority access to domestic mining concessions to continue to grow our business. Further, we also intend to leverage our state-owned entity status and selectively collaborate and grow our business with experienced world-class partners. We believe that collaborating with such experienced partners would allow us to develop our technical know-how and grow our downstream businesses.

Recent Developments

Inalum’s Senior Revolving Credit Facility

On April 20, 2020, Inalum obtained a senior revolving credit facility from PT Bank BTPN Tbk (“BTPN”), PT Bank DBS Indonesia (“DBS Indonesia”), PT Bank HSBC Indonesia (“HSBC Indonesia”), PT Bank Mandiri (Persero) Tbk (“Bank Mandiri”), PT Bank Maybank Indonesia Tbk (“Maybank Indonesia”), PT Bank Mizuho Indonesia (“Mizuho Indonesia”) and MUFG Bank., Ltd, Jakarta Branch (“MUFG Bank”) as joint mandated lead arrangers (collectively, the “Lenders”), and DBS Indonesia as facility agent, for a maximum amount of US\$700.0 million (the “Senior Revolving Credit Facility”). The purpose of the Senior Revolving Credit Facility is to fund investments, including acquisitions, and other general corporate purposes. The Senior Revolving Credit Facility bears interest at the rate of the London Interbank Offered Rate (“LIBOR”) plus 0.975% per annum and is unsecured. The Senior Revolving Credit Facility will mature on October 20, 2021. For more details, see “Description of Material Indebtedness — Recent Developments — Inalum’s Senior Revolving Credit Facility.”

On May 5, 2020, we drew down US\$350.0 million from Inalum’s Senior Revolving Credit Facility. We may use a portion of the net proceeds of the offering of the Notes to repay the outstanding amount under the Senior Revolving Credit Facility.

Current COVID-19 pandemic

In December 2019, a human infection originating in China was traced to a novel strain of coronavirus (also known as COVID-19). The COVID-19 virus has since spread to over 200 countries and territories, including Indonesia. On March 11, 2020, the World Health Organization declared the current outbreak of COVID-19 a pandemic, expanding its assessment of the threat beyond the global health emergency it had announced in January. The current COVID-19 pandemic and preventative or protective actions that governmental authorities around the world have taken to counter the effects of COVID-19, including social distancing, office closures, travel restrictions and the imposition of quarantines, have resulted in a period of business disruption, including prolonged disruptions to manufacturing and global supply chains as well as restrictions on business activity and the movement of people comprising a significant portion of the world’s population, and a decrease in economic activity in several countries, including Indonesia. As a result, the current COVID-19 pandemic has led to uncertainty in the global economy and significant volatility in global financial markets.

We expect the effect of the current COVID-19 pandemic to result in a substantial decrease in our Group’s total revenue for 2020 as compared to 2019. Given the rapidly changing implications of the spread of COVID-19, the extent to which the current COVID-19 pandemic will impact our operations and revenues will depend on future developments, which are highly uncertain and cannot be predicted with confidence, including the scope, severity and duration of the pandemic, the actions to contain COVID-19 or maintain its impact, and the direct and indirect economics of the illness and containment measures, among others. See “Risk Factors — Risks Common to All Our Businesses — Outbreak of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia, and elsewhere may adversely impact our business, financial condition and results of operations” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Factors Affecting Our Business and Results of Operations — Current COVID-19 pandemic.”

Concurrent Tender Offers

As part of our plan to optimize our financing costs and actively manage our debt maturity profile, concurrently with the offering of the Notes, we are also making concurrent, but separate, offers to purchase for cash, on the terms and conditions set forth in the tender offer memorandum dated May 6, 2020 (the “Tender Offer Memorandum”), any and all of our 2021 Notes and 2023 Notes (each offer to purchase, a “Tender Offer,” and, together, the “Tender Offers”). The Tender Offers will expire at 5:00 p.m. New York time on May 12, 2020, unless extended by us. We will cancel the notes that we accept for purchase pursuant to the Tender Offers, and those notes will cease to be outstanding. Any 2021 Notes and 2023 Notes that remain outstanding after the Tender Offers will continue to be our Company’s obligations. See “Description of Material Indebtedness — Indebtedness of Inalum — Inalum’s Bonds.”

We intend to retain an amount equal to at least US\$500.0 million of the net proceeds of the offering of the Notes to acquire shares in other mining companies and to refinance our other outstanding indebtedness, and use the remaining net proceeds to repurchase our 2021 Notes and 2023 Notes, subject to certain conditions being satisfied or waived as set forth in the Tender Offer Memorandum. See “Use of Proceeds.”

Corporate Information

Our full legal name is PT Indonesia Asahan Aluminium (Persero). We are a state-owned limited liability company incorporated in Indonesia under the Deed of Limited Liability Company of PT Indonesia Asahan Aluminium No. 2 dated January 6, 1976, made before Juliaan Nimrod Siregar, S.H., Notary in Jakarta, and ratified by the Minister of Law and Human Rights under Decree No. Y.A.5/12/20 dated January 10, 1976.

SUMMARY OF THE OFFERING

The following is a brief summary of the terms of the offering and is qualified in its entirety by the remainder of this Offering Memorandum. It is not intended to be complete and is subject to important limitations and exceptions. For a more complete description of the terms of the Notes, see the sections entitled “Description of the 2025 Notes,” “Description of the 2030 Notes” and “Description of the 2050 Notes.” Terms used in this summary and not otherwise defined shall have the meanings given to them in “Description of the 2025 Notes,” “Description of the 2030 Notes” and “Description of the 2050 Notes.”

Issuer	PT Indonesia Asahan Aluminium (Persero), a state-owned enterprise established and existing with limited liability under the laws of the Republic of Indonesia.
Notes Offered	US\$1,000,000,000 4.750% Notes due 2025 US\$1,000,000,000 5.450% Notes due 2030 US\$500,000,000 5.800% Notes due 2050
Issue Price	2025 Notes: 99.015% 2030 Notes: 97.742% 2050 Notes: 92.981%
Maturity Date	Unless previously repurchased, canceled or redeemed in accordance with their terms, the Notes will mature as follows: 2025 Notes: May 15, 2025 2030 Notes: May 15, 2030 2050 Notes: May 15, 2050
Interest	The 2025 Notes will bear interest from May 15, 2020 at the rate of 4.750% per annum, payable semi-annually in arrears. The 2030 Notes will bear interest from May 15, 2020 at the rate of 5.450% per annum, payable semi-annually in arrears. The 2050 Notes will bear interest from May 15, 2020 at the rate of 5.800% per annum, payable semi-annually in arrears. Interest will be calculated on the basis of a 360-day year, consisting of twelve 30-day months.
Interest Payment Dates	May 15 and November 15 of each year, commencing November 15, 2020.
Record Dates	Each April 30 and October 31 immediately preceding an Interest Payment Date.
Ranking	Each series of Notes will be direct, unsecured and unsubordinated obligations of the Issuer, be senior in right of payment to any existing and future obligations of the Issuer expressly subordinated in right of payment to the Notes, rank at least <i>pari passu</i> in right of payment with all other unsecured and unsubordinated indebtedness of the Issuer (subject to any priority rights of such unsubordinated debt pursuant to applicable law) and will be effectively subordinated to secured obligations of the Issuer and the obligations of its subsidiaries.
Further Issues	Subject to certain conditions and in accordance with the terms of the Indenture, the Issuer may, from time to time, without notice to or the

consent of the Noteholders, issue additional notes having the same terms and conditions under the relevant indenture relating to the Notes (each, an “Indenture” and, collectively, the “Indentures”) as the Notes of the relevant series in all respects (or in all respects except for the issue date, issue price and the first Interest Payment Date and, to the extent necessary, certain temporary securities law transfer restrictions) so that such additional notes may be consolidated and form a single class with the previously outstanding Notes of the relevant series and vote together as one class on all matters with respect to the Notes of the relevant series provided that, in order for additional notes to have the same CUSIP, ISIN, or other identifying number as the outstanding Notes, the additional notes must be fungible with the outstanding Notes for U.S. federal income tax purposes.

Certain Covenants The Issuer will agree to observe certain covenants, including, among other things, a negative pledge, and limitations on its ability to consolidate, merge or sell its assets substantially as an entirety. See “Description of the 2025 Notes — Certain Covenants,” “Description of the 2030 Notes — Certain Covenants” and “Description of the 2050 Notes — Certain Covenants.”

The Notes and the related Indentures do not otherwise restrict or limit the Issuer’s ability to incur additional indebtedness by itself or through its subsidiaries or its ability to enter into transactions with, or to pay dividends or make other payments to, affiliates.

Change of Control Triggering Event Change of Control Triggering Event means a Change of Control, provided that, in the event that the Notes are, on the Rating Date, rated Investment Grade by two or more Rating Agencies, a Change of Control Triggering Event shall mean the occurrence of both a Change of Control and a Rating Decline. No Change of Control Triggering Event will be deemed to have occurred in connection with any particular Change of Control unless and until such Change of Control has actually been consummated.

“Change of Control” means the occurrence of any event resulting in the Government ceasing to directly or indirectly own and control at least 75.0% of the issued and paid-up shares of the Company.

See “Description of the 2025 Notes — Repurchase of Notes Upon a Change of Control Triggering Event,” “Description of the 2030 Notes — Repurchase of Notes Upon a Change of Control Triggering Event” and “Description of the 2050 Notes — Repurchase of Notes Upon a Change of Control Triggering Event.”

Repurchase of Notes upon a Change of Control Triggering Event No later than 30 days following a Change of Control Triggering Event, the Issuer will make an offer to purchase all outstanding Notes of the relevant series at a purchase price equal to 101.0% of the principal amount thereof plus accrued and unpaid interest, if any, to the Offer to Purchase Payment Date. See “Description of the 2025 Notes — Repurchase of Notes Upon a Change of Control Triggering

	Event,” “Description of the 2030 Notes — Repurchase of Notes Upon a Change of Control Triggering Event” and “Description of the 2050 Notes — Repurchase of Notes Upon a Change of Control Triggering Event.”
Additional Amounts	Subject to certain exceptions, the Issuer will pay such Additional Amounts as will result in receipt by the holder of the Notes of such amounts as would have been received by such holder had no deduction or withholding of Indonesian (and certain other) taxes been required. See “Description of the 2025 Notes — Additional Amounts,” “Description of the 2030 Notes — Additional Amounts” and “Description of the 2050 Notes — Additional Amounts.”
Redemption for Taxation Reasons	Subject to certain conditions and exceptions, the Notes may be redeemed at the option of the Issuer, as a whole but not in part, at a redemption price equal to 100% of the principal amount thereof, together with accrued and unpaid interest (including any Additional Amounts), if any, to the date fixed for such redemption, in the event that as a result of certain changes in tax laws the Issuer becomes obligated to pay Additional Amounts in respect of certain withholding tax (including Indonesian withholding tax imposed at a rate in excess of 20%). See “Description of the 2025 Notes — Redemption for Taxation Reasons,” “Description of the 2030 Notes — Redemption for Taxation Reasons” and “Description of the 2050 Notes — Redemption for Taxation Reasons.”
Optional Redemption	At any time on or after the following relevant dates, the Notes may be redeemed at the option of the Issuer, in whole or in part, at a redemption price equal to 100% of the principal amount thereof, together with accrued and unpaid interest (including any Additional Amounts), if any, to the date fixed for such redemption. 2025 Notes: April 15, 2025 2030 Notes: February 15, 2030 2050 Notes: November 15, 2049 See “Description of the 2025 Notes — Optional Redemption,” “Description of the 2030 Notes — Optional Redemption” and “Description of the 2050 Notes — Optional Redemption.”
Transfer Restrictions	The Notes have not been registered under the Securities Act, or the securities laws of any other jurisdiction, and may not be offered or sold within the United States, except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act. Accordingly, the Notes are being offered and sold in the United States only to qualified institutional buyers (as defined in Rule 144A) in accordance with Rule 144A and outside the United States in offshore transactions in accordance with Regulation S. For a description of these and other restrictions on offers, resales and transfers of the Notes, see “Plan of Distribution” and “Transfer Restrictions.”

Use of Proceeds	The net proceeds from the offering of the Notes, after deduction of fees and commissions and estimated expenses incurred in connection with this offering, are expected to be approximately US\$2,423.85 million. The Issuer intends to retain an amount equal to at least US\$500.0 million of the net proceeds of the offering of the Notes to acquire shares in other mining companies and to refinance other outstanding indebtedness of the Group, and use the remaining net proceeds to repurchase the Issuer's 2021 Notes and 2023 Notes, subject to certain conditions being satisfied or waived as set forth in the Tender Offer Memorandum. See "Use of Proceeds."
Governing Law	The Notes and the Indentures are governed by, and will be construed in accordance with, the laws of the State of New York.
Denomination, Form and Registration . .	The Notes will be issued in minimum denominations of US\$200,000 and integral multiples of US\$1,000 in excess thereof. Each series of Notes offered in the United States to qualified institutional buyers in reliance on Rule 144A will be represented by one or more permanent global notes in fully registered form without interest coupons deposited with The Bank of New York Mellon as custodian for, and registered in the name of, Cede & Co., as nominee of The Depository Trust Company, or DTC. Each series of Notes offered outside the United States in offshore transactions in reliance on Regulation S will be represented by one or more permanent global notes in fully registered form without interest coupons deposited with The Bank of New York Mellon as custodian for, and registered in the name of, Cede & Co., as nominee of DTC for the respective accounts of Euroclear Bank SA/NV or Clearstream Banking S.A. each of which is a participant in DTC. DTC will credit the account of each of its participants, including Euroclear Bank SA/NV and Clearstream Banking S.A., with the principal amount of Notes being purchased by or through such participant. Beneficial interests in the global notes will be shown on, and transfers thereof will be effected only through, records maintained by DTC and its direct and indirect participants, including Euroclear Bank SA/NV and Clearstream Banking S.A.
Delivery of the Notes.	We expect that delivery of the Notes will be made on or about the closing date specified on the cover page of this Offering Memorandum, which we expect will be the fourth business day following the date of this Offering Memorandum, which we refer to as "T+4." You should note that initial trading of the Notes may be affected by the T+4 settlement. See "Plan of Distribution."
Ratings.	The Notes are expected to be rated "Baa2" by Moody's and "BBB-" by Fitch. A security rating is not a recommendation to buy, sell or hold securities and may be subject to suspension, reduction or withdrawal at any time by the assigning rating agency.

Risk Factors. See “Risk Factors” and the other information in this Offering Memorandum for a discussion of factors that should be carefully considered before deciding to invest in the Notes.

Listing. Approval in-principle has been received from the SGX-ST for the listing and quotation of the 2030 Notes and the 2050 Notes on the SGX-ST. Application will be made to the SGX-ST for the listing and quotation of the 2025 Notes on the SGX-ST. The SGX-ST assumes no responsibility for the correctness of any of the statements made, opinions expressed or reports contained in this Offering Memorandum. Approval in-principle from, admission to the Official List of, and listing and quotation of the Notes on, the SGX-ST are not to be taken as an indication of the merits of the Issuer or the Notes. For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, the Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of S\$200,000 (or its equivalent in foreign currencies). Accordingly, the Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of US\$200,000.

For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, in the event that a Global Note is exchanged for definitive notes, the Issuer will appoint and maintain a paying agent in Singapore, where the definitive notes may be presented or surrendered for payment or redemption. In addition, in the event that a Global Note is exchanged for definitive notes, an announcement of such exchange will be made by or on behalf of the Issuer through the SGX-ST and such announcement will include all material information with respect to the delivery of the definitive notes, including details of the paying agent in Singapore.

Trustee, Paying Agent, Transfer Agent
and Registrar The Bank of New York Mellon.

CUSIP 2025 Notes: 74445P AE2 (Rule 144A) / Y7140W AE8 (Reg S)
2030 Notes: 74445P AF9 (Rule 144A) / Y7140W AF5 (Reg S)
2050 Notes: 74445P AG7 (Rule 144A) / Y7140W AG3 (Reg S)

ISIN 2025 Notes: US74445PAE25 (Rule 144A) / USY7140WAE85 (Reg S)
2030 Notes: US74445PAF99 (Rule 144A) / USY7140WAF50 (Reg S)
2050 Notes: US74445PAG72 (Rule 144A) / USY7140WAG34 (Reg S)

Issuer Legal Entity Identifier 2549008P48EB9SN2OI80

SUMMARY CONSOLIDATED FINANCIAL INFORMATION AND OTHER DATA

You should read the following summary consolidated financial information in conjunction with our Audited Consolidated Financial Statements and the related notes thereto, and PTFI's Audited Consolidated Financial Statements and the related notes thereto, included in this Offering Memorandum, and the sections entitled "Presentation of Financial Information and Other Data," "Selected Consolidated Financial Information and Other Data," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "PT Freeport Indonesia." Our Audited Consolidated Financial Statements and PTFI's Audited Consolidated Financial Statements have been prepared and presented in accordance with IFAS, which differs in certain respects from U.S. GAAP. See "Summary of Certain Differences Between Indonesian Financial Accounting Standards and U.S. GAAP."

The following summary financial information includes our consolidated financial information as of and for the years ended December 31, 2018 and 2017, which have been restated from our previously issued consolidated financial statements for the years then ended. For a description of the restatement and reclassification adjustments made to such financial information, see Note 49 to our Audited Consolidated Financial Statements included in this Offering Memorandum. See also "Risk Factors — Risks Common to All our Businesses — We have restated our consolidated financial statements for prior periods, which may lead to additional risks and uncertainties, including loss of investor confidence and negative impacts on our business, financial condition and results of operations."

Consolidated Financial Data of our Group

Consolidated Statements of Profit or Loss and Other Comprehensive Income Data

	For the year ended December 31,			
	2017	2018	2019	
	(as restated) Rp.	(as restated) Rp.	Rp.	US\$
	(Rp. in billions and US\$ in millions)			
Revenue	47,184.3	65,277.4	80,628.7	5,800.2
Cost of revenue	(32,960.9)	(48,807.1)	(66,130.9)	(4,757.3)
Gross profit	14,223.4	16,470.3	14,497.8	1,042.9
General and administrative expenses	(3,585.2)	(5,142.9)	(6,187.7)	(445.1)
Selling and marketing expenses	(1,497.2)	(2,370.1)	(2,538.3)	(182.6)
Operating profit	9,141.0	8,957.3	5,771.8	415.2
Finance income	629.9	1,010.5	870.2	62.6
Finance costs	(999.1)	(2,120.6)	(5,300.3)	(381.3)
Share in net profit/(loss) from PTFI	—	184.1	(576.2)	(41.4)
Share in net loss from associates	(133.9)	(320.1)	(87.2)	(6.3)
Share in net (loss)/profit from joint ventures	(987.2)	(573.6)	179.4	12.9
Other income, net	597.1	6,754.3	1,410.7	101.5
Profit before income tax	8,247.8	13,891.9	2,268.4	163.2
Income tax expenses	(2,474.4)	(3,021.8)	(2,241.4)	(161.3)
Profit for the year from continuing operations	5,773.4	10,870.1	27.0	1.9
Loss from discontinued operations	(6.5)	(43.5)	(2.5)	(0.1)
Profit for the year	5,766.9	10,826.6	24.5	1.8
Other comprehensive (loss)/income for the year, net of tax ..	(433.4)	1,799.0	(11.9)	(0.9)
Total comprehensive income for the year	5,333.5	12,625.6	12.6	0.9

Consolidated Statements of Financial Position Data

	As of December 31,			
	2017	2018	2019	
	(as restated) Rp. (Rp. in billions and US\$ in millions)	(as restated) Rp. (Rp. in billions and US\$ in millions)	Rp. (Rp. in billions and US\$ in millions)	US\$
Total current assets	36,698.7	43,776.3	43,665.7	3,141.2
Total non-current assets	55,311.7	120,782.5	121,177.3	8,717.2
Total assets	92,010.4	164,558.8	164,843.0	11,858.4
Total current liabilities	15,125.8	20,597.9	24,144.4	1,736.9
Total non-current liabilities	12,111.7	69,734.8	68,907.8	4,957.1
Total liabilities	27,237.5	90,332.7	93,052.2	6,694.0
Total equity attributable to owner of the parent entity	52,475.4	60,726.0	58,576.6	4,213.8
Non-controlling interest	12,297.5	13,500.1	13,214.2	950.6
Total equity	64,772.9	74,226.1	71,790.8	5,164.4
Total liabilities and equity	92,010.4	164,558.8	164,843.0	11,858.4

Consolidated Statements of Cash Flows Data

	For the year ended December 31,			
	2017	2018	2019	
	(as restated) Rp. (Rp. in billions and US\$ in millions)	(as restated) Rp. (Rp. in billions and US\$ in millions)	Rp. (Rp. in billions and US\$ in millions)	US\$
Net cash received from operating activities	5,845.5	6,853.3	289.7	20.9
Net cash used in investing activities	(4,747.4)	(59,729.1)	(10,713.9)	(770.7)
Net cash (used in)/received from financing activities	(965.2)	56,467.1	5,194.1	373.6
Net increase/(decrease) in cash and cash equivalents	132.9	3,591.3	(5,230.1)	(376.2)
Cash and cash equivalents at the beginning of the year	15,966.8	16,143.1	20,268.5	1,458.1
Cash and cash equivalents at the end of the year	16,143.1	20,268.5	14,581.7	1,049.0

Non-GAAP Measures and Other Financial Data

	As of and for the year ended December 31,			
	2017	2018	2019	
	Rp. (Rp. in billions and US\$ in millions, except percentages and ratios)	Rp. (Rp. in billions and US\$ in millions, except percentages and ratios)	Rp. (Rp. in billions and US\$ in millions, except percentages and ratios)	US\$
Capital expenditure	10,245.8	5,134.1	4,727.3	340.1
Finance costs	999.1	2,120.6	5,300.3	381.3
EBITDA ⁽¹⁾	11,500.3	18,511.2	10,696.2	769.5
Dividend from PTFI	427.6	2,569.3	—	—
Adjusted EBITDA ⁽¹⁾	10,273.3	10,746.4	8,415.3	605.4
Total debt ⁽²⁾	14,064.3	73,107.5	76,673.4	5,515.7
EBITDA margin ⁽³⁾	24.4%	28.4%	13.3%	13.3%
Total debt / Adjusted EBITDA	1.4x	6.8x	9.1x	9.1x
Net debt / Adjusted EBITDA ⁽⁴⁾	(0.2)x	4.9x	7.4x	7.4x
Total debt / Total equity	0.2x	1.0x	1.1x	1.1x
Adjusted EBITDA / Finance costs	10.3x	5.1x	1.6x	1.6x

Notes:

- (1) EBITDA is calculated beginning with profit for the year, and adjusting for (i) income tax expenses, (ii) finance costs, and (iii) depreciation and amortization. Adjusted EBITDA is calculated beginning with EBITDA, and deducting (i) dividend from PTFI, (ii) finance income and (iii) other income, net, and adding (i) loss/(gain) on foreign exchange, net and (ii) provision for impairment of investment. EBITDA and adjusted EBITDA are supplemental measures of our performance that are not required by, or presented in accordance with, IFAS or U.S. GAAP. EBITDA and adjusted EBITDA are not measurements of financial performance or liquidity under IFAS or U.S. GAAP and should not be considered as alternatives to net profit, operating income or any other performance measures derived in accordance with IFAS or U.S. GAAP or an alternative to cash flows from operating activities as measures of liquidity. Our presentations of EBITDA and adjusted EBITDA may not be comparable to similarly titled measures presented by other companies. You should not compare our EBITDA and adjusted EBITDA with EBITDA and adjusted EBITDA presented by other companies because not all companies use the same definition. We have included EBITDA and adjusted EBITDA because we believe these are indicative measures of our operating performance and are used by investors and analysts to evaluate companies in the industries we operate.

The following table reconciles our profit for the year under IFAS to our definition of EBITDA and adjusted EBITDA for the years indicated.

	For the year ended December 31,			
	2017	2018	2019	
	(as restated)	(as restated)	Rp.	US\$
	Rp.	Rp.	(Rp. in billions and US\$ in millions)	
Profit for the year	5,766.9	10,826.6	24.5	1.8
Add/(subtract):				
Income tax expenses	2,474.4	3,021.8	2,241.4	161.3
Finance costs	999.1	2,120.6	5,300.3	381.3
Depreciation and amortization	2,259.9	2,542.2	3,130.0	225.1
EBITDA	11,500.3	18,511.2	10,696.2	769.5
Add/(subtract):				
Dividend from PTFI	(427.6)	(2,569.3)	—	—
Provision for impairment of investment	75.1	—	104.2	7.5
Finance income	(629.9)	(1,010.5)	(870.2)	(62.6)
Loss/(gain) on foreign exchange, net	24.3	(218.1)	275.2	19.8
Other income, net ⁽⁵⁾	(268.9)	(3,966.9)	(1,790.1)	(128.8)
Adjusted EBITDA	10,273.3	10,746.4	8,415.3	605.4

- (2) Total debt is calculated as the sum of short-term bank borrowings, bank borrowings (current and non-current portion), finance lease liabilities and bonds payable.
- (3) EBITDA margin is calculated as EBITDA divided by total revenue.
- (4) Net debt/Adjusted EBITDA is calculated as total debt less cash and cash equivalents, divided by adjusted EBITDA.
- (5) Other income, net is calculated as other income deducted by dividend from PTFI, provision for impairment of investment and gain/(loss) on foreign exchange, net.

Consolidated Financial Data of PTFI

Consolidated Statements of Profit or Loss and Other Comprehensive Income Data

	For the year ended December 31,		
	2017	2018	2019
	(US\$ in millions)		
Net revenues	4,445.0	5,558.5	2,771.2
Cost of sales	2,349.7	2,504.6	2,448.4
Gross profit	2,095.3	3,053.9	322.8
Expenses:			
General and administrative expenses	123.6	121.1	120.8
Selling and marketing expenses	2.1	2.2	2.2
Exploration impairment	—	98.2	—
Operating profit	1,969.5	2,832.3	199.7
Interest expense	(5.2)	(1.2)	(82.3)
Interest income	5.7	38.9	7.4
Other expense, net	(0.2)	(7.8)	(142.1)
Equity in associated company's net earnings	9.7	7.0	12.3
Profit/(loss) before income tax expense	1,979.5	2,869.2	(5.0)
Income tax expense	(696.7)	(400.1)	(203.0)
Net profit/(loss) before net profit tax	1,282.9	2,469.1	(208.0)
Non-tax state revenue	—	—	—
Regional governments revenue	—	—	—
Net profit/(loss)	1,282.9	2,469.1	(208.0)
Other comprehensive income:			
Other comprehensive income not to be reclassified to profit or loss in subsequent periods			
Remeasurement gains on pension plans	12.0	10.0	12.9
Tax recognized	(4.2)	(3.4)	(3.2)
Foreign exchange impact	0.4	2.9	(1.5)
Net other comprehensive income not to be reclassified to profit or loss in subsequent periods	8.2	9.5	8.3
Total comprehensive income/(loss) attributable to stockholders	1,291.1	2,478.6	(199.7)

Consolidated Statements of Financial Position Data

	As of December 31,		
	2017	2018	2019
	(US\$ in millions)		
Total current assets	1,873.8	1,528.6	1,481.4
Total non-current assets	8,787.9	13,636.5	14,451.3
Total assets	10,661.7	15,165.0	15,932.7
Total current liabilities	1,182.8	1,140.1	1,033.3
Total non-current liabilities	3,173.2	3,665.5	4,572.4
Total liabilities	4,356.0	4,805.5	5,605.7
Net equity	6,305.7	10,359.5	10,327.0
Total liabilities and equity	10,661.7	15,165.0	15,932.7

Consolidated Statements of Cash Flows Data

	For the year ended December 31,		
	2017	2018	2019
	(US\$ in millions)		
Net cash provided by operating activities	2,421.6	2,850.8	215.4
Net cash used in investing activities	(768.9)	(4,588.8)	(1,276.9)
Net cash (used in)/provided by financing activities	(1,555.1)	1,645.0	1,056.3
Net increase/(decrease) in cash and cash equivalents	97.6	(93.0)	(5.2)
Cash and cash equivalents at the beginning of the year	6.9	104.5	11.4
Cash and cash equivalents at the end of the year	104.5	11.4	6.2

Reserves and Resources Data

The following table sets forth our aggregate net working interest reserves and resources, as of December 31, 2019.

	Reserves			Resources			
	Proved	Probable	Total	Measured	Indicated	Inferred	Total
Coal (tonnes in millions) ⁽¹⁾	1,517	1,608	3,125	2,083	2,237	1,183	5,503
Gold doré (koz) ⁽²⁾	60	209	269	758	377	70	1,205
Silver ore (koz) ⁽²⁾	488	3,294	3,782	8,360	4,349	795	13,504
Tin ore (tonnes) ⁽³⁾	157,390	170,130	327,520	418,280	101,080	267,780	787,140
Nickel (wmt in millions) ⁽²⁾	144	210	354	310	428	624	1,362
Bauxite (wmt in millions) ⁽²⁾	35	116	151	226	106	266	598

Notes:

- (1) According to the 2019 Coal Reserves Statement, see Appendix A.
- (2) According to the 2019 Nickel, Gold, Silver and Bauxite Reserves Statement, see Appendix B.
- (3) According to the 2019 Tin Reserves Statement, see Appendix C.

The following table sets forth PTFI's aggregate reserves and resources at its Grasberg Mine, as of December 31, 2019.

	Reserves			Resources			
	Proved	Probable	Total	Measured	Indicated	Inferred	Total
Ore (tonnes in millions)⁽¹⁾	561	1,252	1,813	384	2,156	140	2,680
Copper grade (%) ⁽¹⁾	1.18	0.98	1.04	0.80	0.66	0.39	0.67
Gold grade (grams/tonne) ⁽¹⁾	0.91	0.74	0.79	0.69	0.59	0.25	0.59
Silver (grams/tonne) ⁽¹⁾	5.09	4.52	4.70	4.02	3.59	2.04	3.57

Note:

- (1) According to the 2019 Grasberg Reserves Statement, see Appendix D.

Selected Production, Sales and Operating Data

The following table sets forth certain production, sales and operating data relating to our businesses, as of or for the years indicated.

	As of or for the year ended December 31,		
	2017	2018	2019
Production volume			
Coal (tonnes in millions)	24.2	26.4	29.1
Gold (oz t)	63,240	62,887	63,080
Silver (oz t)	456,251	500,780	530,969
Refined tin (tonnes)	30,249	33,444	76,389
Nickel ore (wmt)	5,572,056	9,317,963	8,696,479
Ferronickel (TNi)	21,762	24,868	25,713
Bauxite ore (wmt)	648,431	1,102,385	1,726,734
Alumina (tonnes)	—	—	104,537
Aluminum (tonnes)	218,816	242,043	249,531
Sales volume			
Coal (tonnes in millions)	23.6	24.7	27.8
Gold (oz t)	424,454	896,812	1,093,864
Silver (oz t)	533,316	590,191	660,440
Refined tin (tonnes)	29,914	33,818	67,704
Nickel ore (wmt)	2,935,666	6,335,281	7,558,733
Ferronickel (TNi)	21,878	24,135	26,349
Bauxite ore (wmt)	838,069	920,031	1,659,920
Alumina (tonnes)	—	—	70,517
Aluminum (tonnes)	207,276	246,892	254,083
Average selling price			
Coal (Rp. in millions/tonne)	0.8	0.8	0.8
Gold (Rp. in millions/oz t)	17.4	18.6	20.2
Silver (Rp. in millions/oz t)	0.2	0.2	0.2
Refined tin (Rp. in millions/tonne)	276.8	290.0	280.3
Nickel ore (Rp. in millions/wmt)	0.5	0.5	0.5
Ferronickel (Rp. in millions/TNi)	146.8	193.1	186.4
Bauxite ore (Rp. in millions/wmt)	0.5	0.5	0.5
Alumina (Rp. in millions/tonne)	—	—	7.7
Aluminum (Rp. in millions/tonne)	27.7	31.6	26.9
Cash cost			
Coal (Rp. in millions/tonne) ⁽¹⁾	0.5	0.6	0.6
Gold (Rp. in millions/oz t) ⁽²⁾	11.5	12.5	10.9
Silver (Rp. in millions/oz t) ⁽³⁾	0.1	0.1	0.1
Refined tin (Rp. in millions/tonne) ⁽⁴⁾	217.9	225.5	216.8
Nickel Ore (Rp. in millions/wmt) ⁽⁵⁾	0.2	0.3	0.3
Ferronickel (Rp. in millions/TNi) ⁽⁶⁾	103.8	120.5	116.7
Bauxite Ore (Rp. in millions/wmt) ⁽⁷⁾	0.3	0.3	0.3
Alumina (Rp. in millions/tonne) ⁽⁸⁾	—	—	5.4
Aluminum (Rp. in millions/tonne) ⁽⁹⁾	16.6	21.3	21.3

Notes:

- (1) Cash cost per tonne of coal is calculated as (a) the sum of mining costs, transportation, freight and handling costs, royalties paid to the Government, coal processing and other cash production costs, restoration costs and increases or decreases in coal inventories, divided by coal sales volumes for the relevant years.

- (2) Cash cost per oz t of gold is calculated as (a) the sum of mining costs, gold doré processing and other cash production costs, restoration costs and increases or decreases in gold doré inventories, divided by (b) gold production volumes for the relevant years.
- (3) Cash cost per oz t of silver is calculated as (a) the sum of mining costs, silver ore processing and other cash production costs, restoration costs and increases or decreases in silver ore inventories, divided by (b) silver production volumes for the relevant years.
- (4) Cash cost per tonne of refined tin is calculated as the sum of (a) costs of raw materials, royalties paid to the Government, tin processing and other cash production costs and increases or decreases in tin inventories, divided by (b) refined tin production volumes for the relevant years.
- (5) Cash cost per wmt of nickel ore is calculated as (a) the sum of mining costs, nickel ore processing and other cash production costs, restoration costs and increases or decreases in nickel ore inventories, divided by (b) nickel production volume for the relevant years.
- (6) Cash cost per TNi of ferronickel is calculated as (a) the sum of mining costs, ferronickel processing and other cash production costs, restoration costs and increases or decreases in ferronickel inventories, divided by (b) ferronickel production volume for the relevant years.
- (7) Cash cost per wmt of bauxite is calculated as (a) the sum of mining costs, bauxite processing and other cash production costs, restoration costs and increases or decreases in bauxite inventories, divided by (b) bauxite production volumes for the relevant years.
- (8) Cash cost per tonne of alumina is calculated as (a) production costs less (b) depreciation related to the production of alumina, divided by (c) alumina production volumes for the relevant years.
- (9) Cash cost per tonne of aluminum is calculated as (a) production costs less (b) depreciation related to the production of aluminum, divided by (c) aluminum production volumes for the relevant years.

RISK FACTORS

An investment in the Notes is subject to significant risks. You should carefully consider all of the information in this Offering Memorandum and, in particular, the risks described below before deciding to invest in the Notes. The following describes some of the significant risks that could affect us and the value of the Notes as well as our ability to pay interest on, and repay the principal of, the Notes. Additionally, some risks may be unknown to us and other risks, currently believed to be immaterial, could turn out to be material. All of these could materially and adversely affect our business, financial condition and results of operations. The market price of the Notes could decline due to any of these risks and you may lose all or part of your investment. This Offering Memorandum also contains forward-looking statements that involve risks and uncertainties including those described under “Forward-Looking Statements” elsewhere in this Offering Memorandum. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of certain factors, including the risks faced by us described below and elsewhere in this Offering Memorandum.

Risks Common to All Our Mining Businesses

The prices of the products we sell are cyclical in nature and subject to fluctuations

Our results of operations are highly dependent upon the prices we receive for the sale of our products, which are affected by numerous factors beyond our control. These factors include, but are not limited to, forward selling by producers, production cost levels in major mining regions, weather conditions, distribution problems, labor disputes, the price and availability of alternatives, actions taken by governments and international organizations, government policies and regulations such as those relating to taxation, royalties, allowable production, import and export restrictions and environmental protection, and major public health issues, such as the current COVID-19 pandemic, see “— Risks Common to All Our Businesses — Outbreak of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia, and elsewhere may adversely impact our business, financial condition and results of operations.” The price of our products are also affected by macro-economic factors such as expectations regarding inflation, interest rates, global and regional supply and demand dynamics as well as economic conflicts, such as trade wars and economic sanctions, and general global economic and political conditions. We do not currently hedge our cash flows against the risks of price fluctuations. An extended or substantial decline in global prices of our products may adversely affect our business, financial condition and results of operations. See also “— Risks Relating to Our Aluminum Smelting Business — The demand for and price of our aluminum products are cyclical and volatile.”

In addition, an increase in the global supply and/or a decrease in world consumption levels of any of the products we sell may result in an oversupply of and downward selling pressure on such products. For example, according to CRU, thermal coal prices have experienced significant fluctuations over the past decade. As a result of a five-year period of market oversupply between 2011 and 2016, thermal coal export prices declined by more than 50.0% to approximately US\$65/tonne in 2016 from over US\$100/tonne in 2011 for FOB Newcastle 6,000 kcal/kg coal. In 2018, the prices for FOB Newcastle 6,000 kcal/kg coal recovered to over US\$100/tonne. However, prices for FOB Newcastle 6,000 kcal/kg coal dropped to as low as US\$64/tonne in the fourth quarter of 2019, mainly driven by a decrease in demand growth which encouraged the Chinese government to implement policies to reduce imports into China, as well as a fall in gas prices and weak coal demand in Europe due to a reduction in coal-fired power generation capacities. The prices for FOB Newcastle 6,000 kcal/kg coal rose to US\$69.5/tonne in February 2020 as a result of an increase in coal import demand from China, which was driven by domestic coal supply disruptions due to the current COVID-19 pandemic, and subsequently declined to US\$65/tonne in March 2020 due to declining global economic activity and lockdowns in several major seaborne markets.

In addition, according to CRU, the LME tin prices were volatile between 2008 and 2015. The LME tin prices were as low as US\$10,000/tonne in 2008 during the global financial crisis, before peaking to over US\$33,000/tonne in the second quarter of 2011 and then declining to US\$16,036/tonne in 2015. In February 2019, the LME tin prices hit a high of US\$21,675/tonne due to a decrease in supply from China and fears about a potential decrease in supply from Indonesia in response to new tin export restrictions, and then dropped to approximately US\$17,000/tonne in August 2019 due to weak demand. The LME tin prices rose to a peak of

US\$17,775/tonne in late January 2020 due to the closure of certain tin smelters in China over the Chinese New Year holidays and delays in Indonesian export license renewals, and then declined to US\$16,115/tonne in early February 2020. The LME tin prices remained below US\$16,000/tonne at the end of February 2020 due to the uncertainty of global tin demand driven by the current COVID-19 pandemic as well as on-going trade disputes between China and the U.S. and between Japan and South Korea.

Similarly, according to CRU, gold prices were volatile between 2007 and 2015, going from US\$696/oz in 2007 to an all-time high of over US\$1,700/oz in August 2011, in response to the decreasing value of the U.S. dollar which led to an increase in investments in gold as an alternative currency. Between 2012 and 2015, gold prices gradually declined to a low of US\$1,076/oz in December 2015 due to the improvement in the U.S. economy and low inflation rates, and then remained relatively stable from 2015 and 2019 at prices between US\$1,200 and US\$1,400/oz due to uncertainty surrounding the U.S. presidential elections and Britain's withdrawal from the European Union. In 2019, the price of gold increased by 20.7% from US\$1,198/oz in September 2018 to US\$1,393/oz in September 2019, primarily due to an increase in demand driven by the conservative monetary policies of the U.S. Federal Reserve and escalating tensions between the U.S. and its trade partners. Gold prices rose to US\$1,561/oz in January 2020 primarily due to an increase in investments in gold as an alternative currency in response to the current COVID-19 pandemic.

According to CRU, nickel prices have also been subject to significant fluctuations since 2007. The LME nickel price reached a record high of US\$36,168/tonne in 2007, before falling to US\$14,778/tonne in 2009 due to the 2008 global financial crisis and recovering to US\$22,856/tonne in 2011 due to an increase in demand. The LME nickel price then gradually decreased between 2011 and 2016, hitting a low of US\$9,667/tonne in 2016, due to oversupply, which was mainly driven by the rapid expansion of nickel pig iron capacity and weak demand. However, increase in demand and lack of supply since 2018 led to the LME nickel price increasing to US\$13,963/tonne in 2019. The LME nickel price fell below US\$13,000/tonne in mid-February as a result of the current COVID-19 pandemic, which has led to a decline in industrial and construction activities. In addition, ferronickel prices, which are generally linked to nickel prices, also experience volatility. According to CRU, the price of cost, insurance and freight ("CIF") ferronickel with 25.0% to 33.0% nickel content produced in China increased from US\$10,545/TNi in 2017 to US\$13,096/TNi in 2018 due to a decrease in the global supply of ferronickel, driven by the growth in demand for ferronickel for battery manufacturing and the closure of a large number of nickel mines in the Philippines by the Philippines government due to alleged environmental abuses.

According to CRU, traded CIF bauxite prices (excluding value-added tax) in China, which is the world's largest bauxite market, averaged US\$50.7/tonne in 2017 before increasing by US\$2.8/tonne in 2018, mainly driven by an increase in ocean freight rates, high alumina prices and robust bauxite demand. The price of bauxite in China fell to US\$51.1/tonne in 2019 due to oversupply driven by high stockpiles, new bauxite mines in Australia and an increase in shipments from Guinea. In addition, according to CRU, prices for Australia FOB alumina fell by 31.0% between 2008 and 2009 to US\$248/tonne, before increasing to US\$376/tonne in 2011 due to high demand and lower production levels of refineries outside China, especially in the first half of 2011. Alumina prices then fell to US\$319/tonne in 2012 due to weak economic conditions and sluggish demand for aluminum from China before recovering to US\$326/tonne in 2013. Alumina prices subsequently declined by approximately 43.4% from US\$352/tonne in January 2015 to US\$199/tonne in January 2016 due to lower production costs resulting from lower fuel prices. Due to shortage expectations, alumina prices increased to US\$354/tonne in 2017 and further increased to US\$690/tonne in April 2018, before declining to an average of US\$332/tonne in 2019 due to weak demand and an increase in supply from China. Alumina prices increased over 7.0% from the end of January 2020 to February 2020 to US\$305/tonne due to expectations of shortage of alumina resulting from the closure of refineries amid the current COVID-19 pandemic in China.

An oversupply in the global markets in any of the products we sell could, in turn, reduce global prices of such products and the prices we receive under new supply agreements, which may adversely affect our business, financial condition and results of operations. In particular, the demand and prices for our products and, in turn, our financial performance for 2020 and future periods, continues to be affected by the current COVID-19 pandemic. During the first quarter of 2020, gold prices have shown an upward trend, whereas coal, tin, silver, copper, nickel, ferronickel, bauxite, alumina and aluminum prices have shown a downward trend. The decline in

prices for the products we sell may significantly impact the value of our inventories and the profitability of our Group. Further, the sales volumes of certain of our products, including coal, tin, silver, ferronickel and alumina have been lower than expected for the first quarter of 2020. We expect the effect of the current COVID-19 pandemic to result in a substantial decrease in our Group's total revenue for 2020 as compared to 2019. However, given the rapidly changing implications of the spread of COVID-19, it is difficult to assess the full nature and extent of the impact that the outbreak will have on the demand and prices for our products and, in turn, our financial performance for 2020 and future periods. We cannot assure you that commodity prices will not continue to decrease, and a prolonged or significant decline in the prices for our products may materially and adversely affect our business, financial condition and results of operations. See also "Industry Overview — Update in relation to the current COVID-19 pandemic."

Changes in the demand for our products may adversely affect our sales volume and revenues

Our revenues depend on the volume of the products we sell, which in turn depends on the level of demand for these products. Demand for coal is mostly driven by its use as fuel in power and electricity generation, which in turn depends on the prices of alternative energy sources, including nuclear energy, natural gas, oil and renewable energy sources, such as solar and hydroelectric power. In the case of tin, demand is mostly driven by its use in the electronic industry and would be reduced as a result of a slowdown in the electronic industry and if manufacturers continue the trend towards miniaturization of electronic products. In the case of gold, demand is mostly driven by its general perception as a store of value as well as its use by direct consumers, such as for jewelry and coins. In the case of nickel, demand is mostly driven by its use in the stainless steel industry and other industries for nickel-based products, such as non-ferrous alloys, plating and batteries. In the case of bauxite and alumina, demand is mostly driven by growth forecasts in demand for aluminum. A decrease in demand for our products as a result of economic slowdowns or recessions or other factors could decrease the demand for and the volume of products we sell. Any significant decrease in the demand for the products we sell may adversely affect our business, financial condition and results of operations.

We depend on a small number of mines for a substantial portion of our production volume

Substantially all our coal and tin ore is produced at our Tanjung Enim Coal Mine and Bangka Tin Mines, respectively. See "Business — Our Coal Business — Tanjung Enim Coal Mine" and "Business — Our Tin Business — Bangka Tin Mines." These mines are subject to the typical hazards of operating mining facilities, including accidents and natural disasters. See "— Our mines are subject to inclement weather and natural disasters" and "— Risks Common to All Our Businesses — We may experience unexpected disruptions to our mining and smelting operations as a result of operational and infrastructure risks." It is expected that these mines will continue to provide a substantial portion of our operating revenues and cash flows in at least the short to medium-term. Consequently, to the extent that our operations at these mines are subject to a temporary or prolonged disruption as a result of, among other things, suspension or termination of mining licenses, major equipment failure, failure to receive required supplies in a timely manner or at all, or the occurrence of catastrophic events such as fires, floods or adverse weather conditions, our business, results of operations and financial condition may be adversely affected. In addition, if we were to experience production difficulties at our Tanjung Enim Coal Mine or Bangka Tin Mines, we may encounter difficulties in meeting our commitments to our customers in a sufficient or timely manner, or at all. In such event, we may be contractually required to compensate or pay other penalties to our customers. As a result, our customers may terminate or suspend their respective agreements with us, which may adversely affect our business, financial condition and results of operations.

Our estimates of reserves and resources may be inaccurate and materially different from mineral quantities we actually recover

There is a significant degree of uncertainty attributable to the estimation of reserves and resources. The process of estimating reserves and resources is complex and requires us to make significant assumptions in the evaluation of available geological, metallurgical and other data. In addition, for reserve estimates, we must make

assumptions as to commodity prices, drilling expenses, operating expenses and royalty taxes as well as legal, environmental and social factors, among other things. Many of these assumptions are inherently subjective, and the accuracy of our estimates relies in part on our ability to make accurate assumptions. Actual future commodity prices, production, operating expenses, royalty taxes and quantities of recoverable minerals may vary substantially from our assumptions. As a result, our estimates of reserves and resources may be materially inaccurate. The reserves and resources disclosed by us are not necessarily indicative of future results of operations and should not be interpreted as assurances of mining life or the profitability of our future operations. Until minerals are actually mined and processed, the quantity of ore and grades must be considered as estimates only. We cannot assure you that our reserves and resources conform to geological, metallurgical or other expectations or that the estimated volume or grade of ore will be recovered.

Our mining operations and expansion programs depend on our ability to obtain, maintain and renew necessary permits and approvals from the Government

We are required to obtain, maintain and renew various permits and approvals from the Government for our mining operations. The permits and approvals required for operating a mining business include, among others, general corporate, mining, capital investment, labor, environmental and land utilization licenses. Most of these permits have various expiration dates and we must renew all of our permits and approvals before they expire, as well as obtain new permits and approvals when required.

We cannot assure you that the relevant government authorities (whether at the Government or regional government level) will not revoke or renew our existing permits, refuse to issue new permits, or issue permits that conflict with our mining concessions for the approvals which we require to operate our business and implement any expansion programs or that they will not impose unfavorable terms and conditions in connection with the issuance or renewal of such permits or approvals. This uncertainty partly arises as a result of the regulatory regime within which we operate. See “— Our mining operations may be affected by mining and other permits issued by local governments that conflict with our concessions” and “— Risks Relating to Indonesia — The interpretation and implementation of legislation on regional governance in Indonesia is uncertain and may adversely affect our business, financial condition, results of operations and prospects.” For example, in 2004, our mining license for our coal mining concession area in Lahat, South Sumatra, was revoked by the local South Sumatra government as a result of a political dispute with the local Lahat regency government. Following the revocation, a third party was granted rights to commence production operations at the Lahat coal mining concession area. As we believe our Lahat coal mining concession was unrightfully revoked, we have submitted a report to the Corruption Eradication Commission (*Komisi Pemberantasan Korupsi* or “KPK”) and the issue is currently still under investigation. A loss of, or failure to obtain, maintain or renew, any permits, agreements and approvals necessary for mining business operations may adversely affect our business, financial condition and results of operations.

We rely on third-party contractors to conduct certain of our mining operations, and such contractors may be constrained by labor disputes, face operational difficulties or perform unsatisfactory work

We engage third-party contractors to provide the equipment, facilities, services, materials, supplies, labor and management required for the operation and maintenance of certain of our mines. Any significant failure by such third-party contractors in the performance of their obligations to a satisfactory level, or at all, under our operating agreements, whether as a result of financial or operational difficulties or otherwise, may adversely affect our business, financial condition and results of operations. Any delay or failure by our third-party contractors to perform under our operating agreements for any reason, including factors beyond our control, may result in delays in delivery to customers and/or shortfalls in planned production. If such delays and/or production shortfalls were to occur, we may have to purchase products from the market to meet our delivery obligations to our customers or we may be contractually required to compensate our customers for these delays. In such event, we may not be able to recover these penalties or additional costs from the relevant third-party contractor.

Further, our third-party contractors, in particular our mining services providers operating within our mining concession areas, may fail to adequately adhere to our standard operating procedures or guidelines. This may, in

turn, result in our non-compliance with applicable mining laws and regulations or with the terms of our mining concessions, which may require us to suspend operations for a period of time until such non-compliance is corrected. In addition, if any of our third-party contractors are unable to deliver their services according to the negotiated terms and timetable for any reason, we may be required to engage alternative third-party mining contractors. Should any operating agreements with any of our third-party contractors be terminated, mining operations at the affected mine, and potentially all of our mines, will be disrupted for a substantial period while such third-party contractor removes its equipment and a new contractor delivers and installs its equipment. Any of the foregoing may adversely affect our business, financial condition and results of operations.

Our mines are subject to inclement weather and natural disasters

All of our mines are located in Indonesia, which is subject to inclement weather, particularly during the rainy season, as well as natural disasters such as earthquakes and landslides. See “— Risks Relating to Indonesia — Indonesia is located in an earthquake zone and is subject to significant geological risks and other natural disasters that could lead to property damage, loss of life, social unrest and economic loss.” For example, in January 2020, heavy rain and landslides in Pongkor, West Java resulted in disruptions to the road access to our Pongkor Gold Mine, as well as the tailings storage facility at the mine reaching full capacity, thereby requiring us to cease operations at our Pongkor Gold Mine and the tailings storage facility for two weeks. A prolonged rainy season can have a significant impact on mining operations, equipment utilization rates and overburden removal rates. In addition, actual rainfall and rain hours can vary significantly in the regions where we operate from year to year and can result in our utilization and production volumes for a period or a particular year being significantly lower than anticipated and targeted, even after we build in allowances for typical rainfall and rain hours due to seasonal weather conditions. We are also subject to the risks of natural disasters such as earthquakes and landslides, which could significantly damage our mining and production facilities and general infrastructure. For example, a rainstorm and flash flood occurred on Bangka Island in 2016, requiring us to cease operations at our Bangka Tin Mines for a week. Further, extensive damage to our facilities and employee casualties whether as a result of earthquakes, landslides or other natural disasters may adversely affect our ability to conduct our operations and, as a result, reduce our future operating results. Our insurance policies may not be adequate to cover any losses or liabilities resulting from the occurrence of these events, and such events may adversely affect our business, financial condition and results of operations. See “— Risks Common to All Our Businesses — Our insurance may not be adequate to cover our losses or liabilities.”

Our mining operations may be disrupted by opposition from local communities

We face the risk that our mining operations may be disrupted by local community opposition or unrest. Due to the adverse environmental impact associated with mining activities, local communities surrounding the areas in which we conduct mining operations may oppose, at times violently, the carrying out of further mining activities. For example, on December 3, 1998, following the arrests of several illegal miners operating at our gold mining concession areas, we faced riots from small-scale gold miners and local communities at our gold mines and processing plants. As a result, we shut down all our gold mining operations for ten days. In July 2017, we faced strong opposition from local fisherman with respect to damage to the coral reef as a result of our offshore tin mining operations at our Bangka Tin Mines. After holding meetings with local residents, we resolved the situation with an agreement to conduct coral reef rehabilitation by setting up fish shelters in the affected offshore mining areas. In February 2019, certain workers that were hired on a fixed-term employment (*Perjanjian Kerja Waktu Tertentu* or “PKWT”) basis at our Gag Nickel Mine protested the decision by our subsidiary, PT Gag Nickel, to change their status from PKWT workers to outsourced workers as it would result in a change to the types of benefits the workers would be entitled to. The workers held a strike for ten days, during which we were required to cease operations at our Gag Nickel Mine, and which was eventually resolved after PT Gag Nickel canceled the plan to change the status of such workers. Local communities may also cause disruptions arising out of, but not limited to, disputes relating to compensation claims for land acquisitions and land use rights, and contractor or employee death or serious injury. We cannot assure you that we will be able to successfully resolve or overcome opposition from local communities that we may encounter in the future. In the event that our mining operations are disrupted by local community opposition or unrest and we are unable to resolve such disruption in

an amicable or timely manner or at all, we may not be able to meet production targets, and our business, financial condition and results of operations may be adversely affected.

Our operations are subject to environmental laws and regulations which may cause us to incur significant costs, liabilities or interrupt or cease mining operations, any of which may adversely affect our results of operations

Due to the significant impact of mining operations on the environment, our mining operations are generally subject to extensive Indonesian laws and regulations governing operational activities such as exploration, development, production, health and safety, toxic substances, waste disposal, protection and remediation of the environment, land rehabilitation and abandonment and other related matters. See “Indonesian Regulatory Framework — Environmental Regulation.” These laws and regulations require various governmental permits and licenses to be granted to us prior to the commencement of mining operations on a particular site. While appeals are available should the Government or local government deny a certain level of production, we cannot assure you that such appeal will be successful or that we will be able to mine at our desired levels or amounts that meets the minimums stated in our sales agreements. Our third-party contractors are required to review and comply with our environmental and health and safety standards and under the terms of our concession licenses, we are responsible for ensuring compliance with applicable Indonesian laws and regulations and applying for such certifications, permits and licenses.

The Indonesian environmental laws and regulations also set forth our obligations to conduct reclamation and rehabilitation of all areas being mined within our concession areas. Our mine reclamation and rehabilitation liabilities can, however, change significantly if our actual costs incurred in connection with mine reclamation and rehabilitation vary from our assumptions or if governmental laws or regulations change either while we hold the current license or upon the renewal of our licenses. See “— We may be adversely affected by changes to laws and regulations relating to the mining industry.” Any significant unanticipated increase in our reclamation and rehabilitation costs may adversely affect our business, financial condition and results of operations. If we or any of our third-party contractors fail to comply with applicable Indonesian environmental laws and regulations, or if an incident were to occur on a mining site owned by us, we may be liable for any damages or expenses arising out of or in connection with such incident, and our business, financial condition and our results of operations may be adversely affected.

In addition, regulatory and industry response to climate change, restrictions, caps, taxes, or other controls on emissions of greenhouse gases, including on emissions from the combustion of carbon-based fuels, controls on effluents and restrictions on the use of certain substances or materials, could significantly increase our operating costs. A number of governmental bodies have introduced or are contemplating regulatory changes in response to the potential impacts of climate change. For example, Indonesia and many other nations are signatories to international agreements related to climate change including the 1992 United Nations Framework Convention on Climate Change, which is intended to limit or capture emissions of greenhouse gas, such as carbon dioxide, the 1997 Kyoto Protocol, which established a potentially binding set of emissions targets for developed nations and, most recently, the 2016 Paris Agreement, which extended the potentially binding set of emissions targets to all nations. The enactment of comprehensive legislation focusing on greenhouse gas emissions could also affect our customers such as, for example, by restricting the use of coal in primary markets serviced by us. Further, our compliance with any new environmental laws or regulations, particularly relating to greenhouse gas emissions, may require significant capital expenditure or result in the incurrence of fees and other penalties in the event of noncompliance. We cannot assure you that future legislative, regulatory, international law, industry, trade or other developments will not negatively impact our mining operations and the demand for the products we mine and sell. In addition, we may be subject to activism from environmental groups and organizations campaigning against our mining activities, which could affect our reputation and disrupt our operations. For example, activism against the coal industry has pressured several banks and other financial institutions to implement policies against financing companies engaged in coal mining or coal-fired power generation including, in some cases, worldwide bans on providing lending, underwriting and advisory services for transactions associated with coal mining and coal-fired power projects. As more banks and financial institutions cease to provide key financial services to companies operating in the coal industry, including our Company as well as coal-fired power plant

operators and other end-users of our coal products, our access to additional funding may be restricted and the demand for our coal products may significantly decline. See also “— The mining industry is capital intensive and we may experience limited availability of funds” and “— The prices of the products we sell are cyclical in nature and subject to fluctuations.” If any of the foregoing were to occur, our business, financial condition and results of operations may be adversely affected.

We may be adversely affected by changes to laws and regulations relating to the mining industry

The Indonesian mining industry is subject to extensive regulation within Indonesia, and there have been major developments in laws and regulations applicable to mining concession holders and mining services operators. In particular, the enactment of Law No. 4 of 2009 on Coal and Mineral Mining on January 12, 2009 (the “Mining Law”) replaced the previous mining regulatory framework. The Mining Law, which sets out the regulatory framework for the mining industry in Indonesia, only contains substantive principles and leaves many specific issues to be addressed in implementing regulations, such as the appointment of mining services providers and domestic processing. Since the enactment of the Mining Law, the Government has issued various implementing regulations with respect to the provisions of the Mining Law as well as other regulations applicable to the mining industry and our business. We cannot assure you that future regulatory changes affecting the mining industry in Indonesia will not be introduced or unexpectedly repealed, or that new interpretations of existing laws and regulations will not be issued, which might have a significant impact upon our business, financial condition and results of operations. For example, on August 30, 2019, the MEMR issued a new regulation imposing a ban on the export of nickel ore from Indonesia for the purpose of increasing domestic processing and reducing the country’s economic reliance on raw material exports, see “Indonesian Regulatory Framework — Mining Regulation — Export licensing — Mineral export license.” In response to this, in November 2019, the EU Trade Commission filed a complaint with the World Trade Organization accusing Indonesia’s ban on nickel ore exports of breaking free trade rules as it allowed Indonesia to boost steel production within its own borders through unfair benefits to its domestic nickel industry. The nickel ore export ban came into effect on January 1, 2020 and has resulted in our inability to continue supplying nickel to our international customers, which may result in a significant decrease in our revenue for sale of nickel ore and adversely affect our business, results of operation and financial condition, see “Management’s Discussion and Analysis of Financial Condition and Results of Operations — Factors Affecting Our Business and Results of Operations — Government policies and changes in law.” If we fail to comply with the Mining Law and its implementing regulations, we may be subject to administrative sanctions in the form of written warnings, temporary suspensions or the revocation of our mining licenses. A court or an administrative or regulatory body may in the future render interpretations of these laws and regulations, or issue new or modified regulations that differ from our interpretation, which may adversely affect our business, financial condition and results of operations. For more information regarding the Mining Law and other applicable regulations, see “Indonesian Regulatory Framework.”

In addition, other countries, including those where our customers, suppliers, contractors and other entities that we conduct business with are located, may implement laws and regulations that may affect our business. These may relate to, among others, taxation, royalties, import and export restrictions, travel restrictions and environmental protection. For example, since 2017, the Chinese government has intensified administrative measures to control coal imports into China, including imposing coal import quotas, halting the berthing of vessels with coal cargoes, and freezing the import of Australian thermal coal, in order to support the Chinese domestic coal sector and encourage the use of cleaner fuels and renewable energy. Such import restrictions by China, one of the world’s largest consumers of thermal coal and previously one of our largest markets for our coal business, have affected our coal business in China and required us to shift our target markets to other countries, such as India, South Korea, Japan and Hong Kong. As a result, our total revenue from coal sales to China decreased by 86.8% from Rp.2,453.3 billion for the year ended December 31, 2018 to Rp.323.6 billion (US\$23.3 million) for the year ended December 31, 2019. In addition, a decrease in China’s demand for thermal coal may create downward pressure on global coal prices and the prices we receive for the sale of our coal, which may adversely affect our business, financial condition and results of operations. We cannot assure you that China, or other countries where our customers, suppliers, contractors and other entities that we conduct business

with are located, will not impose or continue to impose laws and regulations which may adversely affect our business, financial condition, results of operations and prospects, including additional compliance costs to adhere to new regulations, taxation and import and export restrictions that may reduce demand for our products or create downward pressure on global commodity prices.

Our mining operations may be affected by mining and other permits issued by local governments that conflict with our concessions

Under the Indonesian constitution, all mineral resources are deemed to be national assets and are therefore controlled by the Government. Under previous mining laws and regulations, concession holders were able to conduct mining activities in Indonesia under either a contract of work (*Kontrak Karya* or “CoW”) or a mining authorization (*Kuasa Pertambangan* or a “KP”). See “Indonesian Regulatory Framework — Mining Regulation — Mining licensing system.” These contracts and authorizations were typically granted for a period of 20 to 30 years, with extensions permitted. The enactment of the Mining Law stipulates that previously granted mining rights (either through a CoW or a KP) will continue to be valid until expiry, subject to certain adjustments. Under current mining laws, a new mine license will be granted through the issue of either a mining license (*Izin Usaha Pertambangan* or “IUP”) or a special mining license (*Izin Usaha Pertambangan Khusus* or “IUPK”) for areas which have been designated as being of national strategic interest or state reserve areas. While an IUPK can only be issued by the Government, through MEMR, IUPs may be issued by the MEMR or the relevant provincial government, municipal government or district government, based on the geographical coverage of the mine and its infrastructure requirements. In 2014, based on Law No. 23 of 2014, which was further amended by the Law No. 2 of 2015 and Law No. 9 of 2015 on Regional Autonomy, the authority held by a regent or mayor in relation to issuance of mining licenses has been revoked and transferred to provincial government or central government.

Under both the previous and current regulatory regimes, the delegation and transfer of authority to issue concession or mining license rights gives rise to the possibility of overlap between licenses or concessions issued by different authorities. There have been instances in the past where a party was granted an IUP (previously, a KP) for mining of resources by a regional government that overlapped with a concession granted by the MEMR. As Indonesia does not have a centralized system for issuance of licenses, it is possible that the provincial government and the Government issue different licenses to different entities covering the same areas of lands. Therefore, it is also possible that the concessions we have been awarded overlap with the holder of plantation rights, oil and gas rights or forestry rights. Overlaps have also occurred in relation to plantation and forest permits. We cannot assure you that local miners will not receive permits to mine, or obtain logging or plantation permits within the concession areas of our concessions from local or regional governments which conflict with our mining rights under the terms of our coal concessions. We have in the past been unsuccessful in legal disputes relating to overlap between our mining concessions and land owned by third parties. If any future overlap were to occur or is alleged to have occurred, our mining operations on such sites may be disrupted, and in the event that such third-party claims are successful, we may be required to cease our mining operations on such sites or pay fees or penalties to such third parties, which may adversely affect our business, financial condition and results of operations. See “— Risks Relating to Indonesia — The interpretation and implementation of legislation on regional governance in Indonesia is uncertain and may adversely affect our business, financial condition, results of operations and prospects.”

We may be affected by issues relating to small-scale and illegal mining

Small-scale and illegal mining is a common issue for mine operators in Indonesia. Small-scale and illegal mining in and around our mining concession areas could result in depletion of our reserves or alleged non-compliance with environmental regulations, such as when unauthorized mining is conducted within our concession areas where we are obligated to conduct reclamation activities. We have implemented security measures at our concession areas to protect against unauthorized small-scale and illegal mining, including deploying our security guards as well as collaborating with the Indonesian national police and national armed forces to secure our concession areas. We have also made efforts to recruit small-scale miners who would otherwise be operating, unauthorized, in our tin concession areas. However, we cannot assure you that the small-

scale miners that we collaborate with will adequately follow our standard operating procedures, including our health, safety and environmental guidelines, when operating within our mining concession areas. Such failure could result in non-compliance with applicable laws and regulations as well as accidents or fatalities within our mining concession area, for which we may be ultimately responsible. Such events may interrupt, or require us to suspend, our mining operations for a period of time, which may adversely affect our business, financial condition and results of operation. We cannot assure you that our efforts will be successful in reducing the level of unauthorized mining that occurs at our mining concession areas. Any unauthorized mining in any of our concession areas could lead to reserves losses or rehabilitation costs for illegally mined areas if we are alleged to have been undertaking illegal mining activities, and our business, financial condition and results of operations may be adversely affected.

The mining industry is capital intensive and we may experience limited availability of funds

Our exploration, mining and processing operations are very capital intensive and rely on the availability of sizeable amount of funds for working capital and capital expenditure. We are undertaking various development and expansion plans for which we will have to allocate additional capital. See “— Risks Common to All Our Businesses — Our expansion projects are subject to operational risks that may result in increased costs or delays that prevent their successful implementation.” While we have unutilized banking facilities and available funds, we cannot assure you that we will be able to refinance borrowings as and when such borrowings become due on commercially reasonable terms or at all. We may be required to meet our funding needs by procuring financing on commercially unattractive and/or restrictive terms. Further, our level of borrowings would mean that an increased portion of our expected cash flow may have to be set aside for the payment of interest and principal repayment on our borrowings, thereby reducing the funds available to us for use in our general business operations.

Our level of borrowings, coupled with the current global economic climate, may also result in accelerated demands for payment or calls by lenders during events of default. This may restrict our ability to obtain additional financing for capital expenditure, acquisitions or general corporate purposes and may cause us to be particularly vulnerable in the current or any future general economic downturn. In addition, in the event we are required to restructure our borrowings or provide funding to any of our subsidiaries, associated companies or joint ventures to optimize our capital management structure, we may have to incur additional borrowings and may decide to reduce our planned capital expenditures. We cannot assure you that we will be able to obtain additional financing for our needs either on a short-term or long-term basis on terms favorable to us or at all. The factors that could affect our ability to procure financing include the cyclicity of our businesses and market disruption risks which could adversely affect the liquidity, interest rates and the availability of funding sources. In the event that we are unable to obtain adequate funding to support our existing operations and/or development and expansion plans, our business, results of operations and financial condition may be adversely affected.

Our exploration efforts are highly speculative in nature and we may be unable to locate additional reserves in our concession areas or secure new concessions with reserves that are economically recoverable

Our reserves will decline as mining continues and we depend on our ability to replenish our reserves and resources for our long-term viability. This, in turn, depends on our ability to acquire additional mining concessions and/or locate additional resources that are economically recoverable within our concession areas or in such other areas where we have permission to carry out exploration activities. See “— Our mining operations and expansion programs depend on our ability to obtain, maintain and renew necessary permits and approvals from the Government.” Mining exploration is highly speculative in nature, involves many risks, including the risk that we will encounter no commercially mineable reserves, and is frequently unsuccessful. Moreover, once mineable reserves are discovered, it may take a number of years from the initial phases of drilling before production is possible, during which time the economic feasibility of production may change. Substantial expenditures are required to establish reserves and resources through drilling, to determine processes to extract the metals and, if required, to construct mining and processing facilities and obtain the rights on the land and resources required to develop the mining activities. Although we devote efforts to undertake exploration activities at our existing mines and areas where we have exploration permits, we cannot assure you that our

exploration programs will result in the expansion or replacement of current production with new proven and probable reserves. Our inability to acquire additional mining concessions or locate economically viable reserves could lead to a decrease in our production levels, which may adversely affect our business, financial condition and results of operations.

In addition, as reserves are gradually depleted in the ordinary course of a given mining operation, the average mining depth and operating distance from processing infrastructure increases. As our more easily accessible reserves are depleted, we will need to mine deeper and implement more complex and labor intensive extraction procedures. These rising extraction costs affect the estimated life of the mine, which is determined on the basis of the feasibility of continued extraction in the context of rising costs, and may adversely affect our business, financial condition and results of operation.

Risks Relating to Our Aluminum Smelting Business

The demand for and price of our aluminum products are cyclical and volatile

The aluminum industry is cyclical, and we are subject to cyclical fluctuations in global economic conditions and aluminum end-use markets. The demand for aluminum is sensitive to, and quickly impacted by, the demand for finished goods manufactured by our customers in industries that are cyclical, such as the commercial construction and transportation, automotive and aerospace industries, which, in turn, may be affected by changes in the global economy, currency exchange rates, energy prices or other factors beyond our control. The demand for aluminum is also highly correlated to global economic growth, particularly China's economic growth and demand for aluminum, as the Chinese market is a significant source of global demand for and supply of commodities, including aluminum. A sustained slowdown in China's economic growth and aluminum demand, or a significant slowdown in other markets, that is not offset by decreases in supply of or increased demand for aluminum in emerging economies, such as India, Brazil and other Southeast Asian countries, would negatively impact the global supply and demand for aluminum and aluminum prices. For example, economic activity in several countries around the world, including China, continues to be affected by the current COVID-19 pandemic, see "— Risks Common to All Our Business — Outbreak of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia, and elsewhere may adversely impact our business, financial condition and results of operations." We are unable to predict the future course of industry variables or the strength of the global economy and the effects of government intervention. Negative economic conditions, such as a major economic downturn, a downturn in the commodity sector, disruptions in the financial markets, or a prolonged recovery period, may adversely affect our business, financial condition and results of operations.

We price our primary aluminum products by reference to international market prices. As the international market price for these products is an important consideration in the pricing of our products, volatility of international market prices of primary aluminum products can significantly affect our results of operations. International aluminum prices consists of several components including: the underlying base metal component, which is typically based on quoted prices from the LME; the regional premium, which comprises the incremental price over the base LME component that is associated with the physical delivery of metal to a particular region (e.g., the premiums for supply of aluminum to main Japanese ports, also known as the "MJP" premium); and the product premium, which represents the incremental price for receiving physical metal in a particular shape (e.g., cod, billet, slab, rod) or alloy. Each of the above three components has its own drivers of volatility.

The LME price is typically driven by macroeconomic factors, global supply and demand of aluminum (including expectations for growth and contraction and the level of global inventories), and trading activity of financial investors. Changes in aluminum-based industries can also have a significant impact on the LME price and the overall aluminum industry. According to CRU, between 1996 and 2004, annual average prices of aluminum fluctuated within a relatively narrow range of US\$1,364 to US\$1,721/tonne, and then subsequently increased to US\$2,594/tonne and US\$2,662/tonne in 2006 and 2007, respectively. The LME three-month aluminum prices peaked at over US\$3,300/tonne in July 2008, but subsequently fell to below US\$1,400/tonne in early 2009 due to the global financial crisis. Aluminum prices recovered strongly in 2010 to an average of US\$2,173/tonne and rose again in 2011 to an average of US\$2,395/tonne due to increasing demand from sectors

such as construction and transportation. The LME three-month aluminum price declined to below US\$2,000/tonne in 2012 due to the slowdown of the growth in China's GDP and the growing debt crisis in Europe leading to lower consumption of aluminum, and then further declined to an average of US\$1,887/tonne in 2013 due to weak demand and high inventories outside China. The global economic recovery in 2014 lifted aluminum prices moderately to US\$1,894/tonne. Aluminum prices declined further to an average of US\$1,661/tonne and US\$1,605/tonne in 2015 and 2016, respectively, due to weak demand globally and the continuous oversupply of aluminum, particularly in China which commissioned new aluminum production facilities in 2015 and 2016. In 2017, aluminum prices recovered and increased to US\$2,117/tonne due to strong global demand and the closure of aluminum production facilities in China which did not adhere to environmental regulations. Global aluminum demand declined in 2019 due to a combination of regulatory, trade and policy issues in connection with the U.S. and China trade war and corresponding protectionist measures, which resulted in a decline of aluminum prices to US\$1,811/tonne in 2019. While aluminum prices have declined due to the current COVID-19 pandemic which has reduced industrial and construction activities globally, they hovered above US\$1,700/tonne in January and February 2020. As concerns over a global recession mounted, the LME three-month aluminum price dropped further to below US\$1,500/tonne in early April. The demand and supply of aluminum and, in turn, the prices for aluminum, continues to be affected by the current COVID-19 pandemic. Given the rapidly changing implications of the spread of COVID-19, it is difficult to assess the full nature and extent of the impact that the pandemic will have on aluminum prices. See also "Industry Overview — Update in relation to the current COVID-19 pandemic."

In addition, since 2013, the LME has been engaged in a program aimed at reforming the rules under which registered warehouses in its global network operate. Pursuant to such reform initiatives, the LME has from time to time implemented changes to the warehouse rules, including in 2015, 2016 and, most recently, November 2019. These LME warehouse rule changes, and any subsequent changes the LME chooses to make, could impact the supply/demand balance in the primary aluminum physical market and may impact regional delivery premiums and LME aluminum prices. Decreases in regional delivery premiums and/or decreases in LME aluminum prices could have a material adverse effect on our business, financial condition and results of operations. Regional premiums tend to vary based on the supply of and demand for metal in a particular region and associated transportation costs. Decreases in regional premiums that participants in the physical metal market pay for immediate delivery of aluminum would have a negative impact on our business. LME warehousing rules and surpluses have also caused regional premiums to decrease. Product premiums are generally a function of supply and demand for a given primary aluminum shape and alloy combination in a particular region. A sustained weak LME aluminum pricing environment, deterioration in LME aluminum prices, or a decrease in regional premiums or product premiums may adversely affect our business, financial condition and results of operations.

Market-driven balancing of global aluminum supply and demand may be disrupted by non-market forces and result in an oversupply of aluminum

The existence of non-market forces on global aluminum capacity, such as political pressures in certain countries to keep jobs or to maintain or further develop industry self-sufficiency, may prevent or delay the closure or curtailment of aluminum smelters of certain producers including us, respective of their or our position on the industry cost curve. For example, continued Chinese excess capacity overhanging the market and increased exports from China of heavily subsidized aluminum products may continue to materially disrupt world aluminum markets causing continued pricing deterioration. In addition, reductions in production may be delayed or impaired by the terms of long-term contracts to buy power or raw materials. If industry overcapacity persists due to the disruption by such non-market forces on the market-driven balancing of the global supply and demand of aluminum, the resulting weak pricing environment and margin compression may adversely affect our business, financial condition and results of operations.

Our aluminum smelting business may be adversely affected by increases in the cost of raw materials

Our aluminum smelting business is affected by changes in the cost of raw materials, including alumina, coke, coal tar pitch, aluminum fluoride and other key inputs, as well as freight costs associated with

transportation of raw materials to our smelters. We may not be able to fully offset the effects of higher raw material costs through price increases, productivity improvements or cost reduction programs. Similarly, our operating results are affected by significant lag effects of declines in key costs of production that are commodity or LME-linked. For example, declines in the costs of alumina during a particular period may not be adequate to offset sharp declines in metal prices in that period. We could also be adversely affected by large or sudden shifts in the global inventory of aluminum and the resulting market price impacts. Increases in the cost of raw materials, or decreases in input costs that are disproportionate to concurrent sharper decreases in the price of aluminum may adversely affect our business, financial condition and results of operations.

Our aluminum smelting business may be adversely affected by interruptions in our supply of electricity

We consume a substantial amount of electricity as the smelting of primary aluminum employs an electrolytic reduction process that requires a continuous supply of electricity in large quantities. Our aluminum production plants are completely reliant on the energy generated by our two hydroelectric power plants, our Siguragura Power Plant and Tangga Power Plant, which are, in turn, dependent on the water levels of Lake Toba. See “Business — Our Aluminum Smelting Business — Aluminum production plants and supporting facilities — Hydroelectric power plants.” As a result, low water levels at Lake Toba could result in disruptions to our supply of electricity from our Siguragura Power Plant and Tangga Power Plant and require us to hold, re-organize, or partially or completely shut down our aluminum smelting operations. In addition, any unplanned outages at our Siguragura Power Plant and Tangga Power Plant due to equipment failure or other causes may also negatively affect our aluminum smelting operations. Since we began our aluminum smelting operations over 30 years ago, we have experienced an interruption of electricity supply from our power plants only once, for four hours, in September 2010. The interruption was a result of a power outage in the Kuala Tanjung area where our smelter is located. We responded to the outage by reducing the amperage of, and number of pot cells in operation at, our smelter. By managing the amperage and pots properly, we were able to ensure that the molten aluminum in the pots did not solidify during the power outage and to resume operations after the four-hour blackout period without difficulty. We cannot assure you that we will be able to effectively manage, if at all, any future interruptions of electricity supply from our power plants. Prolonged interruptions of electricity supply can result in production shutdowns, increased costs associated with restarting production and the waste of production in progress as well as damage to or destruction of the equipment and facilities. If any of the foregoing were to occur or we experienced a major suspension or termination of electricity and power supply to our smelters as a result of some other event, our business, financial condition and results of operations may be adversely affected.

Risks Common to All Our Businesses

Outbreak of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia, and elsewhere may adversely impact our business, financial condition and results of operations

The outbreak of an infectious disease in Asia, including Indonesia, or elsewhere, or fear of an outbreak, together with any resulting restrictions on travel or quarantines imposed, could have a negative impact on the economy and business activity in Indonesia and thereby adversely impact our revenue. Examples include the outbreak in 2003 of Severe Acute Respiratory Syndrome (“SARS”), the outbreak in 2004 and 2005 of avian influenza (also known as bird flu), the outbreak in 2009 of influenza H1N1 and the outbreak from 2014 through 2016 of Ebola.

More recently, in December 2019, a human infection originating in China was traced to a novel strain of coronavirus (also known as COVID-19). The COVID-19 virus has since spread to over 200 countries and territories, including Indonesia, the United States, China, Japan, South Korea, India, Singapore, the United Kingdom and several countries across Europe. On March 11, 2020, the World Health Organization declared the current outbreak of COVID-19 a pandemic, expanding its assessment of the threat beyond the global health emergency it had announced in January. On April 13, 2020, the President of Indonesia issued Presidential Decision No. 12 of 2020 declaring the current COVID-19 pandemic a national disaster. The current COVID-19 pandemic and preventative or protective actions that governmental authorities around the world have taken to counter the effects of COVID-19, including social distancing, office closures, travel restrictions and the imposition of

quarantines, have resulted in a period of business disruption, including prolonged disruptions to manufacturing and global supply chains as well as restrictions on business activity and the movement of people comprising a significant portion of the world's population, and a decrease in economic activity in several countries, including Indonesia. As a result, the current COVID-19 pandemic has led to uncertainty in the global economy and significant volatility in global financial markets, which may have a negative impact on global economic conditions and lead to significant declines in the demand for and prices of the commodities we produce and sell. In particular, a number of governments and organizations have revised GDP growth forecasts for 2020 downward in response to the economic slowdown caused by the spread of COVID-19, and it is possible that the current COVID-19 pandemic will cause a prolonged global economic crisis or recession.

The current COVID-19 pandemic has directly impacted our business operations, requiring us to adopt precautionary measures such as telecommuting, limiting face-to-face meetings and restricting domestic and overseas business travel. In addition, the current COVID-19 pandemic has affected and may continue to affect our ability to continue doing business with our customers, suppliers, third-party contractors and other parties that we conduct business with or that operate within our supply chains for our various businesses. For example, China, which is one of the largest consumers of coal and the minerals that we produce as well as the source of various key resources for our businesses, including equipment, raw materials, and human labor and expertise, continues to be adversely affected by the current COVID-19 pandemic. In particular, the engineering, procurement and construction ("EPC") contractors that we have appointed for several of our development projects are based in China, and the current COVID-19 pandemic has affected and may continue to affect their ability to meet their obligations to us in a timely manner or at all. The current COVID-19 pandemic may also result in a significant decrease in demand for our products or a lack of supply of materials we source from China, such as the equipment and expertise we require for our tin fuming technology and the raw materials for our aluminum production, or that we source from other countries that have been or continue to be adversely affected by the outbreak, which could require us to curtail our business operations. Further, the current COVID-19 pandemic has affected and may continue to affect our ability to meet our obligations to our customers, whether due to restrictions placed on business activities and movements in Indonesia, in the countries where our customers are located, or other regions operating within our supply chains, or other reasons stemming from COVID-19. For example, as a result of the Indian government's imposition of a nationwide lockdown beginning on March 25, 2020 in response to the spread of COVID-19 in India, we have experienced difficulties, including delays and cancellations, in fulfilling sales to our customers located in India. Although the current COVID-19 pandemic has not lead to any major disruptions to operations at our mines or production facilities, we may be required to suspend or shut down operations at some or all of our mines or facilities as a result of the pandemic. In such event, our business, financial condition and results of operations may be materially and adversely affected.

We expect the effect of the current COVID-19 pandemic to result in a substantial decrease in our Group's total revenue for 2020 as compared to 2019. However, the extent to which the current COVID-19 pandemic will impact our operations and revenues will depend on future developments, which are highly uncertain and cannot be predicted with confidence, including the scope, severity and duration of the pandemic, the actions taken to contain COVID-19 or mitigate its impact, and the direct and indirect economic effects of the illness and containment measures, among others. Any intensification of the current COVID-19 pandemic or any recurrence of SARS, influenza, Ebola or other contagious disease in Asia, including Indonesia, or elsewhere may adversely affect our business, financial condition and results of operations. Further, to the extent the outbreak of any infectious disease, including the current COVID-19 pandemic, adversely affects our business and financial results, it may also have the effect of exacerbating many of the other risks described in this "Risk Factors" section, such as those relating to the fluctuations in the demand, supply and prices for the products we sell, fluctuations in the value of the Rupiah, successful implementation of our expansion projects, the downgrade of credit ratings of Indonesia and Indonesian companies, and our ability to maintain sufficient levels of working capital and comply with the restrictions and covenants contained in our debt agreements. See also "Management's Discussion and Analysis of Financial Condition and Results of Operations — Factors Affecting Our Business and Results of Operations — Current COVID-19 pandemic" and Note 48d to our Audited Consolidated Financial Statements included in this Offering Memorandum.

Shortages of electricity or water supply may adversely affect our operations

We require significant amounts of electricity for our operations and obtain substantially all of the necessary electric power for the operation of our equipment and facilities from our own coal-fired power plants, diesel power plants and hydroelectric power plants. We also have some small thermoelectric generators at certain of our tin smelting and refinery facilities, gold mining and precious metal processing and refining facilities, nickel mining facilities and gas cleaning facilities that serve only as a backup in case of interruptions. Prolonged interruptions of electricity supply can result in lengthy production shutdowns, increased costs associated with restarting production and the waste of production in progress. Further, our backup generators may malfunction or be insufficient to support our production facilities in the event of an interruption in our main electricity sources. In extreme cases, interruptions of electricity supply can also cause damage to or destruction of the equipment and facilities. In addition, the prices for energy resources may be subject to volatility or curtailment, respectively, due to, among other factors, new laws or regulations, imposition of new taxes or tariffs, supply interruptions and equipment damage. In the event of any disruptions in our electricity plants, we cannot assure you that we will have access to other sufficient electricity sources at favorable prices and conditions, which could have a material adverse effect on our business, financial condition and results of operations.

We also require significant quantities of water for our operations and obtain the majority of the water we use for our operations from our own water facilities. Although each operation currently has access to sufficient water resources to cover its operational demands, the extinction of some or all water resources, failure in the water supply infrastructure, or the loss of some or all water supply contracts or relevant rights in relation to any of our mines or operations, in whole or in part, or shortages of water, could require us to curtail or shut down operations and could prevent us from pursuing expansion opportunities. We cannot assure you that water will be available in sufficient quantities to meet our future production needs or will prove sufficient to meet our water supply needs particularly if other conflicting uses of water, such as human consumption, are prioritized over industrial uses. A reduction of our water supply may adversely affect our business, financial condition and results of operation.

Our expansion projects are subject to operational risks that may result in increased costs or delays that prevent their successful implementation

An integral part of our business strategy is to invest in expanding our production capacity. We are in the process of, among others, implementing new tin smelting technology, upgrading the capacity of our existing aluminum reduction plant, developing a new smelter grade alumina refinery and a new calcined petroleum coke plant, and exploring tin mining opportunities in Nigeria. See “Business — Our Tin Business — Tin development projects,” “Business — Our Bauxite Business — Alumina production plants — Mempawah Smelter Grade Alumina Refinery project” and “Business — Our Aluminum Smelting Business — Aluminum development projects.” As we have surplus coal production capacity and inventory, our expansion projects for our coal business are focused on increasing transportation capacity for coal produced at our Tanjung Enim Coal Mine and the expansion of our downstream coal businesses through the development of a coal-fired power plant and a coal gasification plant. See “Business — Our Coal Business — Infrastructure development projects” and “Business — Our Coal Business — Downstream coal businesses.” Our expansion projects are subject to a number of risks that may adversely affect the prospects and profitability of such projects, including the following:

- unfavorable results from our feasibility studies;
- we may fail to obtain, or experience delays or higher than expected costs in obtaining, the required agreements, authorizations, licenses and permits to develop a project, including the prior consultation procedure and agreements with local communities;
- permits, authorizations, or rights granted to third parties that could conflict with, and require us to alter, our expansion plans;
- we may encounter delays or higher than expected costs in obtaining the necessary equipment, machinery, materials, supplies, labor or services and in implementing new technologies to develop and operate a project;

- our efforts to develop projects according to schedule may be hampered by a lack of infrastructure, including a reliable power supply;
- adverse mining conditions may delay and hamper our ability to produce the expected quantities and qualities of minerals;
- conflicts with local communities and/or strikes or other labor disputes may delay the implementation or the development of projects;
- accidents, natural disasters and equipment failures, as well as major public health issues such as the current COVID-19 pandemic, could result in delays, cost overruns, or the suspension or cancelation of projects; and
- changes in market conditions or regulations may make a project less profitable than expected at the time we initiated work on it.

For example, the EPC contractors that we have appointed for several of our projects, including for the development of our Sumsel 8 CFPP, Mempawah Smelter Grade Alumina and Ausmelt TSL tin smelting technology, are based in China. See “Business — Our Coal Business — Downstream coal businesses — Sumsel 8 CFPP project” and “Business — Our Bauxite Business — Alumina production plants — Mempawah Smelter Grade Alumina Refinery project.” The current COVID-19 pandemic has affected and may continue to affect the ability of our EPC contractors to meet their obligations to us in a timely manner, or at all, whether due to travel restrictions or other reasons. As a result, we expect there to be delay to our timelines for these projects, which could lead to an increase in our costs for, or the suspension or cancelation of, such projects. See “— Risks Common to All Our Businesses — Outbreak of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia, and elsewhere may adversely impact our business, financial condition and results of operations.”

In addition, some of our development projects have no operating history upon which to base estimates of production and operating costs. As a result, actual economic returns may differ significantly from our expectations and our feasibility studies.

We may experience unexpected disruptions to our mining and smelting operations as a result of operational and infrastructure risks

Our mining and smelting operations and transportation activities are subject to a number of risks that could disrupt production for varying lengths of time. These risks and changing conditions include operating and infrastructure risks such as fires, explosions, embargoes, injuries and casualties arising from industrial and mining accidents, labor disputes, unexpected geological conditions, engineering and design issues, mine collapses and environmental hazards; failure by us or any of our contractors to obtain key machinery, equipment and spare parts; unexpected failures and maintenance problems of machinery, equipment, and power plants; changes in geological conditions and geotechnical instability of our mining pits; delays or disruptions in drilling, excavating and other third-party delays; barging delays due to river congestion and limited rainfall causing shallow conditions along the key rivers we use in our barging operations; inability to access haulage roads, jetties, ports and other infrastructure, which we do not currently own; and issues relating to illegal mining, see “— Risks Common to All Our Mining Businesses — We may be affected by issues relating to small-scale and illegal mining.” For example, in January 2017, a fire occurred at our Logam Mulia Precious Metals Refinery. Although the fire was quickly extinguished and the equipment damage and business interruption as a result of the fire was covered by insurance, we were required to partially cease operations at our Logam Mulia Precious Metals Refinery for a month, which resulted in a delay in satisfying certain of our contractual obligations. In addition, the cutter suction dredges we utilize for our offshore tin mining have, in the past, experienced mechanical failures and caught on fire or sunk. Future occurrences of such mechanical failures may lead to interruptions in our tin mining operations and the incurrence of costs associated with the retrieval, repair or replacement of such dredges. If any of the foregoing operational and infrastructure risks were to reoccur or materialize, we could incur substantial losses that may involve serious personal injury or loss of life, severe damage to or destruction of property and equipment, pollution, destruction of natural resources or other

environmental damage, environmental remediation responsibilities, regulatory investigation and penalties and suspension of operations. As a result, our business, financial condition and results of operations may be adversely affected.

We are subject to the control of the Government, whose interests may differ from the interests of our Group and our creditors

As our sole shareholder, the Government has control over us and has the power to approve matters such as the election and removal of members of our Board of Commissioners and Board of Directors, amendments to our Articles of Association, changes to our capital structure and significant mergers and acquisitions, consolidations or liquidation of our Company. The Government has historically influenced, and is likely to continue to influence, our strategy, operations and management policies, and it also has the ability to influence and control other Government-owned entities whom we conduct business with, see “— We engage in transactions with certain related parties that could result in conflicts of interest.” In addition, as our sole shareholder, the Government is entitled to receive dividend payments from us on an interim or annual basis and plays a key role in our budget planning. For further details, see “Relationship with the Government.”

We cannot assure you that the Government will exercise its control and influence in the interest of our Group or our creditors. For example, we may be tasked by the Government to manage certain mining assets in the Government’s possession, on an interim or long-term basis, on financial or other terms that may not be beneficial to us. If we are required to act in the Government’s interests and those interests differ from our interests, or if the Government favors the interests of others, or decides to remove or reduce any of the benefits we currently enjoy from the Government, such action could have a material adverse effect on our business, financial condition, results of operations and prospects, and our ability to make payments under the Notes.

Our joint ventures and other strategic cooperations may not be successful

We have established several joint ventures including in relation to the development of a new coal-fired power plant and chemical grade alumina refinery. See “Business — Our Coal Business — Downstream coal businesses” and “Business — Our Bauxite Business — Alumina production plants.” We have also formed strategic cooperations with certain competitors, such as Yunnan Tin Group, our primary competitor for our tin business, Aluminum Corporation of China Limited (CHALCO), one of the largest producers of aluminum and alumina in the world, and business partners in industries related to our businesses, such as Indonesia’s state-owned port operator, public rail operator, electricity supplier and postal service provider. We may enter into other similar arrangements in the future and, although we have sought to protect our interests in these joint ventures and strategic cooperations, such arrangements inherently involve special risks. Whether or not we hold majority interests or maintain operational control in such arrangements, our partners may have economic or business interests or goals that are inconsistent with or opposed to us, exercise veto rights so as to block actions that we believe to be in our or the joint venture’s or strategic cooperation’s best interest, take action contrary to our policies for objectives with respect to our investments, or as a result of financial or other difficulties, be unable or unwilling to fulfill their obligations under the joint venture, strategic cooperations or other agreements, such as contributing capital to expansion or maintenance projects. For example, we are currently evaluating the continuation of our joint venture for the development of a nickel pig iron plant as our joint venture partner has failed to commence construction of the plant within the specified time frame under the joint venture agreement, see “Business — Our Nickel Business — Nickel development projects — Blast Furnace NPI project.” If our joint ventures or other strategic cooperations are not successful, our investments in these ventures may be impaired or written down. We cannot assure you that our joint ventures or strategic cooperations will be beneficial to us, whether due to the above-described risks, unfavorable global economic conditions, increases in construction costs, currency fluctuations, political risks, or other factors.

We may be adversely affected by labor disputes and may not be able to renew our arrangements with trade unions on favorable terms

We operate in labor intensive industries and depend on more than 27,000 workers (excluding PTFI, our unconsolidated subsidiary) to carry out our operations, of which 43.4% was under direct payroll and 56.6% was

from third-party contractors, as of December 31, 2019. We engage in collective agreement negotiations with the unions annually. These generally relate to salaries, working conditions and welfare. Although we consider that our relations with employees and contractors are currently positive, we cannot assure you that we will not experience work slowdowns, work stoppages, strikes or other labor disputes in the future, particularly in the context of the annual renegotiation of our collective agreements. For example, we experienced a labor strike in 1999, when some of our employees protested due to dissatisfaction with the outcome of salary negotiations between us and the union representatives. The dispute arose in the background of the 1998 financial crisis and lasted for a period of two months. We eventually reached an agreement with the union to provide reasonable salary increases and to review our employee benefits.

As of December 31, 2019, approximately 98.0% of our employees was represented by trade unions. Although we consider our relations with our employees to be good, large union representation subjects our businesses to the risk of interruptions through strikes, lockouts or delays in renegotiating collective agreements. An inability to renew our existing arrangements with trade unions on favorable terms or at all may adversely affect our business, results of operations and financial condition.

We depend on our ability to retain and hire key skilled personnel

Our success depends to a significant extent upon the abilities and collective efforts of a number of our key senior management and personnel, in particular our highly skilled team of engineers, geologists and metallurgists. There can be no certainty that the services of our key personnel will continue to be available. Factors critical to retaining present staff and attracting additional highly qualified personnel include our ability to provide competitive compensation arrangements. Difficulties in retaining or attracting highly qualified individuals in key management positions and highly skilled engineers, geologists and metallurgists could adversely affect our business, financial condition and results of operations. In addition, members of our senior management teams have established relationships with certain of our third-party contractors and key customers. As a result, the loss of any member of our management team could adversely affect our ability to retain these contractors and customers. Changes in our senior management team may also result in a changes in the implementation of our existing strategies and expansion plans.

We require a significant amount of working capital and may be adversely affected if we fail to maintain sufficient levels of working capital

We expend a significant amount of cash in our operations, principally on the purchase of raw materials and transportation and ore mining fees. Moreover, we are currently undertaking several expansion projects in relation to our various business lines, which will require a substantial amount of capital expenditures in the following years. See “— Risks Common to All Our Mining Businesses — The mining industry is capital intensive and we may experience limited availability of funds” and “— Risks Common to All Our Mining Businesses — Our expansion projects are subject to operational risks that may result in increased costs or delays that prevent their successful implementation.” We may also require significant capital expenditures to maintain, upgrade and expand our processing and storage facilities, logistics services and other facilities to keep pace with competitive developments, technological advances and changing safety and environmental standards in our industry. We fund our operations principally through cash flow from our operations and short-term or long-term bank loans. As of December 31, 2019, we had cash and cash equivalents of Rp.14,581.7 billion (US\$1,049.0 million). We cannot assure you that we will not experience negative cash and cash equivalents in the future. In the event that we are unable to obtain or secure sufficient borrowings or generate sufficient revenue from our operations, or if we fail to maintain sufficient cash to meet our operating requirements, we may not have sufficient cash flow to fund our operations and our business and results of operations will be adversely affected.

Our insurance may not be adequate to cover our losses or liabilities

Our operations entail significant risks. In particular, the industries in which we operate are subject to significant risks that could result in damage to, or destruction of machinery and equipment, and production facilities, as well as accidents leading to personal injuries or death, environmental damage, operational delays

and disruptions, monetary losses and potential legal liabilities. We maintain insurance against risks incurred in the operation of our business, in the types and amounts which our management believes to be consistent with industry practice. We maintain insurance against some, but not all, operational and infrastructure risks and natural disasters. In addition, third-party contractors we engage may not carry adequate liability coverage. We cannot assure you that our insurance will be adequate to cover losses or liabilities that may arise or the continued availability of insurance at acceptable premium levels or at all.

Failure to comply with the restrictions and covenants in our debt agreements may adversely affect our businesses, financial condition and results of operations

If we or any of our subsidiaries are unable to comply with the restrictions and covenants in our current or future debt obligations and other agreements, there could be a default under the terms of such obligations or agreements. In the event of a default under these agreements, the holders of the debt could terminate their commitments to lend to us or our subsidiaries, accelerate repayment of the debt and declare all outstanding amounts due and payable or terminate the agreements. Furthermore, some of the debt agreements which we or our subsidiaries have entered into may contain cross-acceleration or cross-default provisions. As a result, default by us or our subsidiaries under any of such agreements may cause the acceleration of repayment of not only such debt but also other debt, including the Notes, or result in a default under other debt agreements. Some of our subsidiaries have, in the past, been unable to comply with certain covenants under their debt agreements. For example, due to a decrease in the LME tin prices in the third quarter of 2019 as compared to the second quarter of 2019, see “— Risks Common to All Our Mining Businesses — The prices of the products we sell are cyclical in nature and subject to fluctuations,” Timah was unable to maintain certain financial ratios in the third and fourth quarters of 2019 as required under its facility agreements with Bank Mandiri, PT Bank Permata Tbk (“Bank Permata”), DBS Indonesia, MUFG Bank, PT Bank Central Asia Tbk (“BCA”), PT Bank Syariah Mandiri (“BSM”) and BTPN. Timah solicited waivers from all relevant lenders with respect to its failure to maintain such financial ratios and, between December 2019 and March 2020, Timah received letters from all such lenders fully waiving Timah’s breaches under the respective facility agreements. Timah has taken steps to prevent similar types of breaches from reoccurring, such as reducing overall production costs and implementing other measures aimed towards maintaining healthy cash flows. However, we cannot assure you that our Company, Timah or any of our other subsidiaries will not breach the terms of our or their respective debt agreements in the future. We also cannot assure you that we would be able to obtain waivers in respect of any future breach or default by us under any of our existing or future debt agreements. If any of these events occur, we cannot assure you that the assets and our cash flows would be sufficient to repay in full all of the debts as they become due, or that we would be able to find alternative financing on terms that are favorable or acceptable to us. In addition, in the course of securing bank loans, we may pledge the shares of our entities to third-party lenders. In the event of a default under such agreements, the relevant third-party lenders may enforce such share pledges and this may result in a change in ownership of certain of our subsidiaries to the relevant third-party lenders, which may adversely affect our business, financial condition and results of operations.

We engage in transactions with certain related parties that could result in conflicts of interest

We are involved, directly or indirectly, in sale-purchase and service transactions with related parties, primarily consisting of other Government-owned entities. In accordance with Indonesian law, all transactions with related parties must be made on terms no more favorable to such parties than those offered to third parties. In addition, with respect to public companies, affiliated party transactions must be appraised by an independent appraiser and disclosed to the public. Our main transactions with related parties include, among others, the sale of our coal products to and the purchase of power from PT Perusahaan Listrik Negara (Persero) and its subsidiaries (“PLN”); the sale of our coal products to other Government-owned entities or companies within our Group such as PT Huadian Bukit Asam Power (“HBAP”), PT Semen Baturaja (Persero) Tbk (“Baturaja”) and PT Bukit Pembangkit Inovative (“BPI”); the sale of our gold products to PT Pegadaian (Persero) (“Pegadaian”) and other Government-owned entities; cooperations with PT Pertamina (Persero) (“Pertamina”) with respect to gas utilization, the purchase of fuel and the development of new production plants; and our mining services and coal transportation agreements with PT Kereta Api Indonesia (Persero) (“KAI”), see “Related-Party Transactions.”

We also have existing financing agreements with Government-owned banks including Bank Mandiri, PT Bank Rakyat Indonesia (Persero) Tbk (“BRI”) and PT Bank Negara Indonesia (Persero) Tbk (“BNI”), see “Description of Material Indebtedness.” We believe that we are in full compliance with all related-party transaction requirements imposed by Indonesian law. Although we intend to continue entering into transactions with related parties on terms similar to those that would be offered by or to an unaffiliated third party, such transactions create the potential for, or could result in, conflicts of interest.

The industries that we operate in are highly competitive and such competition may be exacerbated by the fact that we generally do not enter into offtake or exclusive contracts with our customers

We face competition from other mining and aluminum smelting companies in Indonesia and globally. Factors affecting competition in our industries include prices of our products, supply and price of labor, contractual terms and conditions, our ability to attract and retain qualified personnel and secure the services and supplies needed for our operations. For example, lower cost producers of our products could be better positioned to manage future volatility through commodity price cycles. See “Business — Competition.” We cannot assure you that competition will not adversely affect us in the future. With respect to our mining businesses, significant competition exists to acquire mining concessions, land and related assets with potential mineralization. Some other mining companies may have greater financial resources than us, and we may be unable to acquire attractive new mining properties on terms that we consider acceptable. See “— Risks Common to All Our Mining Businesses — Our mining operations and expansion programs depend on our ability to obtain, maintain and renew necessary permits and approvals from the Government.” In addition, our mines have limited lives and, as a result, we must periodically seek to replace and expand our reserves by acquiring new properties and by developing projects in order to maintain our competitiveness. See “— Risks Common to All Our Mining Businesses — Our exploration efforts are highly speculative in nature and we may be unable to locate additional reserves in our concession areas or secure new concessions with reserves that are economically recoverable.” With respect to our aluminum smelting business, technological advancements or other developments by or affecting our competitors or customers may also affect our competitive position. Failure to improve our refining and smelting technologies or implement our technological improvements may impede our efforts to reduce unit production costs and correspondingly harm our efforts to strengthen our competitiveness against major international aluminum producers. In addition, the risk of customer churn associated with high levels of competition is exacerbated by the fact that we generally do not enter into offtake or exclusive contracts with our customers, with the exception of our agreements with PLN, the primary offtaker of our coal, and PTFI’s agreements with PT Smelting, pursuant to which PTFI has committed to supplying, on a priority basis, 100.0% of PT Smelting’s copper concentrate requirements. See “Business — Customers — Coal — Coal offtake agreements with PLN” and “Majority Beneficial Stake in PTFI — PT Smelting.” Thus, customers could, depending on overall supply available on the market, opt for the products of our competitors, which may adversely affect our business, financial condition and results of operations.

We are subject to foreign exchange rate risk

Our sales are predominantly denominated in U.S. dollars or benchmarked against U.S. dollar equivalent prices. While our cost of revenue is denominated in a combination of U.S. dollars and Rupiah, the proportion of cost of revenue denominated in U.S. dollars varies across each of our businesses. For example, our gold business typically has a higher proportion of cost of revenue denominated in U.S. dollars. Conversely, as our coal sales are largely conducted domestically, a lower proportion of cost of revenue for our coal business is denominated in U.S. dollars. Accordingly, while a depreciation in the value of the U.S. dollar against the Rupiah will have a negative impact on our overall results of operations, the extent of the impact on the margins for each of our businesses will be commensurate with the proportion of cost of revenue denominated in U.S. dollars, for the respective businesses. See “— Risks Relating to Indonesia — Fluctuations in the value of the Rupiah may materially and adversely affect our financial condition and results of operations.” The price of our products are linked to fluctuations in prices on the international markets, which acts as a hedge against fluctuations in currency exchange rates. We also manage our exposure to foreign currency risk by minimizing the mismatch between our assets and liabilities denominated in foreign currencies. In addition, we enter into foreign exchange

transaction agreements to hedge our foreign exchange risk. However, we cannot assure you that such hedging activities will sufficiently mitigate, if at all, our foreign exchange rate risk. As a result, fluctuating foreign exchange rates, in particular fluctuations in the U.S. dollar to Rupiah exchange rates, may adversely affect our business, financial condition and results of operations.

We are subject to interest rate risk

We are exposed to interest rate risk resulting from fluctuations in interest rates in our short-term and long-term indebtedness. As at December 31, 2019, we had an aggregate of Rp.76,673.4 billion (US\$5,515.7 million) outstanding under our short-term bank borrowings, bank borrowings (current and non-current portion), finance lease liabilities and bonds payable. While the majority of our financing agreements are on fixed interest rates, or have been hedged through interest rate swaps, certain of our financing agreements are on floating interest rates and we may from time to time, enter into new financing agreements with floating interest rates. In addition, we cannot assure you that difficult conditions in the global credit markets will not negatively impact the cost or other terms of our existing financing as well as our ability to obtain new credit facilities or access the capital markets on favorable terms. Upward fluctuations in interest rates may increase our borrowing costs, which could impair our ability to compete effectively in our business relative to competitors with lower levels of indebtedness. As a result, our business, financial condition and results of operation may be adversely affected.

Deterioration in our credit profile could increase our costs of borrowing money and limit our access to the capital markets and commercial credit

We expect to request that the major credit rating agencies evaluate our creditworthiness and give us specified credit ratings. These ratings would be based on a number of factors, including our financial strength and financial policies as well as our strategies, operations and execution. These credit ratings are limited in scope, and do not address all material risks related to investment in us, but rather reflect only the view of each rating agency at the time the rating is issued. Nonetheless, the credit ratings we receive will impact our cost of borrowings as well as our ability to access sources of capital on terms that will be advantageous to our business. Failure to obtain sufficiently high credit ratings could adversely affect the interest rate in future financings, our liquidity or our competitive position and could also restrict our access to capital markets. In addition, our credit ratings could be lowered or withdrawn entirely by a rating agency if, in its judgment, the circumstances warrant. If a rating agency were to downgrade our credit rating, our borrowing costs would increase and our funding sources could decrease. As a result of these factors, a downgrade of our credit ratings may adversely affect our business, financial condition and results of operation.

The nature of our businesses includes risks related to litigation and administrative proceedings that may adversely affect our business and financial performance in the event of an unfavorable ruling

The nature of our businesses exposes us to litigation relating to labor, environmental, health and safety matters, regulatory, tax and administrative proceedings, governmental investigations, tort claims and contract disputes, and criminal prosecution, among other matters. We currently have ongoing legal proceedings, see “Business — Legal Proceedings.” In the context of these and any future proceedings we may not only be required to pay fines or money damages but also be subject to complementary sanctions or injunctions affecting our ability to continue our operations. While we may contest these matters vigorously and make insurance claims when appropriate, litigation and other proceedings are inherently costly and unpredictable, making it difficult to accurately estimate the outcome of actual or potential litigation or proceedings. Although we may establish provisions as we deem necessary, the amounts that we reserve could vary significantly from any amounts we actually pay due to the inherent uncertainties in the estimation and judicial processes. We cannot assure you that administrative or other legal proceedings will not have a material adverse effect on our ability to conduct our business, financial condition and results of operations in the event of an unfavorable ruling.

We may not be able to detect and prevent fraud or other misconduct committed by our employees, representatives, agents, customers or other third parties

We may be exposed to fraud or other misconduct committed by our employees, representatives, agents, customers or other third parties that could subject us to litigation, financial losses and sanctions imposed by governmental authorities, as well as affect our reputation. This misconduct could include:

- hiding unauthorized or unsuccessful activities, resulting in unknown and unmanaged risks or losses;
- intentionally concealing material facts, or failure to perform necessary due diligence to identify potential risks which are material to us in deciding whether to make investments or dispose of assets;
- improperly using or disclosing confidential information;
- engaging in improper activities such as accepting or offering bribes;
- misappropriation of funds;
- conducting transactions that exceed authorized limits;
- engaging in misrepresentation or fraudulent, deceptive or otherwise improper activities;
- engaging in unauthorized or excessive transactions to the detriment of our customers; or
- otherwise not complying with applicable laws or our internal policies and procedures.

Our internal control procedures are designed to monitor our operations and ensure overall compliance. However, such internal control procedures may be unable to identify all incidents of non-compliance or suspicious transactions in a timely manner, if at all. Furthermore, it is not always possible to detect and prevent fraud and other misconduct, and the precautions we take to prevent and detect such activities may not be effective. For example, we have, in the past, been subject to fraudulent sales activities by certain employees at one of Antam's Logam Mulia gold boutiques in Surabaya. Upon becoming aware of such activities, Antam terminated the employees and reported their actions, and the actions of a customer who had collaborated with them, to the authorities. Antam has taken steps to prevent similar misconduct from occurring, such as enhancing the standard operating procedures at its Logam Mulia gold boutiques, including those relating to physical audits of inventory as well as recordkeeping and documentation of sales. However, we cannot assure you that fraud or other misconduct will not occur in the future. If such fraud or other misconduct does occur, it may cause negative publicity as a result, and may adversely affect our reputation, businesses, financial condition and results of operations.

In addition, several individuals were also investigated by authorities in connection with their purchase of Logam Mulia gold bars from the customer that had collaborated with our employees. Certain of these individuals have since filed tort claims against Antam claiming that Antam did not fulfill contracted gold deliveries to them, see Note 40ah to our Audited Consolidated Financial Statements included in this Offering Memorandum. We believe that the tort claims filed by these individuals are unfounded and we plan to rigorously defend ourselves in these tort cases. However, if these cases are decided against us, we could incur substantial losses and face significant liabilities and our business, financial condition and results of operations could be materially and adversely affected, see "— The nature of our businesses includes risks related to litigation and administrative proceedings that may adversely affect our business and financial performance in the event of an unfavorable ruling."

We have restated our consolidated financial statements for prior periods, which may lead to additional risks and uncertainties, including loss of investor confidence and negative impacts on our business, financial condition and results of operations

While preparing our Audited Consolidated Financial Statements included in this Offering Memorandum, after reconsidering the interpretation of certain facts and circumstances and accounting treatment applicable to certain transactions, we determined that restatement of our previously issued consolidated financial statements as of and for the years ended December 31, 2018 and 2017 was necessary. In particular, during the preparation of

the consolidated financial statements for the years ended December 31, 2018 and 2017 of our subsidiaries, Antam and Timah, there were errors made with respect to the recognition of certain costs, the accounting of investments in certain joint ventures and associates, the capitalization of certain expenditures, and the estimation of our gold reserves. These errors resulted in the restatement of several line items in our consolidated financial statements for the years ended December 31, 2018 and 2017, including, among others, additional paid-in capital, fixed assets, cost of revenue, selling and marketing expenses, share in net profit/(loss) from joint ventures, and other income, net. Certain accounts were also reclassified to conform to the presentation of our consolidated financial information for the year ended December 31, 2019, including accounts relating to our mining properties and exploration and evaluation assets, other comprehensive income in equity, cost of revenue and operating expenses, and consolidated statement of cash flows. For more details on the restatement and reclassification adjustments made to such financial information, see Note 49 to our Audited Consolidated Financial Statements.

We have become subject to a number of additional costs and risks, including accounting and legal fees incurred in connection with the restatement of our financial statements. In addition, the restatement may negatively impact investors' confidence in our financial statements and our internal control processes, which could adversely affect our ability to obtain financing and, in turn, have a material adverse effect on our business, financial condition and results of operations. Although we are in the process of implementing several initiatives to address the deficiencies we have identified in our internal controls to prevent similar accounting errors from reoccurring, see "Management's Discussion and Analysis of Financial Condition and Results of Operation — Restatement of Our Consolidated Financial Statements for the Years Ended December 31, 2018 and 2017," we cannot assure you that such measures will be adequate. Our failure to correct these deficiencies or discover and appropriately address any other such deficiencies could result in future material misstatements and other inaccuracies in our financial statements.

Our financial statements are subject to changes in accounting standards

We prepare our financial statements in accordance with IFAS. The Indonesian Financial Accounting Standards Board may issue new and revised accounting standards and pronouncements from time to time. Applying such standards and pronouncements to our financial statements may result in a change in our accounting policies and the recognition, measurement and presentation of our financial information, and thus may result in a change in the way we record our revenues, expenses, assets, liabilities or reserves, among other items. For example, beginning January 1, 2020, we will be required to comply with new accounting standards issued by the Indonesian Financial Accounting Standards Board, namely SFAS 71 — Financial Instruments, SFAS 72 — Revenue from Contracts with Customers and SFAS 73 — Leases, see "Management's Discussion and Analysis of Financial Condition and Results of Operations — Recent Accounting Pronouncements." We are currently evaluating the potential impact that the adoption of these new accounting standards will have on our future financial statements, and we cannot assure you that the impact of these standards or of other future changes in accounting standards and pronouncements will not materially and adversely affect the comparability of our future financial statements with those relating to prior periods. Changes to IFAS or interpretations thereof may also cause our future reported results and financial position to differ from current expectations, or historical results to differ from those previously reported due to the adoption of accounting standards.

In addition, IFAS differs in certain respects from U.S. GAAP, see "— Risks Relating to Indonesia — Indonesian accounting standards differ from those in the United States." Going forward, we may elect or be required to revise our accounting policies and estimates according to the amendment of domestic and international accounting standards, the interpretation and guidance of promulgations and other regulatory changes. If we implement significant changes to our accounting policies, our business, financial condition and results of operations may be materially and adversely affected.

Forward-looking statements in this Offering Memorandum may not be accurate and are subject to uncertainties and contingencies

This Offering Memorandum contains forward-looking statements. All statements other than statements of historical facts included in this Offering Memorandum, including, without limitation, those regarding our

financial position, business strategies, prospects, plans and objectives of our Company for future operations, are forward-looking statements. Such forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause our actual results, performance or achievements, or industry results, to be materially different from any future result, performance or achievements expressed or implied by such forward-looking statements. Such forward-looking statements reflect our current views with respect to future events and are not a guarantee of future performance. Forward-looking statements can be identified by the use of forward-looking terminologies such as the words “may,” “will,” “would,” “could,” “believe,” “expect,” “anticipate,” “intend,” “estimate,” “aim,” “plan,” “forecast” or similar expressions and include all statements that are not historical facts.

Such forward-looking statements, including the forecast information in the section entitled “Industry Overview,” see “Industry Overview — Update in relation to the current COVID-19 pandemic,” are based on numerous assumptions regarding our present and future business strategies and the environment in which we will operate in the future. Such factors include, among others, general economic and business conditions, competitive environment of the industries in which we operate, the impact of future regulatory or government policy changes affecting us or the industries in which we operate, the continued availability of capital and financing and other factors beyond our control.

In light of these uncertainties, the inclusion of such forward-looking statements in this Offering Memorandum should not be regarded as a representation or warranty by us or our advisors that such plans and objectives will be achieved and we expressly disclaim any obligation or undertaking to release publicly any updates or revisions to any forward-looking statement contained in this Offering Memorandum to reflect any changes in our expectations with regard thereto or any change in events, conditions or circumstances on which any such statement is based.

Our actual results may vary significantly from the industry forecasts, projections and estimates set forth herein

This Offering Memorandum includes certain industry forecasts, projections and estimates. This industry information is based on both assumptions and estimates made by an independent third party, CRU. These forecasts, projections and estimates are based on a number of assumptions, which are inherently subject to uncertainty. Many of these factors are not within our control and some of the assumptions with respect to industry growth are subject to change and actual results may vary materially from those estimated, anticipated or projected and such differences may be material.

Specifically, but without limitation, future realized prices of our products may differ from forecasts, capital costs could increase, projects could be delayed and anticipated improvements in production, capacity or performance might not be fully realized. The underlying assumptions, calculations and methodologies of the industry forecasts, projections and estimates provided by CRU and included in this Offering Memorandum have not been verified or ascertained by us or the Joint Bookrunners. Accordingly, prospective purchasers are cautioned not to place undue reliance on such information.

Risks Relating to PTFI’s Business

PTFI’s mining operations are subject to operational and other risks that could adversely affect its business

PTFI’s mining operations are subject to risks commonly faced by mining operators, including, among others, operational risks resulting from inclement weather and natural disasters, failure to obtain, maintain or renew any permits, agreements and approvals necessary for its operations, reliance on third-party contractor risks, labor disputes, opposition from local communities and insufficient insurance coverage to cover losses or liabilities. See “— Risks Common to All Our Mining Businesses” and “— Risks Common to All Our Businesses.”

PTFI’s Grasberg Mine is very large in scale and is located in steep mountainous terrain in a remote area of Indonesia. Such conditions pose significant operational risks and have required PTFI to overcome special engineering difficulties and develop extensive infrastructure facilities. In addition, the area receives considerable

rainfall, which has led to periodic floods and mudslides. The waste rock (including overburden) and tailings produced due to PTFI's mining operations represent a significant volume of waste material. Managing the volume of waste rock and tailings presents significant environmental, safety and engineering challenges and risks. The mine site is also in an active seismic area and has experienced earth tremors from time to time. PTFI's insurance may not sufficiently cover an unexpected natural or operating disaster.

Further, PTFI's operations at its Grasberg Mine involve underground mining, which can be particularly dangerous. In May 2013, an accident, which resulted in 28 fatalities and 10 injuries, occurred at PTFI's Grasberg Mine when the rock structure above the ceiling of an underground training facility collapsed. PTFI temporarily suspended mining and processing activities at the Grasberg complex to conduct inspections and resumed open-pit mining and concentrating activities in June 2013, and underground operations in July 2013. On April 3, 2019, a mud rush occurred in an ore bin at the Grasberg Mine, which resulted in two fatalities. No assurance can be given that similar events will not occur in the future. Moreover, PTFI completed mining the final phase of the Grasberg open-pit mine in 2019 and has fully transitioned production operations to its underground ore bodies. As a result, several of the risks specific to underground mining that PTFI faces will be exacerbated going forward, including those relating to, among others, fire, flood, collapse, explosions and exposure to toxic substances.

We cannot assure you that PTFI and/or FCX, who manages the mining operations at the Grasberg Mine, will be able to manage all the operational risks at the Grasberg Mine and prevent such risks from materializing. Any significant disruption to the mining operations at the Grasberg Mine may adversely affect PTFI's business and, in turn, our financial condition and results of operations.

PTFI's mining operations may create difficult and costly environmental challenges, and future changes in environmental laws could require PTFI to incur increased costs

Mining operations on the scale of PTFI's Indonesia operations involve significant environmental risks and challenges. PTFI's primary challenge is to dispose of the large amount of crushed and ground rock material, called tailings, that results from the process by which PTFI physically separates the copper-, gold- and silver-bearing materials from the ore that it mines. PTFI's tailings management plan, which has been approved by the Government, uses the unnavigable river system in the highlands near the Grasberg Mine to transport the tailings to an engineered area in the lowlands where the tailings and natural sediments are managed in a deposition area. Lateral levees have been constructed to help contain the footprint of the tailings and to limit their impact in the lowlands.

Another major environmental challenge is managing overburden, which is the rock that must be moved aside in the mining process to reach the ore. In the presence of air, water and naturally occurring bacteria, some overburden can generate acid rock drainage, or acidic water containing dissolved metals that, if not properly managed, can adversely affect the environment. In addition, overburden stockpiles are subject to erosion caused by the large amounts of rainfall, with the eroded stockpile material eventually being deposited in the lowlands tailings management area; this additional material, while predicted in our environmental studies, influences the deposition of finer tailings material in the estuary.

In October 2017, Indonesia's Ministry of Environment and Forestry (the "MOEF") notified PTFI of administrative sanctions related to certain activities the MOEF indicated were not reflected in PTFI's environmental permit. The MOEF also notified PTFI that certain operational activities were inconsistent with factors set forth in PTFI's environmental permitting studies and that additional monitoring and improvements need to be undertaken related to air quality, water drainage, treatment and handling of certain wastes, and tailings management. Further, in April 2018, the MOEF issued decrees imposing certain environmental standards related to PTFI's controlled riverine tailings management system which were required to be complied with by early October 2018. The decrees also conflicted with PTFI's approved environmental management programs and existing environmental permits. In response to these sanctions and new decrees, PTFI engaged in a process to find a resolution of these issues through submissions and dialogue with the MOEF, and to update its permits and revise its operational activities as required.

In November 2018, the MOEF issued a revised environmental permit to PTFI to address many of PTFI's operational activities that the MOEF had previously alleged were inconsistent with PTFI's earlier environmental

permitting studies. The remaining administrative sanctions are being resolved through adoption of revised practices and, in a few situations, PTFI has agreed with the MOEF on an appropriate multi-year work plan, including the closure of an overburden stockpile. Further, PTFI continues to work with the MOEF to finalize PTFI's environmental permitting for its rail facilities and certain of its underground mining production operations as well as PTFI's permitting for the extension of levees to facilitate tailings management in the lowlands of the Grasberg Mine area. In addition, in December 2018, the MOEF also issued a new decree that incorporates various initiatives and studies to be completed by PTFI that would target continuous improvement in a manner that would not impose new technical risks or significant long-term costs to PTFI's operations. As part of the new decree, PTFI and the MOEF established a new framework for the continuous improvement of environmental practices in PTFI's operations, including initiatives that PTFI will pursue to increase tailings retention and to evaluate large-scale beneficial uses of tailings within Indonesia. The new framework enables PTFI to maintain compliance with site-specific standards and provides for ongoing monitoring by the MOEF.

We cannot assure you that the MOEF will not impose further penalties or sanctions on PTFI for non-compliance of applicable decrees or will not issue new decrees that conflict with PTFI's approved environmental management programs and existing environmental permits. If such events were to occur, PTFI may incur significant and unforeseen expenses in seeking to comply with applicable environmental laws and standards or in rectifying any environmental accidents or incidents of non-compliance. As a result, PTFI's business and, in turn, our financial condition and results of operations, may be adversely affected.

Risks Relating to Indonesia

We are incorporated in Indonesia and substantially all of our assets and operations are located in Indonesia. As a result, future political, economic, legal and social conditions in Indonesia, as well as certain actions and policies that the Government may, or may not, take or adopt could materially and adversely affect our business, financial condition, results of operations and prospects and our ability to make payments under the Notes.

Domestic, regional or global economic changes may materially and adversely affect the Indonesian economy and our business

Indonesia's economy was significantly affected by the Asian financial crisis of 1997. The crisis was characterized in Indonesia by, among other effects, currency depreciation, a significant decline in real gross domestic product ("GDP"), high interest rates, social unrest and extraordinary political developments. Indonesia's economy was also significantly affected by the global economic crisis that began in late 2008. The resulting adverse financial developments were characterized by, among other things, a shortage in the availability of credit, a reduction in foreign direct investment, the failure of global financial institutions, a drop in global stock markets, a slowdown in global economic growth and a drop in demand for certain commodities. Further, while the global economy has grown in recent years, the downturn in China's economy and decline in global commodity prices have created additional economic uncertainty worldwide. These extremely negative economic developments have adversely affected both developed economies and developing markets, including Indonesia and other Association of Southeast Asian Nations ("ASEAN") countries.

Indonesia and other ASEAN countries, along with developing market countries globally, have been negatively affected by the unprecedented financial and economic conditions in developed markets. In addition, the Government continues to have a large fiscal deficit and a high level of sovereign debt, its foreign currency reserves are modest, the Rupiah continues to be volatile with poor liquidity, and the banking sector suffers from high levels of non-performing loans. Although the Government has taken many steps to improve these conditions, with the aim of maintaining economic stability and public confidence in the Indonesian economy, continuation of these unprecedented conditions may negatively impact economic growth, the Government's fiscal position, the Rupiah's exchange rate and other facets of the Indonesian economy.

We cannot assure you that the recent improvement in Indonesia's economic condition will be maintained. In particular, any changes in the regional or global economic environment that result in a loss of investor confidence in the financial systems of emerging and other markets, or other factors, may cause increased volatility in the Indonesian financial markets and inhibit or reverse the growth of the Indonesian economy. Any such increased

volatility, slowdown or negative growth in the global economy, including the Indonesian economy, could materially and adversely affect our business, financial condition and results of operations. In particular, the Indonesian economy continues to be disrupted by the current COVID-19 pandemic, see “— Risks Common to All Our Business — Outbreak of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia, and elsewhere may adversely impact our business, financial condition and results of operations.” Given the rapidly changing implications of the spread of COVID-19, it is difficult to assess the full nature and extent of the impact that the outbreak will have on the Indonesian economy.

Political and social instability in Indonesia may materially and adversely affect us

Indonesia continues to face various socio-political issues and has, from time to time, experienced political instability and social and civil unrest. Such instances of unrest have highlighted the unpredictable nature of Indonesia’s changing political landscape. Indonesia also has many political parties, with no political party winning a clear electoral majority to date. These events have resulted in political instability, as well as general social and civil unrest on certain occasions in recent years.

Following the collapse of President Soeharto’s regime in 1998, Indonesia has experienced a process of democratic change and successfully conducted its first free elections for Parliament and President in 1999. In 2004, Indonesians directly elected the President, the Vice President and representatives of the Indonesian Parliament through a proportional voting system for the first time. Direct elections were also held in 2009, 2014 and 2019 in Indonesia to elect the President, Vice President and representatives in the Indonesian Parliament. Increased political activities can be expected in Indonesia as a result of these democratic developments in its political system. Although the 2009, 2014 and 2019 elections were conducted peacefully, any future political campaigns and elections may bring a degree of political and social uncertainty to Indonesia. As a new democratic country, Indonesia continues to face various socio-political issues and has, from time to time, experienced political instability and social and civil unrest.

Since 2000, there have been numerous demonstrations involving thousands of Indonesians in Jakarta and other Indonesian cities both for and against several of Indonesia’s former presidents and current President Joko Widodo, as well as in response to specific issues, including fuel tariff increases, fuel subsidy reductions, potential increases in electricity tariffs, labor matters, privatizations of state assets, anti-corruption measures, decentralizations and provincial autonomy, actions of former Government officials and their family members and the U.S.-led military campaigns in Afghanistan and Iraq. Although these demonstrations were generally peaceful, some have turned violent.

For example, gubernatorial elections in Jakarta in February and April 2017 led to protests with religious undertones against Basuki Tjahaja Purnama (also known as “Ahok”), a Christian and the incumbent Governor of Jakarta at that time. Former education and culture minister Anies Baswedan won the election for Governor of Jakarta in April 2017, defeating Ahok, who was later convicted and imprisoned for blasphemy of the Quran, the Islamic holy book. Further, on April 17, 2019, for the first time in history, Indonesia held a general election where the President, Vice President and members of the People’s Consultative Assembly (*Majelis Permusyawaratan Rakyat*) and the People’s Representative Council (*Dewan Perwakilan Rakyat*) were elected on the same day. Following the official announcement by the General Elections Commission (*Komisi Pemilihan Umum*) on May 21, 2019 that incumbent President Joko Widodo had been re-elected as the President of Indonesia, protests and demonstrations erupted throughout Jakarta over two days, from May 21 to 22, 2019, which resulted in hundreds of civilians being injured and several deaths. On May 24, 2019, the defeated presidential candidate, Prabowo Subianto, filed a lawsuit with the Indonesian Constitutional Court contesting the official results of the presidential election. On June 27, 2019, the Indonesia Constitutional Court issued a final and binding decision in which it rejected the entirety of the lawsuit filed by Prabowo Subianto and upheld the results of the 2019 presidential election. As events surrounding these recent elections have highlighted, political campaigns in Indonesia may result in civil disturbances and political and social instability. We cannot assure you that any future election disputes or results will not lead to further political and social instability in Indonesia.

Political and social developments, have been unpredictable in the past and, as a result, confidence in the Indonesian economy has remained low. Any resurgence of political instability could adversely affect the

Indonesian economy, which could adversely affect our business. We cannot assure you that social and civil disturbances will not occur in the future and on a wider scale, or that any such disturbances will not, directly or indirectly, materially and adversely, affect our business, financial condition, results of operations and prospects.

It may not be possible for investors to effect service of process or to enforce certain judgments against us or our management

We are a state-owned company established with limited liability in Indonesia. All of our commissioners, directors and executive officers, as applicable, reside outside the United States. Substantially all of our assets and the assets of such persons are located outside the United States. As a result, it may be difficult for investors to effect service of process upon our Company or such persons within the United States or other jurisdictions, or to enforce against our Company or such persons in such jurisdiction, judgments obtained in courts of that jurisdiction, including judgments predicated upon the civil liability provisions of the federal securities laws of the United States or any state thereof.

We have been advised by our Indonesian legal advisers, Assegaf Hamzah & Partners, that judgments of non-Indonesian courts are not enforceable in Indonesian courts, although such judgments could be admissible as non-conclusive evidence in a proceeding on the underlying claim in an Indonesian court. Our Indonesian legal advisers have also advised us that there is doubt as to whether Indonesian courts will enter judgments in original actions brought in Indonesian courts predicated solely upon the civil liability provisions of jurisdictions other than Indonesia. As a result, Noteholders, as claimants, would be required to pursue claims against us or our commissioners and directors in Indonesian courts on the basis of Indonesian law, which would require re-examination of the underlying claim. We cannot assure you that the claims or remedies available under Indonesian law will be the same, or as extensive, as those available in other jurisdictions. We cannot assure you that the Indonesian courts will protect the interests of the Noteholders in the same manner or to the same extent as would courts in more developed countries outside of Indonesia.

Noteholders may be exposed to a legal system subject to considerable discretion and uncertainty

Indonesian legal principles relating to the rights of debtors and creditors, or their practical implementation by Indonesian courts, may differ materially from those that would apply within the jurisdiction of the United States, the European Union member states or other jurisdictions. Neither the rights of debtors nor the rights of creditors under Indonesian law are as clearly established or recognized as under legislation or judicial precedent in the United States, most European Union member states or other jurisdictions. In addition, under Indonesian law, debtors may have rights and defenses to actions filed by creditors that such debtors would not have in jurisdictions with more established legal regimes such as those in the United States, European Union member states or other jurisdictions.

Indonesia's legal system is a civil law system based on written statutes in which judicial and administrative decisions do not constitute binding precedent and are not systematically published. Indonesia's commercial and civil laws, as well as rules on judicial process, were historically based on pre-independence Dutch law in effect prior to Indonesia's independence in 1945 and some have not been revised to reflect the complexities of modern financial transactions and instruments.

Indonesian courts are often unfamiliar with sophisticated commercial or financial transactions, leading in practice to uncertainty in the interpretation and application of Indonesian legal principles. The application of Indonesian laws depends, in large part, upon subjective criteria such as the good faith of the parties to the transaction and principles of public policy, the practical effect of which is difficult or impossible to predict. Indonesian judges operate in an inquisitorial legal system and have very broad fact-finding powers and a high level of discretion in relation to the manner in which those powers are exercised. In practice, Indonesian court decisions may omit, or may not be decided upon, a legal and factual analysis of the issues presented in a case. As a result, the administration and enforcement of laws and regulations by Indonesian courts and governmental agencies may be subject to considerable discretion and uncertainty. Furthermore, corruption in the court system in Indonesia has been widely reported in publicly available sources. See, for example, World Bank, Raising

Investment in Indonesia: A Second Generation of Reforms (2005); U.S. Department of State, Indonesia: Country Reports on Human Rights Practices (2018); and Transparency International, International Corruption Perceptions Index (2019).

We cannot assure you that Indonesian courts would enforce, or even consent to adjudicating agreements that are governed by non-Indonesian law. On September 2, 2013, holders of notes issued by BLD Investments Pte. Ltd. and guaranteed by PT Bakrieland Development Tbk (“Bakrieland”) under a trust deed governed under English law, filed a suspension of debt payment petition with the Commercial Court of Central Jakarta (the “Commercial Court”) on grounds that, among other things, Bakrieland had failed to comply with its obligation to repay the outstanding amount of the notes when noteholders exercised their put option under the terms of the notes. In its decision dated September 23, 2013, the Commercial Court ruled, among other things, that as the trust deed relating to the notes is governed by English law, all disputes arising out of or in connection with the trust deed must be settled by English courts and the Commercial Court did not therefore have authority to examine and adjudicate the case. On December 8, 2014, the Supervisory Judge in proceedings before the Commercial Court, determined that noteholders were not creditors of PT Bakrie Telecom Tbk (“Bakrie Tel”) for the purpose of its court-supervised debt restructuring, known as Bakrie Tel PKPU. Bakrie Tel, an Indonesian telecommunications company, is the guarantor of US\$380.0 million of senior notes issued in 2010 and 2011 by a Singapore-incorporated special purpose vehicle that is a subsidiary of Bakrie Tel. The proceeds from the offering of the notes were on-lent to Bakrie Tel pursuant to an intercompany loan agreement, which was assigned to the noteholders as collateral. In its decision affirming the composition plan, the Commercial Court accepted the Supervisory Judge’s determination that the relevant creditor of Bakrie Tel in respect of the US\$380 million notes was the issuer subsidiary, rather than the noteholders or the trustee, and gave no effect to the guarantee. As such, only the intercompany loan was recognized by the Commercial Court as indebtedness on which Bakrie Tel was liable for the purpose of the Bakrie Tel PKPU. As a result, only the issuer subsidiary had standing as a Bakrie Tel creditor to vote in the Bakrie Tel PKPU proceedings, which substantially altered the terms of the U.S. dollar bonds and the guarantee.

Similar to the Bakrie Tel PKPU case, in early 2016, an Indonesian company, PT Trikomsel Oke Tbk (“Trikomsel”), entered into a court suspension of payment of debt (*penundaan kewajiban pembayaran utang* or “PKPU”) process, known as the Trikomsel PKPU. The Trikomsel PKPU administrators were reported to have rejected claims that arose from their two Singapore dollar bonds and took the stance that the trustees did not have any standing to make claims on behalf of the bondholders. Further, they asserted that only individual bondholders that had filed claims on their own would be able to participate in the PKPU proceedings and to vote on the restructuring plan. This stance was further affirmed by the Commercial Court and the Trikomsel PKPU that was settled on September 28, 2016 through the ratification of a composition plan (*Rencana Perdamaian*) which was approved by certain bondholders, and then ratified by the Commercial Court. Under the composition plan, the bondholders of the two Singapore dollar bonds may be required to convert their notes into new shares to be issued by Trikomsel, thereby extinguishing the bonds. As a result, it may be difficult for Noteholders to pursue a claim against our Company in Indonesia, which may adversely affect or eliminate entirely the holders’ ability to obtain and enforce a judgment against our Company in Indonesia or increase the Noteholders’ costs of pursuing, and the time required to pursue, claims against our Company.

Indonesia is located in an earthquake zone and is subject to significant geological risk and other natural disasters that could lead to property damage, loss of life, social unrest and economic loss

The Indonesian archipelago is one of the most volcanically active regions in the world. Because it is located in the convergence zone of three major lithospheric plates, it is subject to significant seismic activity that can lead to destructive volcanoes, earthquakes, tsunamis and tidal waves. In recent years, a number of natural disasters have occurred in Indonesia such as heavy rain, flooding and major earthquakes that resulted in tsunamis and volcanic activity. These disasters have resulted in the loss of life, displacement of a large number of people and widespread destruction of property. For example, in December 2004, an underwater earthquake off the coast of Sumatra released a tsunami that devastated coastal communities in Indonesia, Thailand, India and Sri Lanka. In Indonesia, more than 220,000 people died or were recorded as missing in the disaster. Aftershocks from the December 2004 tsunami and additional high-magnitude earthquakes have occurred in Indonesia, causing

significant fatalities and damage. More recently, in December 2018, a tsunami occurred in the Sunda Strait as a result of the eruption of the Anak Krakatau volcano, which killed more than 400 people and injured more than 7,000 people. There have been several other earthquakes throughout Indonesia with some of the most recent major earthquakes occurring in Sumatra, Java, Sulawesi, Manokwari and Maluku.

In addition to these geological events, heavy rains in December 2006 resulted in floods that killed more than 100 people and displaced over 400,000 people on the northwestern Sumatra island. More flooding in January and February 2007 around the capital, Jakarta, killed at least 30 people and displaced at least 340,000 people from their homes. In July 2007, at least seven people were killed and at least 16,000 people were forced to flee their homes because of floods and landslides caused by torrential rains on the island of Sulawesi. In January 2009, torrential rain caused a colonial-era dam to burst outside Jakarta, sending a wall of muddy water crashing into a densely packed neighborhood and killing at least 58 people. The flood also left scores missing and submerged hundreds of homes. In October 2010, at least 158 people died and 148 people were declared missing in a flash flood in Wasior district, West Papua. In January 2013, floods in Jakarta resulted in disruptions to businesses and extensive evacuations in the city. More recently, throughout the first week of January 2020, heavy and persistent rainfall caused severe flooding in and around Jakarta which killed at least 67 people and displaced nearly 400,000 people.

While recent seismic events and meteorological occurrences have not had a significant economic impact on Indonesian capital markets, the Government has had to spend significant amounts on emergency aid and resettlement efforts. Most of these costs have been underwritten by foreign governments and international aid agencies. However, we cannot assure you that such aid will continue to be forthcoming, or that it will be delivered to recipients on a timely basis. If the Government is unable to timely deliver foreign aid to affected communities, political and social unrest could result. Additionally, recovery and relief efforts are likely to continue to impose a strain on the Government's finances, and may affect its ability to meet its obligations on its sovereign debt. Any such failure on the part of the Government, or declaration by it of a moratorium on its sovereign debt, could trigger an event of default under numerous private-sector borrowings, including ours, thereby materially and adversely affecting our business, financial condition and results of operations.

In addition, we cannot assure you that future geological or meteorological occurrences will not significantly harm the Indonesian economy. A significant earthquake or other geological disturbance or weather-related natural disasters in any of Indonesia's more populated cities and financial centers could severely disrupt the Indonesian economy and undermine investor confidence, thereby materially and adversely affecting our business, financial condition, results of operations and prospects, and our ability to make payments under the Notes.

Terrorist attacks, terrorist activities and certain destabilizing events have led to substantial and continuing economic and social volatility in Indonesia, which may materially and adversely affect our business

In Indonesia during the last two decades, there have been numerous bombing incidents directed towards the Government and foreign governments, and public and commercial buildings frequented by foreigners, including the Jakarta Stock Exchange Building and Jakarta's Soekarno-Hatta International Airport. In October 2002, over 200 people were killed in a bombing at a tourist area in Bali. In April 2003, bombs exploded outside the main United Nations building in Jakarta and in front of the domestic terminal at Jakarta's Soekarno-Hatta International Airport. In August 2003, a bomb exploded at the JW Marriott Hotel in Jakarta, killing at least 13 people and injuring 149 others. In September 2004, a car bomb exploded in front of the Australian Embassy in Jakarta, killing more than six people. In May 2005, bomb blasts in Central Sulawesi killed at least 21 people and injured at least 60 people. In October 2005, bomb blasts in Bali killed at least 23 people and injured at least 101 others. In July 2009, two separate bomb explosions occurred at the JW Marriott Hotel and the Ritz Carlton Hotel in Jakarta, killing at least nine people and injuring 40 others. In January 2016, two suicide bombers and two gunmen exchanged gunfire with police before bombing a police post and cafe in central Jakarta, killing at least four people and injuring more than 20. Indonesian, Australian and U.S. government officials have indicated that these bombings may be linked to an international terrorist organization. In May 2017, two suicide bombers attacked a bus station in Jakarta, killing three people and injuring ten others. In May 2018, terrorist bombings at three churches in Surabaya resulted in the death of more than 10 people and injuries to more than 40 people.

More recently, in November 2019, a suicide bomber affiliated with Jamaah Ansharut Daulah, a terrorist group, attacked the metropolitan police headquarters in Medan, North Sumatra, Indonesia. While in response to the terrorist attacks, the Government has institutionalized certain security improvements and undertaken certain legal reforms which seek to better implement anti-terrorism measures, and some suspected key terrorist figures have been arrested and tried, we cannot assure you that further terrorist acts will not occur in the future.

Following military involvement of the U.S. and its allies in Iraq, a number of governments have issued warnings to their citizens in relation to a perceived increase in the possibility of terrorist activities in Indonesia, targeting foreign, particularly U.S., interests. Such terrorist activities could destabilize Indonesia and increase internal divisions within the Government as it considers responses to such instability and unrest, thereby adversely affecting investors' confidence in Indonesia and the Indonesian economy. Violent acts arising from and leading to instability and unrest have in the past had, and could continue to have, a material adverse effect on investment and confidence in, and the performance of, the Indonesian economy, and in turn our business. Any of the foregoing events, including damage to our infrastructure or that of our suppliers and customers, could materially and adversely affect international financial markets and the Indonesian economy. We cannot assure you that our properties will not be subject to acts of terrorism, violent acts and adverse political developments which may materially and adversely affect our business, financial condition, results of operations and prospects.

Labor activism or increases in labor costs could adversely affect Indonesian companies, including us, which in turn could affect our business, financial condition, results of operations and prospects

Laws and regulations which facilitate the forming of labor unions, combined with weak economic conditions, have resulted and may continue to result in labor unrest and activism in Indonesia. In 2000, the Government issued Law No. 21 of 2000 on Labor Union (the "Labor Union Law"). The Labor Union Law permits employees to form unions without employer intervention. In March 2003, the Government enacted Law No. 13 of 2003 on Labor (the "Labor Law") which, among other things, increased the amount of severance, service and compensation payments payable to employees upon termination of employment. The Labor Law requires further implementation of regulations that may substantively affect labor relations in Indonesia. The Labor Law requires bipartite forums with participation from employers and employees and the participation of more than 50.0% of the employees of a company in order for a collective labor agreement to be negotiated and creates procedures that are more permissive to the staging of strikes. Under the Labor Law, employees who voluntarily resign are also entitled to payments for, among other things, unclaimed annual leave and relocation expenses. Following the enactment, several labor unions urged the Indonesian Constitutional Court to declare certain provisions of the Labor Law unconstitutional and order the Government to revoke those provisions. The Indonesian Constitutional Court declared the Labor Law valid except for certain provisions, including relating to the right of an employer to terminate its employee who committed a serious mistake and criminal sanctions against an employee who instigates or participates in an illegal labor strike.

The liberalization of regulations permitting the formation of labor unions combined with weak economic conditions has resulted, and will likely continue to result in, labor unrest and activism in Indonesia. Labor unrest and activism in Indonesia could disrupt our operations and the operations of our suppliers, customers and contractors and could affect the financial condition of Indonesian companies in general, depressing the prices of Indonesian securities on the Indonesian or other stock exchanges and the value of the Rupiah relative to other currencies. Such events could materially and adversely affect our business, financial condition, results of operations, and our ability to make payments under the Notes.

Indonesian accounting standards differ from those in the United States

We prepare our consolidated financial statements in accordance with IFAS, which differs from U.S. GAAP. As a result, our consolidated financial statements and reported earnings could be significantly different from those that would be reported under U.S. GAAP. This Offering Memorandum does not contain a reconciliation of our consolidated financial statements to U.S. GAAP, and we cannot assure you that such reconciliation would not reveal material differences. See "Summary of Certain Differences Between Indonesian Financial Accounting Standards and U.S. GAAP" for a summary of certain differences that may be applicable to us.

Fluctuations in the value of the Rupiah may materially and adversely affect our business, financial condition, results of operations and prospects

One of the most important immediate causes of the economic crisis which began in Indonesia in mid-1997 was the depreciation and volatility of the value of the Rupiah, as measured against other currencies, such as the U.S. dollar. The Rupiah to U.S. dollar exchange rate (based on the middle exchange rate announced by Bank Indonesia) was Rp.13,548 = US\$1.00 as of December 31, 2017, Rp.14,481 = US\$1.00 as of December 31, 2018 and Rp.13,901 = US\$1.00 as of December 31, 2019. Although the Rupiah has appreciated considerably from its low point of approximately Rp.17,000 per U.S. dollar in January 1998, the Rupiah continues to experience significant volatility.

In particular, the Rupiah has significantly weakened against the U.S. dollar during the first quarter of 2020, depreciating by 19.8% from an exchange rate (based on the middle exchange rate announced by Bank Indonesia) of Rp.13,662 = US\$1.00 as of January 31, 2020 to Rp.16,367 = US\$1.00 as of March 31, 2020, before appreciating to Rp.15,157.0 = US\$1.00 as of April 30, 2020, primarily as a result of the current COVID-19 pandemic, see “—Risks Common to All Our Business — Outbreak of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia, and elsewhere may adversely impact our business, financial condition and results of operations.” As we have significant borrowings denominated in U.S. dollars, we have recognized higher foreign exchange loss during the first quarter of 2020. Given the rapidly changing implications of the spread of COVID-19, it is difficult to assess the full nature and extent of the impact that the outbreak will have on the value of the Rupiah. A prolonged or significant decline in the value of the Rupiah may materially and adversely affect our business, financial condition and results of operations.

The Rupiah has generally been freely convertible and transferable (except that Indonesian banks may not transfer Rupiah to persons outside of Indonesia and may not conduct certain transactions with non-residents). However, from time to time, Bank Indonesia has intervened in the currency exchange markets in furtherance of its policies, either by selling Rupiah or by using its foreign currency reserves to purchase Rupiah. We cannot assure you that the Rupiah will not be subject to depreciation and continued volatility, that the current floating exchange rate policy of Bank Indonesia will not be modified, that additional depreciation of the Rupiah against other currencies, including the U.S. dollar, will not occur, or that the Government will take additional action to stabilize, maintain or increase the value of the Rupiah, or that any of these actions, if taken, will be successful.

Modification of the current floating exchange rate policy could result in significantly higher domestic interest rates, liquidity shortages, capital or exchange controls or the withholding of additional financial assistance by multinational lenders. This could result in a reduction of economic activity, an economic recession, loan defaults or declining interest by our customers, and as a result, we may also face difficulties in funding our capital expenditure and in implementing our business strategy. Any of the foregoing consequences could materially and adversely affect our business, financial condition, results of operations and prospects.

Downgrades of credit ratings of Indonesia and Indonesian companies could materially and adversely affect us and the market price of the Notes

In 1997, certain internationally recognized statistical rating organizations, including Moody's, Standard & Poor's and Fitch, downgraded Indonesia's sovereign rating, the credit ratings of various credit instruments of the Government, and the credit ratings of a large number of Indonesian banks and other companies. Currently, Indonesia's sovereign foreign currency long-term debt is rated (i) “Baa2” with stable outlook by Moody's, (ii) “BBB” with negative outlook by Standard & Poor's and (iii) “BBB” with stable outlook by Fitch. These ratings reflect an assessment of the Government's overall financial capacity to pay its obligations and its ability or willingness to meet its financial commitments as they become due.

Even though the recent trend in Indonesian sovereign ratings has been positive, we cannot assure you that Moody's, Standard & Poor's, Fitch or any other statistical rating organization will not downgrade the credit ratings of Indonesia or Indonesian companies. In particular, the credit ratings of Indonesia or Indonesian companies, including our Company, have been and may be further downgraded due to the effects of the current

COVID-19 pandemic, see “— Risks Common to All Our Business — Outbreak of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia, and elsewhere may adversely impact our business, financial condition and results of operations.” On April 6, 2020, Standard & Poor’s affirmed Indonesia’s foreign currency long-term debt rating of “BBB” but downgraded the outlook from stable to negative. Subsequently, on April 13, 2020, Moody’s affirmed our Company’s issuer rating of “Baa2” but downgraded the outlook from stable to negative. According to Moody’s, the negative outlook reflected the weaker than expected operating performance of certain of our subsidiaries, which were mainly due to the falling commodity prices, as well as their slower than expected capacity and downstream expansion. Given the rapidly changing implications of the spread of COVID-19, it is difficult to assess the full nature and extent of the impact that the outbreak will have on such credit ratings. Any such downgrade could have an adverse impact on liquidity in the Indonesian financial markets, the ability of the Government and Indonesian companies, including us, to raise additional financing and the interest rates and other commercial terms at which such additional financing is available and could have a material adverse effect on our business, financial condition, results of operations and prospects.

The interpretation and implementation of legislation on regional governance in Indonesia is uncertain and may adversely affect our business, financial condition, results of operations and prospects

Indonesia is a large and diverse nation covering a multitude of ethnicities, religions, languages, traditions and customs. Prior to 1999, the Government controlled almost all aspects of national and regional administration. The period following the end of the administration of former President Soeharto was marked by widespread demand for greater regional autonomy. In response to such demand, in 1999, the Indonesian Parliament passed Law No. 22 of 1999 on Regional Government, which was later replaced by Law No. 23 of 2014 on the same subject matter (as lastly amended by Law No. 9 of 2015), and Law No. 25 of 1999 on Financial Balances Between the Central and Regional Governments, which was later replaced by Law No. 33 of 2004 on the same subject matter. Under these laws, regional autonomy was expected to give regional governments greater powers and responsibilities over the use of national assets and to create a balanced and equitable financial relationship between the central and regional governments.

Regional autonomy laws and regulations have changed the regulatory environment for companies in Indonesia by decentralizing certain regulatory, taxing and other power from the Government to regional governments, and this creates uncertainty. These uncertainties include a lack of implementing regulations on areas of regional autonomy and a lack of government personnel with relevant sector experience at some regional government levels. Moreover, limited precedent or other guidance exists on the interpretation and implementation of the regional autonomy laws and regulations. In addition, pursuant to the regional autonomy laws, regional governments are given the authority to adopt their own regulations and under the pretext of regional autonomy, certain regional governments have put in place various restrictions, taxes and levies which may differ from restrictions, taxes and levies put in place by other regional governments and/or are in addition to restrictions, taxes and levies stipulated by the central Government. Currently, there is uncertainty in respect of the balance between regional governments and the central Government. Our business and operations are located throughout Indonesia and may be adversely affected by conflicting or additional restrictions, taxes and levies that may be imposed by the applicable regional authorities.

Risks Relating to the Notes

The Notes will be unsecured obligations of our Company and will be structurally subordinated to the claims of creditors of our subsidiaries

The claims of all existing and future third-party creditors of our subsidiaries as to the cash flows and assets of such companies will have priority over the claims of the shareholders of such subsidiaries, including our Company, and the creditors of such shareholders (such as the Noteholders).

As of December 31, 2019, our total debt amounted to Rp.76,673.4 billion (US\$5,515.7 million). The Indentures do not contain any restrictions on the ability of our Company or our respective subsidiaries to incur additional indebtedness.

We may not have the ability to raise the funds necessary to finance an offer to repurchase the Notes upon the occurrence of certain events constituting a change of control triggering event or otherwise as required by the Indentures governing the Notes

Upon the occurrence of certain events constituting a change of control triggering event, we are required to offer to repurchase all outstanding Notes at a purchase price in cash equal to 101% of their principal amount plus accrued and unpaid interest to the date of purchase. If any such event triggering our repurchase obligations were to occur, we cannot assure you that we would have sufficient funds available at such time to pay the purchase price of the outstanding Notes.

The change of control provisions contained in the Indentures may not necessarily afford you protection in the event of certain important corporate events, including a reorganization, restructuring, merger or other similar transaction involving our Company that may adversely affect you, because such corporate events may not involve a change in ownership or control in accordance with the terms of the Indentures, and even if they do, may not constitute a “Change of Control” as defined in the Indentures. Except as described under “Description of the 2025 Notes — Repurchase of Notes Upon a Change of Control Triggering Event,” “Description of the 2030 Notes — Repurchase of Notes Upon a Change of Control Triggering Event” and “Description of the 2050 Notes — Repurchase of Notes Upon a Change of Control Triggering Event,” the Indentures do not contain provisions that require our Company to offer to repurchase or redeem the Notes in the event of a reorganization, restructuring, merger, recapitalization or similar transaction.

The Notes do not contain restrictive financial or operating covenants

The Indentures governing the Notes will contain covenants intended to benefit the interests of the Noteholders that limit our ability to, among other things, incur liens under certain circumstances or consolidate or merge with or into, or sell substantially all of our assets to, another person. These covenants are subject to a number of important exceptions and qualifications. See “Description of the 2025 Notes,” “Description of the 2030 Notes” and “Description of the 2050 Notes.”

The Indentures governing the Notes, however, do not contain restrictive financial or operating covenants or restrictions on the payment of dividends, the incurrence of indebtedness, the issuance or repurchase of securities by us, and the entry into sale and leaseback transactions. In addition, the Indentures do not contain any other covenants or provisions designed to afford Noteholders protection in the event of a highly leveraged transaction involving us or in the event of a decline in our credit rating or the rating of the Notes as the result of a takeover, recapitalization, highly leveraged transaction or similar restructuring involving us that could adversely affect Noteholders. Subject to the terms of our existing corporate debt and other credit facilities, we may incur substantial additional indebtedness in the future.

There is no public market for the Notes

The Notes will be a new issue of securities with no existing trading market. Approval in-principle has been received from the SGX-ST for the listing and quotation of the 2030 Notes and the 2050 Notes on the SGX-ST. Application will be made to the SGX-ST for the listing and quotation of the 2025 Notes on the SGX-ST. However, we cannot assure you that it will be able to obtain or maintain such listing or that, if listed, a liquid trading market will develop for the Notes. The Joint Bookrunners have informed us that they currently intend to make a market in the Notes, although they are not obligated to do so and any such market making activities may be discontinued at any time without notice. Accordingly, even though the Notes may be listed on an exchange, we cannot assure you that an active market will develop for the Notes or as to the liquidity of, or the trading market for, the Notes. If an active market does develop, future trading prices of the Notes will depend on many factors, including, among others, prevailing interest rates, our operating results and the market for securities similar to the Notes.

Developments in other markets may adversely affect the market price of the Notes

The market price of the Notes may be adversely affected by declines in the international financial markets and world economic conditions. The market for securities of Indonesian issuers is, to varying degrees, influenced

by economic and market conditions in other markets, especially those in Asia. Although economic conditions are different in each country, investors' reactions to developments in one country can affect the securities markets and the securities of issuers in other countries, including Indonesia. Since the global financial crisis of 2008 and 2009, the international financial markets have experienced significant volatility. If similar developments occur in the international financial markets in the future, the market price of the Notes could be adversely affected.

The ratings assigned to the Notes may be lowered or withdrawn entirely in the future

The Notes are expected to be rated "Baa2" by Moody's and "BBB-" by Fitch. These ratings may be lowered or withdrawn entirely in the future. The ratings address the ability to perform obligations under the terms of the Notes and the credit risks in determining the likelihood that payments will be made when due. Additionally, one or more independent credit rating agencies may assign credit ratings to an issue of Notes. A rating is not a recommendation to buy, sell or hold securities and may be subject to revision, suspension or withdrawal at any time. No assurances can be given that a rating will remain for any given period of time or that a rating will not be lowered or withdrawn entirely by the relevant rating agency if in its judgment circumstances in the future so warrant. We have no obligation to inform Noteholders of any such revision, downgrade or withdrawal. A suspension, reduction or withdrawal at any time of the rating assigned to the Notes may adversely affect the market price of the Notes.

Noteholders may be excluded from receiving compensation in respect of a consent, waiver or amendment to the Indentures or the Notes

We are generally excluded from paying any consideration, directly or indirectly, to any Noteholder for or as an inducement to any consent, waiver or amendment of any of the terms or provisions of the Indentures or the Notes unless such consideration is offered to be paid or is paid to all holders that consent, waive or agree to amend such term or provision. However, we will be permitted to exclude Noteholders in any jurisdiction where such consent, waiver or amendment or payment of consideration for such consent, waiver or amendment, in either case in the manner we deem appropriate, would not be permitted under applicable law in such jurisdiction or would require us to (i) file a registration statement subjecting us or any of our subsidiaries to ongoing periodic reporting or similar requirements, (ii) qualify as a foreign corporation or other entity or as a dealer in securities in such jurisdiction if we are not otherwise required to so qualify, (iii) generally consent to service of process in any such jurisdiction or (iv) subject us or any of our subsidiaries to taxation in any such jurisdiction if we are not otherwise so subject. We intend to evaluate at the time of any consent, waiver or amendment the costs, potential liabilities and any other factors we consider appropriate at the time associated with extending such consent, waiver or amendment into the relevant jurisdictions. On the basis of this evaluation, we will then make a decision as to how to proceed and whether to extend such consent, waiver or amendment. We cannot assure you that we will include Noteholders in jurisdictions where the above exclusions are permitted.

There are restrictions on the resale and the transfer of Notes, which may adversely affect their liquidity and the price at which they may be sold

The Notes have not been registered under, and we are not obligated to register the Notes under, the Securities Act or the securities laws of any other jurisdiction and, unless so registered, may not be offered or sold except pursuant to an exemption from or a transaction not subject to, the registration requirements of the Securities Act and any other applicable laws. See "Transfer Restrictions." We have not agreed to, or otherwise undertaken, to register the Notes (including by way of an exchange offer), and we have no intention to do so. Accordingly, the Notes are being offered pursuant to exemptions from registration under the Securities Act and, as a result, you will only be able to resell your Notes in transactions that are exempt from, or not subject to, the registration requirements of the Securities Act, which could affect the liquidity of the Notes and their selling prices. See "Transfer Restrictions."

The Notes will initially be held in book-entry form, and therefore you must rely on procedures of the relevant clearing systems to exercise any rights and remedies

Unless and until Notes in definitive registered form, or definitive registered Notes are issued in exchange for book-entry interests (which may occur only in limited circumstances), owners of book-entry interests will not be considered owners or Noteholders. The common depository (or its nominee) for DTC will be the sole registered holder of the global notes. Payments of principal, interest and other amounts owing on or in respect of the relevant global notes representing Notes will be made to The Bank of New York Mellon, as principal paying agent, which will make payments to DTC. Thereafter, these payments will be credited to participants' accounts that hold book-entry interests in the global notes representing the Notes and credited by such participants to indirect participants. After payment to the common depository for DTC, we will have no responsibility or liability for the payment of interest, principal or other amounts to the owners of book-entry interests. Accordingly, if you own a book-entry interest in the Notes, you must rely on the procedures of DTC and if you are not a participant of DTC, on the procedures of the participant through which you own your interest, to exercise any rights and obligations of a holder of the Notes under the Indentures.

Unlike holders of the Notes themselves, owners of book-entry interests will not have any direct rights to act upon any solicitations for consents, requests for waivers or other actions from holders of the Notes. Instead, if you own a book-entry interest, you will be permitted to act only to the extent you have received appropriate proxies to do so from DTC or, if applicable, from a participant. There can be no assurance that procedures implemented for the granting of such proxies will be sufficient to enable you to vote on any matters on a timely basis.

Similarly, upon the occurrence of an event of default under the Indentures, unless and until the relevant definitive registered Notes are issued in respect of all book-entry interests, if you own a book-entry interest, you will be restricted to acting through DTC. We cannot assure you that the procedures to be implemented through DTC will be adequate to ensure the timely exercise of rights under the Notes.

We may be subject to future bankruptcy, insolvency and similar proceedings in Indonesia or other jurisdictions, which may delay or prevent payment on the Notes

Under Indonesian bankruptcy law, a creditor that foresees its debtor would not be able to continue to pay its debts when they become due and payable, or a debtor which is unable, or predicts that it would be unable, to pay its debts when they become due and payable, may file for a PKPU with the Commercial Court. In addition, a debtor who has two or more creditors and who is unable to pay any of its debt may be declared bankrupt by virtue of a Commercial Court decision. Under the Indonesian bankruptcy law, a PKPU proceeding takes priority over a bankruptcy proceeding and must be decided first. As such, the PKPU proceeding will effectively postpone the bankruptcy proceeding. As a result, creditors are unlikely to receive any payment during the course of the PKPU proceeding (with the exception of secured creditors subject to certain conditions) and the bankruptcy estate is likely to be insufficient to fully settle their claims.

In addition, during the PKPU proceeding, the debtor may propose a composition plan to its creditors. Such composition, if approved at a creditors' meeting and ratified by the Commercial Court, will be binding on all unsecured creditors and on secured creditors that voted for the composition plan, and the PKPU proceeding ends. The debtor can then continue its business and service its debt in accordance with the composition plan proposed by the debtor and approved at the creditors' meeting and ratified by the court. The secured creditors that did not attend the creditors' meeting or vote on the plan are not bound by the plan and are entitled to enforce their security interests. As a composition plan, if approved, is approved by a majority of the creditors on a collective basis, it may not be in the best interest of any particular creditor. If we become a debtor in a bankruptcy proceeding or a PKPU proceeding in Indonesia, we may file for suspension of debt payment with a proposed composition plan which may not be satisfactory to you. If such composition plan is approved, it will be binding on the Noteholders.

The Noteholders may not be considered creditors and thus may not be given standing to vote in any bankruptcy or restructuring proceeding to enforce the Notes in Indonesia. See “— Risks Relating to Indonesia — Noteholders may be exposed to a legal system subject to considerable discretion and uncertainty.”

The insolvency laws of Indonesia may differ from those of any other jurisdiction with which Noteholders are familiar

We are incorporated under the laws of Indonesia, and an insolvency proceeding relating to us, even if brought in another jurisdiction, would likely involve insolvency laws in Indonesia, the procedural and substantive provisions of which may differ from comparable provisions of insolvency law in other jurisdictions with which Noteholders are familiar. The application of these laws, or any conflict among them, could call into question whether any particular jurisdiction's laws should apply, adversely affect an investor's ability to enforce such rights under the Notes in the relevant jurisdictions or limit any amounts that the investor may receive. Investors should analyze the risks and uncertainties carefully before investing in the Notes.

Indonesian law requires agreements involving Indonesian parties to be written in Bahasa Indonesia and allows parties thereto to elect a foreign language version of such agreement as the governing language; however, in the event of proceedings in an Indonesian court there can be no assurance that the judges will render their decision based on the foreign language version

On July 9, 2009, the Government enacted Law No. 24 requiring that agreements involving Indonesian parties be written in Bahasa Indonesia. Where an agreement also involves foreign parties, it may also be executed in both Bahasa Indonesia and a foreign language, provided that the agreement in the foreign language and the agreement in Bahasa Indonesia are equally authoritative. Law No. 24 is silent on the governing language if there is more than one language used in a single agreement. Article 40 of Law No. 24 states that further stipulation on the use of Bahasa Indonesia shall be regulated by the implementing regulations to be issued.

On January 15, 2014, the Government enacted the Notary Law requiring that a notarial deed made after January 15, 2014 must be in Bahasa Indonesia. If the parties require, the notarial deed can be made in a foreign language and in such an event, the notary must translate the deed into Bahasa Indonesia but in the event of different interpretation as to the content of the deed, the deed in Bahasa Indonesia shall prevail.

Pursuant to Law No. 24, on September 30, 2019, the President of the Republic of Indonesia issued Regulation No. 63/2019 to implement the provisions under Law No. 24. Regulation No. 63/2019 stipulates that Bahasa Indonesia must be used in memorandums of understanding or agreements that involve, among others, Indonesian private entities (including Indonesian limited liability companies). If the agreement involves a foreign party, the agreement may also be made in the national language of such foreign party or in English. This provision also implies that the Bahasa Indonesia version of the agreement needs to be executed at the same time as the English version of the agreement, or the agreement will need to be executed in a bilingual version. In addition, Regulation No. 63/2019 expressly confirms that parties to an agreement involving foreign parties may agree on any prevailing language of the agreement if there are any inconsistencies between the Bahasa Indonesia version and the foreign language version.

In addition, the Minister of State-Owned Enterprises has also issued a Circular Letter No. SE-12/MBU/2009 dated November 3, 2009, which recommends that any state-owned enterprise must use Bahasa Indonesia in every memorandum of understanding or agreement to which such state-owned enterprise is a party.

The Indentures and certain other documents entered into in connection with the issue of the Notes thereunder will be prepared in dual English and Bahasa Indonesia forms as required under Law No. 24 and Regulation No. 63/2019, and the parties to the agreements have agreed that the English version of the agreements will prevail for all purposes. However, some concepts in the English language may not have a corresponding term in Bahasa Indonesia, or may not be fully captured by the Bahasa Indonesia version. As such, we cannot assure you that the Bahasa Indonesia version of any such agreement reflects the original intent of the relevant parties or that the terms of the Notes, including the Indentures, will be as described in this Offering Memorandum, or will be interpreted and enforced by the Indonesian courts as intended.

USE OF PROCEEDS

The net proceeds of the offering of the Notes, after deduction of fees and commissions and estimated expenses in connection with the offering of the Notes, are expected to be approximately US\$2,423.85 million.

We intend to retain an amount equal to at least US\$500.0 million of the net proceeds of the offering of the Notes to acquire shares in other mining companies and refinance certain outstanding indebtedness of our Group, including loans extended by certain of the Joint Bookrunners and/or their respective affiliates, and use the remaining net proceeds to repurchase our 2021 Notes and 2023 Notes, see “Description of Material Indebtedness — Indebtedness of Inalum — Inalum’s Bonds,” pursuant to, and subject to the satisfaction or waiver of the conditions of, the Tender Offers that we are concurrently conducting with the offering of the Notes, see “Summary — Recent Developments — Concurrent Tender Offers.”

EXCHANGE RATES AND EXCHANGE CONTROLS

Exchange Rates

Bank Indonesia is the sole issuer of the Rupiah and is responsible for maintaining the stability of the Rupiah. Since 1970, Indonesia has implemented three exchange rate systems: (i) a fixed rate between 1970 and 1978, (ii) a managed floating exchange rate system between 1978 and 1997 and (iii) a free-floating exchange rate system since August 14, 1997. Under the managed floating exchange rate system, Bank Indonesia maintained the stability of the Rupiah through a trading band policy, pursuant to which Bank Indonesia would enter the foreign currency market and buy or sell Rupiah, as required, when trading in the Rupiah exceeded bid and offer prices announced by Bank Indonesia on a daily basis. On August 14, 1997, Bank Indonesia terminated the trading band policy and permitted the exchange rate for the Rupiah to float without an announced level at which it would intervene, which resulted in a substantial decrease in the value of the Rupiah relative to the U.S. dollar. Under the current system, the exchange rate of the Rupiah is determined solely by the market, reflecting the interaction of supply and demand in the market. Bank Indonesia may take measures, however, to maintain a stable exchange rate.

The following table shows the exchange rate of Rupiah to U.S. dollar based on the middle exchange rates at the end of each month or day, as the case may be, during the periods indicated. The Rupiah middle exchange rate is calculated based on Bank Indonesia's buying and selling rates. We make no representation that the U.S. dollar amounts referred to in this Offering Memorandum could have been or could be converted into Rupiah at the rate indicated or any other rate, or at all.

	Exchange Rates			
	Low ⁽¹⁾	High ⁽¹⁾	Average ⁽¹⁾	Period end
	(Rp. per US\$)			
2015	12,515	14,728	13,392	13,795
2016	12,926	13,946	13,307	13,436
2017	13,154	13,630	13,384	13,548
2018	13,290	15,235	14,246	14,481
2019	13,901	14,513	14,146	13,901
November 2019	13,992	14,112	14,069	14,102
December 2019	13,901	14,130	14,017	13,901
2020				
January 2020	13,612	13,961	13,732	13,662
February 2020	13,647	14,234	13,776	14,234
March 2020	14,168	16,608	15,234	16,367
April 2020	15,157	16,741	15,867	15,157

Source: Statistik Ekonomi dan Keuangan Indonesia (Indonesian Financial Statistics) published monthly by Bank Indonesia. Internet website of Bank Indonesia, available at: <https://www.bi.go.id/en/moneter/informasi-kurs/transaksi-bi/Default.aspx>

Note:

- (1) For full years, the high and low amounts are determined, and the average shown is calculated, based upon the middle exchange rate announced by Bank Indonesia on the last day of each month during the year indicated. For each month, the high and low amounts are determined, and the average shown is calculated, based on the daily middle exchange rate announced by Bank Indonesia during the month indicated.

The Federal Reserve Bank of New York does not certify for customs purposes a noon buying rate for cable transfers in Rupiah.

Exchange Controls

Indonesia has limited foreign exchange controls. The Rupiah has been, and in general is, freely convertible within or from Indonesia. However, to maintain the stability of the Rupiah, and to prevent the utilization of the Rupiah for speculative purposes by non-residents, Bank Indonesia has introduced regulations to restrict the

movement of Rupiah from banks within Indonesia to offshore banks, an offshore branch of an Indonesian bank, or any investment denominated in Rupiah with foreign parties and/or Indonesian parties domiciled or permanently residing outside Indonesia, thereby limiting offshore trading to existing sources of liquidity. In addition, Bank Indonesia has the authority to request information and data concerning the foreign exchange activities of all persons and legal entities that are domiciled, or who plan to be domiciled in Indonesia for at least one year. If requested, we must also provide Bank Indonesia with information and documents relating to our foreign exchange activities.

Purchasing of Foreign Currencies against Rupiah through Banks

On September 5, 2016, Bank Indonesia issued Regulation No. 18/18/PBI/2016 on Foreign Exchange Transaction to Rupiah between Banks and Domestic Parties (“PBI 18/18”), as implemented by the Members of the Board of Governor of Bank Indonesia Regulation No. 20/16/PADG/2018 dated August 15, 2018. Under PBI 18/18, any conversion of Rupiah into foreign currency for spot and standard derivative (plain vanilla) transactions that exceeds a specific threshold is required to have an underlying transaction and supported by underlying transaction documents. These thresholds are: (i) the purchase of foreign currency against Rupiah of more than US\$25,000.0 or its equivalent per month per customer for spot transactions; (ii) the purchase of foreign currency against Rupiah of more than US\$100,000.0 or its equivalent per month per customer for derivative transactions; (iii) the sales of foreign currency against Rupiah of more than US\$5,000,000.0 or its equivalent per transaction per customer for forward transactions; and (iv) the sales of foreign currency against Rupiah of more than US\$1,000,000.0 or its equivalent per transaction per customer for option transactions. The underlying transaction and supporting transaction documents are also required for transactions of foreign exchange structured product in the form of a call spread option, in any amount. Further, the maximum amount of such foreign exchange conversion cannot exceed the value of the underlying transaction.

The underlying transaction for purposes of PBI 18/18 may consist of: (i) domestic and international trade of goods and services; (ii) investment in the form of direct investment, portfolio investment, loans, capital and other investment inside and outside Indonesia; and/or (iii) the granting of facility or financing from a bank in foreign currencies and/or Rupiah for trade and investment activities. The underlying transaction may not include: (i) a placement of funds in banks in the form of, among others, saving account, demand deposit account, time deposit, or Negotiable Certificate Deposit (“NCD”); (ii) money transfers by a remittance company; (iii) undrawn credit facilities, including standby loans and undisbursed loans; or (iv) usage of Bank Indonesia securities in foreign currencies.

Indonesian parties (i) conducting foreign currency structured product against Rupiah in form of Call Spread Option in any amount and (ii) purchasing foreign currencies from banks by way of (a) spot transactions; and (b) standard derivative (plain vanilla) transactions in excess of US\$25,000.0 and US\$100,000.0, respectively, will be required to submit certain supporting documents to the selling bank, including, among other items, a duly stamped or authenticated written statement by the company confirming that the underlying transaction document is valid and correct, and the amount of foreign currency purchased is or will not exceed the amount stated in the underlying transaction document. For the purchase of foreign currencies not exceeding such thresholds, the company must declare in a duly stamped or authenticated written statement by the company that its aggregate foreign currency purchases do not exceed the thresholds in the Indonesian banking system.

Bank Indonesia also issued Bank Indonesia Regulation No. 18/19/PBI/2016 dated September 5, 2016 on Foreign Exchange Transaction to Rupiah between Banks and Foreign Parties (“PBI 18/19”), as implemented by the Members of the Board of Governor of Bank Indonesia Regulation No. 20/17/PADG/2018 dated August 15, 2018. Similar to PBI 18/18, PBI 18/19 is intended to comprehensively govern foreign exchange transactions against Rupiah in Indonesia. However, unlike PBI 18/18, which targets Indonesian bank customers, PBI 18/19 governs foreign exchange transactions by banks and foreign parties.

PBI 18/19 also requires an underlying transaction if a foreign exchange transaction exceeds certain threshold amounts. The thresholds set forth by PBI 18/19, which are similar to the threshold amounts under PBI 18/18, are: (i) for spot transactions, a purchase of foreign exchange against the Rupiah equivalent of

US\$25,000.0 per month per foreign party, or its equivalent; (ii) for derivative transactions, the sale and purchase of foreign exchange against the Rupiah equivalent of US\$1,000,000.0 per transaction per foreign party or per outstanding amount of each derivative transaction per bank, or its equivalent; (iii) for forward transaction, the sales of foreign currency against Rupiah of more than US\$5,000,000.0 or its equivalent per transaction per customer; and (iv) for option transaction, the sales of foreign currency against Rupiah of more than US\$1,000,000.0 or its equivalent per transaction per customer for option transaction.

The underlying transaction under PBI 18/19 may consist of: (i) domestic and international trade of goods and services; and/or (ii) investment in the form of direct investment, portfolio investment, loans, capital and other investment inside and outside Indonesia.

The following transactions are not considered as underlying transactions: (i) Bank Indonesia Certificates (or “SBI”) for derivative transactions; (ii) a placement of funds in banks (vostro account) in the form of saving account, demand deposit account, time deposit, or NCD; (iii) the granting of facility which has not been withdrawn, such as standby loan and disbursed loan; and (iv) the usage of Bank Indonesia securities in foreign currencies.

Similar to PBI 18/18, PBI 18/19 also requires foreign parties that (i) conducting foreign currency structured product against Rupiah in form of a call spread option in any amount and (ii) purchasing foreign currencies from banks by way of (a) spot transactions; and (b) standard derivative (plain vanilla) transactions in excess of US\$25,000.0 and US\$100,000.0, respectively, to submit certain supporting documents to the selling bank, including, among other items, a duly stamped or authenticated written statement by the company confirming that the underlying transaction document is valid and correct, and the amount of foreign currency purchased is or will not exceed the amount stated in the underlying transaction document. For the purchase of foreign currencies not exceeding such thresholds, the company must declare in a duly stamped or authenticated written statement by the company that its aggregate foreign currency purchases do not exceed the thresholds in the Indonesian banking system.

As a state-owned company, we are also subject to Bank Indonesia requirements which restrict our ability to source U.S. dollars to three Indonesian banks, namely Bank Mandiri, BNI and BRI.

Indonesian Law on Currency and Obligation to Use Rupiah in Indonesian Territory

On June 28, 2011, the House of Representatives (or the “Indonesian Parliament”) passed Law No. 7 of 2011 (the “Currency Law”) and on March 31, 2015, Bank Indonesia issued PBI 17/3 and enacted Bank Indonesia Circular Letter No. 17/11/DKSP on June 1, 2015 as the implementation guidelines (“SEBI 17/2015”). Under the Currency Law and PBI 17/3, all parties are required to use Rupiah for cash and non-cash transactions conducted within Indonesia, including (i) each transaction which has the purpose of payment; (ii) settlement of other obligations which must be satisfied with money; and/or (iii) other financial transactions (including deposits of Rupiah in various amounts and types of Rupiah denomination from customers to banks).

Subject to further requirements under PBI 17/3, the obligation to use Rupiah does not apply to (i) certain transactions relating to the implementation of state revenue and expenditures; (ii) the receipt or provision of grants either from or to overseas; (iii) international trade transactions, which include (a) export and/or import of goods to or from outside Indonesian territory and (b) activities relating to cross border trade in services; (iv) bank deposits denominated in foreign currencies; (v) international financing transactions; and (vi) transactions in foreign currency which are conducted in accordance with applicable laws and regulations, including, among others: (a) a bank’s business activities in foreign currency which is conducted based on applicable laws regarding conventional and sharia banks, (b) securities in foreign currency issued by the Indonesian government in primary or secondary markets based on applicable laws, and (c) other transactions in foreign currency conducted based on applicable laws, including the law regarding Bank Indonesia, the law regarding investment and the law regarding Indonesia Eximbank.

The Currency Law and PBI 17/3 prohibit the rejection of Rupiah when offered as a means of payment, to settle obligations and/or with respect to other financial transactions within Indonesia, unless there is uncertainty

regarding the authenticity of the Rupiah bills offered, or the parties to the transaction have agreed in writing to the payment or settlement of obligations in a foreign currency. Article 10 of PBI 17/3 further explains that the exemption based on such a written agreement between the parties is only applicable to an agreement made with respect to one of the above exempted transactions or transactions related to a strategic infrastructure project.

PBI 17/3 took effect from March 31, 2015, and the requirement to use Rupiah for non-cash transactions was effective from July 1, 2015. Written agreements which were signed prior to July 1, 2015 that contain provisions for the payment or settlement of obligations in foreign currency for non-cash transactions will remain effective until the expiry of such agreements. However, any extension and/or certain amendments of such agreements must comply with PBI 17/3.

According to SEBI 17/2015, a business operator in Indonesia must quote the price of goods and/or services in Rupiah and is prohibited from conducting dual quotations where the price of goods and/or services is listed both in Rupiah and a foreign currency anywhere, including on electronic media. The restriction applies to, among others, (i) price tags, (ii) service fees, such as agent fees in the sale and purchase of property, tourism services fees or consultancy services fees, (iii) leasing fees, such as apartment leases, housing leases, office leases, building leases, land leases, warehouse leases or vehicle leases, (iv) tariffs, such as loading/unloading tariffs for cargo at the seaport or airplane ticket tariffs, (v) price lists, such as a restaurant menu price list, (vi) contracts, such as clauses for pricing or fees, (vii) documents of offer, order, or invoice, such as the price clause in an invoice, purchase order or delivery order, and/or (viii) payment evidence, such as the price listed in a receipt.

Further, SEBI 17/2015 stipulates that conditional exemptions may apply to certain infrastructure projects, including: (i) transportation infrastructure, including airport services, seaport procurement and/or services, railway infrastructure and facilities, (ii) road infrastructure, including toll roads and toll bridges, (iii) watering infrastructure, including standard water bearer channels, (iv) drinking water infrastructure, including standard water bearer building, transmission channels, distribution channels, and drinking water treatment installation, (v) sanitation infrastructure, including waste water treatment installations, collector channels and main channels, and waste facility which includes transporter and waste storage, (vi) informatics and technology infrastructure, including telecommunication networks and e-government infrastructure, (vii) electricity infrastructure, including power plants, which include power development sourcing from geothermal, transmission or distribution of electricity, and (viii) natural oil and gas infrastructure, including transmission and/or distribution of natural oil and gas. These exemptions apply if (a) the project has been declared by the central or regional government as a strategic infrastructure project, as evidenced by a formal confirmation letter from the relevant ministry/institution with regards to the project owner; and (b) an exemption approval has been obtained from Bank Indonesia.

A failure to comply with the obligation to use Rupiah in cash transactions will result in criminal sanctions in the form of fines and confinement. While a failure to comply with the obligation to use Rupiah in non-cash transactions will be subjected to administrative sanctions in the form of (i) written warning, (ii) fines, and/or (iii) prohibition from undertaking payment activities. Bank Indonesia may also recommend that the relevant authorities and institutions conduct certain actions such as revoking the business license or stopping the business activities of the party which fails to comply with the obligation to use Rupiah in non-cash transactions.

CAPITALIZATION

The following table sets forth our consolidated capitalization as of December 31, 2019 on an actual basis and on an as adjusted basis. The “Adjusted” data set forth in the table below gives effect to the issuance of the Notes, and has not been adjusted to give effect to the application of the net proceeds of the offering of the Notes to refinance certain outstanding indebtedness of our Group and to repurchase our 2021 Notes and 2023 Notes, as described in the section entitled “Use of Proceeds.”

This table should be read in conjunction with the sections entitled “Selected Consolidated Financial Information and Other Data,” “Use of Proceeds” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and our Audited Consolidated Financial Statements and the related notes thereto included in this Offering Memorandum.

	As of December 31, 2019			
	Actual		Adjusted	
	Rp.	US\$	Rp.	US\$
	(Rp. in billions and US\$ in millions)			
Indebtedness				
Short-term bank borrowings	10,198.9	733.7	10,198.9	733.7
Bank borrowings (current and non-current portion)	7,114.9	511.8	7,114.9	511.8
Finance lease liabilities	470.5	33.9	470.5	33.9
Bonds payable	58,889.1	4,236.3	58,889.1	4,236.3
Notes offered hereby ⁽¹⁾	—	—	34,752.5	2,500.0
Total debt	76,673.4	5,515.7	111,425.9	8,015.7
Equity				
Share capital (par value Rp.415,000 per share):				
Authorized capital 522,197,024 shares				
Issued and fully paid capital — 130,549,256 shares	54,177.9	3,897.4	54,177.9	3,897.4
Additional paid-in capital	(19,001.9)	(1,366.9)	(19,001.9)	(1,366.9)
Retained earnings:				
Appropriated	7,797.7	560.9	7,797.7	560.9
Unappropriated	1,592.8	114.6	1,592.8	114.6
Other comprehensive income/(loss)	40.2	2.9	40.2	2.9
Currency differences from translation of the Company’s financial statements	13,969.9	1,004.9	13,969.9	1,004.9
Non-controlling interest	13,214.2	950.6	13,214.2	950.6
Total equity	71,790.8	5,164.4	71,790.8	5,164.4
Total capitalization⁽²⁾	148,464.2	10,680.1	183,216.7	13,180.1

Notes:

- (1) Before deducting the issuance discount, the underwriting discount, bank fees and other estimated expenses payable in connection with this offering.
- (2) Represents total debt plus total equity.

Except as disclosed above or in this Offering Memorandum, there has been no material change in our capitalization since December 31, 2019.

SELECTED CONSOLIDATED FINANCIAL INFORMATION AND OTHER DATA

You should read the following selected consolidated financial information in conjunction with our Audited Consolidated Financial Statements and the related notes thereto, and PTFI's Audited Consolidated Financial Statements and the related notes thereto, included in this Offering Memorandum and the sections entitled "Presentation of Financial Information and Other Data," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "PT Freeport Indonesia." Our Audited Consolidated Financial Statements and PTFI's Audited Consolidated Financial Statements have been prepared and presented in accordance with IFAS, which differs in certain respects from U.S. GAAP. See "Summary of Certain Differences Between Indonesian Financial Accounting Standards and U.S. GAAP."

The following selected financial information includes our consolidated financial information as of and for the years ended December 31, 2018 and 2017, which have been restated from our previously issued consolidated financial statements for the years then ended. For a description of the restatement and reclassification adjustments made to such financial information, see Note 49 to our Audited Consolidated Financial Statements included in this Offering Memorandum. See also "Risk Factors — Risks Common to All our Businesses — We have restated our consolidated financial statements for prior periods, which may lead to additional risks and uncertainties, including loss of investor confidence and negative impacts on our business, financial condition and results of operations."

Consolidated Financial Data of our Group

Consolidated Statements of Profit or Loss and Other Comprehensive Income Data

	For the year ended December 31,			
	2017	2018	2019	
	(as restated) Rp. (Rp. in billions and US\$ in millions)	(as restated) Rp.	Rp.	US\$
Revenue	47,184.3	65,277.4	80,628.7	5,800.2
Cost of revenue	(32,960.9)	(48,807.1)	(66,130.9)	(4,757.3)
Gross profit	14,223.4	16,470.3	14,497.8	1,042.9
General and administrative expenses	(3,585.2)	(5,142.9)	(6,187.7)	(445.1)
Selling and marketing expenses	(1,497.2)	(2,370.1)	(2,538.3)	(182.6)
Operating profit	9,141.0	8,957.3	5,771.8	415.2
Finance income	629.9	1,010.5	870.2	62.6
Finance costs	(999.1)	(2,120.6)	(5,300.3)	(381.3)
Share in net profit/(loss) from PTFI	—	184.1	(576.2)	(41.4)
Share in net loss from associates	(133.9)	(320.1)	(87.2)	(6.3)
Share in net (loss)/profit from joint ventures	(987.2)	(573.6)	179.4	12.9
Other income, net	597.1	6,754.3	1,410.7	101.5
Profit before income tax	8,247.8	13,891.9	2,268.4	163.2
Income tax expenses	(2,474.4)	(3,021.8)	(2,241.4)	(161.3)
Profit for the year from continuing operations	5,773.4	10,870.1	27.0	1.9
Loss from discontinued operations	(6.5)	(43.5)	(2.5)	(0.1)
Profit for the year	5,766.9	10,826.6	24.5	1.8
Other comprehensive (loss)/income for the year, net of tax . .	(433.4)	1,799.0	(11.9)	(0.9)
Total comprehensive income for the year	5,333.5	12,625.6	12.6	0.9

Consolidated Statements of Financial Position Data

	As of December 31,			
	2017	2018	2019	
	(as restated) Rp. (Rp. in billions and US\$ in millions)	(as restated) Rp. (Rp. in billions and US\$ in millions)	Rp. (Rp. in billions and US\$ in millions)	US\$ (Rp. in billions and US\$ in millions)
Total current assets	36,698.7	43,776.3	43,665.7	3,141.2
Total non-current assets	55,311.7	120,782.5	121,177.3	8,717.2
Total assets	92,010.4	164,558.8	164,843.0	11,858.4
Total current liabilities	15,125.8	20,597.9	24,144.4	1,736.9
Total non-current liabilities	12,111.7	69,734.8	68,907.8	4,957.1
Total liabilities	27,237.5	90,332.7	93,052.2	6,694.0
Total equity attributable to owner of the parent entity	52,475.4	60,726.0	58,576.6	4,213.8
Non-controlling interest	12,297.5	13,500.1	13,214.2	950.6
Total equity	64,772.9	74,226.1	71,790.8	5,164.4
Total liabilities and equity	92,010.4	164,558.8	164,843.0	11,858.4

Consolidated Statements of Cash Flows Data

	For the year ended December 31,			
	2017	2018	2019	
	(as restated) Rp. (Rp. in billions and US\$ in millions)	(as restated) Rp. (Rp. in billions and US\$ in millions)	Rp. (Rp. in billions and US\$ in millions)	US\$ (Rp. in billions and US\$ in millions)
Net cash received from operating activities	5,845.5	6,853.3	289.7	20.9
Net cash used in investing activities	(4,747.4)	(59,729.1)	(10,713.9)	(770.7)
Net cash (used in)/received from financing activities	(965.2)	56,467.1	5,194.1	373.6
Net increase/(decrease) in cash and cash equivalents	132.9	3,591.3	(5,230.1)	(376.2)
Cash and cash equivalents at the beginning of the year	15,966.8	16,143.1	20,268.5	1,458.1
Cash and cash equivalents at the end of the year	16,143.1	20,268.5	14,581.7	1,049.0

Non-GAAP Measures and Other Financial Data

	As of and for the year ended December 31,			
	2017	2018	2019	
	Rp. (Rp. in billions and US\$ in millions, except percentages and ratios)	Rp. (Rp. in billions and US\$ in millions, except percentages and ratios)	Rp. (Rp. in billions and US\$ in millions, except percentages and ratios)	US\$ (Rp. in billions and US\$ in millions, except percentages and ratios)
Capital expenditure	10,245.8	5,134.1	4,727.3	340.1
Finance costs	999.1	2,120.6	5,300.3	381.3
EBITDA ⁽¹⁾	11,500.3	18,511.2	10,696.2	769.5
Dividend from PTFI	427.6	2,569.3	—	—
Adjusted EBITDA ⁽¹⁾	10,273.3	10,746.4	8,415.3	605.4
Total debt ⁽²⁾	14,064.3	73,107.5	76,673.4	5,515.7
EBITDA margin ⁽³⁾	24.4%	28.4%	13.3%	13.3%
Total debt / Adjusted EBITDA	1.4x	6.8x	9.1x	9.1x
Net debt / Adjusted EBITDA ⁽⁴⁾	(0.2)x	4.9x	7.4x	7.4x
Total debt / Total equity	0.2x	1.0x	1.1x	1.1x
Adjusted EBITDA / Finance costs	10.3x	5.1x	1.6x	1.6x

Notes:

- (1) EBITDA is calculated beginning with profit for the year, and adjusting for (i) income tax expenses, (ii) finance costs, and (iii) depreciation and amortization. Adjusted EBITDA is calculated beginning with EBITDA, and deducting (i) dividend from PTFI, (ii) finance income and (iii) other income, net, and adding (i) loss/(gain) on foreign exchange, net and (ii) provision for impairment of investment. EBITDA and adjusted EBITDA are supplemental measures of our performance that are not required by, or presented in accordance with, IFAS or U.S. GAAP. EBITDA and adjusted EBITDA are not measurements of financial performance or liquidity under IFAS or U.S. GAAP and should not be considered as alternatives to net profit, operating income or any other performance measures derived in accordance with IFAS or U.S. GAAP or an alternative to cash flows from operating activities as measures of liquidity. Our presentations of EBITDA and adjusted EBITDA may not be comparable to similarly titled measures presented by other companies. You should not compare our EBITDA and adjusted EBITDA with EBITDA and adjusted EBITDA presented by other companies because not all companies use the same definition. We have included EBITDA and adjusted EBITDA because we believe these are indicative measures of our operating performance and are used by investors and analysts to evaluate companies in the industries we operate.

The following table reconciles our profit for the year under IFAS to our definition of EBITDA and adjusted EBITDA for the years indicated.

	For the year ended December 31,			
	2017 (as restated) Rp. (Rp. in billions and US\$ in millions)	2018 (as restated) Rp. (Rp. in billions and US\$ in millions)	2019 Rp. (Rp. in billions and US\$ in millions)	US\$
Profit for the year	5,766.9	10,826.6	24.5	1.8
Add/(subtract):				
Income tax expenses	2,474.4	3,021.8	2,241.4	161.3
Finance costs	999.1	2,120.6	5,300.3	381.3
Depreciation and amortization	2,259.9	2,542.2	3,130.0	225.1
EBITDA	11,500.3	18,511.2	10,696.2	769.5
Add/(subtract):				
Dividend from PTFI	(427.6)	(2,569.3)	—	—
Provision for impairment of investment	75.1	—	104.2	7.5
Finance income	(629.9)	(1,010.5)	(870.2)	(62.6)
Loss/(gain) on foreign exchange, net	24.3	(218.1)	275.2	19.8
Other income, net ⁽⁵⁾	(268.9)	(3,966.9)	(1,790.1)	(128.8)
Adjusted EBITDA	10,273.3	10,746.4	8,415.3	605.4

- (2) Total debt is calculated as the sum of short-term bank borrowings, bank borrowings (current and non-current portion), finance lease liabilities and bonds payable.
- (3) EBITDA margin is calculated as EBITDA divided by total revenue.
- (4) Net debt/Adjusted EBITDA is calculated as total debt less cash and cash equivalents, divided by adjusted EBITDA.
- (5) Other income, net is calculated as other income deducted by dividend from PTFI, provision for impairment of investment and gain/(loss) on foreign exchange, net.

Consolidated Financial Data of PTFI

Consolidated Statements of Profit or Loss and Other Comprehensive Income Data

	For the year ended December 31,		
	2017	2018	2019
	(US\$ in millions)		
Net revenues	4,445.0	5,558.5	2,771.2
Cost of sales	2,349.7	2,504.6	2,448.4
Gross profit	2,095.3	3,053.9	322.8
Expenses:			
General and administrative expenses	123.6	121.1	120.8
Selling and marketing expenses	2.1	2.2	2.2
Exploration impairment	—	98.2	—
Operating profit	1,969.5	2,832.3	199.7
Interest expense	(5.2)	(1.2)	(82.3)
Interest income	5.7	38.9	7.4
Other expense, net	(0.2)	(7.8)	(142.1)
Equity in associated company's net earnings	9.7	7.0	12.3
Profit/(loss) before income tax expense	1,979.5	2,869.2	(5.0)
Income tax expense	(696.7)	(400.1)	(203.0)
Net profit/(loss) before net profit tax	1,282.9	2,469.1	(208.0)
Non-tax state revenue	—	—	—
Regional governments revenue	—	—	—
Net profit/(loss)	1,282.9	2,469.1	(208.0)
Other comprehensive income:			
Other comprehensive income not to be reclassified to profit or loss in subsequent periods			
Remeasurement gains on pension plans	12.0	10.0	12.9
Tax recognized	(4.2)	(3.4)	(3.2)
Foreign exchange impact	0.4	2.9	(1.5)
Net other comprehensive income not to be reclassified to profit or loss in subsequent periods	8.2	9.5	8.3
Total comprehensive income/(loss) attributable to stockholders	1,291.1	2,478.6	(199.7)

Consolidated Statements of Financial Position Data

	As of December 31,		
	2017	2018	2019
	(US\$ in millions)		
Total current assets	1,873.8	1,528.6	1,481.4
Total non-current assets	8,787.9	13,636.5	14,451.3
Total assets	10,661.7	15,165.0	15,932.7
Total current liabilities	1,182.8	1,140.1	1,033.3
Total non-current liabilities	3,173.2	3,665.5	4,572.4
Total liabilities	4,356.0	4,805.5	5,605.7
Net equity	6,305.7	10,359.5	10,327.0
Total liabilities and equity	10,661.7	15,165.0	15,932.7

Consolidated Statements of Cash Flows Data

	For the year ended December 31,		
	2017	2018	2019
	(US\$ in millions)		
Net cash provided by operating activities	2,421.6	2,850.8	215.4
Net cash used in investing activities	(768.9)	(4,588.8)	(1,276.9)
Net cash (used in)/provided by financing activities	(1,555.1)	1,645.0	1,056.3
Net increase/(decrease) in cash and cash equivalents	97.6	(93.0)	(5.2)
Cash and cash equivalents at the beginning of the year	6.9	104.5	11.4
Cash and cash equivalents at the end of the year	104.5	11.4	6.2

Reserves and Resources Data

The following table sets forth our aggregate net working interest reserves and resources, as of December 31, 2019.

	Reserves			Resources			
	Proved	Probable	Total	Measured	Indicated	Inferred	Total
Coal (tonnes in millions) ⁽¹⁾	1,517	1,608	3,125	2,083	2,237	1,183	5,503
Gold doré (koz) ⁽²⁾	60	209	269	758	377	70	1,205
Silver ore (koz) ⁽²⁾	488	3,294	3,782	8,360	4,349	795	13,504
Tin ore (tonnes) ⁽³⁾	157,390	170,130	327,520	418,280	101,080	267,780	787,140
Nickel (wmt in millions) ⁽²⁾	144	210	354	310	428	624	1,362
Bauxite (wmt in millions) ⁽²⁾	35	116	151	226	106	266	598

Notes:

- (1) According to the 2019 Coal Reserves Statement, see Appendix A.
- (2) According to the 2019 Nickel, Gold, Silver and Bauxite Reserves Statement, see Appendix B.
- (3) According to the 2019 Tin Reserves Statement, see Appendix C.

The following table sets forth PTFI's aggregate reserves and resources at its Grasberg Mine, as of December 31, 2019.

	Reserves			Resources			
	Proved	Probable	Total	Measured	Indicated	Inferred	Total
Ore (tonnes in millions)⁽¹⁾	561	1,252	1,813	384	2,156	140	2,680
Copper grade (%) ⁽¹⁾	1.18	0.98	1.04	0.80	0.66	0.39	0.67
Gold grade (grams/tonne) ⁽¹⁾	0.91	0.74	0.79	0.69	0.59	0.25	0.59
Silver (grams/tonne) ⁽¹⁾	5.09	4.52	4.70	4.02	3.59	2.04	3.57

Note:

- (1) According to the 2019 Grasberg Reserves Statement, see Appendix D.

Selected Production, Sales and Operating Data

The following table sets forth certain production, sales and operating data relating to our businesses, as of or for the years indicated.

	As of or for the year ended December 31,		
	2017	2018	2019
Production volume			
Coal (tonnes in millions)	24.2	26.4	29.1
Gold (oz t)	63,240	62,887	63,080
Silver (oz t)	456,251	500,780	530,969
Refined tin (tonnes)	30,249	33,444	76,389
Nickel ore (wmt)	5,572,056	9,317,963	8,696,479
Ferronickel (TNi)	21,762	24,868	25,713
Bauxite ore (wmt)	648,431	1,102,385	1,726,734
Alumina (tonnes)	—	—	104,537
Aluminum (tonnes)	218,816	242,043	249,531
Sales volume			
Coal (tonnes in millions)	23.6	24.7	27.8
Gold (oz t)	424,454	896,812	1,093,864
Silver (oz t)	533,316	590,191	660,440
Refined tin (tonnes)	29,914	33,818	67,704
Nickel ore (wmt)	2,935,666	6,335,281	7,558,733
Ferronickel (TNi)	21,878	24,135	26,349
Bauxite ore (wmt)	838,069	920,031	1,659,920
Alumina (tonnes)	—	—	70,517
Aluminum (tonnes)	207,276	246,892	254,083
Average selling price			
Coal (Rp. in millions/tonne)	0.8	0.8	0.8
Gold (Rp. in millions/oz t)	17.4	18.6	20.2
Silver (Rp. in millions/oz t)	0.2	0.2	0.2
Refined tin (Rp. in millions/tonne)	276.8	290.0	280.3
Nickel ore (Rp. in millions/wmt)	0.5	0.5	0.5
Ferronickel (Rp. in millions/TNi)	146.8	193.1	186.4
Bauxite ore (Rp. in millions/wmt)	0.5	0.5	0.5
Alumina (Rp. in millions/tonne)	—	—	7.7
Aluminum (Rp. in millions/tonne)	27.7	31.6	26.9
Cash cost			
Coal (Rp. in millions/tonne) ⁽¹⁾	0.5	0.6	0.6
Gold (Rp. in millions/oz t) ⁽²⁾	11.5	12.5	10.9
Silver (Rp. in millions/oz t) ⁽³⁾	0.1	0.1	0.1
Refined tin (Rp. in millions/tonne) ⁽⁴⁾	217.9	225.5	216.8
Nickel Ore (Rp. in millions/wmt) ⁽⁵⁾	0.2	0.3	0.3
Ferronickel (Rp. in millions/TNi) ⁽⁶⁾	103.8	120.5	116.7
Bauxite Ore (Rp. in millions/wmt) ⁽⁷⁾	0.3	0.3	0.3
Alumina (Rp. in millions/tonne) ⁽⁸⁾	—	—	5.4
Aluminum (Rp. in millions/tonne) ⁽⁹⁾	16.6	21.3	21.3

Notes:

- (1) Cash cost per tonne of coal is calculated as (a) the sum of mining costs, transportation, freight and handling costs, royalties paid to the Government, coal processing and other cash production costs, restoration costs and increases or decreases in coal inventories, divided by coal sales volumes for the relevant years.

- (2) Cash cost per oz t of gold is calculated as (a) the sum of mining costs, gold doré processing and other cash production costs, restoration costs and increases or decreases in gold doré inventories, divided by (b) gold production volumes for the relevant years.
- (3) Cash cost per oz t of silver is calculated as (a) the sum of mining costs, silver ore processing and other cash production costs, restoration costs and increases or decreases in silver ore inventories, divided by (b) silver production volumes for the relevant years.
- (4) Cash cost per tonne of refined tin is calculated as the sum of (a) costs of raw materials, royalties paid to the Government, tin processing and other cash production costs and increases or decreases in tin inventories, divided by (b) refined tin production volumes for the relevant years.
- (5) Cash cost per wmt of nickel ore is calculated as (a) the sum of mining costs, nickel ore processing and other cash production costs, restoration costs and increases or decreases in nickel ore inventories, divided by (b) nickel production volume for the relevant years.
- (6) Cash cost per TNi of ferronickel is calculated as (a) the sum of mining costs, ferronickel processing and other cash production costs, restoration costs and increases or decreases in ferronickel inventories, divided by (b) ferronickel production volume for the relevant years.
- (7) Cash cost per wmt of bauxite is calculated as (a) the sum of mining costs, bauxite processing and other cash production costs, restoration costs and increases or decreases in bauxite inventories, divided by (b) bauxite production volumes for the relevant years.
- (8) Cash cost per tonne of alumina is calculated as (a) production costs less (b) depreciation related to the production of alumina, divided by (c) alumina production volumes for the relevant years.
- (9) Cash cost per tonne of aluminum is calculated as (a) production costs less (b) depreciation related to the production of aluminum, divided by (c) aluminum production volumes for the relevant years.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations in conjunction with the section entitled "Selected Consolidated Financial Information and Other Data" and our Audited Consolidated Financial Statements and the related notes thereto included in this Offering Memorandum. This discussion contains forward-looking statements that are subject to numerous risks and uncertainties, including, but not limited to, those described in the "Risk Factors" section of this Offering Memorandum. Actual results could differ materially from those contained in any forward-looking statements.

Our Audited Consolidated Financial Statements have been prepared in accordance with IFAS, which differ in certain material respects from U.S. GAAP. See "Summary of Certain Differences Between Indonesian Financial Accounting Standards and U.S. GAAP."

Our consolidated financial information as of and for the years ended December 31, 2018 and 2017 have been restated from our previously issued consolidated financial statements for the years then ended. For a description of the restatement and reclassification adjustments made to such financial information, see Note 49 to our Audited Consolidated Financial Statements included in this Offering Memorandum. See also "Risk Factors — Risks Common to All our Businesses — We have restated our consolidated financial statements for prior periods, which may lead to additional risks and uncertainties, including loss of investor confidence and negative impacts on our business, financial condition and results of operations."

Overview

We are the state-owned national mining company appointed by the Government as the holding company for Indonesia's mining operators. We engage in mining and processing coal, gold, tin, nickel and bauxite, and aluminum smelting and production. PTFI, our unconsolidated subsidiary in which we hold a majority beneficial stake, engages in mining and processing copper and gold, see "PT Freeport Indonesia."

According to CRU, we are (i) the largest holder of coal reserves in Indonesia, as of December 31, 2019, and the fifth largest coal producer in Southeast Asia in terms of coal production volume in the year ended December 31, 2019; (ii) the sixth largest gold producer in Southeast Asia and, after taking into account 100.0% of PTFI's gold production, the largest gold producer in Southeast Asia in terms of gold production volume in the year ended December 31, 2019; (iii) the largest tin producer in the world in terms of refined tin production volume in the year ended December 31, 2019; and (iv) the only primary aluminum producer in Indonesia and the second largest aluminum producer in Southeast Asia in terms of aluminum production volume in the year ended December 31, 2019.

We commenced business operations in 1979 as an aluminum smelter and have, over the course of 40 years, acquired in-depth expertise in managing and operating downstream production plants and supporting facilities for the refining of minerals and production of downstream mineral products. As the holding company for Antam, Bukit Asam and Timah, following the Government's transfer of its 65.0% equity interests in each of these entities to us in 2017, we oversee the management and exploitation of the coal and mineral resources held by these entities and aim to leverage our expertise to develop the various downstream businesses of these entities so as to achieve stronger financial performance and growth of our Group. Concurrent with the Government's transfer of its equity interests in Antam, Bukit Asam and Timah, the Government also transferred its 9.36% equity interests in PTFI to us, and, in December 2018, we increased our beneficial equity interests in PTFI to 51.24%. See "PT Freeport Indonesia."

Our business operations are divided into six main segments, namely (i) coal, (ii) gold, (iii) tin, (iv) nickel, (v) bauxite and (vi) aluminum smelting.

- **Coal.** We are the largest holder of coal reserves in Indonesia as of December 31, 2019, and the fifth largest coal producer in Southeast Asia in terms of coal production volume in the year ended December 31, 2019, according to CRU. Our coal business is vertically integrated and we undertake all stages of mining and processing coal, starting from exploration, mining and processing coal to

marketing our coal products. We own and operate four coal mines located on the islands of Sumatra and Kalimantan, Indonesia, which span an aggregate total area of approximately 65,632 hectares. Our coal products benefit from having a relatively low ash and low sulfur content, and high HGI and AFT. We sell a large proportion of our coal domestically to PLN, the state-owned electricity generation and distribution company, and internationally to commodity traders and coal-fired power producers. For the years ended December 31, 2017, 2018 and 2019, we produced 24.2 million tonnes, 26.4 million tonnes and 29.1 million tonnes of coal, respectively, and sold 23.6 million tonnes, 24.7 million tonnes and 27.8 million tonnes of coal, respectively. For the same years, our revenue from sale of coal was Rp.19,133.5 billion, Rp.20,792.7 billion and Rp.21,420.1 billion (US\$1,540.9 million), respectively.

- Gold.** We are the sixth largest gold producer in Southeast Asia in terms of gold production volume in the year ended December 31, 2019, according to CRU. After taking into account 100.0% of PTFI's gold production, we are the largest gold producer in Southeast Asia in terms of gold production volume in the year ended December 31, 2019, according to CRU, see "PT Freeport Indonesia." We own and operate three gold mines located in West Java and Banten, Indonesia, which span an aggregate total area of approximately 11,540 hectares, and PTFI owns the Grasberg Mine, which holds the largest amount of gold reserves in the world as of December 31, 2019 and is the largest gold mine in the world in terms of gold production volume in the year ended December 31, 2018, according to CRU. Our gold and precious metals business is vertically integrated and we undertake all stages of mining and processing gold and precious metals. We produce and sell fine gold, mainly in the form of gold bars, as well as other precious metal products such as platinum and fine silver. Our fine gold is produced at our Logam Mulia Precious Metals Refinery, the only precious metals refinery in Indonesia that is accredited by the LBMA, from gold doré bullion, which we purchase from third-party precious metals trading companies, and gold doré, which we produce at our gold mines. In addition to producing and selling fine gold and other precious metal products, we provide precious metals refining services to other third-party mining companies. For the years ended December 31, 2017, 2018 and 2019, we produced 63,240 oz t, 62,887 oz t and 63,080 oz t of gold, respectively, and sold 424,454 oz t, 896,812 oz t and 1.1 million oz t of gold, respectively. For the same years, our revenue from sale of gold was Rp.7,375.5 billion, Rp.16,693.4 billion and Rp.22,465.8 billion (US\$1,616.1 million), respectively.
- Tin.** We are the largest refined tin producer in the world in terms of refined tin production volume in the year ended December 31, 2019, according to CRU. Our tin business is vertically integrated and we undertake all stages of mining and processing tin, starting from exploration, mining and processing of tin to marketing of our tin products. We own and operate tin mines in Indonesia across the Bangka Belitung Islands, the Riau Islands and Riau, which span an aggregate total area of approximately 473,388 hectares. We produce refined tin products, such as tin metal, as well as other downstream tin products, including tin solder and tin chemical, which we primarily sell in international markets, including Japan, South Korea, Singapore, India, Taiwan, France, Germany and the United States, mainly to the trading arms of automobile manufacturers and customers in the manufacturing industry. Our Banka tin, Mentok tin and Kundur tin are registered and traded on the LME, which requires our refined tin products to be of at least "Grade A" quality. For the years ended December 31, 2017, 2018 and 2019, we produced 30,249 tonnes, 33,444 tonnes and 76,389 tonnes of refined tin, respectively, and sold 29,914 tonnes, 33,818 tonnes and 67,704 tonnes of refined tin, respectively. For the same years, our revenue from sale of tin metal and tin solder was Rp.8,481.7 billion, Rp.10,152.9 billion and Rp.18,107.5 billion (US\$1,302.6 million), respectively, and our revenue from sale of tin chemical was Rp.428.5 billion, Rp.428.0 billion and Rp.335.0 billion (US\$24.1 million), respectively.
- Nickel.** We are the second largest producer of nickel ore and the third largest producer of ferronickel in Southeast Asia in terms of production volumes in the year ended December 31, 2019, according to CRU. Our nickel business is vertically integrated and we undertake all stages of mining and processing nickel ore. We also produce ferronickel from the nickel ore we mine and process. We own and operate ten nickel mines located in Indonesia across the Southeast Sulawesi, North Maluku and West Papua provinces, which span an aggregate total area of approximately 81,438 hectares. We operate three

ferronickel plants, FeNi II, FeNi III and FeNi IV located in Southeast Sulawesi, our Pomalaa Ferronickel Plants, which have a combined production capacity of approximately 27,000 TNi to 30,000 TNi per year. Our ferronickel products generally consist of approximately 20.0% nickel content and 80.0% iron content and are sold in the form of shots or pellets, either with high or low carbon content. For the years ended December 31, 2017, 2018 and 2019, we produced 5.6 million wmt, 9.3 million wmt and 8.7 million wmt of nickel ore, respectively, and sold 2.9 million wmt, 6.3 million wmt and 7.6 million wmt of nickel ore, respectively. For the same years, we produced 21,762 TNi, 24,868 TNi and 25,713 TNi of ferronickel, respectively, and sold 21,878 TNi, 24,135 TNi and 26,349 TNi of ferronickel, respectively. For the same years, our revenue from sale of nickel ore and ferronickel was Rp.4,592.4 billion, Rp.7,675.5 billion and Rp.8,651.4 billion (US\$622.4 million), respectively.

- **Bauxite.** Our bauxite business is vertically integrated and we undertake all stages of mining and processing bauxite. We own and operate a bauxite mine located in Tayan, West Kalimantan, spanning a total area of approximately 34,360 hectares. We sell bauxite of varying alumina content based on our customers' requirements, although we typically sell bauxite with a minimum alumina content of 42.0%. We also use the bauxite ore we produce as raw material for the production of chemical grade alumina at our alumina production plant located near our bauxite mine in Tayan. For the years ended December 31, 2017, 2018 and 2019, we produced 0.6 million wmt, 1.1 million wmt and 1.7 million wmt of bauxite ore, respectively, and sold 0.8 million wmt, 0.9 million wmt and 1.7 million wmt of bauxite ore, respectively. For the year ended December 31, 2019, we produced and sold 104,537 tonnes and 70,517 tonnes of alumina, respectively. For the years ended December 31, 2017, 2018 and 2019, our revenue from sale of bauxite ore was Rp.398.1 billion, Rp.482.4 billion and Rp.758.1 billion (US\$54.5 million), respectively, and for the year ended December 31, 2019, our revenue from sale of alumina was Rp.547.3 billion (US\$39.4 million).
- **Aluminum smelting.** We produce, smelt and sell aluminum products such as aluminum ingots, aluminum billets and aluminum alloys. We are the second largest aluminum producer in Southeast Asia in terms of aluminum production volume in the year ended December 31, 2019, according to CRU. Our aluminum production plants and facilities, comprising our aluminum smelter, casting plant, power plants, regulating dams and ports, are located at Kuala Tanjung, North Sumatra. We are able to produce our aluminum products more cost effectively as compared to other aluminum producers as we have access to hydroelectric power that we generate at our Siguragura Power Plant and Tangga Power Plant, which are located along the Asahan River. For the years ended December 31, 2017, 2018 and 2019, we produced 218,816 tonnes, 242,043 tonnes and 249,531 tonnes of aluminum, respectively, and sold 207,276 tonnes, 246,892 tonnes and 254,083 tonnes of aluminum, respectively. For the same years, our revenue from sale of aluminum products was Rp.5,744.3 billion, Rp.7,802.3 billion and Rp.6,910.2 billion (US\$497.1 million), respectively.

For the years ended December 31, 2017, 2018 and 2019, our total revenue was Rp.47,184.3 billion, Rp.65,277.4 billion and Rp.80,628.7 billion (US\$5,800.2 million), respectively, and our gross profit was Rp.14,223.4 billion, Rp.16,470.3 billion and Rp.14,497.8 billion (US\$1,042.9 million), respectively. For the same years, our EBITDA was Rp.11,500.3 billion, Rp.18,511.2 billion and Rp.10,696.2 billion (US\$769.5 million), respectively, and our adjusted EBITDA was Rp.10,273.3 billion, Rp.10,746.4 billion and Rp.8,415.3 billion (US\$605.4 million), respectively.

Factors Affecting Our Business and Results of Operations

Our business and results of operations are primarily affected by the following factors:

Fluctuations in global commodity prices, supply and demand

Our revenue is predominantly derived from our sale of commodities, namely coal, gold, tin, nickel ore and ferronickel, aluminum, as well as alumina and bauxite. Accordingly, our results of operations are directly affected by the prices of our commodities which we produce and sell. Commodity prices have historically been cyclical and subject to significant fluctuations. Commodity prices depend principally on the supply and demand

dynamics of the world commodities export markets. The commodity markets are highly competitive and are sensitive to numerous factors, including forward selling by producers, production cost levels in major mining regions, changes in mining output (including the opening and closing of mines, the discovery of new deposits and the expansion of operations at existing mines), disruptions in coal or mineral distribution (due to weather and other conditions), government policies and regulations such as those relating to taxation, royalties and environmental protection, global economic conditions, and major public health issues such as the current COVID-19 pandemic, see “— Current COVID-19 pandemic.” The commodity markets are also affected by demand from the end-user industries of the respective commodities. For example, the prices and demand for coal are generally affected by demand from power plants; the prices and demand for gold are generally affected by demand from the jewelry and electronics industries, as well as central bank purchases; the prices and demand for tin are generally affected by demand from the electronics industry; the prices and demand for aluminum are generally affected by demand from the commercial construction and transportation, automotive and aerospace industries; the prices and demand for ferronickel and nickel ore are generally affected by demand from the stainless steel industry. Increases in global commodity prices may encourage commodity producers to increase production through various measures, including changing their mine plans to maximize the production from their producing mines. Conversely, decreases in global prices may encourage producers to decrease production. See “Risk Factors — Risks Common to All Our Mining Businesses — The prices of the products we sell are cyclical in nature and subject to fluctuations” and “Risk Factors — Risks Relating to Our Aluminum Smelting Business — The demand for and price of our aluminum products are cyclical and volatile.”

Historically, fluctuations in the global supply of and/or demand for commodities have been reflected in fluctuations in the prices of commodities. For example, according to CRU, thermal coal prices have experienced significant fluctuations over the past decade. As a result of a five-year period of market oversupply between 2011 and 2016, thermal coal export prices declined by more than 50.0% to approximately US\$65/tonne in 2016 from over US\$100/tonne in 2011 for FOB Newcastle 6,000 kcal/kg coal. In 2018, the prices for FOB Newcastle 6,000 kcal/kg coal recovered to over US\$100/tonne. However, prices for FOB Newcastle 6,000 kcal/kg coal dropped to as low as US\$64/tonne in the fourth quarter of 2019, mainly driven by a decrease in demand growth which encouraged the Chinese government to implement policies to reduce imports into China, as well as a fall in gas prices and weak coal demand in Europe due to a reduction in coal-fired power generation capacities. The prices for FOB Newcastle 6,000 kcal/kg coal rose to US\$69.5/tonne in February 2020 due to an increase in coal import demand from China, which was driven by domestic coal supply disruptions due to the current COVID-19 pandemic, and subsequently declined to US\$65/tonne in March 2020 due to declining global economic activity and lockdowns in several major seaborne markets.

In addition, according to CRU, gold prices were volatile between 2007 and 2015, going from US\$696/oz in 2007 to an all-time high of over US\$1,700/oz in August 2011, in response to the decreasing value of the U.S. dollar which led to an increase in investments in gold as an alternative currency. Between 2012 and 2015, gold prices gradually declined to a low of US\$1,076/oz in December 2015 due to the improvement in the U.S. economy and low inflation rates, and then remained relatively stable from 2015 and 2019 at prices between US\$1,200 and US\$1,400/oz due to uncertainty surrounding the U.S. presidential elections and Britain’s withdrawal from the European Union. In 2019, the price of gold increased by 20.7% from US\$1,198/oz in September 2018 to US\$1,393/oz in September 2019, primarily due to an increase in demand driven by the conservative monetary policies of the U.S. Federal Reserve and escalating tensions between the U.S. and its trade partners. Gold prices rose to US\$1,561/oz in January 2020 primarily due to an increase in investments in gold as an alternative currency in response to the current COVID-19 pandemic.

Similarly, according to CRU, the LME tin prices were volatile between 2008 and 2015. The LME tin prices were as low as US\$10,000/tonne in 2008 during the global financial crisis, before peaking to over US\$33,000/tonne in the second quarter of 2011 and then declining to US\$16,036/tonne in 2015. In February 2019, the LME tin prices hit a high of US\$21,675/tonne due to a decrease in supply from China and fears about a potential decrease in supply from Indonesia in response to new tin export restrictions, and then dropped to approximately US\$17,000/tonne in August 2019 due to weak demand. The LME tin prices rose to a peak of US\$17,775/tonne in late January 2020 due to the closure of certain tin smelters in China over the Chinese New Year holidays and delays in Indonesian export

license renewals, and then declined to US\$16,115/tonne in early February 2020. The LME tin prices remained below US\$16,000/tonne at the end of February 2020 due to the uncertainty of global tin demand driven by the current COVID-19 pandemic as well as on-going trade disputes between China and the U.S. and between Japan and South Korea.

According to CRU, nickel prices have also been subject to significant fluctuations since 2007. The LME nickel price reached a record high of US\$36,168/tonne in 2007, before falling to US\$14,778/tonne in 2009 due to the 2008 global financial crisis and recovering to US\$22,856/tonne in 2011 due to an increase in demand. The LME nickel price then gradually decreased between 2011 and 2016, hitting a low of US\$9,667/tonne in 2016, due to oversupply, which was mainly driven by the rapid expansion of nickel pig iron capacity and weak demand. However, increase in demand and lack of supply since 2018 led to the LME nickel price increasing to US\$13,963/tonne in 2019. The LME nickel price fell below US\$13,000/tonne in mid-February as a result of the current COVID-19 pandemic, which has led to a decline in industrial and construction activities. In addition, ferronickel prices, which are generally linked to nickel prices, also experience volatility. According to CRU, the price of CIF ferronickel with 25.0% to 33.0% nickel content produced in China increased from US\$10,545/TNi in 2017 to US\$13,096/TNi in 2018 due to a decrease in the global supply of ferronickel, driven by the growth in demand for ferronickel for battery manufacturing and the closure of a large number of nickel mines in the Philippines by the Philippines government due to alleged environmental abuses.

Further, according to CRU, between 1996 and 2004, annual average prices of aluminum fluctuated within a relatively narrow range of US\$1,364 to US\$1,721/tonne, before increasing to US\$2,594/tonne and US\$2,662/tonne in 2006 and 2007, respectively. The LME three-month aluminum prices peaked at over US\$3,300/tonne in July 2008, but subsequently fell to below US\$1,400/tonne in early 2009 due to the global financial crisis. Aluminum prices recovered strongly in 2010 to an average of US\$2,173/tonne and rose again in 2011 to an average of US\$2,395/tonne due to increasing demand from sectors such as construction and transportation. The LME three-month aluminum price declined to below US\$2,000/tonne in 2012 due to the slowdown of the growth in China's GDP and the growing debt crisis in Europe leading to lower consumption of aluminum, and then further declined to an average of US\$1,887/tonne in 2013 due to weak demand and high inventories outside China. The global economic recovery in 2014 lifted aluminum prices moderately to US\$1,894/tonne. Aluminum prices declined further to an average of US\$1,661/tonne and US\$1,605/tonne in 2015 and 2016, respectively, due to weak demand globally and the continuous oversupply of aluminum, particularly in China which commissioned new aluminum production facilities in 2015 and 2016. In 2017, aluminum prices recovered and increased to US\$2,117/tonne due to strong global demand and the closure of aluminum production facilities in China which did not adhere to environmental regulations. Global aluminum demand declined in 2019 due to a combination of regulatory, trade and policy issues in connection with the U.S. and China trade war and corresponding protectionist measures, which resulted in a decline of aluminum prices to US\$1,811/tonne in 2019. While aluminum prices have declined due to the current COVID-19 pandemic which has reduced industrial and construction activities globally, they hovered above US\$1,700/tonne in January and February 2020. As concerns over a global recession mounted, the LME three-month aluminum price dropped further to below US\$1,500/tonne in early April.

According to CRU, traded CIF bauxite prices (excluding value-added tax) in China, which is the world's largest bauxite market, averaged US\$50.7/tonne in 2017 before increasing by US\$2.8/tonne in 2018, mainly driven by an increase in ocean freight rates, high alumina prices and robust bauxite demand. The price of bauxite in China fell to US\$51.1/tonne in 2019 due to oversupply driven by high stockpiles, new bauxite mines in Australia and an increase in shipments from Guinea. In addition, according to CRU, prices for Australia FOB alumina fell by 31.0% between 2008 and 2009 to US\$248/tonne, before increasing to US\$376/tonne in 2011 due to high demand and lower production levels of refineries outside China, especially in the first half of 2011. Alumina prices then fell to US\$319/tonne in 2012 due to weak economic conditions and sluggish demand for aluminum from China before recovering to US\$326/tonne in 2013. Alumina prices subsequently declined by approximately 43.4% from US\$352/tonne in January 2015 to US\$199/tonne in January 2016 due to lower production costs resulting from lower fuel prices. Due to shortage expectations, alumina prices increased to US\$354/tonne in 2017 and further increased to US\$690/tonne in April 2018, before declining to an average of

US\$332/tonne in 2019 due to weak demand and an increase in supply from China. Alumina prices increased over 7.0% from the end of January 2020 to February 2020 to US\$305/tonne due to expectations of shortage of alumina resulting from the closure of refineries amid the current COVID-19 pandemic in China.

Production volumes, infrastructure and expansion of production capacities

In addition to demand for and price of the commodities which we produce and sell, our revenue is also a function of and directly correlated to the volume of commodities we are able to produce. Production volumes of our upstream products, namely coal, gold doré and nickel ore, are dependent upon a number of factors, including (i) the geological characteristics of our mines, such as amount and quality of ore reserves and mine location, (ii) mine plans, (iii) the performance of our mining services providers, whom we may engage from time to time, (iv) the production capacity and efficiency of our ore processing facilities, as well as our processing, smelting, refining and casting facilities, and (v) transportation infrastructure at our mines.

Production volumes of our midstream and downstream products, namely refined tin, gold bars and other precious metal products, aluminum ingots, billets and alloys, and ferronickel, are affected by the availability and quality of our raw material feedstock as well as the production capacity and efficiency of our processing, smelting, refining and casting facilities. For example, ferronickel is produced by smelting nickel ore and its production depends on the grade of nickel ore feed and the smelter load. Saprolite nickel ore typically with a grade of above 1.8% is used in our ferronickel production and the quality of the saprolite nickel ore used as raw material feedstock affects the nickel content in the slag produced as a by-product in the production of ferronickel. The slag is typically re-used for further nickel extraction to produce more ferronickel and, accordingly, the quality of the saprolite nickel ore used affects our aggregate production volumes of ferronickel. In addition, as the power supply to our aluminum smelters and casting plant is from our Siguragura Power Plant and Tangga Power Plant, which generate hydroelectricity from hydroelectric power provided by Lake Toba, the utilization rate of our aluminum smelters and casting plant is affected by the water level of Lake Toba. Accordingly, an increase in the water level of Lake Toba generally has a positive impact on the utilization rate of our aluminum smelters and casting plant, and our production volume for our aluminum products. Conversely, a decrease in the water level of Lake Toba will generally have a negative impact on the utilization rate of our aluminum smelters and casting plant, and our production volume for our aluminum products. See “Risk Factors — Risk Relating to Our Aluminum Smelting Business — Our aluminum business may be adversely affected by interruptions in our supply of electricity.”

We currently depend on a small number of mines for our production volumes of coal and tin ore. See “Risk Factors — Risks Common to All Our Mining Businesses — We depend on a small number of mines for a substantial portion of our production volume.” A substantial portion of our coal and tin ore is produced at our Tanjung Enim Coal Mine and Bangka Tin Mines, respectively. In addition, we currently depend on a small number of smelting, refining and casting facilities for our production volumes of fine gold, ferronickel and aluminum products. We smelt and refine all of (i) the gold doré which we produce from our gold mines, (ii) gold bullion which we purchase from third-party precious metals trading companies, and (iii) gold bullion from other mining companies, at our Logam Mulia Precious Metals Refinery. Further, we produce all of our ferronickel at our Pomalaa Ferronickel Facilities, and smelt and cast all of our aluminum products at our aluminum smelter and casting plant at Kuala Tanjung, Sumatra. In the event of any unexpected disruptions experienced at any of these production facilities, our ability to efficiently utilize these production facilities may be adversely affected, thereby resulting in a decrease in our production volumes. See “Risk Factors — Risks Common to All Our Businesses — We may experience unexpected disruptions to our mining and smelting operations as a result of operational and infrastructure risks.”

We plan to expand our production capacities for our upstream, midstream and downstream products in the coming years. Our expansion plans for our upstream products include our railway development projects to increase our coal transportation capacity to support the high levels of coal production at our Tanjung Enim Coal Mine, namely, the Tarahan Line Upgrade, the Tarahan Line II, and the Prajin Line. The Tarahan Line Upgrade is scheduled to be completed by the end of 2020, and the Tarahan Line II and Prajin Line are both scheduled to be operational by 2024. See “Business — Our Coal Business — Infrastructure development projects.”

Our expansion plans for our midstream and downstream products include upgrading works at our aluminum reduction plant at Kuala Tanjung, North Sumatra, to increase the plant's aluminum production capacity from 260 ktpa to 280 ktpa. We expect to commence the upgrading works at our reduction plant by the end of 2020, and to complete the upgrade by the end of 2022. Further, we are expanding our coal downstream businesses through the construction of the Sumsel 8 CFPP, a coal-fired power plant with a planned output capacity of 2x620 MW that is expected to consume coal at a rate of 5.4 mtpa and is intended to be fueled by coal from our Tanjung Enim Coal Mine. Construction of the Sumsel 8 CFPP is expected to be completed by 2022. See "Business — Our Aluminum Smelting Business — Aluminum development projects" and "Business — Our Coal Business — Downstream coal businesses."

We expect our planned increase in production capacities to contribute to an increase in production volumes for future periods. However, the current COVID-19 pandemic has affected and may continue to affect the ability of the EPC contractors for several of our development projects to meet their obligations to us in a timely manner, or at all, whether due to travel or other restrictions imposed in response to the pandemic. As a result, we expect there to be delay to our timelines for these expansion projects, which could lead to an increase in our costs for, or the suspension or cancelation of, such projects. See "— Current COVID-19 pandemic."

Production costs

As a producer and seller of commodities, we sell our products at market prices and our ability to manage costs and expenses has a significant impact on our results of operations. The major cost components for our various businesses primarily comprise:

- For coal — transportation costs, third-party mining services fees and rent expense for our mining equipment.
- For gold — the cost of gold bullion purchased from third-party precious metals trading companies, labor costs and costs of materials consumed at our mine sites.
- For tin — mining fees paid to small-scale miners, under existing agreements with them, and rent expense for our mining equipment.
- For aluminum — the raw material costs for the production of our aluminum products, such as alumina, coke, coal tar pitch and aluminum fluoride. While power supply cost is typically one of the main cost component for the aluminum smelting business, we currently enjoy low cost power supplied by our hydropower plants.
- For nickel ore and ferronickel — fuel expense and labor services.

We actively monitor our production costs and have implemented several cost saving initiatives in recent years. For example, as part of our expansion project for our Pomalaa Ferronickel Facilities, we completed construction of a coal-fired power plant at Pomalaa in 2016, to supplement our power supply requirements for our nickel business. As a result, we managed to fulfill part of our power supply requirements, previously met by fuel bought from third-party suppliers, with the power supply from our coal-fired power plant at Pomalaa, thereby improving our fuel cost efficiency. See "Business — Our Nickel Business — Ferronickel production facilities — Pomalaa Ferronickel Facilities." In addition, we began utilizing electric-powered heavy equipment for our coal mining operations in 2016, which reduced our need for conventional heavy equipment and contributed to a decrease in our rent expense for heavy equipment and fuel cost.

We aim to continue monitoring our production costs for opportunities to further improve our costs efficiencies. For example, we currently use the borehole mining method at our onshore tin mines, through our use of borehole mining equipment which we developed in 2012. We plan to further develop our borehole mining equipment for use at our offshore tin mines, thereby improving our production efficiency as well as reducing rent expense for our tin mining equipment. We are also in the process of installing a new tin smelting technology at our Bangka smelting and refining plants, which we expect will allow us to smelt tin concentrates with tin content of less than 60.0% as well as maintain a production capacity of 40,000 tonnes of crude tin per year at our Bangka

smelting and refining plants with the use of less furnaces, thereby enabling us to increase our smelting efficiency. See “Business — Our Tin Business — Tin development projects.” We also periodically revise our mine plans to adapt to changes in demand for our products, selling prices and operating costs, thereby improving our profit margins. As a result of our cost saving initiatives, we expect our cost efficiency and operating margins to improve in future periods.

Government policies and changes in law

While the current policies of the Government toward the domestic coal and minerals mining industries are generally market-orientated, the Government may, from time to time, promulgate new policies or laws that affect our mining operations as well as the sale of our products. See “Risk Factors — Risks Common to All Our Mining Businesses — We may be adversely affected by changes to laws and regulations relating to the mining industry” and “Indonesian Regulatory Framework — Mining Regulation.”

The Government has enacted various regulations on the export of coal and minerals. For example, on January 16, 2017, the Minister of Trade issued Minister of Trade Regulation No. 01/M-DAG/PER/1/2017 (“MOTR 1/2017”), which permitted the export of nickel ore and bauxite from Indonesia up to January 11, 2022 and subject to certain minimum levels of processing and/or purification of such nickel ore and bauxite before export. As a result, we were able to export our nickel and bauxite products in the international market in the second half of 2017, and in 2018 and 2019, which contributed to an improvement in our revenue from and profit margins for our nickel and bauxite products. For the years ended December 31, 2017, 2018 and 2019, we exported 93.5%, 62.8% and 73.9%, respectively, of our total nickel ore sales volume. However, on August 30, 2019, the MEMR issued MEMR Regulation No.11/2019 amending MEMR Regulation No.25/2018 on the Utilization of Mining Minerals and Coal (“MEMR 11/2019”), which bans the export of low-grade nickel ore from Indonesia effective January 1, 2020. The nickel ore export ban has resulted in our inability to continue supplying nickel to our international customers. We expect the nickel ore export ban to significantly reduce our revenue from the sale of nickel ore, which accounted for 2.9%, 4.6% and 4.7% of our total revenue for the years ended December 31, 2017, 2018 and 2019.

In addition, pursuant to MOT Regulation No. 44/M-DAG/PER/7/2014 on Export Provisions for Tin, as amended by MOT Regulation No. 53 of 2018 (“MOTR 44/2014”) and MEMR Decree No. 1827 K/30/MEM/2018 on Guidelines for Implementation of Good Mining Engineering Principle (“MEMR Decree 1827/2018”), which is intended to increase oversight over and reduce the negative environmental impact of unsupervised mining by third-party mining contractors and small-scale miners within tin mining concession areas belonging to other tin mining companies, only tin producers who are registered with the Ministry of Trade or the OSS body, as applicable, and have complied with certain reporting requirements and good mining practices, including providing verification that their tin was mined from within their own mining concession areas, are able to export tin products from Indonesia. Previously, third-party mining contractors and small-scale miners operating unsupervised within our tin mining concession areas led to large amounts of tin ore being extracted from our tin mines in an environmentally harmful manner, and sold to other tin producers. However, the promulgation of MEMR Decree 1827/2018 has resulted in a decrease in tin producers purchasing tin ore illegally extracted by third-party mining contractors and small-scale miners from our tin mines. This has, in turn, led to an increase in the supply of tin ore available to us as we increased our cooperation with such third-party mining contractors and small-scale miners by entering into agreements with them, under which we collect the tin ore mined by them from our tin mines based on an annual quantity approved by the authorities and in exchange for a fee. Under these agreements, we require such third-party mining contractors and small-scale miners to comply with our standard operating procedures, including our health, safety and environmental guidelines, when operating within our concession areas. During the second half of 2018, we were the only tin producer in Indonesia in compliance with the requirements under MOTR 44/2014 and MEMR Decree 1827/2018 and therefore the only company that was permitted to export tin products. In 2019, although we were one of three companies in compliance with such requirements and permitted to export tin products, we remained the dominant tin producer and exporter in Indonesia, accounting for approximately 97.2% and 94.8% of Indonesia’s total refined tin production and exports, respectively, in 2019, according to CRU. As a result of the foregoing, the amount of tin ore we sourced

from third-party mining contractors and small-scale miners increased to 78,991 tonnes in 2019 from 39,959 tonnes in 2018, resulting in a significant increase in our costs from raw material used to Rp.18,644.5 billion (US\$1,341.2 million) in 2019 from Rp.11,277.3 billion in 2018 as well as a significant increase in our total production volume of refined tin products to 76,389 tonnes in 2019 from 33,444 tonnes in 2018.

The Government has also imposed price control regulations in relation to coal and other minerals in Indonesia. For example, the MEMR determines the benchmark selling price of coal to domestic electricity providers on an annual basis at the beginning of each year. For 2020, pursuant to MEMR Decree No. 261 K/30/MEM/2019 on the Fulfilment of Domestic Coal Requirement for Year 2020 (“MEMR Decree No. 261K/2019”), the MEMR set the domestic selling price of coal with specifications of 6,322 kcal/kg GAR, total moisture of 8.0%, total sulfur of 0.8% and ash content of 15.0%, at US\$70/tonne (FOB). For coal that does not meet these specifications, the coal sales price will be calculated based on the applicable calculation guidelines as stipulated in MEMR Decree No. 261K/2019. While the average selling price for our coal for the years ended December 31, 2017, 2018 and 2019 has been lower than the MEMR coal benchmark price set in each respective year, any changes to the MEMR coal benchmark price could result in lower or higher coal prices realized, and as a result, a decrease or increase in our revenue and margins. Following the implementation of the MEMR coal benchmark price, PLN has reimbursed us for certain costs, including transportation costs incurred for the delivery of our coal to PLN. In the event that PLN ceases to reimburse us for such costs, our cost of revenue for our sale of coal to PLN may increase and have a negative impact on our margins.

In addition, in order to ensure that domestic coal supply is fulfilled, the MEMR requires an Indonesian coal producer to prioritize the domestic market by selling a minimum percentage of its proposed coal production amount (as approved by the MEMR or the relevant governor) to fulfill its domestic market obligation (“DMO”). The MEMR determines the minimum DMO on an annual basis at the beginning of each year. For 2020, pursuant to MEMR Decree No. 261K/2019, the MEMR set the minimum DMO at 25.0% of proposed coal production for the year. Currently, our domestic obligation under MEMR Decree No. 261K/2019 is fulfilled by our coal sales to PLN, with whom we have entered into long-term coal agreements. PLN is our primary offtaker for the coal produced from our Tanjung Enim Coal Mine and our total volume of coal sold to PLN (including its subsidiary, Indonesia Power) was approximately 12.9 million tonnes, 12.2 million tonnes and 13.9 million tonnes for the years ended December 31, 2017, 2018 and 2019, respectively. For the same years, revenue from our sale of coal to PLN (including Indonesia Power) amounted to Rp.9,607.6 billion, Rp.8,937.8 billion and Rp.10,647.4 billion (US\$765.9 million), respectively, representing 20.4%, 13.7% and 13.2%, respectively, of our total revenue. As there is still a lack of certainty and guidance on the minimum DMO that will be required for each year going forward and the extent of the enforcement of the DMO by the MEMR, we may fail to adequately plan for future coal production and sales or incur sanctions as a result of failing to fulfill our minimum DMO in the future, which may materially and adversely affect our business, financial condition and results of operations.

Other government policies (including local government policies) that affect our business operations include policies relating to obtaining and maintaining permits and licenses required for coal and minerals mining, taxes and levies relating to coal and minerals mining and trading, and the environment. We are required to obtain, maintain and renew various permits and approvals from the Government for our mining operations. The licenses from the Government or regional governments required for operations of a mining business include general corporate, mining, capital investment, labor, environmental, land utilization and other licenses. Most of these permits have various expiration dates ranging from five years from the date of issue to the date on which the license-holding company ceases to exist. Any changes to Government policies that affect our obtaining and/or maintaining permits and licenses required to conduct our business operations could result in a temporary or permanent suspension of certain of our business activities, which could result in a decrease in our revenue and margins. See “Risk Factors — Risks Common to All Our Mining Businesses — Our mining operations and expansion programs depend on our ability to obtain, maintain and renew necessary permits and approvals from the Government.”

Acquisitions and divestments

Our results of operations and business are significantly affected by acquisitions and divestments.

Antam, Bukit Asam and Timah

In 2017, our Company was appointed as the holding company for the state's mining operators and, in November 2017, the Government transferred its 65.0% equity interests in each of Antam, Bukit Asam and Timah to us. As our Company, Antam, Bukit Asam and Timah were entities under common control of the Government at the time of such equity transfers, we accounted for the receipt of such equity interests using the pooling-of-interests method, as required under SFAS 38 — "Business Combination of Entities Under Common Control" and have presented our consolidated financial statements included herein, as if Bukit Asam, Timah and Antam had been combined with our Company since January 1, 2015. See Note 4 to our Audited Consolidated Financial Statements included in this Offering Memorandum.

PTFI

In November 2017, the Government transferred its 9.36% equity interests in PTFI to us. At that time, FCX held 90.64% equity interests in PTFI, of which 9.36% was indirectly held through FCX's then wholly-owned subsidiary, PTII. In December 2018, as part of our acquisition of a majority beneficial stake in PTFI (the "PTFI Share Acquisition"), we entered into a series of agreements pursuant to which we first acquired PTII, which we renamed to IPMM, from FCX (the "PTII Acquisition"), thereby increasing our beneficial equity interests in PTFI to 18.72%, and subsequently subscribed for shares in PTFI (the "PTFI Share Subscription"), which further increased our beneficial equity interests in PTFI to 51.24%. See "PT Freeport Indonesia."

Although we and FCX currently respectively own 51.24% and 48.76% of beneficial equity interests in PTFI, pursuant to the agreements we entered into as part of the PTFI Share Acquisition, including a shareholders' agreement we entered into with PTFI, FCX and IPMM (the "PTFI Shareholders Agreement"), during the Initial Period (as defined herein), we are entitled to 18.72% of economic interests in PTFI. Following the Initial Period, we expect to be entitled to 41.24% of economic interests in PTFI (assuming the participation of the Papua Provincial Government and the Mimika Regency in the ownership of PTFI). In addition, FCX will continue to manage the mining operations of PTFI. Accordingly, the results of operations of PTFI are accounted for in our Audited Consolidated Financial Statements using the equity method. See "PT Freeport Indonesia — Economic Interests In and Management of PTFI" and Note 12 to our Audited Consolidated Financial Statements included in this Offering Memorandum.

We recorded a share in net profit from PTFI of Rp.184.1 billion for the year ended December 31, 2018 and a share in net loss from PTFI of Rp.576.2 billion (US\$41.4 million) for the year ended December 31, 2019. Dividend income from PTFI amounted to Rp.427.6 billion and Rp.2,569.3 billion for the years ended December 31, 2017 and 2018, respectively. We had no dividend income from PTFI for the year ended December 31, 2019.

PT Indonesia Chemical Alumina

PT Indonesia Chemical Alumina ("ICA") was initially established as a joint venture between us and our Japanese joint venture partner, Showa Denko K.K. ("Showa Denko"). Under this joint venture, we previously held 80.0% of the shares of ICA while Showa Denko held the remaining 20.0%, and ICA required consent from shareholders representing at least 84.0% of the total shareholding interests for significant financial and operating decisions. Accordingly, for the years ended December 31, 2017 and 2018, our ownership in ICA was accounted for in our financials using the equity method. In December 2018, we acquired Showa Denko's entire share ownership in ICA, upon which ICA became our wholly-owned subsidiary and we began consolidating ICA's results of operations into our accounts in accordance with SFAS 22 "Business Combination." Accordingly, for the year ended December 31, 2019, we consolidated ICA's results of operations into our accounts. See "Business — Our Bauxite Business — Alumina production plants — Tayan Chemical Grade Alumina Plant" and Note 5 to our Audited Consolidated Financial Statements included in this Offering Memorandum.

Acquisition of shares in other mining companies and new mining concessions

In line with our mandate from the Government to act as the ultimate parent company for Indonesia's mining sector, we plan to acquire shares in other Indonesian mining companies. On October 11, 2019 (as subsequently amended on December 16, 2019 and March 27, 2020), we entered into a heads of agreement with PTVI, a publicly-listed nickel mining company in Indonesia, and certain of PTVI's shareholders, to acquire 20.0% of PTVI's outstanding shares. We are in the process of negotiating the definitive agreements in relation to the PTVI share acquisition, which we plan to enter into in May 2020.

We also plan to acquire additional mining concessions so as to allow us to own approximately between 15.0% and 20.0% of the domestic reserves and resources for coal and the minerals which we currently mine. We expect that, subject to our ability to successfully expand our infrastructure and increase our production capacities, our acquisition of such new mining concessions would allow us to increase our production and sales volumes and, in turn, our revenue, see "— Production volumes, infrastructure and expansion of production capacities."

See "Business — Strategies — Transform into a first-class holding company that oversees Indonesia's mining reserves and resources," "Risk Factors — Risks Common to All Our Businesses — We are subject to the control of the Government, whose interests may differ from the interests of our Group and our creditors" and "Relationship with the Government."

New products and services

We plan to expand our service offerings in the midstream and downstream businesses for the coal and minerals which we produce, and diversify our revenue base to increase the proportion of our revenue derived from these midstream and downstream businesses. For example, we are in the process of constructing a new smelter grade refinery to process the bauxite ore we produce into smelter grade alumina, see "Business — Our Bauxite Business — Alumina production plants — Mempawah Smelter Grade Alumina Refinery project." In addition, we plan to expand our aluminum smelting business through (i) upgrading our existing reduction plant to increase the production capacity from 260 ktpa to 280 ktpa and (ii) converting an idle primary aluminum billet plant located next to our existing aluminum smelter in Kuala Tanjung into a secondary aluminum billet plant, see "Business — Our Aluminum Smelting Business — Aluminum development projects." We are also exploring the development of a coal gasification plant, which we expect will enable us to convert the coal we produce into final products with higher selling value than coal, see "Business — Our Coal Business — Downstream coal businesses — Coal gasification plant project." We expect revenues from these midstream and downstream businesses will contribute a larger proportion of our total revenues in future periods.

Foreign exchange fluctuations

Fluctuating foreign exchange rates, in particular fluctuations in the U.S. dollar to Rupiah exchange rate affect our results of operations. Our sales are predominantly denominated in U.S. dollars or benchmarked against U.S. dollar equivalent prices. While our cost of revenue is denominated in a combination of U.S. dollars and Rupiah, the proportion of cost of revenue denominated in U.S. dollar varies across each of our businesses. For example, our gold business typically has a higher proportion of cost of revenue denominated in U.S. dollars due to gold bullion which we purchase from third-parties for smelting and refining. Conversely, our coal business, sales of which are largely conducted domestically, typically has a lower proportion of cost of revenue denominated in U.S. dollars. Accordingly, while an appreciation in the value of the U.S. dollar against the Rupiah will have a positive impact on our overall results of operations, the extent of the impact on the margins for each of our businesses will be commensurate with the proportion of cost of revenue denominated in U.S. dollars, for the respective businesses.

Fluctuating foreign exchange rates, in particular fluctuations in the U.S. dollar/Rupiah exchange rates, also have an effect on our results of operations through foreign exchange gains or losses made on our working capital assets. Such gains or losses primarily arise (i) from the settlement of monetary items, mainly comprising receivables and payables that are not denominated in U.S. dollars, between us and third-parties and between entities within our Group (as gains and losses are not eliminated in consolidation due to the exchange rate for

translation purposes being different from that for transaction purposes), and (ii) on re-translation of monetary items, such as cash, bank balances, receivables and payables that are held in currencies other than U.S. dollars, of our Company and upon consolidation of the financial statements of the entities within our Group. See “Risk Factors — Risks Common to All Our Businesses — We are subject to foreign exchange rate risk.”

Current COVID-19 pandemic

In December 2019, a novel strain of the coronavirus (also known as COVID-19), was reported to have surfaced in Wuhan, China. COVID-19 has since spread to over 200 countries and territories and has been declared a pandemic by the World Health Organization. The current COVID-19 pandemic and the preventative or protective actions that governments around the world have taken to counter the effects of the pandemic have resulted in a period of business disruption and a decrease in economic activity in several countries, including in Indonesia and countries where our suppliers, customers and third-party contractors are located. As a result, the current COVID-19 pandemic has led to uncertainty in the global economy and significant volatility in global financial markets. In addition, since March 2020, the Government has issued several regulations in response to the current COVID-19 pandemic in order to contain the spread of the virus across the country as well as curb the negative financial impact of the outbreak on the country’s economy. For example, on March 31, 2020, the Government issued Government Regulation in lieu of law (Perppu) No. 1/2020 (which remains subject to ratification by the Indonesian Parliament), providing that the income tax rate for corporations shall be reduced from 25.0% to 22.0% for 2020 and 2021, and shall be further reduced to 20.0% from 2022 onwards.

During the first quarter of 2020, gold prices have shown an upward trend, whereas coal, tin, silver, copper, nickel, ferronickel, bauxite, alumina and aluminum prices have shown a downward trend. The decline in prices for the products we sell may significantly impact the value of our inventories and the profitability of our Group, see “Risk Factors — Risks Common to All Our Mining Businesses — The prices of the products we sell are cyclical in nature and subject to fluctuations” and “Risk Factors — Risks Relating to Our Aluminum Smelting Business — The demand for and price of our aluminum products are cyclical and volatile.” Further, the sales volumes of certain of our products, including coal, tin, silver, ferronickel and alumina have been lower than expected for the first quarter of 2020. In addition, the Rupiah has significantly weakened against the U.S. dollar during the first quarter of 2020. As we have significant borrowings denominated in U.S. dollars, we have recognized higher foreign exchange loss during this period, see “Risk Factors — Risks Relating to Indonesia — Fluctuations in the value of the Rupiah may materially and adversely affect our business, financial condition, results of operations and prospects.”

We are closely monitoring the impact that the current COVID-19 pandemic might have on our operations, customers and suppliers. We expect the effect of the current COVID-19 pandemic to result in a substantial decrease in our Group’s total revenue for 2020 as compared to 2019 and we plan to implement cost saving measures and delay our capital expenditure plans should the severity of the situation require. However, given the rapidly changing implications of the spread of COVID-19, it is difficult to assess its impact on our business and results of operations at this time. To the extent the current COVID-19 pandemic adversely affects our Group, it may also significantly increase the effect of the aforementioned factors affecting our business and results of operations.

See “Risk Factors — Risks Common to All Our Business — Outbreak of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia, and elsewhere may adversely impact our business, financial condition and results of operations” and Note 48d to our Audited Consolidated Financial Statements included in this Offering Memorandum.

Restatement of Our Consolidated Financial Statements for the Years Ended December 31, 2018 and 2017

While preparing our Audited Consolidated Financial Statements included in this Offering Memorandum, after reconsidering the interpretation of certain facts and circumstances and accounting treatment applicable to certain transactions, we determined that restatement of our previously issued consolidated financial statements as of and for the years ended December 31, 2018 and 2017 was necessary. In particular, during the preparation of

the consolidated financial statements for the years ended December 31, 2018 and 2017 of our subsidiaries, Antam and Timah, there were errors made with respect to the recognition of certain costs, the accounting of investments in certain joint ventures and associates, the capitalization of certain expenditures, and the estimation of our gold reserves. These errors resulted in the restatement of several line items in our consolidated financial statements for the years ended December 31, 2018 and 2017, including, among others, additional paid-in capital, fixed assets, cost of revenue, selling and marketing expenses, share in net profit/(loss) from joint ventures, and other income, net. Certain accounts were also reclassified to conform to the presentation of our consolidated financial information for the year ended December 31, 2019, including accounts relating to our mining properties and exploration and evaluation assets, other comprehensive income in equity, cost of revenue and operating expenses, and consolidated statement of cash flows. For more details on the restatement and reclassification adjustments made to such financial information, see Note 49 to our Audited Consolidated Financial Statements.

We are in the process of implementing several initiatives to address the deficiencies we have identified in Antam's and Timah's accounting systems and internal controls to prevent similar accounting errors from reoccurring, including (i) working with Antam and Timah to improve their accounting standards and procedures, in particular, those relating to stock taking, payment and delivery, and accounting consolidation, as well as their accounting systems for inventory recordkeeping; (ii) ensuring that the key personnel and senior management of Antam's and Timah's finance and accounting divisions have adequate training regarding relevant complex transactions as well as replacing individuals who lack the necessary skills and capabilities for their roles and responsibilities; (iii) engaging in regular discussions with the heads of Antam's and Timah's internal audit and enterprise risk management functions; and (iv) requiring Antam's and Timah's respective board of directors to monitor, and provide us with monthly reports on, the implementation of the aforementioned initiatives.

See also "Risk Factors — Risks Common to All our Businesses — We have restated our consolidated financial statements for prior periods, which may lead to additional risks and uncertainties, including loss of investor confidence and negative impacts on our business, financial condition and results of operations."

Significant Accounting Policies, Critical Accounting Estimates, Assumptions and Judgments

Our Audited Consolidated Financial Statements have been prepared in accordance with IFAS, which comprise the Statements and Interpretations issued by the Financial Accounting Standards Board of the Indonesian Institute of Accountants ("PSAK"). The preparation of these consolidated financial statements requires us to make estimates, assumptions and judgments that affect the reported amounts of, among others, assets, such as inventories, goodwill and fixed assets. We base our estimates, assumptions and judgments on historical experience and other factors that are believed to be reasonable under the circumstances. We continually evaluate such estimates, assumptions and judgments. Actual results may differ from these estimates under different assumptions or actual conditions. In order to provide an understanding of how we form our judgment about future events, including the variables and assumptions underlying our estimates, and the sensitivity of judgments to different circumstances, we have identified the critical accounting policies discussed below. For more details, see Notes 2 and 3 to our Audited Consolidated Financial Statements included in this Offering Memorandum for the Summary of Significant Accounting Policies and Critical Accounting Estimates, Assumptions and Judgments.

Revenue and expenses

Revenue from sales of goods/products is recognized when all of the following conditions are met:

- we have transferred the significant risks and rewards of ownership of the goods to the buyer;
- we retain neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods sold;
- the amount of revenue can be reliably measured;
- it is probable that the economic benefits associated with the transaction will flow to us; and
- the costs incurred or to be incurred in relation to the sales transaction can be measured reliably.

The sale of a product arranged by a third party is recognized as revenue when the product is received by the end-users. Certain of our sale agreements provide for the provisional pricing of sales at the time of shipment. The final pricing is based on the LME price. Such a provisional sale contains an embedded derivative which is closely related and not recorded separately from the host sales contract. At the reporting date, the provisionally priced sales are adjusted to the best estimates price, with the adjustments recorded in sales.

Revenue from the rendering of services is recognized when the services are rendered.

Expenses are recognized as incurred.

Inventories

Finished goods inventory is measured at the lower of cost or net realizable value. Cost is determined using the weighted-average method. The cost of finished goods and work in progress products comprises materials, labor and an appropriate proportion of directly attributable fixed and variable overheads. Net realizable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and estimated cost necessary to make the sale. The current portion of inventories is determined based on the expected amounts to be processed within the next 12 months. Inventories which are not expected to be processed within the next 12 months are classified as non-current.

Spare parts and other consumable supplies are valued at cost, determined on a moving average basis, less provision for obsolete items. Provision for obsolete inventory is determined on the basis of estimated future usage of individual inventory items.

Exploration and evaluation assets

Exploration and evaluation activity involves the search for mineral resources after we have obtained legal rights to explore in a specific area, determination of the technical feasibility and assessment of the commercial viability of an identified resource. Exploration and evaluation expenditure comprises costs that are directly attributable to the following:

- acquisition of rights to explore;
- topographical, geological, geochemical and geophysical studies;
- exploratory drilling;
- trenching and sampling; and
- activities involved in evaluating the technical feasibility and commercial viability of extracting mineral resources.

Exploration and evaluation expenditure related to an area of interest is written off as incurred (excluding fixed assets), unless it is capitalized and carried forward, on an area of interest basis, provided that one of the following conditions is met:

- the rights of tenure of an area are current and it is considered probable that the costs will be recouped through successful development and exploitation of the area of interest or, alternatively, by its sale; or
- exploration activities in the area of interest have not yet reached the stage which would permit a reasonable assessment of the existence or otherwise of economically recoverable reserves and active and significant operations in or in relation to the area of interest are continuing.

Capitalized costs include costs directly related to exploration and evaluation activities in the relevant area of interest and exclude physical assets, which are recorded in fixed assets. General and administrative costs are allocated to an exploration or evaluation asset only to the extent that those costs can be related directly to operational activities in the relevant area of interest. Capitalized exploration and evaluation expenditure is written off where the above conditions are no longer satisfied.

Identifiable exploration and evaluation assets acquired in a business combination are recognized initially as assets at fair value on acquisition and subsequently at cost less impairment charges. Exploration and evaluation

expenditure incurred subsequent to the acquisition of an exploration asset in a business combination is accounted for in accordance with the accounting policy outlined above. As exploration and evaluation assets are not available for use, they are not depreciated. Exploration and evaluation assets are assessed for impairment if facts and circumstances indicate that impairment may exist. Exploration and evaluation assets are also tested for impairment once commercial reserves are found, before the assets are transferred to “mining properties — mines under development.” Expenditure incurred before the entity has obtained the legal right to explore a specific area is expensed as incurred.

Mining properties

Development expenditure incurred by us or on our behalf is accumulated separately for each area of interest in which economically recoverable resources have been identified. Such expenditure comprises costs directly attributable to the construction of a mine and the related infrastructure and excludes physical assets and land rights, which are recorded as fixed assets. Once a development decision has been taken, the carrying amount of the exploration and evaluation assets in respect of the area of interest is transferred to “mines under development” under mining properties and aggregated with the subsequent development expenditure.

“Mines under development” are reclassified as “mines in production” at the end of the commissioning phase, when the mine is capable of operating in the manner intended by us. No depreciation is recognized for “mines under development” until they are reclassified as “mines in production.” When further development expenditure is incurred on mining properties after the commencement of production, the expenditure is carried forward as part of “mines in production” when it is probable that additional future economic benefits associated with the expenditure will flow to us. Otherwise, such expenditure is classified as a cost of production. “Mines in production” are amortized using the units-of-production method, with separate calculations being made for each area of interest. Identifiable mining properties acquired in a business combination are initially recognized as assets at their fair value. Development expenses incurred subsequent to the acquisition of the mining properties are accounted for in accordance with the policy outlined above.

“Mines under development” and “mines in production” are tested for impairment in accordance with the policy on impairment of non-financial assets.

Fixed assets

Fixed assets are stated at cost less accumulated depreciation. Historical cost includes expenditure that is directly attributable to the acquisition of items. Depreciation of the main mining equipment used in mining operations is calculated using the unit-of-production method. Other fixed assets, except land, are depreciated using the straight-line method to their estimated residual value over the lesser of the estimated useful lives of the assets, the life of the mine or the IUP term as follows:

<u>Type of fixed asset</u>	<u>Years</u>
Structure, buildings, improvements and river channel	5 to 30 and 50 ⁽¹⁾
Plant, machinery and mining equipment	4 to 34 and 50 ⁽¹⁾
Office, hospital, housing equipment and furniture and fixtures	3 to 30 and 50 ⁽¹⁾
Transportation equipment	4 to 8

Note:

(1) Useful life of 50 years applies only to fixed assets of our Company.

Subsequent costs are included in the asset’s carrying amount or recognized as separate assets, as appropriate, only when it is probable that future economic benefits associated with the item will flow to us and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognized. All other repairs and maintenance are charged to profit or loss during the financial period in which they are incurred.

Gains or losses on disposals of fixed assets are recognized in profit or loss. The assets’ residual values, useful lives and depreciation method are reviewed and adjusted if appropriate, at the end of each reporting period.

The accumulated costs of the construction of the buildings and plant and the installation of machinery are capitalized as construction-in-progress. These costs are reclassified to fixed asset accounts when the construction or installation is complete. Depreciation is charged from the date the assets are ready for use in the manner intended by us.

Impairment of non-financial assets

Fixed assets and other non-current assets, excluding goodwill, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows. Impairment losses relating to goodwill would not be reversed.

We annually test for impairment suffered by goodwill. Other non-financial assets are reviewed for impairment whenever events or changes in circumstances indicate that the asset's carrying amount exceeds its recoverable amount. The recoverable amount of an asset or a cash generating unit is determined based on the higher of its fair value less costs to sell and its value in use, which is calculated on the basis of our assumptions and estimates. Changes in the key assumptions, including the expected production and sales volume, commodity prices (considering current and historical prices, price trends and related factors), mineral resources and reserves, operating costs, closure and rehabilitation costs and future capital expenditure, may materially affect the recoverable amount.

Mineral reserves estimates

Mineral reserves are estimates of the amount of output that can be economically and legally exploited from our mining properties. In order to estimate mineral reserves, assumptions are required about a range of geological, technical and economic factors, including quantities, production techniques, strip ratio, production costs, transportation costs, commodity demand, commodity prices and exchange rates.

Estimating the quantity and/or mineral content of mineral reserves requires the size, shape and depth of mineral bodies or fields to be determined by analyzing geological data such as drilling samples. This process may require complex and difficult geological judgments to interpret the data.

Because the economic assumptions used to estimate reserves change from period to period and because additional geological data are generated during the course of operations, estimates of reserves may change from period to period. Changes in the reported reserves may affect our financial results and financial position in a number of ways, including the following:

- Asset carrying values may be affected due to changes in estimated future cash flows.
- Depreciation, depletion and amortization charged in the consolidated statement of profit or loss and other comprehensive income may change where such charges are determined on a units-of-production basis, or where the useful economic lives of assets change.
- Decommissioning, site restoration and environmental provision may change where changes in estimated reserves affect expectations about the timing or cost of these activities.
- The carrying value of deferred tax assets/liabilities may change due to changes in estimates of the likely recovery of the tax benefits.

Provision for environmental reclamation and mine closure

Our accounting policy for the recognition of environmental reclamation and mine closure provision requires significant estimates and assumptions, such as requirements of the relevant legal and regulatory framework; the magnitude of possible contamination and the timing, extent and costs of required environmental reclamation and mine closure activity. These uncertainties may result in future actual expenditure differing from the amounts

currently provided. If total current year expenditure related to past activity is higher than the existing balance, the differences will be charged to the periods where the excess arises. The provision recognized for each site is periodically reviewed and updated based on the facts and circumstances available at the time.

Post-employment benefit obligations

The present value of the pension obligation depends on a number of factors that are determined on an actuarial basis using a number of assumptions. The assumptions used in determining the net cost/(income) for pensions include the discount rate, future salary increase, future remuneration changes, employee attrition rates, future medical cost increase, life expectancy and expected remaining periods of service of employees. Any changes in these assumptions will have an impact on the carrying amount of the pension obligation.

Other key assumptions for pension obligations are based in part on current market conditions.

Uncertain tax exposure

We are subject to taxes in numerous jurisdictions in which we operate, including regional taxes. Significant judgment is required in determining the provision for income tax and regional taxes. Where the final outcome of these matters is different from the amounts initially recorded, such differences will have an impact on the income tax and deferred income tax provision in the year in which this determination is made.

Determination of functional currency

In the process of applying our accounting policies, we have to make a judgment on the determination of the functional currency of each of our entities, which has a significant effect on the amounts recognized in our Audited Consolidated Financial Statements.

The functional currency of each of our Group entities is the currency of the primary economic environment in which each of our entities operates. It is the currency, among other factors, that mainly influences the sales prices for goods and services, of the country whose competitive forces and regulations mainly determine the sales prices of its goods and services, the currency that mainly influences labor, material and other costs and the currency in which funds from financing activities are generated.

Allowance for impairment losses on trade receivables

We evaluate specific accounts when we have information that certain customers are unable to meet their financial obligations. In these cases, we use judgment, based on the best available facts and circumstances, including but not limited to, the length of our relationship with the customer and the customer's current credit status, to record specific provisions for the customer against amounts due to reduce the customer's receivable amounts that we expect to collect.

Assessment whether we have control over PTFI

We have considered the arrangements in the PTFI Shareholders Agreement in determining whether we have control over PTFI. Pursuant to the PTFI Shareholders Agreement, we have substantive voting rights in PTFI's corporate governance by having representatives on its board of commissioners, board of directors, nomination committee, operating committee and finance committee. We have the same number of representatives as FCX on the board of commissioners, board of directors, nomination committee and finance committee of PTFI. The initial members of the board of directors are jointly appointed and approved by the shareholders of PTFI. While FCX has more representatives on the operating committee, the body that governs the relevant activities of PTFI's mining operations, the monitoring and balancing systems are enforced to ensure that the operating committee is responsible to the board of directors and the shareholders of PTFI.

FCX, as the previous major shareholder, has the technical expertise to operate PTFI's mines and will provide the services needed to support PTFI's operational activities, including consultation and advice on mining operations, exploration, geology, and mining operational recommendation, management information technology and other administrative services needed by PTFI.

Although we have a 51.24% equity ownership in PTFI, we will work together with FCX to supervise management's decision making process, and FCX will continue to lead PTFI's mining operations. In addition, although we have representatives on the board of commissioners, board of directors, nomination committee, finance committee and operating committee of PTFI, we do not have the unilateral power to control the operations and financial activities of PTFI.

Assessment whether the acquisition of IPMM is a business combination or asset acquisition

In determining whether the purchase of IPMM (formerly known as PTII) shares is a business combination or asset acquisition, we considered and identified the nature and elements of IPMM's business, IPMM's ability to determine output and whether the market participants are capable of producing output if there are missing elements.

We consider the relevant activities of IPMM as only holding an investment in the form of a 9.36% share ownership in PTFI shares. IPMM is not engaged in any other relevant activities, such as strategic management process, operational process and resource management process, or capable of producing output in the form of dividends. Therefore, we classify the purchase of IPMM shares as an asset acquisition.

Key Components of Our Income Statement

Revenue

We derive substantially all of our revenue from our coal and mineral mining, and the related midstream and downstream businesses. Our revenue is categorized into revenue from (i) sale of products, namely (a) coal, (b) gold, (c) tin metal and tin solder, (d) aluminum, (e) ferronickel, (f) nickel ore and (g) others, as well as (ii) provision of services, namely purification of precious metals and other services.

The following table sets forth the breakdown of our revenue and each item as a percentage of our total revenue for the years indicated.

	For the year ended December 31,						
	2017		2018		2019		(US\$ in millions)
	(Rp. in billions)	(%)	(Rp. in billions)	(%)	(Rp. in billions)	(%)	
Products:							
Coal	19,133.5	40.6	20,792.7	31.9	21,420.1	26.6	1,540.9
Gold	7,375.5	15.6	16,693.4	25.6	22,465.8	27.9	1,616.1
Tin metal and tin solder	8,481.7	18.0	10,152.9	15.6	18,107.5	22.5	1,302.6
Aluminum	5,744.3	12.2	7,802.3	12.0	6,910.2	8.6	497.1
Ferronickel	3,222.6	6.8	4,662.1	7.1	4,871.4	6.0	350.5
Nickel ore	1,369.8	2.9	3,013.4	4.6	3,780.0	4.7	271.9
Others	1,381.6	2.9	1,315.4	2.0	2,370.1	2.9	170.5
Services:							
Purification of precious metals and other services	475.3	1.0	845.2	1.3	703.6	0.9	50.6
Total	47,184.3	100.0	65,277.4	100.0	80,628.7	100.0	5,800.2

Coal

Substantially all our coal products are produced and sold through Bukit Asam and its subsidiaries, with only 0.1%, 0.1% and 0.1% of our revenue from coal produced and sold through Antam, Timah and their subsidiaries, for the years ended December 31, 2017, 2018 and 2019, respectively. A substantial amount of the coal we produce at our coal mines is sold to PLN, Indonesia's state-owned electricity supplier, and its subsidiary, Indonesia Power, through long-term offtake agreements. See "Business — Our Coal Business" and "Business — Customers — Coal — Coal offtake agreements with PLN."

In 2016, we classified our coal operations carried out by Timah's subsidiaries, PT Tanjung Alam Jaya ("TAJ") and PT Truba Bara Banyu Enim ("TBBE"), as discontinued operations, in line with our plans to divest the coal business of these subsidiaries. As a result, since 2016, we began recognizing the results of operations of TAJ and TBBE as gains or losses from discontinued operations. See "— Loss from discontinued operations."

Gold

We produce and sell fine gold through Antam and its subsidiaries. Our fine gold products are predominantly fine gold in the form of gold bullion and include custom-made products such as jewelry and gold dinar coins. We smelt and refine (i) gold bullion which we purchase from third-party precious metals trading companies and (ii) gold doré which we produce from our Pongkor Gold Mine and Cibiliung Gold Mine. See "Business — Our Gold Business."

Tin metal and tin solder

We produce and sell refined tin, in the form of tin metal, and tin solder, through Timah and its subsidiaries. Our revenue from our tin business is predominantly derived from sale of our Banka tin, Mentok tin and Kundur tin. See "Business — Our Tin Business."

Aluminum

Revenue from our aluminum business is derived from our sale of aluminum ingots, billets and alloys through our Company. We require smelter grade alumina as the primary raw material in the production of our aluminum products and currently purchase all our smelter grade alumina from third-party suppliers. See "Business — Our Aluminum Smelting Business."

Ferronickel

We produce and sell all our ferronickel through Antam. The primary raw material used in our production of ferronickel is nickel ore which we produce from our nickel mines. See "Business — Our Nickel Business."

Nickel ore

We produce and sell substantially all our nickel ore through Antam and its subsidiaries. In 2017, 2018 and 2019, the majority of nickel ore produced from our nickel mines was sold in the international market, and the remaining nickel ore was used as raw material in our production of ferronickel and sold in the domestic market. Since January 1, 2020, pursuant to new Government export policies which banned the export of low-grade nickel ore from Indonesia, we have not sold our nickel ore in the international market. See "Business — Our Nickel Business."

Others

Revenue from sale of other products primarily comprises revenue from sale of (i) tin chemical, (ii) bauxite ore, (iii) alumina, (iv) silver, (v) other precious metals and (vi) crude palm oil extracted from plantations at certain of our coal mining concession areas.

Purification of precious metals and other services

Revenue from purification of precious metals and other services primarily comprises our revenue from provision of (i) healthcare services, (ii) precious metals refining services provided to other mining companies, at our Logam Mulia Precious Metals Refinery, (iii) sale of hydroelectricity and coal-fired power, (iv) precious metals depository services, (v) port services, and (vi) other services. See "Business — Our Gold Business — Logam Mulia Precious Metals Refinery," "Business — Our Gold Business — Logam Mulia gold boutiques and depository services," and "Business — Other Businesses."

For the years ended December 31, 2017, 2018 and 2019, revenue from related parties represented 23.4%, 16.4% and 15.6% of our total revenue, respectively, export sales to third parties represented 53.2%, 48.3% and 60.4% of our total revenue, respectively, and domestic sales to third parties represented 23.4%, 35.3% and 24.1% of our total revenue, respectively.

Cost of revenue

Cost of revenue primarily comprises production costs, such as purchases of precious metals, raw material used and transportation, barging and ore mining fees. The following table sets forth the breakdown of our cost of revenue and each item as a percentage of our total cost of revenue for the years indicated.

	For the year ended December 31,						
	2017		2018		2019		
	(as restated) (Rp. in billions)	(%)	(as restated) (Rp. in billions)	(%)	(Rp. in billions)	(%)	(US\$ in millions)
Production costs:							
Purchases of precious metals	6,202.7	18.8	15,272.7	31.3	21,573.1	32.6	1,551.9
Raw material used	7,860.8	23.8	11,277.3	23.1	18,644.5	28.2	1,341.2
Transportation, barging and ore mining fees	6,779.4	20.6	8,158.7	16.7	9,101.8	13.8	654.8
Third-party services	448.0	1.4	1,058.3	2.2	3,615.9	5.5	260.1
Salaries, wages, bonuses and employee benefits	2,895.0	8.8	3,278.1	6.7	3,166.5	4.8	227.8
Usage of fuel	1,870.1	5.7	3,028.2	6.2	2,936.3	4.4	211.2
Depreciation and amortization	1,965.0	6.0	2,236.9	4.6	2,797.3	4.2	201.2
Royalties, tax and other government charges	1,962.1	6.0	2,141.5	4.4	2,785.0	4.2	200.3
Rent	681.7	2.1	859.6	1.8	998.8	1.5	71.9
Spare parts used	754.0	2.3	659.4	1.4	915.9	1.4	65.9
Maintenances and repairs	421.0	1.3	589.4	1.2	488.5	0.7	35.1
Loss on impairment of alumina plant	—	—	—	—	280.3	0.4	20.2
Environmental reclamation and mine closure	141.3	0.4	77.1	0.2	177.0	0.3	12.7
Insurance	237.2	0.7	95.2	0.2	154.2	0.2	11.1
Other (each below Rp.100.0 billion)	1,003.8	3.0	1,244.5	2.5	707.5	1.1	51.0
	33,222.1	100.8	49,976.9	102.4	68,342.6	103.3	4,916.4
Work in progress:							
At the beginning of the year	1,962.7	6.0	2,309.9	4.7	3,217.6	4.9	231.5
Transferred to fixed assets	(80.0)	(0.2)	(80.7)	(0.2)	(89.9)	(0.1)	(6.5)
Translation adjustments	—	—	—	—	(2.2)	(0.0)	(0.2)
Acquisition of a subsidiary	—	—	62.3	0.1	—	—	—
At the end of the year	(2,309.9)	(7.0)	(3,217.6)	(6.6)	(3,778.6)	(5.7)	(271.8)
	32,794.9	99.5	49,050.8	100.5	67,689.5	102.4	4,869.4
Finished goods:							
At the beginning of the year	3,180.8	9.8	3,027.0	6.2	4,251.7	6.4	305.8
Purchase of tin metals	—	—	810.4	1.7	—	—	—
Addition of provision for inventories, net	12.2	0.0	78.6	0.2	240.1	0.4	17.3
Reclassification from product inventories into raw materials . .	—	—	—	—	(170.9)	(0.3)	(12.3)
Translation adjustments	0.0	0.0	0.2	0.0	(3.3)	(0.0)	(0.2)
Acquisition of a subsidiary	—	—	91.8	0.2	—	—	—
At the end of the year	(3,027.0)	(9.2)	(4,251.7)	(8.7)	(5,876.2)	(8.9)	(422.7)
Total cost of revenue	32,960.9	100.0	48,807.1	100.0	66,130.9	100.0	4,757.3

Purchases of precious metals

Purchases of precious metals primarily relate to the cost of gold bullion purchased from third-party precious metals trading companies, which are used in the production of our gold products.

Raw material used

Raw material used primarily relates to the cost of (i) raw materials used in the production of our aluminum products, including smelter grade alumina, coke, coal tar pitch and aluminum fluoride, as well as (ii) mining fees paid to third-party mining contractors and small-scale miners under existing agreements with them.

Transportation, barging and ore mining fees

Transportation, barging and ore mining fees primarily comprise (i) transportation costs incurred in connection with the delivery of our products to our customers, including railway transportation costs, sea freight, terminal handling and warehousing charges and (ii) mining fees paid to our third-party mining contractors.

Third-party services

Third-party services primarily relate to processing fees paid to third-party smelters that we engage to smelt our tin ore into crude tin and fees paid to our third-party contractors in connection with security services provided in relation to our mining operations, consultancy fees for feasibility studies and other outsourced services including cleaning and maintenance services and catering services for our employees at our mine sites.

Salaries, wages, bonuses and employee benefits

Salaries, wages, bonuses and employee benefits relate to salaries, bonuses, allowances and employee benefits for our management, as well as both permanent and temporary employees at our mine sites, processing plants, smelters, refineries, casting plant and power plants.

Usage of fuel

Usage of fuel primarily comprises our fuel costs for operating our mining vehicles, vessels used in our offshore mining activities, as well as our machinery in processing plants, smelters and refineries.

Depreciation and amortization

Depreciation and amortization primarily arise from the depletion of the reserves at our mining concessions, measured on the basis of amount of ore sold from the respective mining concessions as well as from the depreciation of our fixed assets, including our processing plants, smelters, refineries, casting plant and mining equipment and vehicles, using the straight-line method over their estimated useful lives.

Royalties, tax and other government charges

Royalties, tax and other government charges relate to mining royalties, export taxes, and land and building taxes paid to the Government in relation to our mine sites.

Rent

Rent primarily comprises rent paid in relation to land on which our mines are located and heavy equipment which we rent from our vendors.

Spare parts used

Spare parts used primarily relates to spare parts used in the maintenance of our processing plants, smelters, refineries, casting plant and power plants.

Maintenances and repairs

Maintenances and repairs primarily comprise maintenances and repairs expenses incurred in connection with our mining equipment, machinery and vehicles as well as equipment and machinery at our processing plants, smelters, refineries, casting plant and power plants.

Loss on impairment of alumina plant

Loss on impairment of alumina plant relates to a loss recorded in 2019 due to impairment of certain fixed assets of ICA, our subsidiary through which we produce and sell alumina. See “— Significant Accounting Policies, Critical Accounting Estimates, Assumptions and Judgments — Impairment of non-financial assets.”

Environmental reclamation and mine closure

Environmental reclamation and mine closure relates to restoration and rehabilitation expenditure for our mines.

Insurance

Insurance primary relates to expenses incurred in connection with our insurance coverage for our heavy equipment and production facilities.

Other (each below Rp.100.0 billion)

Other (each below Rp.100.0 billion) comprises other types of miscellaneous production costs, such as power supply expenses, costs incurred for operations relating to our healthcare services and expenses relating to the purchase of office supplies and security for our mine site offices, each of which amounts to not more than Rp.100.0 billion.

General and administrative expenses

General and administrative expenses comprise (i) salaries, wages, bonuses and employee benefits, (ii) third-party services, (iii) business travel and education, (iv) corporate social responsibility program, (v) rent, (vi) depreciation and amortization, (vii) office expenses, (viii) maintenances and repairs, and (ix) others. The following table sets forth the breakdown of our general and administrative expenses and each item as a percentage of our total general and administrative expenses for the years indicated.

	For the year ended December 31,						
	2017		2018		2019		
	(as restated) (Rp. in billions)	(%)	(as restated) (Rp. in billions)	(%)	(Rp. in billions)	(%)	(US\$ in millions)
Salaries, wages, bonuses and employee benefits	1,708.3	47.6	2,367.4	46.0	2,493.2	40.3	179.4
Third-party services	306.8	8.6	377.2	7.3	663.5	10.7	47.7
Business travel and education	247.8	6.9	426.8	8.3	614.6	9.9	44.2
Corporate social responsibility program . . .	224.4	6.3	549.9	10.7	532.0	8.6	38.3
Rent	129.7	3.6	125.9	2.4	217.4	3.5	15.6
Depreciation and amortization	123.2	3.4	152.8	3.0	189.1	3.1	13.6
Office expenses	65.8	1.8	87.1	1.7	174.1	2.8	12.5
Maintenances and repairs	135.8	3.8	141.7	2.8	158.8	2.6	11.4
Others (each below Rp.100.0 billion)	643.4	17.9	914.1	17.8	1,145.0	18.5	82.4
Total general and administrative expenses	3,585.2	100.0	5,142.9	100.0	6,187.7	100.0	445.1

Salaries, wages, bonuses and employee benefits

We incur salaries, wages, bonuses and employee benefits expenses in relation to our management and our permanent and temporary employees in our offices, including our operating, accounting, logistics, finance, human resources and other administrative staff.

Third-party services

Third-party services primarily relate to professional fees such as legal and audit fees, as well as fees paid to third-party providers of technology and other services.

Business travel and education

Business travel and education primarily comprise travel expenses relating to our business development activities and travel reimbursements to our employees, as well as expenses incurred in connection with internal and external training seminars for our employees.

Corporate social responsibility program

Corporate social responsibility program relates to expenses incurred in connection with our corporate, social and environmental responsibility activities. See “Business — Corporate and Social Responsibility.”

Rent

Rent primarily relates to rent for our corporate offices, corporate vehicles, and office machinery and equipment.

Depreciation and amortization

Depreciation and amortization primarily comprise depreciation for our corporate vehicles, buildings and furniture and equipment, including our offices, hospitals and residential buildings, and computers, as well as amortization of our software, using the straight-line method over their estimated useful lives.

Office expenses

Office expenses primarily relate to expenses incurred in connection with employee meetings and workshops, including speaker fees, catering expenses and other miscellaneous expenses.

Maintenances and repairs

Maintenances and repairs primarily comprise maintenances and repairs expenses incurred in connection with our corporate vehicles, and office machinery and equipment.

Others (each below Rp.100.0 billion)

Others (each below Rp.100.0 billion) comprise other types of miscellaneous general and administrative expenses, such as expenses relating to purchase of office supplies for our corporate offices, tax expenses relating to our corporate offices and vehicles, expenses incurred in connection with our all risks insurance coverage for our businesses, utilities expense for our corporate offices, expenses incurred in connection with catering services for our corporate offices, and losses from impairment of operational assets, each of which amounts to not more than Rp.100.0 billion.

Selling and marketing expenses

Selling and marketing expenses comprise (i) freight and insurance expenses incurred in connection with delivery of our products, (ii) export expenses incurred in connection with transshipment, ore loading and other exporting activities, (iii) ore export duty paid in connection with export sales to international customers, (iv) salaries, wages, bonuses and employee benefits expenses incurred in connection with our sales and marketing employees, (v) depreciation and amortization recorded on our sales and marketing offices and ports which we own and operate, (vi) third-party services expenses incurred in connection with cleaning services and maintenance expenses at our shipping docks and ports, and (vii) other types of selling and marketing expenses, each of which amounts to less than Rp.100.0 billion, including port service fees, demurrage fees, fuel and oil costs, costs of spare parts for our vessels and rental of our representative offices. The following table sets forth the breakdown of our selling and marketing expenses and each item as a percentage of our total selling and marketing expenses for the years indicated.

	For the year ended December 31,						
	2017		2018		2019		
	(as restated) (Rp. in billions)	(%)	(as restated) (Rp. in billions)	(%)	(Rp. in billions)	(%)	(US\$ in millions)
Freight and insurance	249.8	16.7	893.8	37.7	967.1	38.1	69.6
Export expenses	155.5	10.4	274.0	11.6	344.8	13.6	24.8
Ore export duty	188.3	12.6	219.2	9.2	317.8	12.5	22.9
Salaries, wages, bonuses and employee benefits	306.1	20.4	343.7	14.5	295.1	11.6	21.2
Depreciation and amortization	171.7	11.5	152.5	6.4	143.6	5.7	10.3
Third-party services	116.0	7.8	59.7	2.5	116.3	4.6	8.4
Others (each below Rp.100.0 billion)	309.8	20.7	427.2	18.0	353.6	13.9	25.4
Total selling and marketing expenses ...	1,497.2	100.0	2,370.1	100.0	2,538.3	100.0	182.6

Finance income

Finance income comprises (i) interest income from cash in banks and time deposits, (ii) unwinding of discounting impact on trade and other receivables, which relates to, in 2018, income recognized in connection with the unwinding of a discount on a related-party loan extended to ICA and, in 2019, proceeds from Antam's divestment of shares in a joint mining entity, see Note 40i to our Audited Consolidated Financial Statements, and (iii) interest income from available-for-sale financial assets such as government bonds, corporate shares and mutual funds. The following table sets forth the breakdown of our finance income and each item as a percentage of our total finance income for the years indicated.

	For the year ended December 31,						
	2017		2018		2019		
	(as restated) (Rp. in billions)	(%)	(as restated) (Rp. in billions)	(%)	(Rp. in billions)	(%)	(US\$ in millions)
Interest income from cash in banks and time deposits	567.2	90.0	902.9	89.4	831.5	95.6	59.9
Unwinding of discounting impact on trade and other receivables	—	—	76.5	7.6	24.3	2.8	1.7
Interest income from available-for-sale financial assets	62.7	10.0	31.1	3.1	14.4	1.7	1.0
Total finance income	629.9	100.0	1,010.5	100.0	870.2	100.0	62.6

Finance costs

Finance costs primarily comprise (i) interest expenses from bonds payable which relates to outstanding bonds issued by Inalum, Antam and Timah, see “Description of Material Indebtedness — Indebtedness of Inalum — Inalum’s Bonds,” “Description of Material Indebtedness — Material Indebtedness of Antam — Antam’s Bonds” and “Description of Material Indebtedness — Material Indebtedness of Timah — Timah’s bonds,” (ii) interest expenses from bank borrowings and finance leases for heavy equipment, (iii) amortization of bank borrowings and bonds payable transaction costs, (iv) interest expenses on receivables — discounting impact, which primarily relate to expenses recognized in connection with the discounting impact of provision for environmental reclamation and mine closure and, in 2018, costs relating to Antam’s divestment of shares in a joint mining entity, see Note 40i to our Audited Consolidated Financial Statements, (v) accretion for provision for environmental reclamation and mine closure, which relates to the discounting of environmental reclamation and mine closure obligations that were recorded at present value, (vi) bank charges, and (vii) (gain)/loss on foreign exchange from bank borrowings in foreign currency, offset against (viii) finance costs capitalized on qualifying assets. The following table sets forth the breakdown of our finance costs and each item as a percentage of our total finance costs for the years indicated.

	For the year ended December 31,						
	2017		2018		2019		
	(as restated) (Rp. in billions)	(%)	(as restated) (Rp. in billions)	(%)	(Rp. in billions)	(%)	(US\$ in millions)
Interest expenses from bonds payable	298.8	29.9	911.5	43.0	4,404.1	83.1	316.8
Interest expenses from bank borrowings and finance lease	511.9	51.2	561.0	26.5	1,049.3	19.8	75.5
Amortization of bank borrowings and bonds payable transaction costs	—	—	—	—	142.4	2.7	10.3
Interest expenses on receivables — discounting impact	121.7	12.2	38.4	1.8	53.2	1.0	3.8
Accretion for provision for environmental reclamation and mine closure	24.8	2.5	25.8	1.2	46.1	0.9	3.3
Bank charges	2.8	0.3	5.5	0.3	7.9	0.1	0.6
(Gain)/loss on foreign exchange from bank borrowings in foreign currency	62.6	6.3	586.8	27.7	(373.5)	(7.0)	(26.9)
Less:							
Finance costs capitalized on qualifying assets	(23.5)	(2.4)	(8.4)	(0.4)	(29.2)	(0.6)	(2.1)
Total finance costs	999.1	100.0	2,120.6	100.0	5,300.3	100.0	381.3

Share in net profit/(loss) from PTFI

Share in net profit/(loss) from PTFI relates to our entitlement to share in the revenue of PTFI calculated based on our 18.72% beneficial equity interests in PTFI, pursuant to the terms of the PTFI Shareholders Agreement. See “PT Freeport Indonesia — Economic Interests In and Management of PTFI” and Note 12 to our Audited Consolidated Financial Statements included in this Offering Memorandum.

Share in net loss from associates

Share in net loss from associates relates to our share in net loss from our associate companies, which is typically proportionate to our share of ownership in the respective associate companies.

Share in net profit/(loss) from joint ventures

Share in net profit/(loss) from joint ventures relates to our share in net profit/(loss) from our joint venture companies, which is typically proportionate to our share of ownership in the respective joint venture companies.

Other income, net

For the years ended December 31, 2017 and 2018, other income, net primarily comprised dividend from PTFI. For the same years, dividend income from PTFI amounted to Rp.427.6 billion and Rp.2,569.3 billion, respectively. PTFI did not pay any dividends for the year ended December 31, 2019. In December 2018, concurrent with the completion of the PTII Acquisition and PTFI Share Subscription, we entered into the PTFI Shareholders Agreement, pursuant to which we agreed to retain the economics of revenue and cost sharing arrangements in relation to PTFI in the same manner as prior to the PTFI Share Subscription, for a pre-agreed period of time. Following such pre-agreed period of time, the economics of revenue and cost sharing arrangements in relation to PTFI will reflect our and FCX's respective beneficial equity interests in PTFI, see "— Factors Affecting Our Business and Results of Operations — Acquisitions and divestments — PTFI."

For the year ended December 31, 2019, other income, net primarily comprised gain from regional tax disputes in connection with favorable rulings on Inalum's surface water tax dispute, see "Business — Legal Proceedings — Surface Water Tax Dispute."

Components of other income, net comprises (i) regional tax disputes, (ii) gain from revaluation of investment properties, (iii) gain from sales of fixed assets, (iv) (loss)/gain on foreign exchange, net, (v) provision for impairment of investment, (vi) dividend from PTFI, (vii) adjustment in fair value of investment, (viii) gain on bargain purchase and (ix) others (each below Rp.100.0 billion). The following table sets forth the breakdown of our other income, net and each item as a percentage of our total other income, net for the years indicated.

	For the year ended December 31,						
	2017		2018		2019		
	(as restated) (Rp. in billions)	(%)	(as restated) (Rp. in billions)	(%)	(Rp. in billions)	(%)	(US\$ in millions)
Regional tax disputes	(135.1)	(22.6)	(777.3)	(11.5)	1,073.7	76.1	77.2
Gain from revaluation of investment properties	105.1	17.6	208.6	3.1	226.3	16.0	16.3
Gain from sales of fixed assets	—	—	—	—	89.7	6.4	6.5
(Loss)/gain on foreign exchange, net	(24.3)	(4.1)	218.1	3.2	(275.2)	(19.5)	(19.8)
Provision for impairment of investment	(75.1)	(12.6)	—	—	(104.2)	(7.4)	(7.5)
Dividend from PTFI	427.6	71.6	2,569.3	38.0	—	—	—
Adjustment in fair value of investment	—	—	2,405.0	35.6	—	—	—
Gain on bargain purchase	—	—	2,226.4	33.0	—	—	—
Others (each below Rp.100.0 billion)	298.9	50.1	(95.8)	(1.4)	400.4	28.4	28.8
Total other income, net	597.1	100.0	6,754.3	100.0	1,410.7	100.0	101.5

Income tax expenses

Our revenues from operations are subject to Indonesia income tax calculated at 25.0% of the estimated assessable income for the year. Related costs and expenses are considered non-deductible for income tax purposes.

Loss from discontinued operations

Loss from discontinued operations relates to re-measurement of the assets of TAJ and TBBE, which we have classified as discontinued operations since 2016, as a result of profit or loss recorded by these entities. The principal activities of both TAJ and TBBE are coal mining.

Results of Operations

The following table sets forth selected statement of profit or loss and other comprehensive income data of our Group expressed as a percentage of revenue for the years indicated.

	For the year ended December 31,						
	2017		2018		2019		
	(as restated) (Rp. in billions)	(%)	(as restated) (Rp. in billions)	(%)	(Rp. in billions)	(%)	(US\$ in millions)
Revenue	47,184.3	100.0	65,277.4	100.0	80,628.7	100.0	5,800.2
Cost of revenue	(32,960.9)	(69.9)	(48,807.1)	(74.8)	(66,130.9)	(82.0)	(4,757.3)
Gross profit	14,223.4	30.1	16,470.3	25.2	14,497.8	18.0	1,042.9
General and administrative expenses	(3,585.2)	(7.6)	(5,142.9)	(7.9)	(6,187.7)	(7.7)	(445.1)
Selling and marketing expenses ...	(1,497.2)	(3.2)	(2,370.1)	(3.6)	(2,538.3)	(3.1)	(182.6)
Operating profit	9,141.0	19.4	8,957.3	13.7	5,771.8	7.2	415.2
Finance income	629.9	1.3	1,010.5	1.5	870.2	1.1	62.6
Finance costs	(999.1)	(2.1)	(2,120.6)	(3.2)	(5,300.3)	(6.6)	(381.3)
Share in net (loss)/profit from PTFI	—	—	184.1	0.3	(576.2)	(0.7)	(41.4)
Share in net loss from associates	(133.9)	(0.3)	(320.1)	(0.5)	(87.2)	(0.1)	(6.3)
Share in net profit/(loss) from joint ventures	(987.2)	(2.1)	(573.6)	(0.9)	179.4	0.2	12.9
Other income, net	597.1	1.3	6,754.3	10.3	1,410.7	1.7	101.5
Profit before income tax	8,247.8	17.5	13,891.9	21.3	2,268.4	2.8	163.2
Income tax expenses	(2,474.4)	(5.2)	(3,021.8)	(4.6)	(2,241.4)	(2.8)	(161.3)
Profit for the year from continuing operations	5,773.4	12.2	10,870.1	16.7	27.0	0.0	1.9
Loss from discontinued operations	(6.5)	(0.0)	(43.5)	(0.1)	(2.5)	(0.0)	(0.1)
Profit for the year	5,766.9	12.2	10,826.6	16.6	24.5	0.0	1.8
Other comprehensive (loss)/income for the year, net of tax	(433.4)	(0.9)	1,799.0	2.8	(11.9)	(0.0)	(0.9)
Total comprehensive income for the year	5,333.5	11.3	12,625.6	19.3	12.6	0.0	0.9

Year ended December 31, 2019 compared to the year ended December 31, 2018

Revenue. Revenue increased by 23.5% to Rp.80,628.7 billion (US\$5,800.2 million) in 2019 from Rp.65,277.4 billion in 2018, primarily as a result of an increase in revenue from sale of tin metal and tin solder, gold, other products, nickel ore and coal, partially offset by a decrease in revenue from sale of aluminum.

Tin metal and tin solder. Revenue from sale of tin metal and tin solder increased by 78.3% to Rp.18,107.5 billion (US\$1,302.6 million) in 2019 from Rp.10,152.9 billion in 2018, primarily as a result of a significant increase in sales volume of refined tin to 67,704 tonnes in 2019 from 33,818 tonnes in 2018, mainly due to a significant increase in tin ore sourced from third-party mining contractors and small-scale miners for further processing and sale by us under our tin brands, which was in turn due to Government policies implemented in 2018 that resulted in Timah being one of the only three Indonesian tin producers permitted to export tin products in 2019.

Gold. Revenue from sale of gold increased by 34.6% to Rp.22,465.8 billion (US\$1,616.1 million) in 2019 from Rp.16,693.4 billion in 2018, primarily as a result of a 22.6% increase in sales volume of gold to 1.1 million oz t in 2019 from 896,812 oz t in 2018 and an 8.6% increase in the average selling price for gold to Rp.20.2 million/oz t in 2019 from Rp.18.6 million/oz t in 2018, mainly due to an increase in the demand for gold as a hedge against currency fluctuations, which was mainly driven by the ongoing U.S. and China trade war and the decrease in the U.S. federal funds interest rate in 2019.

Others. Revenue from sale of other products increased by 80.2% to Rp.2,370.1 billion (US\$170.5 million) in 2019 from Rp.1,315.4 billion in 2018, primarily as a result of:

- our recording of Rp.547.3 billion (US\$39.4 million) of revenue from sale of alumina in 2019, attributable to our consolidation of ICA, our subsidiary through which we produce and sell alumina, in December 2018, see “— Factors Affecting Our Business and Results of Operations — Acquisitions and Divestments — PT Indonesia Chemical Alumina;” and
- a 57.2% increase in revenue from sale of bauxite ore to Rp.758.1 billion (US\$54.5 million) in 2019 from Rp.482.4 billion in 2018, mainly due to a significant increase in sales volume of bauxite ore in line with a significant increase in production volume of bauxite ore. The increase in production volume of bauxite ore was due to our ramp-up of production at our Tayan Bauxite Mine in order to support higher alumina production at our Tayan Chemical Grade Alumina Plant as well as due to an increase in the bauxite export quota granted to us by the Government to 3.3 million wmt in 2019 from 0.8 million wmt in 2018.

Nickel ore. Revenue from sale of nickel ore increased by 25.4% to Rp.3,780.0 billion (US\$271.9 million) in 2019 from Rp.3,013.4 billion in 2018, primarily as a result of a 19.3% increase in sales volume of nickel ore to 7.6 million wmt in 2019 from 6.3 million wmt in 2018, mainly due to a significant increase in production volume of nickel ore at our Gag Nickel Mine, which was still in the initial production phase in 2018 and became fully operational in 2019, to 1.8 million wmt in 2019 from 0.9 million wmt in 2018. The increase in revenue from sale of nickel ore was also partially due to a 5.9% increase in the average selling price for nickel ore to Rp.482,260/wmt in 2019 from Rp.455,393/wmt in 2018, mainly driven by the market’s response to an expected decrease in global supply for nickel ore as a result of the Government’s announcement in August 2019 that it would implement a nickel ore export ban from Indonesia effective January 2020.

Coal. Revenue from sale of coal increased by 3.0% to Rp.21,420.1 billion (US\$1,540.9 million) in 2019 from Rp.20,792.7 billion in 2018, primarily as a result of a 12.6% increase in sales volume of coal to 27.8 million tonnes in 2019 from 24.7 million tonnes in 2018, mainly due to an increase in domestic coal sales to PLN (including its subsidiary, Indonesia Power) in line with our minimum DMO and to meet additional demand from PLN. The increase in revenue from sale of coal was partially offset by a 7.8% decrease in the average selling price for coal to Rp.769,670/tonne in 2019 from Rp.834,558/tonne in 2018, mainly due to a decrease in demand for coal from China, which contributed to decreases in both global and domestic coal benchmark prices such as the Newcastle Index and the Indonesian Coal Index, respectively.

Aluminum. Revenue from sale of aluminum decreased by 11.4% to Rp.6,910.2 billion (US\$497.1 million) in 2019 from Rp.7,802.3 billion in 2018, primarily as a result of (i) a 14.9% decrease in the average selling price for our aluminum products to Rp.26.9 million/tonne in 2019 from Rp.31.6 million/tonne in 2018, mainly due to a decrease in the LME reference price for aluminum, which was mainly driven by the ongoing U.S. and China trade war. The decrease in revenue from sale of aluminum was partially offset by a 2.9% increase in sales volume of our aluminum products to 254,083 tonnes in 2019 from 246,892 tonnes in 2018, mainly due to an increase in production volume of our aluminum products driven by the increase in the water level of Lake Toba, from which our hydroelectric power plants generate hydroelectricity.

Cost of revenue. Cost of revenue increased by 35.5% to Rp.66,130.9 billion (US\$4,757.3 million) in 2019 from Rp.48,807.1 billion* in 2018, primarily as a result of:

- a 65.3% increase in raw material used to Rp.18,644.5 billion (US\$1,341.2 million) in 2019 from Rp.11,277.3 billion* in 2018, mainly due to (i) a significant increase in tin ore sourced from third-party mining contractors and small-scale miners for further processing and sale by us under our tin brands, and (ii) raw material costs incurred by ICA recorded in 2019 while no such costs were recorded in 2018, due to our consolidation of ICA in December 2018;
- a 41.3% increase in purchases of precious metals to Rp.21,573.1 billion (US\$1,551.9 million) in 2019 from Rp.15,272.7 billion in 2018, mainly due to an increase in purchase of gold bullion from third-party precious metals trading companies for use in the production of our gold products; and
- a significant increase in third-party services to Rp.3,615.9 billion (US\$260.1 million) in 2019 from Rp.1,058.3 billion* in 2018, mainly due to an increase in processing fees paid to third-party tin smelters we engage to smelt our tin ore into crude tin for further processing and sale by us under our tin brands, as well as an increase in third-party services at our coal mines, including consultancy services and other outsourced services such as cleaning and maintenance, in order to support an increase in coal mining operations due to higher coal production volumes.

Gross profit. As a result of the foregoing, gross profit decreased by 12.0% to Rp.14,497.8 billion (US\$1,042.9 million) in 2019 from Rp.16,470.3 billion* in 2018.

General and administrative expenses. General and administrative expenses increased by 20.3% to Rp.6,187.7 billion (US\$445.1 million) in 2019 from Rp.5,142.9 billion* in 2018, primarily as a result of:

- a 75.9% increase in third-party services to Rp.663.5 billion (US\$47.7 million) in 2019 from Rp.377.2 billion* in 2018, mainly due to legal and consultancy fees incurred in connection with the development of our Mempawah Smelter Grade Refinery, see “Business — Our Bauxite Business — Alumina production plants — Mempawah Smelter Grade Alumina Refinery project;”
- a 25.3% increase in other general and administrative expenses to Rp.1,145.0 billion (US\$82.4 million) in 2019 from Rp.914.1 billion* in 2018, mainly due to an increase in expenses incurred for business insurance, security services and labor services, in line with the expansion in our scale of operations;
- a 44.0% increase in business travel and education to Rp.614.6 billion (US\$44.2 million) in 2019 from Rp.426.8 billion* in 2018, mainly due to an increase in business development activities and employee training, in line with the expansion in our scale of operations, and flight and accommodation expenses incurred by our employees for business travel; and
- a 5.3% increase in salaries, wages, bonuses and employee benefits to Rp.2,493.2 billion (US\$179.4 million) in 2019 from Rp.2,367.4 billion* in 2018, primarily as a result of (i) an increase in bonus expenses, in line with improved performance of our Group, (ii) an increase in headcount, in line with the expansion in our scale of operations, (iii) an increase in salaries as a result of inflation, and (iv) an increase in pension contributions.

Selling and marketing expenses. Selling and marketing expenses increased by 7.1% to Rp.2,538.3 billion (US\$182.6 million) in 2019 from Rp.2,370.1 billion* in 2018, primarily as a result of:

- a 45.0% increase in ore export duty to Rp.317.8 billion (US\$22.9 million) in 2019 from Rp.219.2 billion* in 2018, mainly due to the increase in export volume of nickel ore to 5.3 million wmt in 2019 from 4.0 million wmt in 2018;

* Note: As restated, see Note 49 to our Audited Consolidated Financial Statements included in this Offering Memorandum and “Risk Factors — Risks Common to All our Businesses — We have restated our consolidated financial statements for prior periods, which may lead to additional risks and uncertainties, including loss of investor confidence and negative impacts on our business, financial condition and results of operations.”

- an 8.2% increase in freight and insurance expenses to Rp.967.1 billion (US\$69.6 million) in 2019 from Rp.893.8 billion* in 2018, mainly due to the increase in sales volumes of substantially all our products; and
- a 25.8% increase in export expenses to Rp.344.8 billion (US\$24.8 million) in 2019 from Rp.274.0 billion* in 2018, also mainly due to the increase in export volume of nickel ore,

partially offset by:

- a 17.2% decrease in other selling and marketing expenses to Rp.353.6 billion (US\$25.4 million) in 2019 from Rp.427.2 billion* in 2018, mainly due to an increase in port services fees.

Operating profit. As a result of the foregoing, operating profit decreased by 35.6% to Rp.5,771.8 billion (US\$415.2 million) in 2019 from Rp.8,957.3 billion* in 2018.

Finance income. Finance income decreased by 13.9% to Rp.870.2 billion (US\$62.6 million) in 2019 from Rp.1,010.5 billion* in 2018, primarily as a result of:

- a 7.9% decrease in interest income from cash in banks and time deposits to Rp.831.5 billion (US\$59.9 million) in 2019 from Rp.902.9 billion in 2018, mainly due to a decrease in cash in banks and time deposits during the year; and
- a 68.2% decrease in unwinding of discounting impact on trade and other receivables to Rp.24.3 billion (US\$1.7 million) in 2019 from Rp.76.5 billion* in 2018, due to interest income of Rp.64.8 billion recorded in 2018 in connection with the unwinding of a discount provided on a related-party loan to ICA, while no such interest income was recorded in 2019 due to our consolidation of ICA in December 2018, partially offset by interest income of Rp.24.3 billion recorded in 2019 in connection with proceeds from Antam's divestment of shares in a joint mining entity, see Note 40i to our Audited Consolidated Financial Statements.

Finance costs. Finance costs increased significantly to Rp.5,300.3 billion (US\$381.3 million) in 2019 from Rp.2,120.6 billion* in 2018, primarily as a result of:

- a significant increase in interest expenses from bonds payable to Rp.4,404.1 billion (US\$316.8 million) in 2019 from Rp.911.5 billion* in 2018, mainly due to interest expenses under Inalum's U.S. dollar denominated bonds issued in November 2018 amounting to Rp.4,047.1 billion (US\$291.1 million) in 2019 as compared to Rp.533.6 billion* in 2018, see "Description of Material Indebtedness — Indebtedness of Inalum — Inalum's Bonds;" and
- an 87.0% increase in interest expenses from bank borrowings and finance lease to Rp.1,049.3 billion (US\$75.5 million) in 2019 from Rp.561.0 billion in 2018, mainly due to an increase in bank borrowings and finance lease during the year, which in turn was mainly due to additional facilities obtained by Timah, see "Description of Material Indebtedness — Material Indebtedness of Timah,"

partially offset by:

- a gain on foreign exchange from bank borrowings in foreign currency of Rp.373.5 billion (US\$26.9 million) in 2019 as compared to a loss on foreign exchange from bank borrowings in foreign currency of Rp.586.8 billion* recorded in 2018, mainly due to payments made on our outstanding borrowings denominated in U.S. dollars and the U.S. dollar strengthening against the Rupiah in 2018.

Share in net (loss)/profit from PTFI. We recorded share in net loss from PTFI of Rp.576.2 billion (US\$41.4 million) in 2019 as compared to share in net profit from PTFI of Rp.184.1 billion in 2018 due to a 50.1% decrease in PTFI's net revenues to US\$2.8 billion in 2019 from US\$5.6 billion in 2018. The decrease in PTFI's net revenues was primarily a result of a 41.0% decrease in PTFI's copper sales volume to 0.7 billion

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pounds of copper in 2019 from 1.1 billion pounds of copper in 2018 and a 58.9% decrease in PTFI's gold sales volumes to 1.0 million oz of gold in 2019 from 2.4 million oz of gold in 2018, which were mainly due to lower milling rates and ore grades attributable to PTFI mining the final phase of the Grasberg open-pit mine and transitioning production operations to the Grasberg Block Cave underground mine in 2019, see "PT Freeport Indonesia — Summary Discussion of PTFI's Financial Condition and Results of Operations."

Share in net loss from associates. Share in net loss from associates decreased by 72.8% to Rp.87.2 billion (US\$6.3 million) in 2019 from Rp.320.1 billion* in 2018, primarily as a result of an improvement in the performance of our associate, PT Nusa Halmahera Mineral ("NHM"), in 2019.

Share in net profit/(loss) from joint ventures. We recorded share in net profit from joint ventures of Rp.179.4 billion (US\$12.9 million) in 2019 as compared to share in net loss from joint ventures of Rp.573.6 billion* in 2018, primarily as a result of a share in net loss from ICA of Rp.927.6 billion recorded in 2018 while no share in net loss from ICA was recorded in 2019 due to our consolidation of ICA in December 2018, partially offset by a significant increase in total share in net profit from our joint ventures, BPI, HBAP, and PT Bukit Asam Transpacific, to Rp.180.5 billion (US\$13.0 million) in 2019 from Rp.42.9 billion in 2018.

Other income, net. Other income, net decreased by 79.1% to Rp.1,410.7 billion (US\$101.5 million) in 2019 from Rp.6,754.3 billion* in 2018, primarily as a result of:

- dividend from PTFI of Rp.2,569.3 billion recorded in 2018. PTFI did not pay any dividends in 2019;
- a gain on fair value adjustment on investment of Rp.2,405.0 billion recorded in 2018 in connection with our acquisition of additional equity interests in PTFI. We did not record any gain on fair value adjustment on investment in 2019; and
- a gain on bargain purchase of Rp.2,226.4 billion* recorded in 2018 in connection with our acquisition of shares in ICA in December 2018, see "— Factors Affecting Our Business and Results of Operations — Acquisitions and divestments — PT Indonesia Chemical Alumina." We did not record any gain on bargain purchase in 2019,

partially offset by:

- a gain from regional tax disputes of Rp.1,073.7 billion (US\$77.2 million) in 2019 as compared to a loss of Rp.777.3 billion in 2018, mainly due to favorable rulings on our ongoing surface water tax dispute, see "Business — Legal Proceedings — Surface Water Tax Dispute."

Profit before income tax. As a result of the foregoing, profit before income tax decreased by 83.7% to Rp.2,268.4 billion (US\$163.2 million) in 2019 from Rp.13,891.9 billion* in 2018.

Income tax expenses. Income tax expenses decreased by 25.8% to Rp.2,241.4 billion (US\$161.3 million) in 2019 from Rp.3,021.8 billion* in 2018, primarily as a result of the decrease in profit before income tax for the year.

Profit for the year from continuing operations. As a result of the foregoing, profit for the year from continuing operations decreased significantly to Rp.27.0 billion (US\$1.9 million) in 2019 from Rp.10,870.1 billion* in 2018.

Loss from discontinued operations. Loss from discontinued operations decreased significantly to Rp.2.5 billion (US\$0.1 million) in 2019 from Rp.43.5 billion in 2018, primarily as a result of an increase in sales volumes of coal and lower costs and expenses recorded by TAJ in 2019.

Profit for the year. As a result of the foregoing, profit for the year decreased significantly to Rp.24.5 billion (US\$1.8 million) in 2019 from Rp.10,826.6 billion* in 2018.

* Note: As restated, see Note 49 to our Audited Consolidated Financial Statements included in this Offering Memorandum and "Risk Factors — Risks Common to All our Businesses — We have restated our consolidated financial statements for prior periods, which may lead to additional risks and uncertainties, including loss of investor confidence and negative impacts on our business, financial condition and results of operations."

Other comprehensive (loss)/income for the year, net of tax. We recorded other comprehensive loss for the year, net of tax of Rp.11.9 billion (US\$0.9 million) in 2019 as compared to other comprehensive income for the year, net of tax of Rp.1,799.0 billion* in 2018, primarily as a result of (i) a significant decrease in gain from currency differences from translation of our Group entities' financial statements to Rp.261.0 billion (US\$18.8 million) in 2019 from Rp.953.6 billion in 2018, and (ii) a loss of Rp.320.7 billion (US\$23.1 million) recorded in 2019 in connection with remeasurement of post-employment benefit obligations as compared to a gain of Rp.885.5 billion recorded in 2018; partially offset by related income tax benefits of Rp.58.1 billion (US\$4.2 million) recorded in 2019 as compared to related income tax expenses of Rp.203.1 billion recorded in 2018.

Total comprehensive income for the year. As a result of the foregoing, total comprehensive income for the year decreased significantly to Rp.12.6 billion (US\$0.9 million) in 2019 from Rp.12,625.6 billion* in 2018.

Year ended December 31, 2018 compared to the year ended December 31, 2017

Revenue. Revenue increased by 38.3% to Rp.65,277.4 billion in 2018 from Rp.47,184.3 billion in 2017, primarily as a result of an increase in revenue from sale of gold, aluminum, tin metal and tin solder, nickel ore and ferronickel.

Gold. Revenue from sale of gold increased significantly to Rp.16,693.4 billion in 2018 from Rp.7,375.5 billion in 2017, primarily as a result of a significant increase in sales volume of our gold products to 896,812 oz t of gold in 2018 from 424,454 oz t of gold in 2017, which was attributable to the increase in our purchase of gold doré, from third parties to 27.0 tonnes in 2018 from 8.5 tonnes in 2017, that we refined and processed into gold bars, jewelry and gold dinar coins and sold in the domestic market. Our domestic customer base also increased significantly in 2018, which we believe was partly due to our introducing new gold products such as gold minted bars with new motifs, designs and packaging. The increase in revenue from sale of gold was also partially due to a 6.9% increase in the average selling price for gold to Rp.18.6 million/oz t in 2018 from Rp.17.4 million/oz t in 2017, primarily as a result of an increase in demand for gold as a hedge against foreign currency fluctuations, mainly driven by the ongoing U.S. and China trade war.

Aluminum. Revenue from sale of aluminum increased by 35.8% to Rp.7,802.3 billion in 2018 from Rp.5,744.3 billion in 2017, primarily as a result of (i) a 14.1% increase in the average selling price for our aluminum products to Rp.31.6 million/tonne in 2018 from Rp.27.7 million/tonne in 2017, mainly due to our diversification into the sale of aluminum billets and aluminum alloys during the year, which have higher average selling prices as compared to our aluminum ingots, as well as an increase in the LME reference price for aluminum; and (ii) a 19.1% increase in sales volume of our aluminum products to 246,892 tonnes in 2018 from 207,276 tonnes in 2017, mainly due to an increase in our production volume of our aluminum products driven by the increase in the water level of Lake Toba, from which our hydroelectric power plants generate hydroelectricity, as well as an increase in demand for our aluminum products primarily as a result of a decrease in the global supply of aluminum. The decrease in the global supply of aluminum was mainly driven by the ongoing U.S. and China trade war and U.S. economic sanctions placed on Russia in the second quarter of 2018.

Tin metal and tin solder. Revenue from sale of tin metal and tin solder increased by 19.7% to Rp.10,152.9 billion in 2018 from Rp.8,481.7 billion in 2017, primarily as a result of 13.1% increase in sales volume of our refined tin products from 33,818 tonnes in 2018 from 29,914 tonnes in 2017, mainly due to a significant increase in tin ore sourced from third-party mining contractors and small-scale miners for further processing and sale by us under our tin brands, which was in turn due to Government policies implemented in 2018 that resulted in Timah being the only Indonesian tin producer permitted to export tin products in the fourth quarter of 2018. The increase in revenue as a result of an increase in sales volume was partially offset by a 5.1% decrease in the LME price for tin from Rp.287.9 million/tonne in 2018 to Rp.273.8 million/tonne in 2017, which

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was primarily attributable to a decrease in global demand for refined tin mainly driven by the ongoing U.S. and China trade war.

Coal. Revenue from sale of coal increased by 8.7% to Rp.20,792.7 billion in 2018 from Rp.19,133.5 billion in 2017, primarily as a result of (i) a 4.6% increase in sales volume of coal to 24.7 million tonnes in 2018 from 23.6 million tonnes in 2017, mainly due to a general increase in demand for coal and our ability to cater to such increase in demand through our increase in coal production volume and coal transportation capacity for our railway tracks leading to the Tarahan Port and Kertapati Port, and (ii) a 3.3% increase in the average selling price for coal to Rp.834,135/tonne in 2018 from Rp.808,690/tonne in 2017, mainly due to a general increase in demand for coal, mainly from China, which contributed to increases in both global and domestic coal benchmark prices such as the Newcastle Index and the Indonesian Coal Index, respectively.

Nickel ore. Revenue from sale of nickel ore increased significantly to Rp.3,013.4 billion in 2018 from Rp.1,369.8 billion in 2017, due to a significant increase in sales volume of our nickel ore to 6.3 million wmt in 2018 from 2.9 million wmt in 2017, mainly due to Government policies implemented in 2017 that resulted in our ability to export nickel over the whole of 2018, as compared to 2017, where we were only able to export nickel during the second half of 2017.

Ferronickel. Revenue from sale of ferronickel increased by 44.7% to Rp.4,662.1 billion in 2018 from Rp.3,222.6 billion in 2017, primarily as a result of (i) a 31.5% increase in the average selling price for our ferronickel products to Rp.193.1 million/TNi in 2018 from Rp.146.8 million/TNi in 2017, mainly due to a decrease in global supply of ferronickel, stemming from the closure of a large number of nickel mines in the Philippines by the Philippines government due to alleged environmental abuses; and (ii) a 10.7% increase in sale volume of our ferronickel products to 24,135 TNi in 2018 from 21,878 TNi in 2017, mainly due to an increase in our production volume, which was attributable to an increase in production capacity as a result of the completion of our FeNi IV ferronickel plant in Southeast Sulawesi in 2017.

Cost of revenue. Cost of revenue increased by 48.1% to Rp.48,807.1 billion* in 2018 from Rp.32,960.9 billion* in 2017, primarily as a result of:

- a significant increase in purchases of precious metals to Rp.15,272.7 billion in 2018 from Rp.6,202.7 billion in 2017, which was mainly attributable to the increase in our purchase of gold doré from third parties to 27.0 tonnes in 2018 from 8.5 tonnes in 2017, for use in the production of our gold products;
- a 43.5% increase in raw material used to Rp.11,277.3 billion* in 2018 from Rp.7,860.8 billion in 2017, primarily as a result of an increase in the purchase prices of raw materials used in the production of aluminum, such as alumina, coke and coal tar pitch, mainly due to a decrease in global supply of such materials driven by U.S. sanctions placed on Russia in 2018, coupled with an increase in our purchase of such raw materials, in line with an increase in our production volume of aluminum;
- a 20.3% increase in transportation, barging and ore mining fees to Rp.8,158.7 billion* in 2018 from Rp.6,779.4 billion* in 2017, primarily as a result of (i) an increase in excavation fees to support the increase in production volume of coal and (ii) an increase in transportation fees to support greater transportation volume for coal, nickel ore and bauxite, in line with the increase in overall sales volumes of these products; and
- a 61.9% increase in usage of fuel to Rp.3,028.2 billion* in 2018 from Rp.1,870.1 billion* in 2017, primarily as a result of both an increase in the price of fuel and an increase in our total fuel consumption, in line with the overall increase in production volumes of substantially all our products.

Gross profit. As a result of the foregoing, gross profit increased by 15.8% to Rp.16,470.3 billion* in 2018 from Rp.14,233.4 billion* in 2017.

* Note: As restated, see Note 49 to our Audited Consolidated Financial Statements included in this Offering Memorandum and “Risk Factors — Risks Common to All our Businesses — We have restated our consolidated financial statements for prior periods, which may lead to additional risks and uncertainties, including loss of investor confidence and negative impacts on our business, financial condition and results of operations.”

General and administrative expenses. General and administrative expenses increased by 43.4% to Rp.5,142.9 billion* in 2018 from Rp.3,585.2 billion* in 2017, primarily as a result of:

- a 38.6% increase in salaries, wages, bonuses and employee benefits to Rp.2,367.4 billion* in 2018 from Rp.1,708.3 billion* in 2017, mainly due to (i) an increase in bonus expenses, in line with improved performance of our Group, (ii) an increase in headcount, in line with the expansion in our scale of operations, and (iii) an increase in salaries as a result of inflation;
- a significant increase in corporate social responsibility program to Rp.549.9 billion in 2018 from Rp.224.4 billion in 2017, mainly due to (i) donations we made for the construction of the sports complex for the 2018 Asian Games held in Palembang and the Kolaka Regional Public Hospital in Kolaka, Southeast Sulawesi, and (ii) a community empowerment program we held in 2018;
- a 42.1% increase in other general and administrative expenses to Rp.914.1 billion in 2018 from Rp.643.4 billion in 2017, mainly due to a loss on impairment of assets of Rp.240.7 billion recorded in 2018 in connection with the impairment of our investment in NHM due to currency translation adjustments and the impairment of certain exploration and fixed assets, while no such loss on impairment of assets was recorded in 2017;
- a 72.2% increase in business travel and education to Rp.426.8 billion from Rp.247.8 billion in 2017, mainly due to an increase in business development activities and employee training, in line with the expansion in our scale of operations, and flight and accommodation expenses incurred by our employees for business travel; and
- a 22.9% increase in third-party services to Rp.377.2 billion in 2018 from Rp.306.8 billion in 2017, mainly due to fees paid in connection with consultancy services for our nickel and tin development projects, the implementation of new enterprise resource planning software and other third-party services.

Selling and marketing expenses. Selling and marketing expenses increased by 58.3% to Rp.2,370.1 billion* in 2018 from Rp.1,497.2 billion* in 2017, primarily as a result of:

- a significant increase in freight and insurance expense to Rp.893.8 billion* in 2018 from Rp.249.8 billion* in 2017, mainly due to an increase in sales volume of nickel ore to 6.3 million wmt in 2018 from 2.9 million wmt in 2017; and
- a 76.2% increase in export expenses to Rp.274.0 billion* in 2018 from Rp.155.5 billion* in 2017, mainly due to an increase in export volume of nickel ore to 4.0 million wmt in 2018 from 2.7 million wmt in 2017.

Operating profit. As a result of the foregoing, operating profit decreased slightly to Rp.8,957.3 billion* in 2018 from Rp.9,141.0 billion* in 2017.

Finance income. Finance income increased by 60.4% to Rp.1,010.5 billion* in 2018 from Rp.629.9 billion in 2017, primarily as a result of:

- a 59.2% increase in interest income from cash in banks and time deposits to Rp.902.9 billion in 2018 from Rp.567.2 billion in 2017, mainly due to an increase in cash in banks and time deposits during the year; and
- unwinding of discounting impact on trade and other receivables of Rp.64.8 billion* recorded in 2018 in connection with the unwinding of a discount provided on a related-party loan to ICA. We did not record any unwinding of discounting impact on trade and other receivables in 2017,

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partially offset by:

- a 50.4% decrease in interest income from available-for-sale financial assets to Rp.31.1 billion in 2018 from Rp.62.7 billion in 2017, mainly due to a decrease in available-for-sale financial assets during the year which was, in turn, primarily as a result of reclassification of an available-for-sale investment to an investment in PTFI.

Finance costs. Finance costs increased significantly to Rp.2,120.6 billion* in 2018 from Rp.999.1 billion* in 2017, primarily as a result of:

- a significant increase in interest expenses from bonds payable to Rp.911.5 billion in 2018 from Rp.298.8 billion in 2017, mainly due to interest expenses under Inalum's U.S. dollar denominated bonds issued in November 2018 amounting to Rp.533.6 billion in 2018, see "Description of Material Indebtedness — Indebtedness of Inalum — Inalum's Bonds," and interest expenses under Timah's outstanding bonds amounting to Rp.111.5 billion in 2018, see "Description of Material Indebtedness — Material Indebtedness of Timah — Timah's Bonds; and
- a significant increase in loss on foreign exchange from bank borrowings in foreign currency to Rp.586.8 billion* in 2018 from Rp.62.6 billion* in 2017, mainly due to our outstanding borrowings denominated in U.S. dollars and the U.S. dollar strengthening against the Rupiah in 2018.

Share in net profit from PTFI. We recorded share in net profit from PTFI of Rp.184.1 billion in 2018. We did not record any share in net profit from PTFI in 2017.

Share in net loss from associates. Share in net loss from associates increased significantly to Rp.320.1 billion* in 2018 from Rp.133.9 billion* in 2017, primarily as a result of general decline in the performance of NHM, mainly due to a decrease in NHM's production volume of gold.

Share in net profit/(loss) from joint ventures. Share in net loss from joint ventures decreased by 41.9% to Rp.573.6 billion* in 2018 from Rp.987.2 billion* in 2017 primarily as a result of (i) a gain from adjustment on investment in BPI of Rp.311.1 billion recorded in 2018, partially offset by a 64.8% decrease in share in net profit from BPI to Rp.42.9 billion in 2018 from Rp.121.6 billion in 2017, and (ii) ICA writing off debts owed of Rp.207.2 billion in 2018.

Other income, net. Other income, net increased significantly to Rp.6,754.3 billion in 2018 from Rp.597.1 billion in 2017, primarily as a result of:

- a gain on fair value adjustment on investment of Rp.2,405.0 billion recorded in 2018 in connection with the increase in fair value of our equity interests in PTFI. We did not record any gain on fair value adjustment on investment in 2017;
- a gain on bargain purchase of Rp.2,226.4 billion* recorded in 2018 in connection with our acquisition of shares in ICA in December 2018, see "— Factors Affecting Our Business and Results of Operations — Acquisitions and divestments — PT Indonesia Chemical Alumina." We did not record any gain on bargain purchase in 2017; and
- a significant increase in dividend from PTFI to Rp.2,569.3 billion in 2018 from Rp.427.6 billion in 2017,

partially offset by:

- a significant increase in loss from regional tax disputes to Rp.777.3 billion in 2018 from Rp.135.1 billion in 2017, primarily as a result of Rp.536.1 billion paid in connection with our ongoing surface water tax dispute, see "Business — Legal Proceedings — Surface Water Tax Dispute," and Rp.241.2 billion of additional electricity taxes recorded in 2018 as a result of a difference in our and the Province

* Note: As restated, see Note 49 to our Audited Consolidated Financial Statements included in this Offering Memorandum and "Risk Factors — Risks Common to All our Businesses — We have restated our consolidated financial statements for prior periods, which may lead to additional risks and uncertainties, including loss of investor confidence and negative impacts on our business, financial condition and results of operations."

of North Sumatra's method of calculating the electricity taxes owed by us as well as late penalties incurred for the late payment of such taxes.

Profit before income tax. As a result of the foregoing, profit before income tax increased by 68.4% to Rp.13,891.9 billion* in 2018 from Rp.8,247.8 billion* in 2017.

Income tax expenses. Income tax expenses increased by 22.1% to Rp.3,021.8 billion* in 2018 from Rp.2,474.4 billion in 2017, primarily as a result of the increase in profit before income tax for the year.

Profit for the year from continuing operations. As a result of the foregoing, profit for the year from continuing operations increased by 88.3% to Rp.10,870.1 billion* in 2018 from Rp.5,773.4 billion* in 2017.

Loss from discontinued operations. Loss from discontinued operations increased significantly to Rp.43.5 billion in 2018 from Rp.6.5 billion in 2017, primarily as a result of a decrease in sales volume of coal recorded by TAJ and TBBE during the year.

Profit for the year. As a result of the foregoing, profit for the year increased by 87.7% to Rp.10,826.6 billion* in 2018 from Rp.5,766.9 billion* in 2017.

Other comprehensive (loss)/income for the year, net of tax. We recorded other comprehensive income for the year, net of tax of Rp.1,799.0 billion* in 2018 as compared to other comprehensive loss for the year, net of tax of Rp.433.4 billion* in 2017, primarily as a result of (i) a gain of Rp.885.5 billion recorded in connection with remeasurement of post-employment benefit obligations in 2018 as compared to a loss of Rp.1,005.3 billion recorded in 2017, and (ii) currency differences from translation of our Group entities' financial statements which amounted to a gain of Rp.953.6 billion* in 2018 as compared to a gain of Rp.344.2 billion* in 2017, partially offset by related income tax expenses of Rp.203.1 billion in 2018 as compared to related income tax benefits of Rp.247.6 billion in 2017.

Total comprehensive income for the year. As a result of the foregoing, total comprehensive income for the year increased significantly to Rp.12,625.6 billion* in 2018 from Rp.5,333.5 billion* in 2017.

Liquidity and Capital Resources

Our primary sources of liquidity include cash generated from operations and from borrowings, both short-term and long-term, including banking facilities, finance leases and bonds. Going forward, we may require more funding for our expansion projects, see "— Capital Expenditures." We intend to fund these expansion projects, our operations and working capital requirements primarily through existing capital resources, including cash deposits, cash flow from operations and available undrawn working capital lines with banks, see "Description of Material Indebtedness," as well as accessing the bank loan markets and/or debt and equity capital markets.

As of December 31, 2019, we had cash and cash equivalents of Rp.14,581.7 billion (US\$1,049.0 million), undrawn U.S. dollar facilities of approximately US\$1,090.7 million and undrawn Rupiah facilities of approximately Rp.2,359.8 billion (US\$169.8 million). In addition, as of the same date, we held 330,296,000 treasury shares of Bukit Asam, which represent a potential source of funding.

As of December 31, 2019, we had consolidated indebtedness totaling Rp.76,673.4 billion (US\$5,515.7 million). Our indebtedness comprised short-term bank borrowings of Rp.10,198.9 billion (US\$733.7 million), long-term bank borrowings of Rp.7,114.9 billion (US\$511.8 million), finance lease liabilities of Rp.470.5 billion (US\$33.9 million) and bonds payable of Rp.58,889.1 billion (US\$4,236.3 million). See "Capitalization" and "Description of Material Indebtedness." Taking into consideration the financial resources available to us, including cash generated from our operating activities, we believe we will have sufficient liquidity to meet our working capital and operating requirements for at least the next 12 months.

* Note: As restated, see Note 49 to our Audited Consolidated Financial Statements included in this Offering Memorandum and "Risk Factors — Risks Common to All our Businesses — We have restated our consolidated financial statements for prior periods, which may lead to additional risks and uncertainties, including loss of investor confidence and negative impacts on our business, financial condition and results of operations."

As part of our plan to optimize our financing costs and actively manage our debt maturity profile, concurrently with the offering of the Notes, we are also making Tender Offers to purchase for cash any and all of our 2021 Notes and 2023 Notes. We intend to retain an amount equal to at least US\$500.0 million of the net proceeds of the offering of the Notes to acquire shares in other mining companies and to refinance our other outstanding indebtedness, and use the remaining net proceeds to repurchase our 2021 Notes and 2023 Notes, see “Description of Material Indebtedness — Indebtedness of Inalum — Inalum’s Bonds,” subject to certain conditions being satisfied or waived as set forth in the Tender Offer Memorandum. See “Summary — Recent Developments — Concurrent Tender Offers” and “Use of Proceeds.”

Cash flows data

The following table summarizes our cash flows data for the years ended December 31, 2017, 2018 and 2019:

	For the year ended December 31,			
	2017	2018	2019	
	(as restated)	(as restated)		
	Rp.	Rp.	Rp.	US\$
	(Rp. in billions and US\$ in millions)			
Net cash received from operating activities	5,845.5	6,853.3	289.7	20.9
Net cash used in investing activities	(4,747.4)	(59,729.1)	(10,713.9)	(770.7)
Net cash (used in)/received from financing activities	(965.2)	56,467.1	5,194.1	373.6
Net increase/(decrease) in cash and cash equivalents	132.9	3,591.3	(5,230.1)	(376.2)

Net cash received from operating activities

Net cash received from operating activities comprise cash receipts from customers, cash receipts from other taxes restitution, cash receipts from interest income, and cash receipts from corporate income tax restitution, payment to suppliers and employees, payment of interest, payment of corporate income tax, payment of royalties, payment of bonds issuance costs, and other payments, net.

In 2019, cash receipts from customers totaled Rp.80,761.0 billion (US\$5,809.7 million), cash receipts from other taxes restitution totaled Rp.1,005.8 billion (US\$72.4 million), cash receipts from interest income totaled Rp.834.3 billion (US\$60.0 million) and cash receipts from corporate income tax restitution totaled Rp.208.3 billion (US\$15.0 million). After taking into account payment to suppliers and employees which totaled Rp.71,574.1 billion (US\$5,148.8 million), payment of interest which totaled Rp.5,678.4 billion (US\$408.5 million), payment of corporate income tax which totaled Rp.2,921.2 billion (US\$210.1 million) and payment of royalties which totaled Rp.2,346.0 (US\$168.8 million), our net cash received from operating activities amounted to Rp.289.7 billion (US\$20.9 million) in 2019. Our net cash received from operating activities in 2019 decreased as compared to 2018, mainly due to (i) an increase in cash paid to suppliers and employees, in line with the increase in our production and sales volume, as well as the increase in salaries, wages, bonuses and employee benefits expenses in 2019, and (ii) an increase in payment of interest; partially offset by an increase in cash receipts from customers, in line with the increase in revenue in 2019.

In 2018, cash receipts from customers totaled Rp.67,239.5 billion, cash receipts from other taxes restitution totaled Rp.138.9 billion, cash receipts from interest income totaled Rp.877.1 billion and cash receipts from corporate income tax restitution totaled Rp.342.8 billion. After taking into account cash paid to suppliers and employees which totaled Rp.53,575.5 billion, payment of interest which totaled Rp.925.3 billion, payment of corporate income tax which totaled Rp.3,798.9 billion, payment of royalties which totaled Rp.1,791.3 billion, payment of bonds issuance costs which totaled Rp.1,650.6 billion, and other payments, net which totaled Rp.3.4 billion, our net cash received from operating activities amounted to Rp.6,853.3 billion in 2018. Our net cash received in 2018 increased as compared to 2017, mainly due to (i) an increase in cash receipts from customers, in line with the increase in revenue in 2018, partially offset by (ii) an increase in cash paid to suppliers and employees, in line with the increase in our production and sales volume, as well as the increase in salaries,

wages, bonuses and employee benefits expenses in 2018, and (iii) an increase in payment of corporate income tax, in line with the increase in profit for the year and our production and sales volumes in 2018.

In 2017, cash receipts from customers totaled Rp.43,566.9 billion, cash receipts from other taxes restitution totaled Rp.206.7 billion, cash receipts from interest income totaled Rp.598.6 billion and cash receipts from corporate income tax restitution totaled Rp.653.6 billion. After taking into account cash paid to suppliers and employees which totaled Rp.33,904.0 billion, payment of interest which totaled Rp.789.2 billion, payment of corporate income tax which totaled Rp.2,089.1 billion, payment of royalties which totaled Rp.1,658.7 billion, and other payments, net which totaled Rp.739.3 billion, our net cash received from operating activities amounted to Rp.5,845.5 billion in 2017.

Net cash used in investing activities

Net cash used in investing activities comprises dividend receipt from associates, proceeds from sale of fixed assets, proceeds from disposal of available-for-sale financial assets, withdrawal/(placement) of performance bonds, purchase of fixed assets, time deposits placement, net, addition of investment in PTFI, disbursements for exploration and evaluation assets and others, addition of investment in associates and joint ventures, addition of investment properties, dividend receipt from available-for-sale financial assets, proceeds from share divestment, cash acquired from the acquisition of subsidiary, loan to joint ventures, disbursements for other non-current assets, transaction costs related to the acquisition of subsidiary, and other proceeds from investing activities.

Our net cash used in investing activities was Rp.10,713.9 billion (US\$770.7 million) in 2019, which primarily related to (i) payments of Rp.4,800.6 billion (US\$345.3 million) made in connection with purchase of fixed assets, (ii) payments of Rp.2,337.7 billion (US\$168.2 million) made in connection with additional investment in PTFI, and (iii) placement of Rp.3,225.3 billion (US\$232.0 million) made in connection with time deposits, net.

Our net cash used in investing activities was Rp.59,729.1 billion in 2018, which primarily related to (i) payments of Rp.55,751.8 billion made in connection with our additional investment in PTFI, (ii) purchase of fixed assets of Rp.4,492.7 billion in connection with our construction-in-progress such as the upgrades to our Tarahan Line and Kertapati Line, residential camps for our employees, vessels in relation to our offshore mining as well as ore processing facilities at our mines, and the purchase of a new office building, and new machinery and equipment, partially offset by (iii) cash of Rp.2,569.3 billion received as dividend from available-for-sale financial assets.

Our net cash used in investing activities was Rp.4,747.4 billion in 2017, which primarily related to (i) payments of Rp.4,611.6 billion made in connection with purchases of fixed assets including our electric-powered heavy equipment for our coal mines and fuming machines for our tin smelting and refining plants, and (ii) payments of Rp.724.1 billion made in connection with loans extended to ICA, partially offset by (iii) cash of Rp.427.6 billion received in connection with dividend receipt from available-for-sale financial assets and (iv) cash of Rp.307.8 billion received from disposal of available-for-sale financial assets.

Net cash (used in)/received from financing activities

Our net cash received from financing activities was Rp.5,194.1 billion (US\$373.6 million) in 2019, which primarily related to (i) proceeds of Rp.60,485.3 billion (US\$4,351.1 million) from bank borrowings, (ii) proceeds of Rp.1,193.0 billion (US\$85.8 million) from Timah's bonds, and (iii) proceeds of Rp.1,793.3 billion (US\$129.0 million) from the sale of Bukit Asam's treasury shares, partially offset by (iv) repayment of Rp.55,636.1 billion (US\$4,002.3 million) of bank borrowings, and (v) payment of Rp.2,447.9 billion (US\$176.1 million) of dividends.

Our net cash received from financing activities was Rp.56,467.1 billion in 2018, which primarily comprised (i) proceeds of Rp.57,924.0 billion from issuance of Inalum's bonds and (ii) proceeds of Rp.38,609.0 billion from bank borrowings, partially offset by (iii) payment of Rp.3,172.4 billion of dividends to our shareholders and (iv) repayment of Rp.36,242.2 billion of bank borrowings. See "Description of Material Indebtedness — Indebtedness of Inalum — Inalum's Bonds."

Our net cash used in financing activities was Rp.965.2 billion in 2017, which comprised (i) repayment of Rp.8,465.4 billion of bank borrowings, (ii) payment of Rp.955.2 billion of dividends to our shareholders and (iii) repayment of Rp.126.3 billion of outstanding finance leases, partially offset by (iv) proceeds of Rp.7,081.7 billion from bank borrowings and (v) proceeds from issuance of Timah's Rupiah Bonds which amounted to Rp.1,500.0 billion. See "Description of Material Indebtedness — Material Indebtedness of Timah — Timah's Bonds."

Capital Expenditures

The following table sets forth our capital expenditures for the years ended December 31, 2017, 2018 and 2019.

	For the year ended December 31,			
	2017	2018	2019	
	(as restated) (Rp. in billions)	(as restated) (Rp. in billions)	(Rp. in billions)	(US\$ in millions)
Coal	1,053.4	806.9	1,101.8	79.3
Gold and other precious metals	254.1	302.6	81.1	5.8
Tin metal and tin solder	654.4	1,070.5	1,172.5	84.3
Aluminum	6,503.6	519.4	758.7	54.6
Nickel and ferronickel	323.8	49.4	620.3	44.6
Others	170.2	464.6	974.3	70.2
Ongoing development projects	1,286.3	1,920.7	18.6	1.3
Total	10,245.8	5,134.1	4,727.3	340.1

For coal, our capital expenditures for the years indicated above generally related to our expansion projects for the increase in our coal transportation capacity for our railway tracks leading to the Tarahan Port and Kertapati Port and the construction of the Sumsel 8 CFPP, as well as maintenance capital expenditures.

For gold, our capital expenditures for the years indicated above generally related to maintenance capital expenditures for our gold mines and our Logam Mulia Precious Metals Refinery.

For tin metal and tin solder, our capital expenditures for the years indicated above generally related to replacement and installation of machineries, acquisition of exploration, mining and production equipment, dry docking of our vessels, refurbishment of our vessels, construction of our research and development facility for rare earth mining and maintenance capital expenditures. In the year ended December 31, 2017, we completed a major overhaul for one of our vessels and procured a tin fuming technology equipment which was installed at one of our tin smelting and refining plants located in Bangka. In the year ended December 31, 2018, we paid further installments relating to our procurement of the tin fuming technology equipment and incurred capital expenditures for new tin mining activities at our concession areas in Batu Besi, Belitung Island.

For aluminum, our capital expenditures for the years indicated above generally related to the expansion of our aluminum casting plant for diversification into production of aluminum billets and alloys, Inalum's share of the development of the Mempawah Smelter Grade Alumina Refinery, the construction of a new office for Inalum, as well as maintenance capital expenditures. In the year ended December 31, 2017, we incurred capital expenditure in connection with costs incurred for the transfer of land on which our aluminum production plants and supporting facilities are situated, from the Government. See "Business — Our Bauxite Business — Alumina production plants — Mempawah Smelter Grade Alumina Refinery" and "Business — Our Aluminum Smelting Business — Aluminum development projects."

For nickel and ferronickel, our capital expenditures for the years indicated above generally related to maintenance capital expenditures for our nickel mines and our Pomalaa Ferronickel Facilities.

Other capital expenditures for the years indicated above generally related to maintenance capital expenditures for our Tayan Bauxite Mine, see “Business — Our Bauxite Business — Bauxite mining concessions not in operation.”

Capital expenditures for ongoing development projects primarily relate to capital expenditures for the development of our East Halmahera Ferronickel Plant, Antam’s share of the development of the Mempawah Smelter Grade Alumina Refinery, and development of our bauxite mines at the Mempawah Hulu bauxite mining concession, Toho bauxite mining concession and Menjalin BEI bauxite mining concession. See “Business — Our Nickel Business — Ferronickel production facilities — East Halmahera Ferronickel Plant,” “Business — Our Bauxite Business — Alumina production plants — Mempawah Smelter Grade Alumina Refinery” and “Business — Our Bauxite Business — Bauxite mining concessions not in operation.”

The following table sets forth our planned capital expenditures for the years indicated.

	For the year ending December 31,		
	2020	2021	2022
	(Rp. in billions)		
Acquisition of shares in PTVI	6,943.3	—	—
Mempawah Smelter Grade Alumina Refinery	1,566.0	1,464.5	850.4
Reduction plant upgrade	747.4	—	445.0
Sumsel 8 CFPP	777.6	702.8	129.1
Ausmelt TSL tin smelting technology	652.7	276.2	—
Others	2,327.2	2,489.8	3,788.9
Maintenance	1,939.4	1,934.2	1,761.1
Total	14,953.7	6,867.5	6,974.5

In addition to these capital expenditures, we also intend to make equity contributions to PTFI and IPMM amounting to Rp.2,399.7 billion, Rp.2,989.1 billion and Rp.3,264.9 billion for the years ending December 31, 2020, 2021 and 2022, respectively.

We intend to fund our capital expenditures through a combination of cash generated from cash flow from operations and accessing the bank loan markets and/or debt equity capital markets, including this offering of the Notes.

Our capital expenditures for expansion and development projects will primarily be focused on our acquisition of shares in PTVI, development of a new smelter grade alumina refinery, upgrading works at our reduction plant at our existing aluminum smelter, development of a new coal-fired power plant, and the implementation of a new tin smelting technology at our Bankga tin smelting and refining plants. See “Business — Strategies — Transform into a first-class holding company that oversees Indonesia’s mining reserves and resources,” “Business — Our Bauxite Business — Alumina production plants — Mempawah Smelter Grade Alumina Refinery,” “Business — Our Aluminum Smelting Business — Aluminum development projects — Reduction plant upgrading project,” “Business — Our Coal Business — Downstream coal businesses — Sumsel 8 CFPP project” and “Business — Our Tin Business — Tin development projects — Ausmelt TSL tin smelting technology.”

Other capital expenditures primarily relate to development of our existing coal mines and supporting coal handling facilities and infrastructure, development of our existing bauxite mines, the development of a new calcined petroleum coke plant and the conversion of an idle primary aluminum billet plant into a secondary aluminum billet plant. See “Business — Our Coal Business — Infrastructure development projects” and “Business — Our Aluminum Smelting Business — Aluminum development projects.”

As of December 31, 2019, we had committed capital expenditures of Rp.4,605.4 billion (US\$331.3 million). See “Risk Factors — Risks Common to All Our Businesses — We are subject to foreign exchange rate risk.”

Contractual Obligations and Commitments

The following table sets forth our contractual obligations and commitments as of December 31, 2019.

	Total	Payment due by period		
		Less than 1 year	1 – 5 years	More than 5 years
		(Rp. in billions)		
Trade payables	4,165.0	4,165.0	—	—
Accruals	3,596.3	3,596.3	—	—
Short-term employee benefit liabilities	1,160.4	1,160.4	—	—
Finance lease liabilities	531.3	196.6	334.7	—
Bank borrowings	18,419.6	12,782.3	3,438.5	2,198.8
Bonds payable	69,704.6	710.9	38,489.9	30,503.8
Other current liabilities	1,014.8	1,014.8	—	—
Other non-current liabilities	6.9	—	6.9	—
Total	98,598.9	23,626.3	42,270.0	32,702.6

Contingent Liabilities

Since 2014, we have been in dispute with the Province of North Sumatra, Indonesia concerning our local tax liability for our usage of surface water by our hydroelectric power plants. As of December 31, 2019, the total amount of surface water tax still in dispute was Rp.1,631.4 billion (US\$117.4 million). See “Business — Legal Proceedings — Surface Water Tax Dispute.” We believe that there is a lack of basis under Indonesian tax law for this assessment of underpaid tax and, accordingly, we have not made any provision for the remaining disputed amount.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements with unconsolidated entities.

Quantitative and Qualitative Disclosures about Market Risks

Our business exposes us to a variety of financial risks, including commodity price risk, foreign exchange rate risk, interest rate risk, credit risk and liquidity risk. The following discussion summarizes our exposure to fluctuations in commodity prices and foreign exchange rates, credit risk and liquidity risk and our policies to address these risks. The following discussion contains forward-looking statements that are subject to risks, uncertainties and assumptions about us. These statements are based upon current expectations and projections about future events. There are important factors that could cause our actual results and performance to differ materially from such forward-looking statements, including those risks discussed under “Risk Factors.” See also Note 43(1) to our Audited Consolidated Financial Statements included in this Offering Memorandum.

Commodity price risk

We face commodity price risk as our revenue is predominantly derived from our sale of commodities. Although we are not dependent on a specific market, our revenue and results of operations can be affected by fluctuations in commodity prices. As commodities, our coal, gold and precious metal products, tin, nickel ore, ferronickel, bauxite and aluminum products are principally dependent on the supply and demand dynamics of these respective products in the world export market. Although we have entered into offtake agreements with PLN (including Indonesia Power) for coal produced at our Tanjung Enim Coal Mine, we generally do not enter into offtake agreements for our commodities. We manage our exposure to fluctuations in commodity prices by actively engaging in cost saving initiatives to reduce our production cost and mitigate against any decrease in world export prices for our commodities.

Foreign exchange rate risk

Our sales are predominantly denominated in U.S. dollars or benchmarked against U.S. dollar equivalent prices. While our cost of revenue is denominated in a combination of U.S. dollars and Rupiah, the proportion of cost of revenue denominated in U.S. dollars varies across each of our businesses. Our exposure to exchange rate fluctuations primarily result from cash and cash equivalents, time deposits, trade receivables, other receivables, other tax receivables, trade payables, bonds payable, other liabilities, accruals and bank borrowings. Accordingly, we are exposed to varying degrees of foreign exchange rate risk across our different businesses. For the years ended December 31, 2017, 2018 and 2019, approximately half to three-quarters of our cost of revenue were in Rupiah. See “Risk Factors — Risks Common to All Our Businesses — We are subject to foreign exchange rate risk.” We have entered into futures contracts to hedge against foreign exchange rate risks. In addition, the prices of the products we sell are linked to international market prices that are, in turn, linked to fluctuations in foreign exchange rates, and therefore serve as a natural hedge against foreign exchange rate risk. We intend to continue to monitor the movement in the U.S. dollar/Rupiah exchange rate and may enter into other hedging arrangements as and when we deem appropriate.

Interest rate risk

We are exposed to interest rate risk resulting from fluctuations in interest rates on our short-term and long-term indebtedness, cash and cash equivalents, time deposits and finance lease liabilities. While the majority of our financing agreements are on fixed interest rates, certain of our financing agreements are on floating interest rates and we may from time to time, enter into new financing agreements with floating interest rates. Upward fluctuations in interest rates increase the cost of new borrowings and the interest cost of our outstanding floating rate indebtedness. See “Risk Factors — Risks Common to All Our Businesses — We are subject to interest rate risk.” As of December 31, 2019, substantially all our long-term indebtedness is either subject to fixed interest rates or subject to floating interest rates and have been hedged through interest rate swaps.

Credit risk

We are exposed to the credit risk of our customers and certain other third-parties. We seek to minimize credit risk by limiting business dealings to business partners of high creditworthiness. As part of our credit policies and procedures, we conduct credit verification procedures on all our customers who wish to trade on credit terms, and require them to provide a domestic letter of credit, a *Surat Kredit Berdokumen Dalam Negeri* (“SKBDN”). We also monitor our receivables on an ongoing basis to reduce exposure to bad debts. As of December 31, 2019, we had trade receivables of Rp.6,326.6 billion (US\$455.1 million). We make impairment provisions for our trade receivables in accordance with our accounting policies.

Liquidity risk

We are subject to the risk that we will not have sufficient funds to meet our operating requirements and financial obligations when they fall due. See “Risk Factors — Risks Common to All Our Businesses — We require a significant amount of working capital and may be adversely affected if we fail to maintain sufficient levels of working capital.” We manage our liquidity risk by ensuring that we maintain diversified funding sources, including bank financing, trade financing, domestic debt and equity markets and others, and maintaining strong cash flows generated from our operations.

Recent Accounting Pronouncements

Beginning January 1, 2020, we are required to comply with new accounting standards issued by the Indonesian Financial Accounting Standards Board, namely SFAS 71 — Financial Instruments, SFAS 72 — Revenue from Contracts with Customers and SFAS 73 — Leases. We are currently evaluating the potential impact that the adoption of these new accounting standards will have on our future financial statements. See “Risk Factors — Risks Common to All Our Businesses — Our financial statements are subject to changes in accounting standards” and Note 2b to our Audited Consolidated Financial Statements included in this Offering Memorandum.

SFAS 71 revises the requirements related to the clarification and measurement of financial instruments, including the expected credit loss model for calculation of impairment of financial assets, and implements new general hedging accounting requirements. We expect the adoption of SFAS 71 to result in, among other things, greater income statement volatility as more assets may have to be measured at fair value, with changes in fair value recognized in profit and loss as they arise.

SFAS 72 sets out a comprehensive framework to determine the measurement of revenue, the timing of revenue recognition and the amount of revenue that can be recognized. SFAS 72 supersedes certain revenue accounting standards, including SFAS 23 — Revenue. We expect the adoption of SFAS 72 to result in, among other things, changes to the timing of revenue recognition for certain transactions as compared to existing guidance, which is more focused on the transfer of risks and rewards. For example, an entity that transfers control of a good to a customer but retains some economic risks might need to record revenue when the good transfers, while under existing guidance revenue recognition might be delayed until all of the economic risks have also been transferred.

SFAS 73 establishes the principles of recognition, measurement, presentation and disclosure of long-term leases (i.e. leases with terms of more than 12 months) by introducing a single accounting model specifically for lessees. Adoption of SFAS 73 is permitted only for entities that have already adopted SFAS 72. We expect the adoption of SFAS 73 to result in, among other things, an increase in recognition of lease liabilities, as certain lease contracts previously classified as operating leases will have to be recognized on the balance sheet as finance leases, and of “right-of-use” assets (assets that reflects the right to use the leased asset), as well as an increase in depreciation expenses.

INDUSTRY OVERVIEW

The following industry and market data has been prepared by and obtained from our mining and aluminum smelting consultant, CRU, using information provided by us as well as publicly available information. Such data has not been independently verified and neither we, except with respect to information which we have provided, nor the Joint Bookrunners make any representation as to the accuracy or completeness of such data or any assumptions relied upon thereon. See the sections entitled “Forward-Looking Statements” and “Mining and Aluminum Smelting Industry Consultant.”

Coal Industry

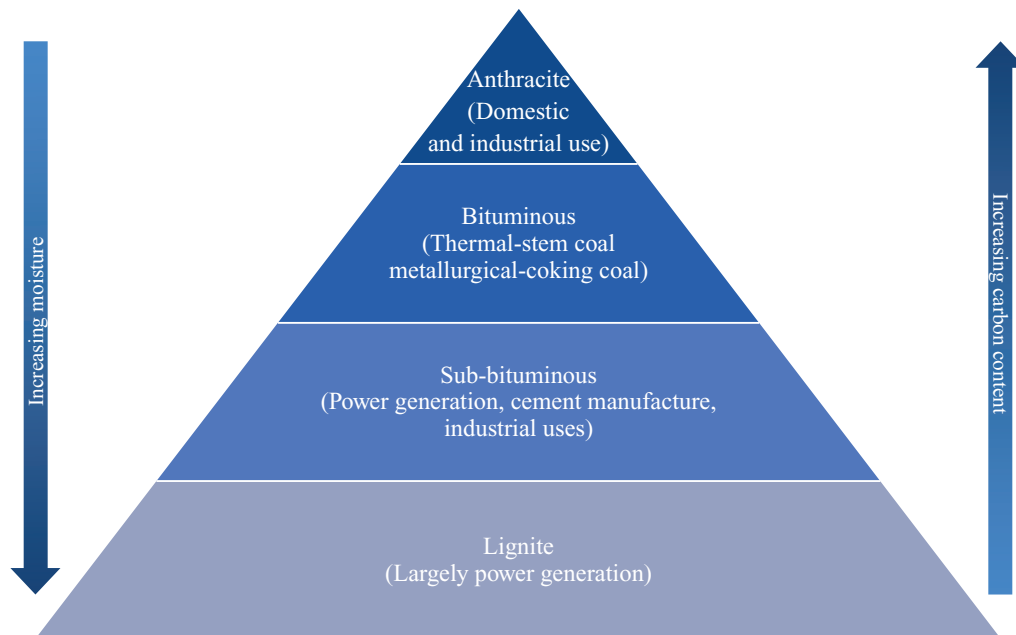
Overview

Coal, the world’s most abundant fossil fuel, is composed mainly of carbon and is typically found within layers of rock.

Coal can be broadly classified into two categories, namely thermal coal and metallurgical coal. Around 80.0% of thermal coal is used as a fuel in the generation of electricity and the rest is mostly used in the cement industry. Metallurgical coal, which is normally converted into coke through a carbonization process, is one of the most important raw materials in the iron and steel industry, and the main source of heat in blast furnaces and basic oxygen steelmaking process. Metallurgical coal contains higher heating values than thermal coal and has unique plastic properties which enable it to be converted to coke.

Coal is placed into one of four categories, known as rank, according to its carbon content: anthracite which consists of 81.0% to 98.0% carbon, bituminous which consists of 45.0% to 85.0% carbon, sub-bituminous which consists of 37.0% to 56.0% carbon and lignite which consists of 26.0% to 52.0% carbon.

The following diagram sets forth the typical types of coal and their uses.



Source: CRU

In addition to the carbon content, the following characteristics are also important thermal coal qualities.

Calorific value or CV. The energy content of coals is measured as heat released upon complete combustion, expressed as the amount of heat per unit weight of coal, normally measured in kcal/kg. In general, volatile bituminous thermal coal produced in Australia, Russia and South Africa are high in CV and are preferred in

jurisdictions with strict emission policies. The majority of coal exports from Indonesia have lower CV and are classified as lignite or sub-bituminous coal. They are mostly consumed in China, Japan, South Korea and Southeast Asia. Different types of coal are typically blended by power stations, which seek to optimize their feed for cost and quality.

Sulfur. The sulfur content in coal is important because when burnt, it forms sulfur dioxide. It occurs in coal in two ways. First, organic sulfur is chemically bonded to the carbon atoms in the coal. The organic sulfur content of most coal ranges from 0.5% to 2.0% and is difficult to extract before burning. Second, pyritic sulfur occurs in coal as grains of the mineral pyrite. The amount of pyritic sulfur in coal is highly variable, depending on the local geological characteristics of the coal deposit. Since pyrite is contained in coal simply by mechanical incorporation or physical mixing with the organic elements of the coal, much of it can be removed by grinding the coal to liberate the pyrite grains, followed by a relatively simple physical process to separate the pyrite grains from the coal particles.

Moisture. Most coal contain some moisture when they are mined from the ground. A good proportion of this moisture can be removed by heating the coal to a temperature slightly above the boiling point of water. The moisture content of coal typically ranges from approximately 5.0% to almost 70.0%. Generally, lignite contains the highest amount of moisture, while anthracite contains the lowest. Moisture is an undesirable constituent of coal because it reduces the heating value, and its weight adds to transportation costs.

Ash. Ash is the non-combustible residue formed from the inorganic or mineral components of the coal. Poor quality coal, burned commercially in the U.S., produces approximately 28.0% ash while the best quality coal produces approximately 10.0%. The presence of ash residue is an important disadvantage for coal compared to petroleum or natural gas since the coal ash must be disposed of. Burning natural gas leaves no ash and burning even poor grades of heating oil may leave only 0.1% ash. The ash residue of coal follows no regular trend but appears to depend in part on the geology of the coal seam.

Volatile Matter. Volatile matter refers to the components of coal which are liberated at high temperatures in the absence of air. Volatile matter typically ranges from 2.0% to approximately 40.0%. In domestic stoves and furnaces or in small industrial appliances, coal containing large amounts of volatile matter are easy to ignite, but such coal tend to burn quickly and typically with a long, smoky flame. As a rule, coal with higher volatile matter contents have lower heating values.

Seaborne demand

Seaborne coal is defined as coal that is traded internationally and transported by sea. The analysis in the following section relates principally to seaborne coal production and demand.

Global thermal coal demand hit a peak of 6.5 billion tonnes in 2014, driven by strong demand for primary energy generation, particularly in developing economies. After a decline in 2017, growth in global thermal coal demand resumed in 2018. Thermal coal remains a cheap, accessible and reliable source of power generation, particularly in developing Asian economies such as China, India, Indonesia, Vietnam, Malaysia, the Philippines and Thailand. Demand for thermal coal in India and Indonesia increased by over 40.0% from 2010 to 2018.

Thermal coal competes with renewable energy sources, notably wind, solar and hydro power. The declining cost of renewable energy production and the growing adoption of policies aimed at counteracting climate change have significantly improved the cost competitiveness of renewable energy. As a result, thermal coal demand in most developed economies has fallen significantly in recent years, particularly in the U.S. and Europe. The 2015 Annual Conference of Parties in Paris was a turning point for government policies as it featured legally binding climate change commitments. These are aimed at curbing emissions of carbon, both in developed and developing economies, in order to restrict global warming to less than 2°C above the established base line. The “Battle for Blue Skies” program was introduced in China with similar intent. The pace and effectiveness of the implementation of national targets to reduce carbon emissions will have a significant impact on the future scale and pace of change in the thermal coal market. The outcome is expected to be key to the long-term viability of future thermal coal projects globally.

CRU expects global thermal coal demand to peak at 6.6 billion tonnes in 2024, driven by the growth of primary energy demand, before declining to approximately 6.3 billion tonnes in 2028. The outlook for thermal coal demand is expected to feature a decline in demand in developed economies and continued growth in emerging markets. Global power generation, from all electricity generation sources combined, is expected to continue to increase from 25,833 TWh in 2019 to 31,549 TWh in 2028 at a CAGR of approximately 2.1%. Global coal-fired electricity generation is expected to increase from 9,812 TWh in 2019 to 9,914 TWh in 2028 at a CAGR of 0.1%. China, India and Southeast Asia are expected to be the largest regional drivers of growth in power demand, supported by their continued economic growth, industrialization and higher electrification rates. CRU forecasts that coal will remain the largest source of electricity generation, particularly in developing Asian economies. However, coal-fired electricity generation is expected to lose market share to renewable energy, nuclear and gas in response to government policies to control emissions, as well as carbon dioxide pricing, particularly in developed economies. Renewable energy is expected to account for over 50.0% of this increase in power generation, while total carbon-free sources of energy is expected to account for 80.0% of the increase in power generation from 2019 to 2028.

Demand for seaborne thermal coal averaged approximately 900 to 1000 million tonnes per year in recent years except between 2015 to 2016 when global demand for seaborne thermal coal was weaker. Total demand recovered in 2018. In 2019, global thermal coal imports increased by 20 million tonnes to 976 million tonnes, driven mainly by Asia (where demand increased by 45 million tonnes). Demand in China grew by 17 million tonnes, in India by 26 million tonnes and in Southeast Asia by 19 million tonnes. In contrast, there were significant declines of 22 million tonnes in imports into Europe and 17 million tonnes on a year on year basis into Northeast Asia.

China is the largest consumer of thermal coal and the largest importer of thermal coal. However, deteriorating environmental conditions in China have put coal-fired power generation in the spotlight. Chinese thermal coal demand peaked in 2013, although imports into China increased in 2016, after the introduction of de-capacity campaigns by the Chinese government, which led to domestic supply cuts and subsequent domestic shortages. Increased thermal coal imports in the last two years were due to extreme weather and short-term boosts to the economy. In 2019, China's thermal coal imports reached 227 million tonnes, up by 7.6% from 2018.

As the world's largest thermal coal consumer and dominant importer, China is the most significant driver of global thermal coal market prices. Since becoming a net importer in 2008, China has become the largest import market for seaborne thermal coal. North-to-south trade within China, and China's interactions with seaborne imports are key to coal price formation in China and globally.

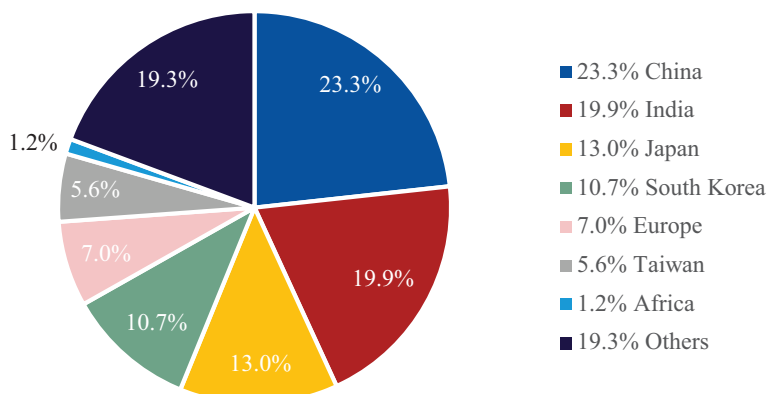
The thermal coal price has fluctuated significantly over the past decade. Following a five-year period of market oversupply between 2011 and 2016, thermal coal export prices declined by more than 50.0% to approximately US\$65/tonne in 2016 from over US\$100/tonne in 2011 for FOB Newcastle 6,000 kcal/kg coal. Policies and dynamics in the Chinese coal market significantly benefitted the international coal market from 2016 to 2018. As a result, the FOB Newcastle 6,000 kcal/kg coal price recovered to over US\$100/tonne in 2018. However, since the fourth quarter of 2018, growth in demand has slowed down, which has encouraged the Chinese government to implement policies to discourage imports to China. Along with a fall in gas prices and weak coal demand in Europe due to a reduction in coal-fired power generation capacity, this brought international coal price for FOB Newcastle 6,000 kcal/kg coal down to US\$64/tonne in the fourth quarter of 2019. However, South African export prices for FOB Richards Bay 6,000 kcal/kg coal rose sharply in mid-November to approximately US\$80/tonne from a range of US\$60 to 70/tonne in the second and third quarter of 2019. This was mainly attributed to poor weather at the South African port. The FOB Newcastle 6,000 kcal/kg coal price climbed to US\$69.5/tonne in February 2020 due to the increase in coal import demand from China resulting from domestic coal supply disruptions from the COVID-19 pandemic in China, and subsequently declined to US\$65/tonne in March 2020 due to declining global economic activity and lockdowns in many major seaborne markets.

Indian buyers were significantly affected by the rise in imported thermal coal prices and as a result were partially driven out of the seaborne market from 2016 to 2018. However, import demand in India increased by 26 million tonnes year-on-year to 194 million tonnes in 2019. Coal India Limited, the largest coal producer in India which contributed approximately 80.0% of domestic coal production annually, reported a 13.0% year-on-year decline in production in the third quarter of 2019 due to heavy rainfall and strikes. Insufficient domestic supply therefore resulted in power plants running down their stocks and turning to imports, although power generation was weakened by slower economic growth. The Indian economy was facing a major economic slowdown. GDP growth fell to 5.1% in 2019 compared to 7.4% in 2018. As a result of the economic slowdown, growth in India's total power generation capacity has slowed down sharply. In 2019, Indian power generation from all sources increased at a CAGR of 2.8% from 2018 to 2019 to 1,697 TWh compared to a CAGR of 6.2% from 2017 to 2018, while coal-fired electricity generation declined at a CAGR of -2.4% from 2018 to 2019 to 1,193 TWh, due to increased hydro and nuclear generation, as well as rising renewable energy capacity. The proportion of coal-fired electricity generation decreased from 74.0% in 2018 to 70.3% in 2019, even though the proportion of coal-fired generation capacity increased from 60.2% in 2018 to 61.3% in 2019 as the utilization rate of coal-fired electricity generation decreased from 59.4% in 2018 to 52.7% in 2019.

Overall, in 2019, China's import volumes accounted for 23.3% of total global imports, followed by 19.9%, 13.0% and 10.7% by India, Japan and South Korea, respectively. Total thermal coal imports in Asia accounted for 86.7% of the global total.

The following diagram sets forth the global seaborne thermal coal demand in 2019.

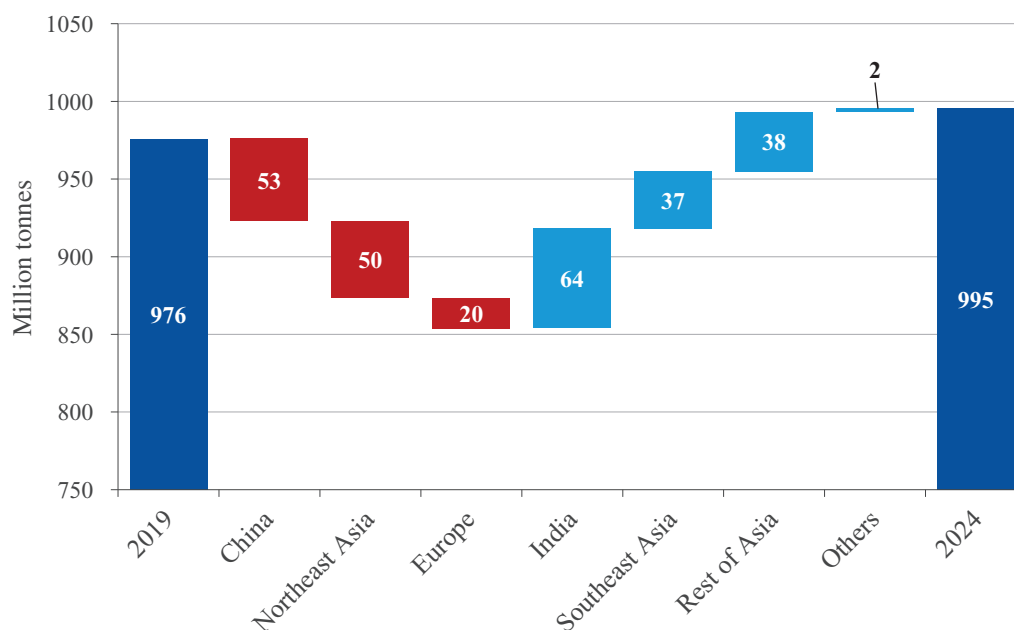
2019 global seaborne thermal coal demand = 976 million tonnes



Source: CRU

CRU expects global seaborne demand to increase by 2.0% in total between 2019 and 2024, or 19 million tonnes. CRU forecasts that demand will rise in Asia, particularly in India and Southeast Asia, as this region undergoes major economic growth and electrification which will have to be met by coal-fired generation, allowing it to consume increasing quantities of nearby low-cost Indonesian coal. Between 2019 and 2024, CRU expects a CAGR of 8.0% and 5.7% in seaborne demand in South and Southeast Asia, respectively, contributing to 138 million tonnes of additional import demand. However, this increase is expected to be largely offset by the fall in European demand as a result of its reduced reliance on coal in the energy mix and lower demand in other developed economies in Northeast Asia, as well as China.

The following diagram sets forth the global change in seaborne thermal coal demand from 2019 to 2024, in million tonnes.



Source: CRU

Thermal coal demand in India

CRU forecasts that demand for thermal coal imports into India will reach 258 million tonnes in 2024, increasing at a CAGR of 5.9%, or 64 million tonnes. Growth in domestic coal production is expected to be weaker than growth in demand. CRU expects the Indian economy to recover in 2020 when the GDP is forecast to grow slightly by 5.4% and then over 6.0% year-on-year from 2021. A downside risk on Indian GDP growth in 2020 is the global outbreak of COVID-19. It may affect the manufacturing sector in India since China is India's top trading partner for imports of intermediate inputs according to the World Bank. However, CRU expects that the impact on India should be marginal if there is no major outbreak within India. Electricity generation is expected to also recover with the GDP growth and CRU expects electrical generation to increase at a CAGR of 7.3% from 2019 to 2024. CRU forecasts that generation from renewables and nuclear will keep rising until 2024, but strong growth in total power demand will require a 6.0% year-on-year increase in coal-fired power generation and further a 6.0 to 8.0% year-on-year by 2024. There is still approximately 70 GW of thermal power capacity under construction, due to be commissioned before 2024, although approximately 12.5 GW of which is uncertain because of various issues surrounding construction. Hence, coal consumption is expected to increase at a CAGR of 5.4% between 2019 and 2024.

Despite this strong growth, CRU expects the proportion of coal in the total electricity generation mix to decline from 70.3% in 2019 to 69.0% in 2024. Despite strong demand for coal in the medium term forecast, CRU forecasts that Coal India Limited will likely be unable to achieve its own targets due to operational constraints and thus its production will probably be insufficient to cater for domestic demand. Therefore, Indian coal imports is expected to continue to grow, to meet the expected increase in coal demand from electricity generation through to 2024. CRU's domestic coal production forecast could prove conservative as a result of changes made to foreign direct investment rules by the government of India, which has allowed full foreign ownership of coal mining and infrastructure. This could increase domestic production and thus reduce demand for imports to some extent.

Thermal coal demand in Southeast Asia

Total demand for thermal coal imports in Southeast Asia is expected to increase at a CAGR of 5.7% to 154 million tonnes in 2024. Among the developing nations in this region, the major growth market is Vietnam with a 12.0% CAGR between 2019 and 2024, which is expected to become the region's largest importer, at 57 million tonnes in 2024. Over the forecast period from 2019 to 2024, Vietnam is expected to increase its fleet of coal-fired power plants to an estimated 27 GW, to cater for the growing demand for power as the country industrializes. Its coal-fired electricity generation is expected to reach 151 TWh in 2024 from 90 TWh in 2019. CRU forecasts that Malaysia, which used to be the largest import market, will see a limited growth of imports demand to 40 million tonnes in 2024 and become the second largest importer behind Vietnam.

Thermal coal demand in China

In contrast to developments in South and Southeast Asia, seaborne imports into China are expected to decline steadily in the medium term to 174 million tonnes in 2024 from 227 million tonnes in 2019, representing a falling CAGR of -5.2%. Coal-fired power demand is currently in decline, particularly in the coastal provinces, and coal-fired generation is expected to be increasingly replaced by renewable power generation. High power transmission from Western China is expected to also increase.

Looking forward to 2024, the displacement of coal in the Chinese power sector is expected to result in further decreases in thermal coal demand. For example, to improve the profitability of coal-fired power plants in the five North-western Chinese provinces, the State-owned Assets Supervision and Administration Commission have requested the five central enterprises in the power sector to cut their capacity in the provinces of Gansu, Shaanxi, Xinjiang, Qinghai and Ningxia by 25.0 to 33.0% by 2021. These five provinces have approximately 12.0% of coal capacity in total and currently have the lowest prices on the grid in China. The plan to cut coal-fired power capacity suggests that the profitability of coal-fired power plants has been squeezed by high coal prices following capacity cuts in the coal mining sector. The Chinese government is therefore dealing with the issue of over-capacity among coal-fired power plants. The coal mining sector is therefore on the road to viability, as continued improvement in efficiency is expected to be achieved in mines through constant investment. CRU expects the effective coal mining capacity in China to grow as China continues to increase supply from new, low-cost coal mines and promote coal rail haulage capacity and delivery (such as the Haoji line) to reduce the overall cost of thermal coal. CRU forecasts that China will continue to close unsafe and inefficient or uneconomic mines and that China's domestic thermal coal production will grow at a CAGR of 0.4% between 2019 and 2024. CRU expects the Chinese government to monitor thermal coal imports closely and to implement restrictions as needed during times of lower domestic demand.

In addition, the closure of less efficient coal-fired power plants, the deployment of retrofits and increases in the load factor at the remaining coal-fired power plants are all expected to result in higher average efficiency among Chinese coal-fired power plants. This suggests that coal demand per kWh generated is expected to continue to fall. Consequently, while CRU forecasts that Chinese coal-fired power generation will grow on average by 0.4% year-on-year through to 2024, coal demand in electricity generation is expected to decline on average by 0.1% year-on-year over the same period. CRU expects coal-fired power generation to decline from 62.0% in 2019 to 53.0% in 2024. China is cutting its reliance on coal and is supporting domestic mines since weak demand is also expected. As the result, CRU expects that China's thermal coal import volumes will probably decline further to approximately 170 million tonnes in 2024.

Thermal coal demand in Northeast Asia

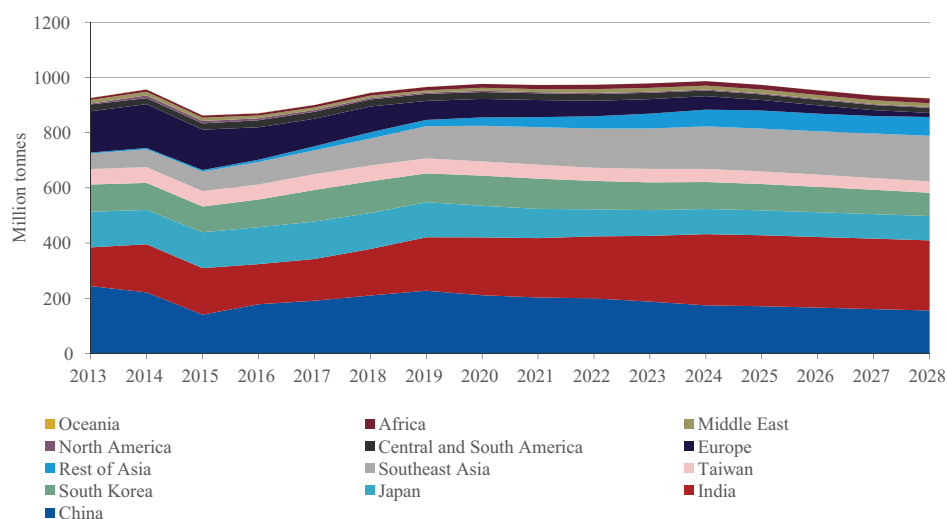
CRU forecasts that Japan, South Korea and Taiwan, as a group, will partially offset growth of thermal coal imports into the rest of Asia, with imports decreasing by 50 million tonnes between 2019 and 2024. Japan, South Korea and Taiwan have little or no domestic supply of coal and CRU expects that they will remain reliant upon imports. Japan used to be the largest importer in this region and is expected to see a significant decrease of imports during the forecast period from 2019 to 2024. Japan's coal imports are expected to decline from 129 million tonnes in 2019 to 91 million tonnes in 2024. The proportion of power generation by nuclear is

expected to shrink to 5.0% in 2020 from 7.0% in 2019 and remain around that level through to 2024, when all operating companies is expected to have completed the necessary safety measures. Nevertheless, CRU still forecasts that the share of coal-fired power generation will decline in Japan, partly due to competition from gas and renewables. CRU expects thermal coal consumption in South Korea and Taiwan will decline at a CAGR of 3.8% and 4.4% between 2019 and 2024, respectively, which will be entirely reflected in falling national thermal coal imports.

In the long-term forecast period ending in 2028, global thermal coal seaborne demand is forecast to decline by 1.7% per year on average between 2024 and 2028 to 931 million tonnes in 2028, after it peaks in 2024. This will be in the context of global thermal coal demand peaking at 6.6 billion tonnes in 2024 before declining. The outlook for demand for seaborne thermal coal can be broadly summarized by a decline in demand in developed economies, such as Japan, South Korea, Taiwan, Europe and China, which will lead to the phasing out of coal-fired power plants, and modest growth in emerging markets, such as India and Southeast Asia.

It is worth noting that the main risk to this forecast lies in the rate of growth in electricity generation in Asia, which depends on CRU's economic growth forecast for each major region. If economic growth is lower than CRU's forecast, total energy consumption would be lower. However, the generation of electricity through renewable sources is expected to continue to be encouraged by government policies and hence will likely incur lower operating costs due to government rebates and incentives, unlike coal-fired electricity generation. In this event, a reduction of coal-fired electricity generation due to lower demand for coal-fired electrical energy and higher operating costs is expected to lead to a reduction in demand for thermal coal for power generation. In addition, if improvements in technology further reduce the intermittent nature and high investment requirements of renewable energy, the proportion of coal-fired power generation capacity in relation to each region is likely to be lower than CRU's initial forecast.

The following diagram sets forth the global thermal coal seaborne demand by region from 2013 to 2028, in million tonnes.



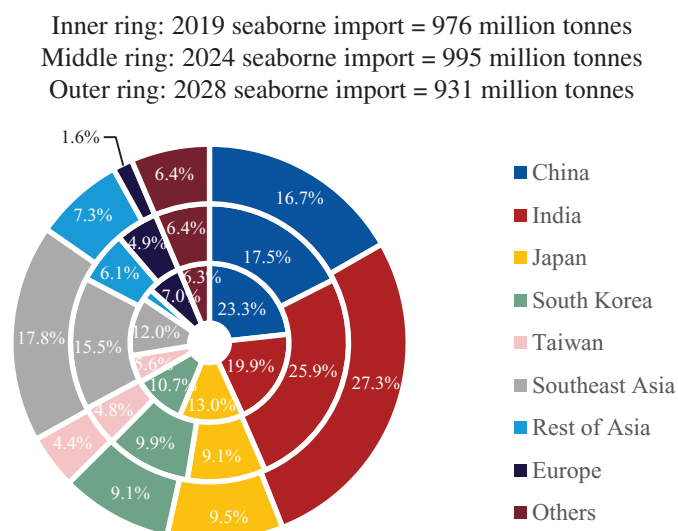
Source: CRU

Since thermal coal imports into China are forecast to decline over the forecast period between 2019 and 2028, CRU forecasts that China will cease to be the largest global importer, and its market share will drop from 23.3% in 2019 to 17.5% and 16.7% in 2024 and 2028, respectively. CRU expects that India will replace China as the largest importer of thermal coal, with a market share of 25.9% and 27.3% in 2024 and 2028, respectively mainly driven by the strong growth in power generation.

CRU forecasts that Southeast Asia will become a dominant importer, driven by the strong demand for thermal coal in developing economies, particularly Vietnam. The proportion of demand for thermal coal from

Southeast Asia should increase to 15.5% in 2024 and 17.8% 2028, making this region the second largest global importer. Thermal coal imports into Japan is expected to decline significantly due to competition against cleaner gas and a rising share of renewables, despite safety concerns over its nuclear power generation capacity. Therefore, the proportion of demand for thermal coal from Japan is expected to fall from 13.0% in 2019 to 9.5% in 2028. Overall, CRU forecasts that Asia will remain the dominant importer of thermal coal, accounting for approximately 90.0% of the global total, despite demand declining in China, Japan, South Korea and Taiwan from 2019 to 2024 before stabilizing from 2024 to 2028. Outside Asia, the proportion of demand for thermal coal from Europe is expected to decline to 1.6% in 2028 from 7.0% in 2019.

The following diagram sets forth the global thermal coal seaborne demand by region in 2019, 2024 and 2028, respectively.



Source: CRU

Seaborne supply

In line with strong demand for imports, global thermal coal seaborne exports remained steady in the range of 900 to 1,000 million tonnes per year in the past five years. Weak market conditions from 2012 to early 2016 caused investment in the coal industry to collapse and, therefore, there are very few new mines under development that are likely to start production from 2020 to 2030. Lead times for large scale mines are long, and the infrastructure required in new basins, such as the Galilee and Surat Basins in Australia and the Waterberg Basin in South Africa, has very long lead times.

A number of companies have opportunities for brownfield expansions, many of which would generate a return at 2018's thermal coal prices of US\$106.9/tonne for FOB Newcastle 6,000 kcal/kg coal. However, CRU has yet to see companies commit to these projects for a variety of reasons specific to their projects. These often include difficulties with mining leases and local environmental opposition. A large number of older mines across the globe are starting to deplete and not many projects have advanced past the feasibility stage in recent years.

In 2019, global thermal coal exports grew by 10 million tonnes year-on-year to 1,040 million tonnes. The largest growth of 31 million tonnes came from Indonesia, followed by Russia and Australia, while a big drop was seen in exports from Colombia and the U.S. Global seaborne supply is dominated by six countries, namely Indonesia, Australia, Russia, Colombia, South Africa and the U.S., which together accounted for more than 95.0% of global exports in 2019.

Indonesia is the dominant global exporter of thermal coal, accounting for 42.9% of global exports in 2019. Its export volumes increased by 7.5% year-on-year to 447 million tonnes in 2019. Export prices have stayed largely low since the second quarter of 2019, so the profitability of most key seaborne suppliers has remained

poor. Although the profitability of Indonesian producers has shrunk, many have tried to increase sales, and exports from Indonesia have not fallen. In fact, exports to India, Philippines, Malaysia, Vietnam and China have all increased. Particularly in the Chinese market, Indonesia has benefited from stricter import restrictions against Australian coal. CRU believes that, as coal exports are a key source of foreign currency for the Indonesian government, Indonesian exporters have been unwilling to lose market share and have kept production and exports at high levels in 2019.

Australia was the second largest exporter of thermal coal in 2019. Its export of 209 million tonnes of thermal coal in 2019 accounted for 20.0% of total global exports. Australian exports were broadly flat year-on-year in the past five years. Thermal coal exports from Russia increased by six million tonnes to 170 million tonnes in 2019, making it the third largest exporter with a market share of 16.3%, followed by Colombia, South Africa and the U.S. Exports from Colombia and the U.S. fell by 12 million tonnes and 14 million tonnes in 2019 respectively. The U.S. and Colombian exporters have been unable to sell profitably to the European spot market. Given the high exposure of these producers to the European market, they have had to reduce exports in 2019.

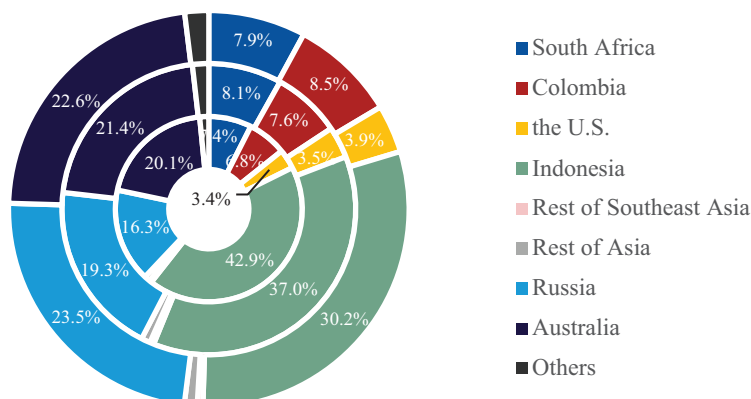
Export volumes from South Africa in 2019 totaled 77 million tonnes, which was very close to 2018 levels. Thermal coal demand within South Africa was 1.6% or 3.0 million tonnes lower year-on-year in 2019, due to lower economic activity and lower electricity generation. Consequently, CRU thinks producers in South Africa had to sell extra volumes into the export market in 2019, where demand was still good, particularly in the key markets of India, Pakistan and Southeast Asia.

Global seaborne thermal coal supply is forecast to peak at 1,052 million tonnes in 2022 before declining to 988 million tonnes in 2028, since a large number of older mines across the globe are starting to deplete and few projects have advanced past the feasibility stage in recent years due to environmental concerns associated with coal mining as well as shareholder pressure.

Overall, CRU expects that the major seaborne exporters will remain the same as in recent years, namely Indonesia, Australia, Russia, Colombia, South Africa and the U.S. CRU forecasts that seaborne exports from these major producing countries will decline by approximately 55 million tonnes from 2019 to 2028. In particular, Indonesian exports are expected to fall substantially, by 149 million tonnes. Over the forecast period from 2019 to 2028, Russian exports is expected to increase from 170 million tonnes in 2019 to 232 million tonnes in 2028. Only Russia, Australia and Colombia is expected to increase exports by 90 million tonnes in total between 2019 and 2028.

The following diagram sets forth the global thermal coal seaborne supply by region in 2019, 2024 and 2028, respectively.

Inner ring: 2019 thermal coal seaborne exports = 1,040 million tonnes
 Middle ring: 2024 thermal coal seaborne exports = 1,041 million tonnes
 Outer ring: 2028 thermal coal seaborne exports = 988 million tonnes



Source: CRU

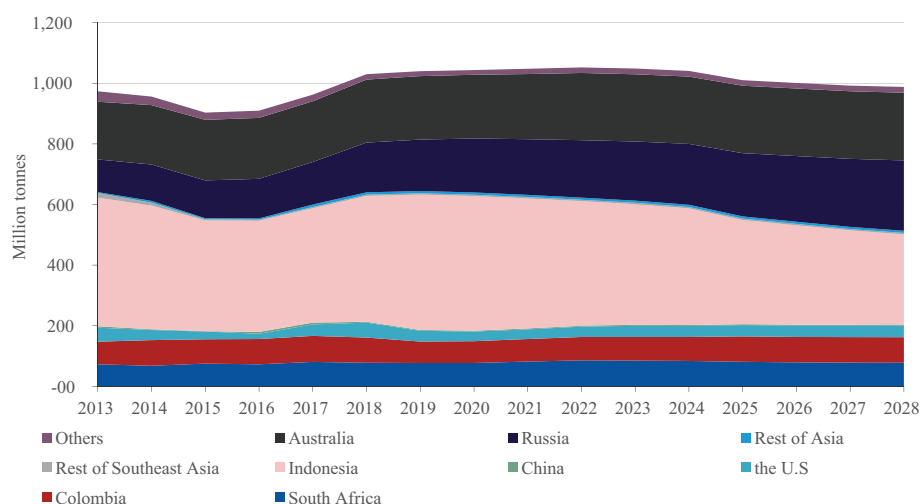
CRU still forecasts that increased supply will come primarily from Russia. The government has been encouraging significant growth in exports to Asia. Australia is also expected to see exports rise from some operating mines, as well as from several new projects, which will meet increasing global seaborne demand for higher grade thermal coal.

Russian seaborne exports are set to increase at a CAGR of 3.5% from 2019 to 2028 to 232 million tonnes in 2028. CRU forecasts that Russia will probably become the second largest exporter by 2028, accounting for 23.5% of the global total, as its output of high CV coal replaces other seaborne suppliers. Siberian Coal Energy Company (“SUEK”) is the largest thermal coal producer and exporter in Russia, followed by Kuzbassrazrezugol. Those two producers contributed to over half of the national thermal coal export volumes in 2019. SUEK exported approximately 60 million tonnes in 2019 and is expected to increase exports to approximately 80 million tonnes by 2024, due to increased capacity at its Khakassia mine. SUEK’s main export destinations are China, Japan, South Korea and Southeast Asian countries as well as the Netherlands and Germany.

Exports from Australia are expected to increase at a CAGR of 1.2% in the next five years to 2024 and then remain broadly stable in the long term between 2024 and 2028. Glencore plc (“Glencore”), which has 16 mines in operation with total thermal coal production of 88 million tonnes in 2019, is the largest thermal coal producer in the country, representing approximately 30.0% of total thermal coal production. Glencore was followed by Yancoal Australia with production of 25 million tonnes and BHP with 19 million tonnes in 2019. In recent years, a large proportion of thermal coal mined in Australia has been high quality. CRU’s supply analysis indicates that increased exports in the next five years will mainly be driven by the start-up of the Moorlaben Longwall project and the ramp-up of MACH Energy’s Mount Pleasant mine. However, existing thermal coal operations in Australia are substantially reducing their output in the long term, so there is a requirement for new projects to come online to fill this gap and meet domestic and international demand, and particularly the demand for high CV thermal coal.

CRU forecasts that Indonesian exports will decline by three million tonnes year-on-year in 2020 as low prices will eventually lead to some production cutbacks. Looking forward to 2028, CRU estimates that Indonesian export production will drop by 149 million tonnes in 2019 to 298 million tonnes in 2028, as demand for low CV thermal coal weakens, along with a thin project pipeline and government policies designed to safeguard coal for domestic use and avoid mine depletion. Indonesian coal production costs are competitive, due to cheap labor, efficient inland barging systems, proximity to growing Asian markets and generally favorable mining conditions. However, approximately 60.0% of the thermal coal produced in the country has calorific values below 5,000 kg/kcal, so Indonesian coal sells at a discount in price in relation to coal from other major exporters such as Australia and South Africa. As the result, Indonesia is unique among major thermal coal exporters because its domestic demand is expected to grow strongly, while the volume available for export could fall. Indonesian domestic demand has been rising in recent years as the government increases investment in coal-fired generation capacity to help support the country’s growing economy. Over the coming years CRU expects this trend of growing domestic demand to continue, while a decline in production mean that exports are expected to decline. As a result, up to 33.8% of Indonesia’s thermal coal production is expected to be consumed by domestic demand in 2028, compared to 24.0% in 2019. Indonesia’s share of global seaborne exports is expected to drop to 30.2% in 2028 from 42.9% in 2019. The top seven producers in Indonesia are PT Bumi Resources Tbk, PT Adaro Energy Tbk, PT Indika Energy Tbk, PT Bayan Resources Tbk, PT Berau Coal Energy Tbk, Bukit Asam and PT Golden Energy Mines Tbk, which accounted for 44.0% of seaborne thermal coal supply in Indonesia in 2019.

The following diagram sets forth the global thermal coal exports supply by region from 2013 to 2028, in million tonnes.

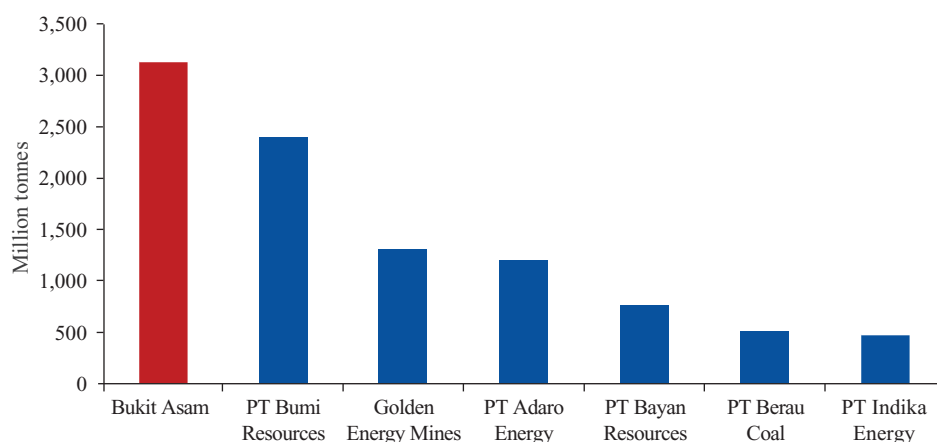


Source: CRU

Operational benchmarking

Bukit Asam holds extensive coal reserves on the island of Sumatra. As of December 31, 2019, Bukit Asam had the largest coal reserves in Indonesia and the fourth largest coal reserves in the world. Bukit Asam controls approximately 7.8% of Indonesia's coal reserves as of December 31, 2019.

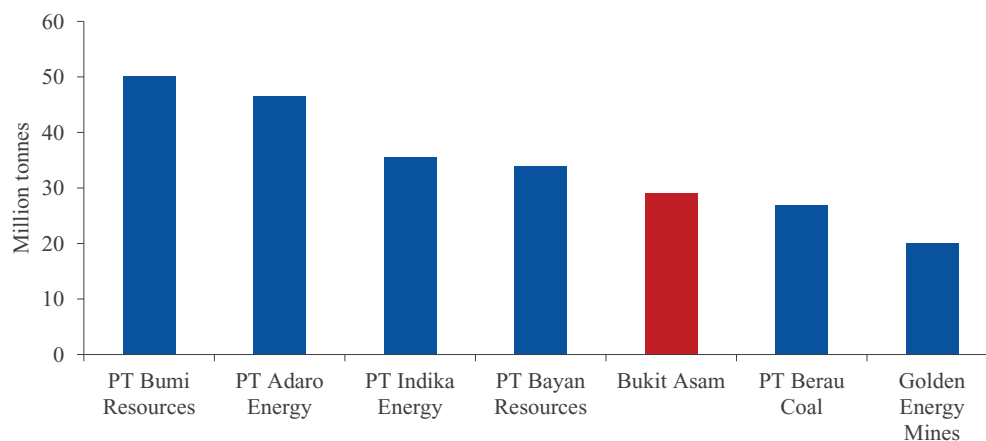
The following diagram sets forth the thermal coal reserves in Indonesia by company in 2019, in million tonnes.



Source: CRU

In 2019, Bukit Asam was the fifth largest producer in Southeast Asia by volume and ninth largest producer overall in the world. Around half of its coal production was sold into the seaborne market, mainly to the Asia-Pacific region. Bukit Asam has substantially increased its market share of the seaborne supply, due to the completion of its coal transportation project to increase its railway transport capacity in 2018. Its coal production accounted for 5.2% of total national production and 4.1% of national exports in 2019. In 2019, Bukit Asam has increased exports to Asian markets, such as Japan, Vietnam, Taiwan and the Philippines and also exported to new markets such as Australia, Thailand, Myanmar and Cambodia. It has become a significant player in the Asia-Pacific market and in the domestic market.

The following diagram sets forth the thermal coal production in Indonesia by company in 2019, in million tonnes.

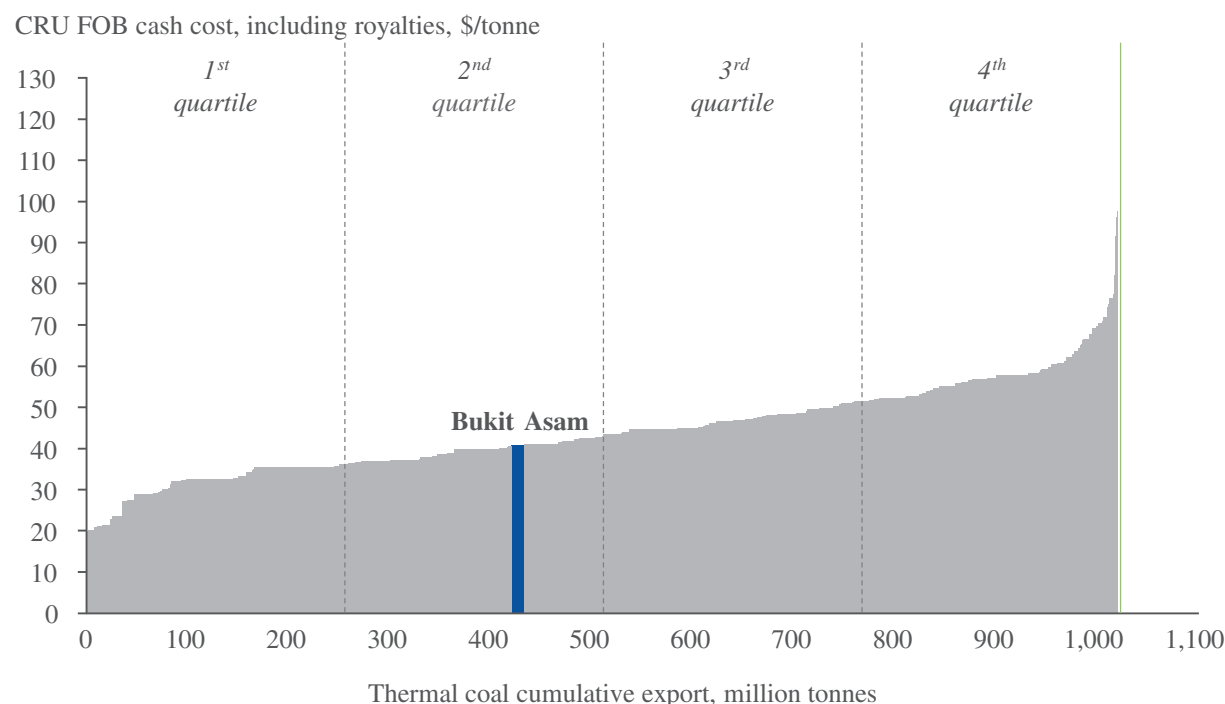


Source: CRU

CRU estimates that Bukit Asam's FOB cash costs in 2019 were approximately US\$40/tonne, due to the low cost of its mining operations and efficient logistics. Unlike other Indonesian producers, Bukit Asam utilizes a railway system and port facilities similar to those used by its international peers for the export of coal which allows it to lower its cost of production. Bukit Asam is therefore a low-cost producer of thermal coal for seaborne export and is placed within the second quartile of the 2019 global seaborne thermal coal FOB cash cost curve.

FOB cash costs are a standard methodology used to compare costs of mining assets in bulk commodities. They provide a reasonable indication of competitiveness and are often easier to calibrate with reported costs provided in company financial statements. They are not adjusted for ocean freight and product quality which are other important sources of competitive advantage. All other things being equal, coal mines located closer to their customers will be more competitive than mines located further away.

The following diagram sets forth the global seaborne thermal coal cash cost curve in 2019, in U.S. dollar per tonne.



Source: CRU

Tin Industry

Overview

Tin metal is silver in color and very soft. It can be cut or bent without much force. Metallic tin does not readily oxidize in contact with air. Tin can be used both as a metal and in chemical compounds. Its softness prevents its use as a structural material, so the metal is used in combination with other elements as an alloy or a coating. The major commercial applications of tin include tinplate, solder alloys, bearing metals, tin and alloy coatings (both plated and hot-coated), pewter, bronzes and fusible alloys. In its chemical applications, tin is able to react as both an acid and a base. It can link directly with carbon to form organometallic compounds. These properties give tin chemicals application in, among others, electroplating, agricultural and pharmaceutical products, and plastics and ceramics.

The main tin mineral is cassiterite, or tinstone, a naturally occurring oxide containing approximately 78.8% tin. There are also some sulfide minerals such as stannite, a copper-iron-tin sulfide, and cylindrite, a lead-tin-iron-antimony sulfide. These two minerals occur chiefly in lode deposits in Bolivia, often in association with other metals such as silver.

Economically viable deposits of cassiterite exist in only a few areas, the most important of which include China and parts of Southeast Asia such as Myanmar, Thailand, Malaysia and Indonesia. According to the United States Geological Survey (“USGS”), China has the largest tin reserves in the world at around approximately 1.1 million tonnes or 23.0% of the global total. Brazil, Australia, Nigeria, and the Democratic Republic of Congo also have tin resources. Peru, South Africa, the United Kingdom and Zimbabwe also produce tin. There are no significant tin deposits in the U.S. and only a small production in Canada. Over half of the world’s tin originates from alluvial or secondary deposits. Most of these occur on land, but in Indonesia and Thailand, there are deposits which are mined offshore by dredging the seabed. Even in the richest tin fields, the concentration of tin

is very low. This means that up to seven to eight tonnes of ore may have to be mined in order to recover 1kg of cassiterite.

The grade of tin concentrates from the alluvial mining areas of Southeast Asia is typically high, although they may contain small quantities of related minerals such as wolframite, scheelite and columbite. Concentrates, normally containing 70.0 to 75.0% tin, are then shipped to a smelter. The complex sulfide ores found in underground deposits, such as those of Bolivia, require more complicated mineral processing, often involving froth flotation, in order to produce a clean tin concentrate. Therefore, Bolivian tin concentrates may average only 50.0 to 60.0% tin.

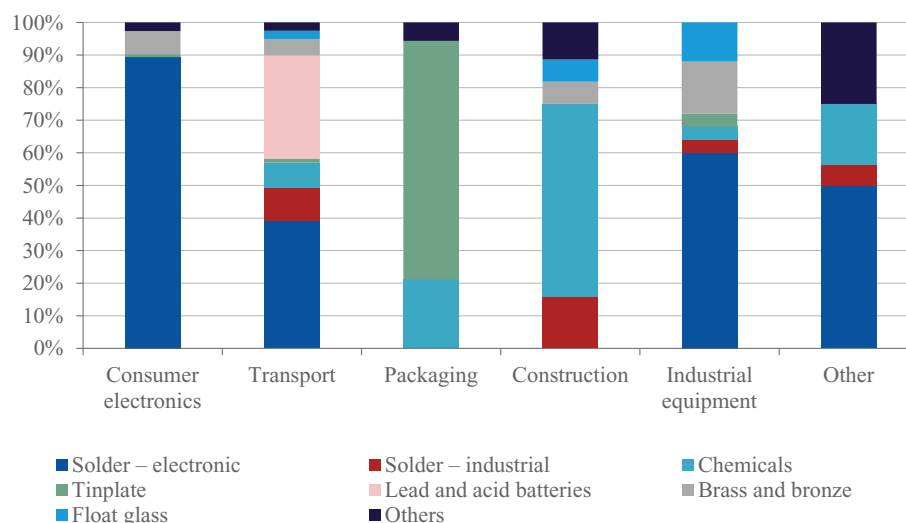
In a tin smelter, the concentrate is roasted in reverberatory furnaces to drive off the sulfur contained in the concentrate. The concentrate is then leached by water or acid. This is done to remove any clay or other impurities. To reduce the content of tin oxide, the concentrate is heated to a high temperature with carbon products (such as coke or coal, and limestone) to separate tin metal and carbon dioxide gas. The metal is then cast into slabs. An impure slab goes into the refinery, where it is heated in kettles that are agitated by compressed air. Any impurities floating on the surface are skimmed off and refined metal is cast into ingots or pigs. Fire-refining and electrolytic refining are the most popular methods for refining tin. The purity of refined tin can reach 99.85% via fire-refining and 99.99% via electrolytic refining.

Tin is normally sold in the form of ingots or pigs, cast from refined tin. Most metallic tin is produced at smelters and refineries located near mining areas.

Refined tin demand

Tin demand is driven by tin's main applications in the manufacture of solders, chemicals and tinplate, which account for just under 80.0% of total global tin consumption. End-use sectors namely, consumer electronics, transport, packaging, construction and industrial equipment, generally have a strong co-relation to general levels of economic activity but often tin intensity of use is very different and may not have the same co-relation. Some industries, such as consumer electronics, regard tin as essential and consume tin in the form of solder, while tin intensity of use in sectors such as transport, packaging, construction and industrial equipment is low and its use competes with other inter-changeable materials.

The following diagram sets forth the tin consumption by end-use sectors and end-uses in 2019.



Source: CRU

Global tin demand increased from below 250,000 tonnes per year in the mid-1990s to an all-time peak of close to 373,000 tonnes per year in 2007. Since then, tin demand has fluctuated from year to year, depending on macro-economic conditions. There has been no discernible trend in total refined tin consumption over the last

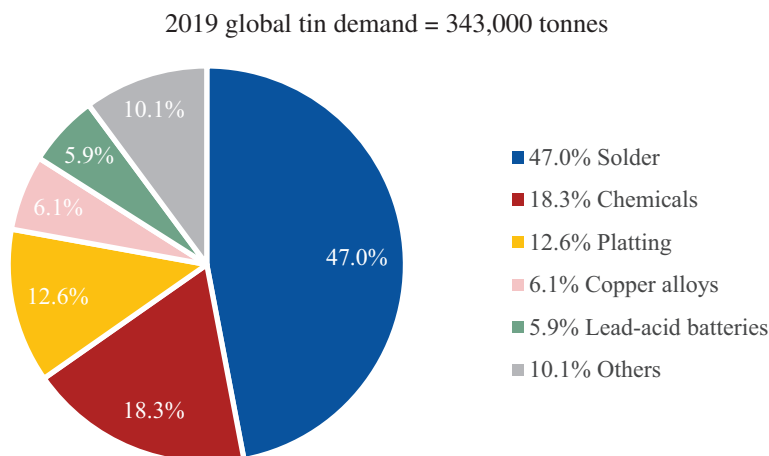
decade. Declining intensity of use in electronics and solders has been roughly offset by growth in tin chemicals and batteries. In the past five years, global tin demand has remained flat at around 350,000 to 360,000 tonnes per year. Current applications are broadly stable in terms of technological changes, and substitution risks and opportunities.

Solders are the largest end-use market for tin. In 2019, around 161,000 tonnes of tin were consumed in the production of solders. This sector accounted for just under half of global refined tin demand. It is clear that continued miniaturization in the electronics industry has reduced, and is expected to reduce the volume of solder used in individual electronic products, but at the same time unit sales of electronics are increasing. The two trends tend to offset each other.

The second largest end-use for tin is in chemicals which consumed 63,000 tonnes of tin in 2019, accounting for 18.3% of total tin demand. Tin chemicals are widely used as stabilizers in plastics and as an active catalyst. One of the largest uses is in polyvinyl chloride (“PVC”) production, particularly for roofing and window profiles. However, pressure from environmental campaigners and cheaper calcium-zinc products have confined the use of tin to niche sectors such as clear PVC corrugated roofing. This has led to a declining market share for tin used in chemicals. The most important end-use market for tin chemicals is in the production of PVC for construction products, such as doors and windows, and in packaging.

The third largest end-use market is the production of tinplate, which consumed 43,000 tonnes refined tin in 2019. Tin plates, which refers to steel sheets with a fine tin coating, are used in packaging for food, beverages and other items, and account for around 12.6% of global demand. Tin is also consumed in other smaller applications, including lead-acid batteries, copper alloys, bronze sheet and strip (mainly used in electronics), float glass production and pewter ware. Combined, these sectors accounted for the remaining 22.1% of global tin demand, consuming 76,000 tonnes of refined tin in 2019.

The following diagram sets forth the global tin consumption by end-use in 2019.



Source: CRU

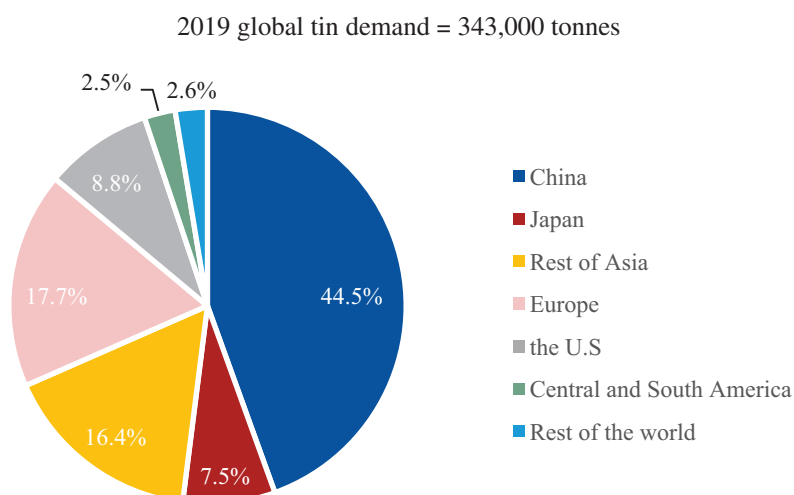
Over the last decade, tin prices have risen higher, and have also been more volatile than the prices of base metals as a group in the same period. The greater volatility is partly due to the fact that the LME tin contract is less liquid than the other LME contracts. LME tin prices were volatile between 2008 and 2015. The LME tin prices were as low as US\$10,000/tonne in 2008 during the global financial crisis before peaking to over US\$33,000/tonne in the second quarter of 2011 and then declining to US\$16,036/tonne in 2015. This was largely influenced by two factors. The Chinese market had been over-supplied, and global demand had been weak in 2012 and early 2013. Over-supply in China caused price arbitrage trading which resulted in large Chinese imports in 2012, and a build-up of stocks held by producers and traders in China. However, when the Chinese domestic tin price fell below the LME price, China became a net exporter and started to reduce this excess. From 2015 to 2018, reported stocks were at low levels and the LME price rose to over US\$20,000/tonne by 2018. In

February 2019, the LME tin prices hit a high of US\$21,675/tonne due to a decrease in supply from China and fears about a potential decrease in supply from Indonesia in response to new tin export restrictions at that time, and then dropped to approximately US\$17,000/tonne in August 2019, due to weak demand, and in particular, softer than expected solder demand. The LME tin prices decreased by 13.3% between the second quarter and third quarter of 2019 due to the uncertainty of the ongoing U.S. and China trade war, which in turn decreased demand for tin. Production cuts by major tin producers stabilized the LME tin prices in December 2019. The LME tin prices rose to a peak of US\$17,775/tonne in late January 2020, driven by the closure of some Chinese smelters over the Chinese New Year holidays and delays in Indonesian export license renewals. Due to the uncertainty surrounding the COVID-2019 outbreak, the LME tin prices declined to US\$16,115/tonne in early February 2020 and remained below US\$16,500/tonne at the end of February before declining below US\$13,500/tonne in late March 2020. CRU forecasts that the LME tin prices have established a floor at US\$16,000/tonne due to the uncertainty of global tin demand resulting from the outbreak of COVID-19 as well as the ongoing trade disputes between China and the U.S. and between Japan and South Korea.

Global tin demand is highly concentrated in Asia. China has been the largest single national market for tin, accounting for 44.5% of global tin demand in 2019. It has typically consumed annual tonnages five to six times more than the next largest national markets, the U.S. and Japan. In 2019, these two countries consumed 30,000 tonnes and 26,000 tonnes, respectively.

Tin usage in China declined by 7.0% in 2019, mainly because of lower demand for tin in solder, which is highly reliant on the volume of white goods production. Miniaturization and upgrading of electronic goods through technological developments were the main reasons for the slowdown in tin usage in solders. Solder demand may continue to fall because of the trade disputes between China and the U.S. and trade conflict between Japan and South Korea which occurred in July 2019. Despite more optimistic discussions between the two countries, the U.S. has not yet ruled out implementing further tariffs on Chinese goods. Any such tariffs would be particularly harmful to tin demand as they would target electronics more heavily than previous rounds of tariffs. Tin use in chemicals and tinplate experienced little change in 2019. Among smaller end-use sectors for tin usage, lead acid batteries and copper alloys have been increasingly important.

The following diagram sets forth the global tin consumption by region in 2019.



Source: CRU

In view of the general macroeconomic picture over the next five years, CRU thinks that global tin demand will fluctuate in the range of 350,000 to 362,000 tonnes. The outlook for the semiconductor industry remains bright, particularly in China, but trade disputes with the U.S. remain a risk. In addition, the outbreak and spread of COVID-19 in China from January 2020, followed by Japan and South Korea outside China, will likely put more pressure on tin demand in Asia. 2020 is predicted to be the year when 5G technology is widely introduced.

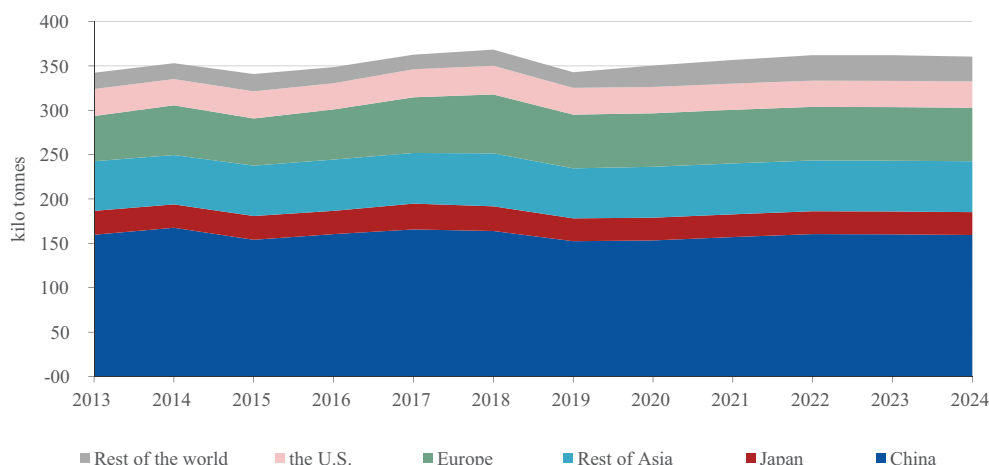
The infrastructure required to build and expand the 5G network is more tin-intensive than previous mobile internet networks. Overall, CRU expects tin consumption in this sector to grow at a CAGR of 1.1% between 2019 and 2024.

The market for tin chemicals continues to be split between organic and inorganic tin compounds. CRU remains hopeful on the outlook for organotin, particularly in PVC stabilizers used in construction. The outlook for global construction investments indicates continued growth at above 3.5% and CRU believes that tin use in this sub-sector will grow at a similar rate. However, the outlook for inorganic tin chemicals is poor so tin chemical end-uses as a whole is expected to grow at a CAGR of 2.3% between 2019 and 2024.

CRU expects slow growth in copper alloys, while the lead-acid battery market is likely to be stagnant as the automotive industry continues to struggle. Tinplate will continue its long-term decline.

Asia is expected to remain the dominant region for tin demand, accounting for 67.0 to 68.0% of global total demand between 2019 and 2024. China's tin consumption is expected to remain between 150,000 to 160,000 tonnes per year, or 44.0 to 44.5% of the total global tin demand.

The following diagram sets forth the global tin demand by region from 2013 to 2024, in kilo tonnes.



Source: CRU

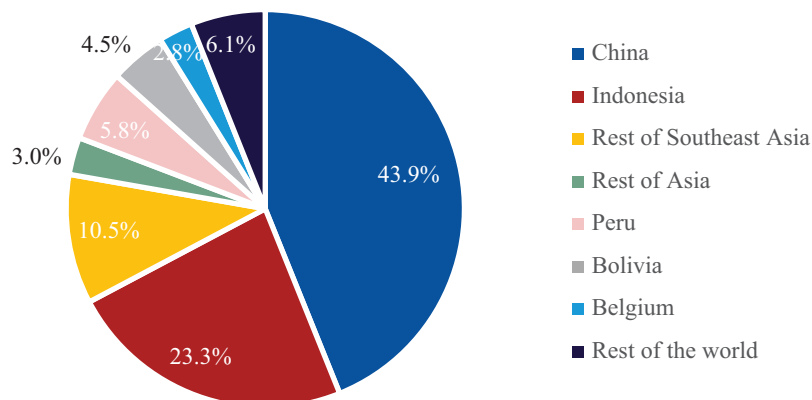
Refined tin supply

In 2019, refined tin production dropped by 6.5% year-on-year, or by 23,000 tonnes, to 335,000 tonnes in response to a shortage of concentrate supply in China and the global fall in tin prices. Many small tin smelters reduced their production in 2019. Over 77.0% of global tin was produced by ten major smelters. These smelters produced 14.0% more refined tin than in 2018, largely because Timah in Indonesia doubled its production to over 76,000 tonnes in 2019, displacing the long-time leader, Yunnan Tin Group as the world's largest producer. Four of the ten largest producers were located within China in 2019. These smelters cut production in 2019, so production in China fell by 10.9%. Despite this, China remained the largest refined tin producer globally and accounted for 43.9% of the global refined tin production in 2019, followed by India, Central and South America and the rest of Asia which accounted for 23.3%, 13.9% and 13.5% of global refined tin production in 2019.

Secondary refined production globally fell by 12.0% in 2019 to 50,000 tonnes, continuing the downward trend that started in 2011. More efficient processes and more compact products have reduced the availability of scrap and the profitability of end-of-life recycling.

The following diagram sets forth the global refined tin supply by region in 2019.

2019 global refined tin supply = 335,000 tonnes



Source: CRU

From 2020 to 2024, global refined tin supply is expected to fluctuate between 340,000 and 360,000 tonnes to meet the global tin demand which is expected to be between 350,000 tonnes and 362,000 tonnes. CRU forecasts that Asia will remain the dominant supplier of refined tin accounting for 81.0% to 82.0% of global refined tin supply from 2019 to 2024 and China and Indonesia is expected to be the main contributors to this supply.

CRU expects Chinese refined tin production to rebound to 156,000 tonnes in 2020 from its 2019 dip when production cuts were implemented at most Chinese smelters. As demand improves in the Chinese market, production is expected to follow, although at a slower pace that will stimulate prices. In addition, the tight concentrate market in 2019 is expected to improve with the increase in domestic mine production in 2020.

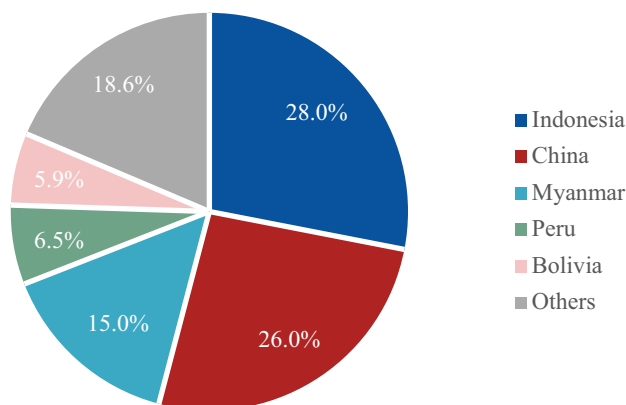
Refined tin production in Indonesia is expected to remain broadly unchanged. Timah is expected to remain the only major producer and less than 5.0% of refined tin production is expected to come from private smelters. Regulatory changes were enforced in late 2018 which prohibited private smelters from exporting refined tin, which were not produced from mines within its mining concession. In October 2018, the Indonesian government discredited PT Surveyor Indonesia as a verified ore surveyor. PT Surveyor Indonesia provided tin ingot and tin ore origin verification services for many private smelters in Indonesia. As Timah was certified by a different ore surveyor, PT Sucofindo (Persero), Timah did not encounter any disruption to its operations and was able to continue to export refined tin. Timah has been able to continue to purchase tin concentrate mined by third-parties within its IUP. In addition, Timah continues to engage private smelters to process tin ore sourced within Timah's IUPs. Smelting by such private smelters is conducted on a toll basis and crude tin is returned to Timah for further processing into refined tin. Hence, Timah almost doubled its refined tin production and sales in 2019. It is difficult for private smelters to obtain regulatory approval for export licenses due to strict regulations regarding the origin of the crude tin and big corporations, in particular Timah which holds over 90.0% of Indonesia's tin mining concessions. Timah also expects to complete the implementation of the Ausmelt TSL technology at one of its Bangka smelting and refining plants in mid-2021 which would enable it to increase its annual production capacity to 45,000 tonnes of crude tin.

Mined tin supply

In the last five years, global tin mine production peaked at 328,000 tonnes in 2017. Mined tin supply declined over two consecutive years to 307,000 tonnes in 2019, mainly due to reduced production in Myanmar, which fell by more than 30.0%, or 21,000 tonnes between 2017 and 2019. Like refined tin production, mined tin production is highly concentrated in China, Indonesia, Myanmar, Bolivia and Peru. In 2019, tin mine production from these five regions accounted for approximately 81.4% of total global mined tin supply.

The following diagram sets forth the global mined tin supply in 2019.

2019 global mined tin supply = 307,000 tonnes



Source: CRU

Although there is a recent crop of projects that may develop into new mines, tin mining has declined since its peak in 2005, and the tin mining project pipeline remains thin compared to the pipeline for other base metals. Low prices resulted in very low levels of exploration and investment for two decades from the mid-1980s. At times more than half of the total global mined tin production came from small-scale operations. Stronger market conditions in recent years have resulted in a modest revival in mine project activity, but few new mines of significant size are expected to commence production between 2019 and 2024. Since many existing tin mining regions have passed their peak and global production is gradually declining due to the depletion of tin ore reserves, CRU expects global tin mine production to increase slightly from 307,000 tonnes in 2019 to 309,000 tonnes in 2024. This represents a CAGR of 0.1% from 2019 to 2024, with a peak in production of 327,000 tonnes in 2021.

On a regional basis, China and Indonesia is expected to remain the two largest sources of mined tin in the world. These two countries combined is expected to account for over half of the total global supply in 2024. In recent years, ownership of mines in China has been rationalized. A few large companies have invested in modernization and many small operations have been shut down as environmental and safety regulations have become more stringent. While the industry is becoming more efficient, resources and reserves have declined gradually, largely because mine production has exceeded the replenishment of reserves through exploration.

China's mined tin supply has declined to around 80,000 tonnes per year in the last five years from 103,000 tonnes in 2014, and ore imported from Myanmar has become the primary source of supply for domestic Chinese smelters. However, production from the Man Maw, the largest mining area in Myanmar, has increased in cost, due to the depletion of low-grade ore stockpiles at the site and deeper underground mine operations in the last two years. CRU estimates there is a risk beyond 2019 that mine production from Myanmar will decrease further between 2020 and 2024. China must therefore find alternative sources of concentrate imports and also increase its domestic tin mine production to offset the fall in imports from Myanmar.

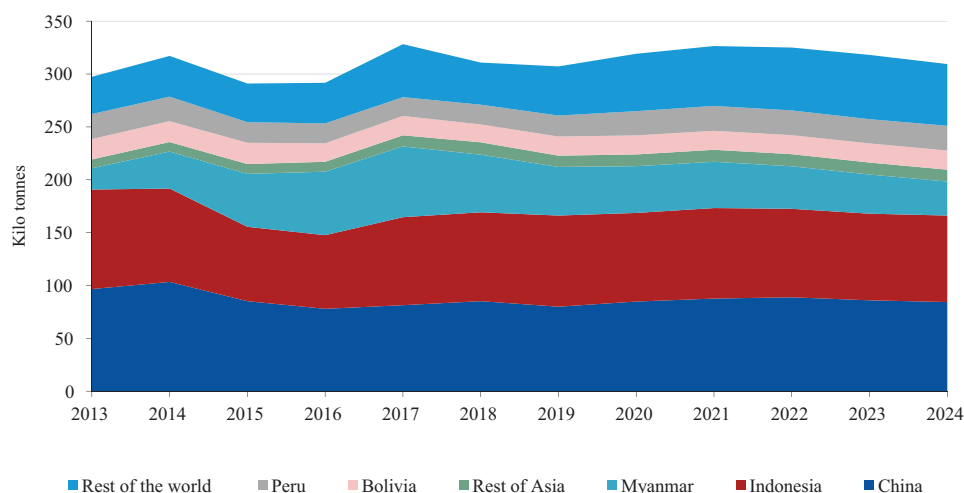
CRU forecasts that Indonesia will remain the other dominant mined tin supplier in the world. Before 2019, over 60.0% of production in Indonesia came from private producers and informal miners for which no production estimates were available. However, this situation changed in late 2018. Between 2019 and 2024, CRU forecasts that tin mine production in Indonesia will probably be stable, unless the ban on tin ore exports implemented in 2017 is removed by the Indonesian government.

In addition, the depletion of tin resources and reserves is expected to put pressure on tin mine production in the future. Alluvial tin in Indonesia can be processed cheaply, using basic washing and gravity separation methods, so most of the costs are incurred in the mining stage. However, producers have reported declining grades over the last decade, which has resulted in rising costs and falling production. However, offshore alluvial

deposits, mainly around the islands of Bangka and Belitung, still show potential, and new open pit mining operations are still being developed. Significant deposits of tin are known to exist further offshore, but these have not proved to be amenable to the dredging method that has been successful in shallow waters over the last couple of decades.

Mined tin supply in Malaysia is expected to increase when several new mines are commissioned in 2020. All these will feed the domestic tin smelter owned by Malaysia Smelting Corporation Berhad.

The following diagram sets forth the global tin mine supply by region from 2013 to 2024, in kilo tonnes.



Source: International Tin Association ("ITRI"), CRU

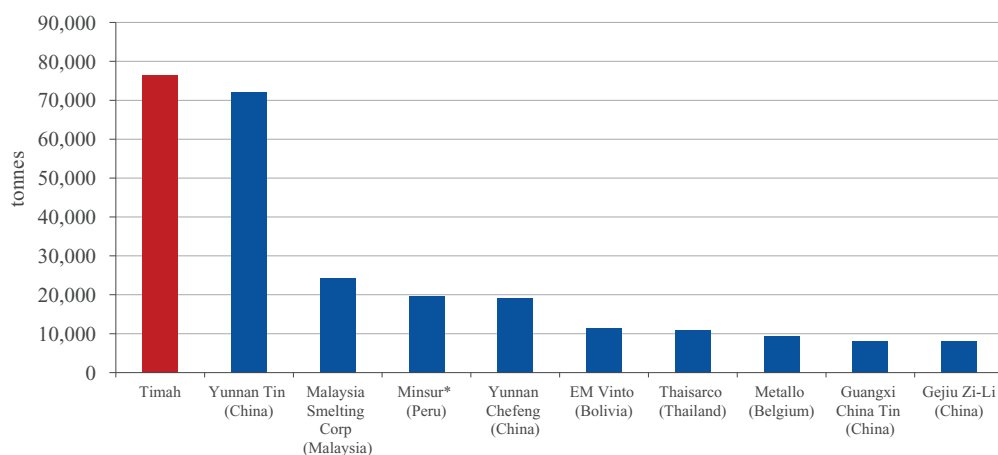
The tin price is unlikely to rise over the next five years, due to high idled capacity at mines and smelters in China and Indonesia in 2020. Although CRU forecasts a recovery in global tin demand, additional refined tin production could re-enter the market at a short notice. Even if tin smelters do not respond to higher demand, the current high metal stocks in LME warehouses and at smelters is expected to keep any increase in tin prices subdued. In the short term, additional production can keep the market in close balance and thus keep the LME tin price stable. In addition, the outbreak and spread of COVID-19 is expected to reduce global tin demand which will then exert a downward pressure on the LME tin price.

Operational benchmarking

As of December 31, 2019, Timah held approximately 90.0% of known tin reserves in Indonesia.

In 2019, Timah became the largest producer of refined tin in the world in terms of production volume during the year, surpassing Yunnan Tin Group, which had been the largest refined tin producer globally for some time. Timah accounted for 97.2% of Indonesia's total production of refined tin in 2019 and, although Timah was one in three tin producers with a license to export tin, Timah accounted for 94.8% of Indonesia's exports of refined tin in 2019. The refined tin production of Timah is expected to increase slightly with the completion of the implementation of the Ausmelt TSL technology by the end of 2021 and the commencement of utilization of the technology by early 2022. With the implementation of the Ausmelt TSL technology, the smelting process would be less energy intensive, produce less pollution and be able to process lower grade ores more efficiently. This would ensure that Timah remains competitive.

The following diagram sets forth the top 10 refined tin producers in the world in 2019, in tonnes.



Source: CRU

Gold Industry

Overview

Gold is a soft, golden, exceptionally malleable, corrosion-resistant precious metal. It is one of the three metals that have a natural color other than gray or white. It is metallic shiny in bright yellow and can be alloyed with other metals to create different colors. Its ductility makes it easy to cast, making it an attractive choice for making jewelry. It is also extremely stable and is the least reactive chemical element under standard conditions. Air, moisture and other corrosive factors will not react with gold, which are important properties in jewelry and dental applications. Its high thermal and electricity conductivity make it popular in the industrial and electronic sectors.

Gold can be found in grains or particles embedded into rocks or veins. It can also be found in alluvial deposits consisting of free flakes, grains or nuggets that were eroded from rocks. Natural pure gold is very rare. Native gold is usually found in solid solution with 8.0 to 10.0% silver content. If the alloy has more than 20.0% silver, it is called electrum. Gold is also naturally alloyed with copper and palladium.

Most of the gold-containing mines are currently open pit, which has proven more economic to extract for lower grade ores since the mid-1970s. Underground extraction mainly extracts vein hosted and stratigraphic gold deposits. After crushing and grinding, there are various ways to extract gold such as cyanidation, amalgamation, heap leaching and a combination of pressure oxidation, roasting and chlorination.

The Miller process and the Wohlwill process are two common methods to derive pure gold by refining. Gaseous chlorine is used in the Miller process to remove impurities. At the melting point of gold, impurities will be on the top layer of the molten purified gold. The Miller process can produce gold quickly and easily, but only at 99.5% purity. The Wohlwill process can raise the purity level to 99.99% using electrolysis.

Gold demand

The London Fix gold price has gradually increased from US\$279/oz in 2000 to US\$696/oz in 2007. Gold prices were volatile between 2007 and 2015. From 2008 to 2009, the U.S. Federal Reserves engaged in quantitative easing in order to inject liquidity into the U.S. economy, which decreased the value of the U.S. dollar and led to an increase in investments in gold as an alternative currency. Many investors put their money into gold, which increased its value in the weak economic environment. From 2010 to 2011, gold prices jumped 28.3%, mainly the result of speculation surrounding an uneven recovery and volatility in the U.S. financial markets, with gold reaching an all-time high of over US\$1,700/oz in August 2011. In 2012, price increases for gold slowed. The 6.2% increase in 2012 was the smallest yearly gain since the 25.4% increase in 2008. Between

2012 and 2015, gold prices gradually declined to a low of US\$1,076/oz in December 2015 due to the improvement in the U.S. economy and low inflation rates. The average price of gold was US\$1,160/oz in 2015. Gold prices remained relatively stable from 2015 to 2019 at prices between US\$1,200 to 1,400/oz due to uncertainty surrounding the U.S. presidential elections and Britain's withdrawal from the European Union. The average price of gold was US\$1,269/oz in 2018. Despite a weak final quarter, gold was a strong performer through 2019. The uptrend in prices in 2019 was primarily driven by the increasingly dovish stance of major central banks' monetary policies and the escalation of trade tensions between the U.S. and its trade partners. In 2019, the average price of gold increased by 18.3% to US\$1,393/oz. Gold prices increased by 20.7% from US\$1,198/oz in September 2018 to US\$1,511/oz in September 2019 due to the increase in demand driven by the conservative monetary policies of U.S. Federal Reserve and escalating tensions between the U.S. and its trade partners. Gold prices have risen by 5.5% since December 2019 to US\$1,561/oz in January 2020 largely due to an increase in investments in gold as an alternative currency during the COVID-19 pandemic.

Gold is essentially desired as an alternative store of value. Gold demand as a store of value is impacted by various factors related to the macroeconomy, including inflation, interest rates, the U.S. dollar, investment portfolio and central banks' holdings. Slower global economic growth and an unstable political environment in 2019 compared to 2018 increased investors' interest toward gold.

CRU's analysis in relation to gold demand only covers fabricated gold. CRU estimates that global fabricated gold demand in 2019 fell by 4.4% from 2018 to 2,719 tonnes. This was driven by the jewelry sector, which accounted for 75.7% of global fabricated gold demand. Global demand for fabricated gold by the jewelry sector declined by 6.4% in 2019 due to a fall in sales in the Middle East due to the poor economy and rampant inflation, a fall in sales in Europe due to political instability in Italy and France as well as general uncertainty surrounding Brexit and the trade war between the U.S. and China which impacted consumer confidence in North America and China.

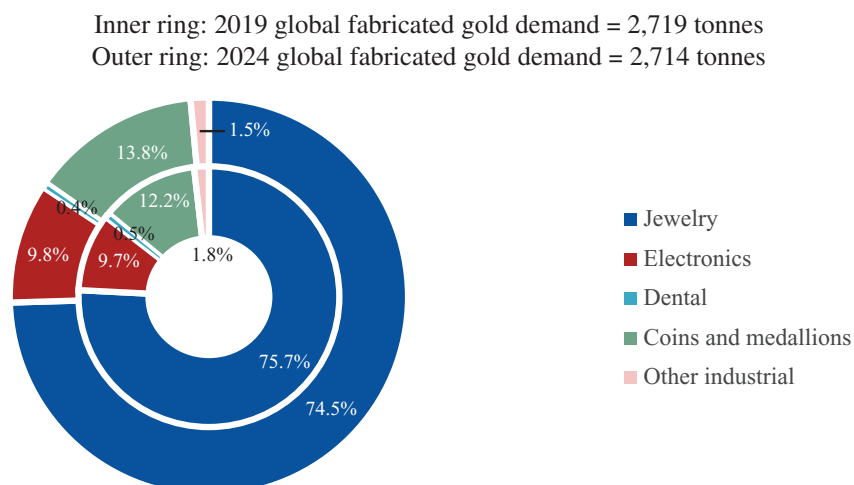
Coins and medallions is the next largest end-use sector, accounting for 12.2% of global demand for fabricated gold in 2019 at 331 tonnes. Fabricated gold demand by this sector increased by 17.2% from 2017 to 2018 and rose by 7.3% from 2018 to 2019. The increase is mainly driven by the souring investor sentiment over the global economic outlook and the U.S. Federal Reserve's easing in monetary policy in 2019.

The electronics sector accounted for 9.7% of global demand for fabricated gold in 2019 and demand from this sector contracted by 1.2% from 2018. Although 2018 had been a strong year for the global electronics industry, the market was off to a poor start in 2019 amid flagging sales in the smartphones market. According to Apple Inc. and other leading vendors, replacement rates continue to slow in major mobile phone markets as consumers tend to hold on to their devices for longer than before as newer models offer consumers little incentive to upgrade especially when the newer models are priced fairly high. This slowdown in smartphone shipments has had in turn a negative impact on demand for gold-containing memory chips.

Other industrial applications accounted for approximately 1.8% of the global demand for fabricated gold in 2019 with demand decreasing by only two tonnes in 2019. Gold can be used in a myriad of applications such as architectural plate glass, baking paint finishes on metal surfaces, optical equipment, as a catalyst in fuel cells, in chemical processing, for controlling pollution and increasingly in solar power units.

Gold used in dental applications, accounted for just over 0.5% of the global demand for fabricated gold in 2019. Demand from dental applications has been decreasing over time over the last two decades, from 69 tonnes in 2000 to 15 tonnes in 2019.

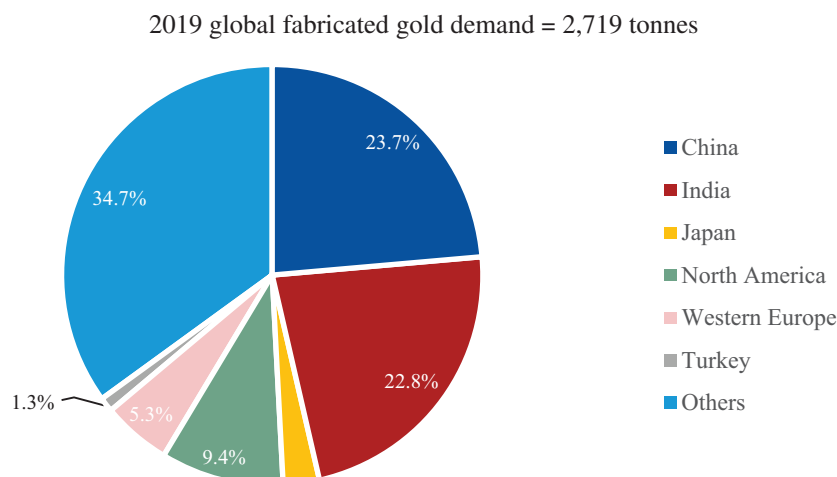
The following diagram sets forth the global fabricated gold demand by end-use in 2019 and 2024, respectively.



Source: CRU

In 2019, China was the largest fabricated gold consuming country in the world accounting for 23.7% of the global demand for fabricated gold, and this was closely followed by India which accounted for 22.8%. Western Europe and North America combined accounted for 14.7% of the global demand for fabricated gold in the same year.

The following diagram sets forth the global fabricated gold demand by region in 2019.



Source: CRU

Looking ahead to 2024, CRU forecasts that global fabricated gold demand will first decline to 2,522 tonnes in 2021 and then revert to 2,714 tonnes in 2024, decreasing by 0.2% in total compared to 2019. There is typically an inverse relationship between demand for fabricated gold and its price. This is particularly true in the case of gold jewelry, where physical buyers tend to be most sensitive to price fluctuations. On the other end of this spectrum is demand for dental applications which has low price elasticity.

CRU's view on the future direction of gold prices continues to be driven by the assumption that investor demand for this precious metal will rise alongside further monetary policy easing by the U.S. Federal Reserve, which is in turn influenced by the perceived durability of economic growth in the U.S. and the outlook in relation to employment rates in the U.S. and U.S. inflation rates.

There has been much discussion about how long the U.S. economic expansion is able to continue. In 2019, the U.S. Federal Reserve had to abruptly end the tightening phase of its monetary policy and implement three successive rate cuts to support flagging economic growth. It was also forced to resume balance sheet expansion in September 2019 in order to support liquidity on the repo market.

CRU expects the short-term outlook in relation to the U.S. GDP growth to be uncertain due to the COVID-19 pandemic. Unprecedented non-pharmaceutical interventions such as lockdowns and social distancing have been implemented in most major economies. The U.S. Federal Reserve announced a 100 basis points rate cut on March 15, 2020, bringing U.S. interest rates close to zero. A similar large rate cut was implemented during the global financial crisis in 2008. The Institute for Supply Management purchasing managers' index for the manufacturing sector fell from 50.9 in January 2020 to 49.6 in February 2020 and manufacturing orders in the U.S. declined for the first time in 10 years. The outbreak has also disrupted imports from China, which accounts for approximately 10.0% of imported intermediate inputs. Some companies, such as Apple Inc. and JCB North America, have announced that their production will likely be disrupted and revenue will decline, especially if the outbreak of COVID-19 persists after the second quarter of 2020 when the existing stocks of intermediate inputs are expected to be depleted. Political uncertainty, lower interest rates and quantitative easing will likely increase demand for gold during this period.

Demand from the jewelry sector is linked to economic growth as well as price elasticity. CRU forecasts the global GDP growth down from 2.5% in 2019 to 2.3% in 2020. Global GDP growth is expected to recover to 2.9% in 2021. Higher gold prices is expected to offset this and result in annual demand for fabricated gold in the jewelry sector to drop to 1,854 tonnes in 2021 and then increase year-on-year to 2,022 tonnes in 2024.

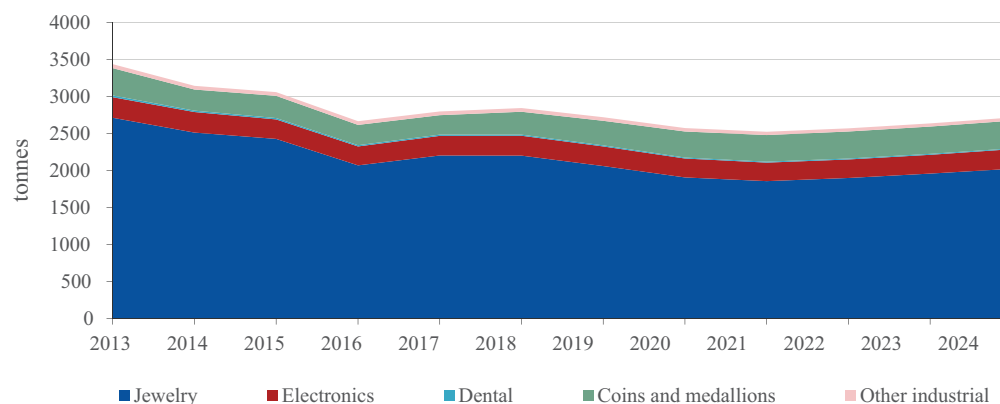
In 2020, demand for official coins and medallions is expected to have an upward trend as the forecast rise in gold prices increases the attractiveness of gold to retail investors. CRU expects combined sales in these two categories to reach 374 tonnes in 2024, 12.9% higher than in 2019.

The outlook for the electronics sector after 2020 and beyond shows some improvement on the back of the pending arrival of 5G handsets. As demand for memory chips recovers, demand for gold is likely to improve too. Higher projected gold prices, however, will make this metal less attractive for component manufacturers and so CRU does not expect growth in handset shipments to fully translate into an increase in gold consumption. CRU therefore forecasts gold consumption to bottom out at 250 tonnes in 2021 and then gradually return to 265 tonnes in 2024.

Higher gold prices over 2019 to 2024 are likely to make gold less competitive as compared to alternative materials in minor industrial applications. CRU forecasts global demand for gold for such applications to fall to 42 tonnes by 2024, 15.9% lower than in 2019.

Unless significant health risks associated with non-gold dental alloys become apparent, or new technologies and treatment methods are introduced that favor gold, CRU expects new materials to continue to steadily erode gold's place in dental fillings over the forecast period from 2019 to 2024. CRU therefore forecasts a 22.6% drop in demand for gold in this application with offtake sliding to 11 tonnes by 2024.

The following diagram sets forth the global fabricated gold demand for 2013 to 2024, in tonnes.



Source: CRU

CRU forecasts that China and India will continue to dominate the consumption of fabricated gold and account for 46.1% of total global fabricated gold consumption in 2024.

Gold supply

CRU's analysis of the total global gold supply encompasses mined gold supply and supply from recycling scrap gold, as well as net sales from the official sector (such as central banks) and net de-hedging from gold producers. If net sales from the official sector is positive, it indicates that central banks are net sellers of gold, which effectively means that the central banks are increasing the supply of gold in the market. Investor demand for gold accounts for the difference between gold supply and fabricated gold demand. Total global gold supply only rose by 0.1% from 2018 to 3,611 tonnes in 2019. 70.8% of total global gold supply (before taking into account of net sales from official sectors and net de-hedging from producers) came from mined gold with the balance originating from gold scrap.

Mined Gold Supply

Global mined gold supply posted a modest 0.4% decrease in 2019 after ten consecutive years of increase.

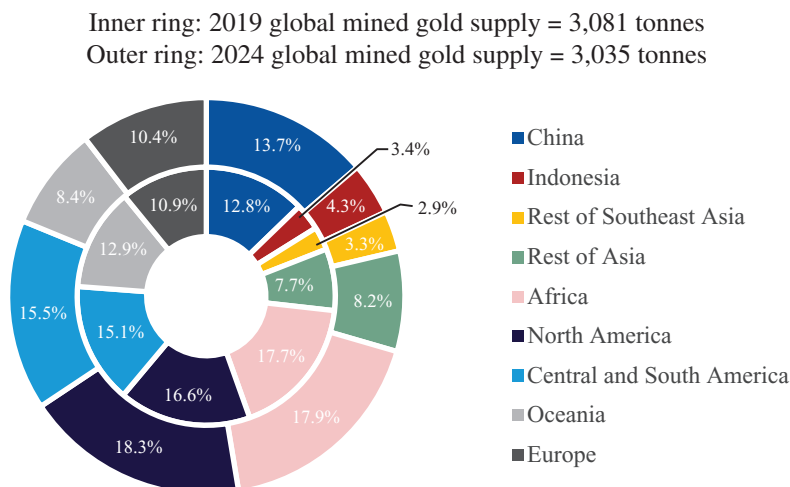
Asia is the largest gold producing region accounting for 26.8% of global mined gold supply in 2019. Production from the largest single producing country, China, has fallen in two consecutive years as the Chinese government continued to crack down on pollution across all industries, including the gold mining sector. As a result, dozens of gold mines which had failed to meet stringent emissions requirements were forced to shut down.

Indonesia is the second largest mined gold supplier in Asia and supplied 103 tonnes in 2019. Indonesian mined gold supply plummeted by 34.0% in 2019 as the Grasberg Mine transitioned from the gold-rich open pit to underground operations. The Grasberg Mine holds the largest amount of gold reserves in the world as of December 31, 2019 and is the largest gold mine in terms of gold production volume in 2018.

The rest of Southeast Asia, mainly the Philippines, have had stable gold mine output over the recent years and accounted for 2.9% of global mined gold supply in 2019.

Outside Asia, Australia is the second largest mined gold supplier in the world accounting for 327 tonnes of gold in 2019 and accounting for 10.6% of total global mined gold supply. Other major mined gold suppliers include Russia, the U.S., Canada and South Africa which accounted for 9.5%, 6.4%, 6.4% and 4.2% of the total global mined gold supply in 2019, respectively.

The following diagram sets forth the global mined gold supply by region in 2019 and 2024, respectively.



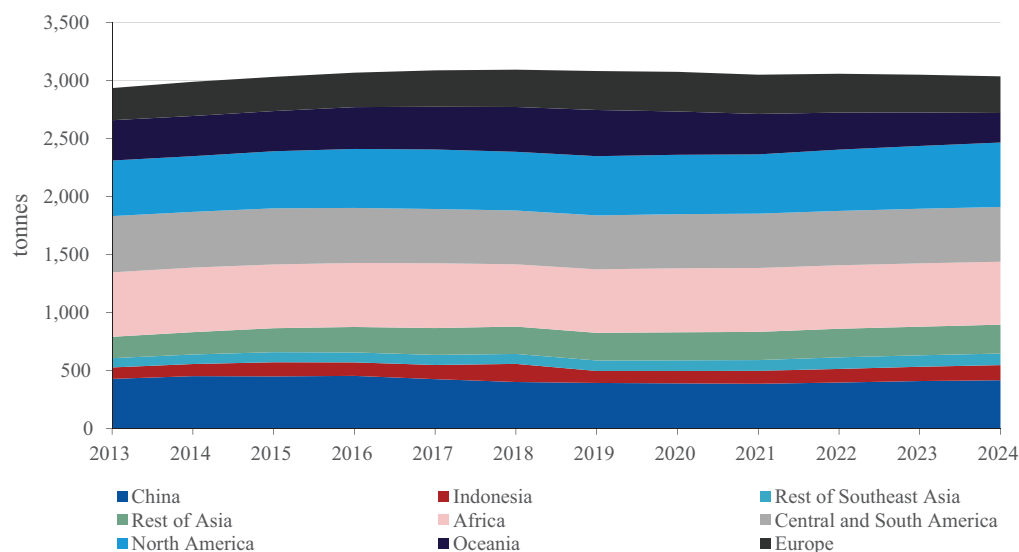
Source: CRU

CRU expects global mined gold supply to trend flat to slightly declining from 2020 to 2024. The downward trend is not only because of the natural thinning of the project pipeline, but also due to exogenous drivers such as tighter environmental regulations in major producing countries which is expected to have a negative impact on growth prospects for gold globally.

In 2020, CRU expects global mined gold output to decrease by 0.2% (7 tonnes) from 2019 even though new gold mines would be commencing production and the Grasberg Mine would be increasing its production levels due to a projected drop in output at more mature mines. In 2021, even though the Grasberg Mine is expected to return to optimal production levels, global mined gold output is expected to decline by 0.8% due to a drop in output at mature mines as they approach depletion of their resources and stricter environmental regulations in major mining countries. However, by 2022 many of the recently launched operations are expected either to reach their nameplate capacity or be in the midst of ramping up production which is expected to offset a decrease in production from depleting or closed mines. As a result, global mined gold output is forecast to increase by 0.3% which amounts to 3,057 tonnes. The recovery, however, is expected to be short-lived. In 2023, CRU forecasts that falling production from depleting or closed mines will start outpacing production from new gold mines and the Grasberg Mine and global mined gold output will decline to 3,035 tonnes in 2024 which is 45 tonnes lower than the global mined gold output in 2019.

CRU expects that China will retain its place as the largest source of mined gold supply in 2024, producing 13.7% of mined gold globally. CRU expects that Indonesia will still be the second largest producer within Asia and its share of total global mined gold supply is expected to increase to 4.3%, mainly due to the recovery in production of the Grasberg Mine.

The following diagram sets forth the global mined gold supply by region from 2013 to 2024, in tonnes.



Source: CRU

Gold scrap

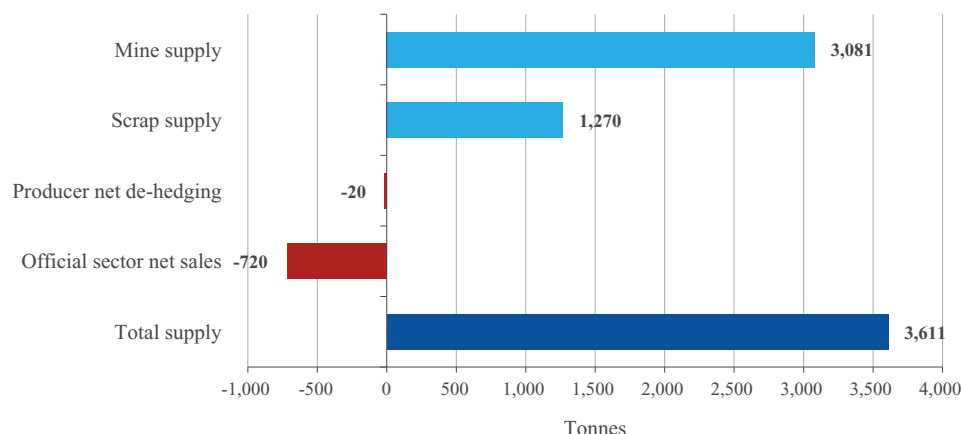
After a sharp 11.4% drop in 2017, the supply of recycled gold bounced back in 2018 by 1.4% from 2017 and grew at 8.1% in 2019 to reach 1,270 tonnes. While the price of gold is not the only factor affecting recycling activity, it is one of the key drivers. Rising gold prices in 2019 increased the supply of recycled gold in 2019.

Unlike mine production, scrap supply is largely influenced by short-term factors such as the movement of gold prices. Higher gold prices over the medium term are likely to improve global scrap flows. CRU expects global supply of recycled gold to rise to 1,470 tonnes in 2024 which is 15.7% higher than in 2019.

Net buying and net hedging

In 2019, growth in mined gold supply and from recycling was more than offset by the increase in net buying by the official sector and net de-hedging by gold producers. These developments reduced the amount of gold available for fabricators and investors. The increasingly uncertain global geopolitical and economic climate throughout 2018 and 2019 prompted a rising number of central banks to turn to gold as a safe and liquid asset. As they did so, net purchases of gold by the official sector increased to 720 tonnes in 2019, the second highest level this century (the highest level was in 2015). In 2019, the global hedge book declined by 20 tonnes as a result of the increasing gold price.

The following diagram sets forth the total global mined gold supply in 2019, in tonnes.



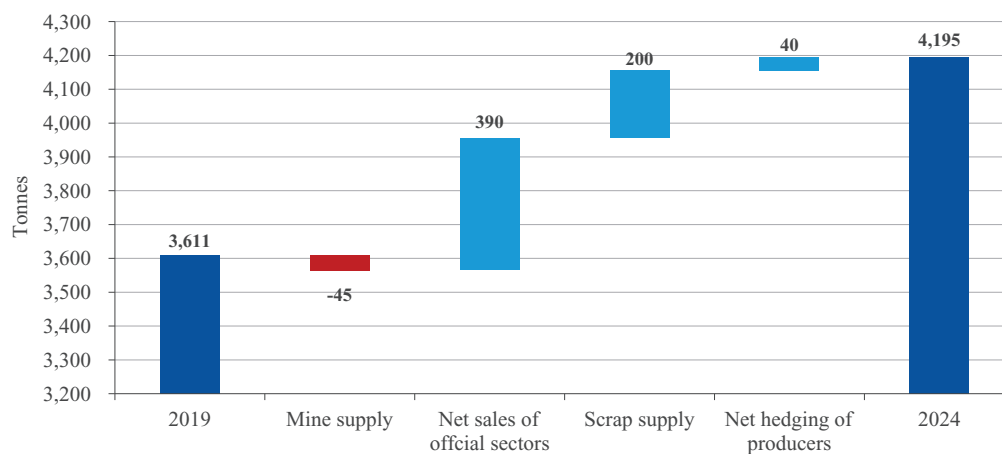
Source: CRU

CRU forecasts that total global gold supply will gradually increase to 4,195 tonnes in 2024 at a CAGR of 3.0% from 2019 to 2024.

CRU expects net sales to decrease by 54.2% between 2019 and 2024, to 330 tonnes. The slowdown in buying activity assumes that central banks are more price-sensitive than private investors. They therefore tend to stock up on gold during periods of relative price stability. However, as prices begin to rise, the official sector's activity normally cools down.

CRU does not expect to see a substantial shift back towards widespread long-term hedging from 2019 to 2024, notwithstanding the fact that gold inflows from this source is expected to continue to add to the global gold supply on a net basis.

The following diagram sets forth the global total gold supply from 2019 to 2024, in tonnes.



Source: CRU

Operational benchmarking

As of December 31, 2019, Inalum held 51.2% of PTFI, which owns 100.0% of the Grasberg Mine, and 65.0% of Antam's assets. As of December 31, 2019, Antam held 25.0% of the Gosowong gold mine and 100% of the Pongkor Gold Mine and the Cibaliung Gold Mine.

In 2018, the Grasberg Mine was the largest single gold producer both in Southeast Asia and globally. In 2019, its production declined by 72.4% to 745,000 oz due to the transition of operations to its underground ore bodies, but it was still the largest gold mine in Southeast Asia and 12th largest in the world.

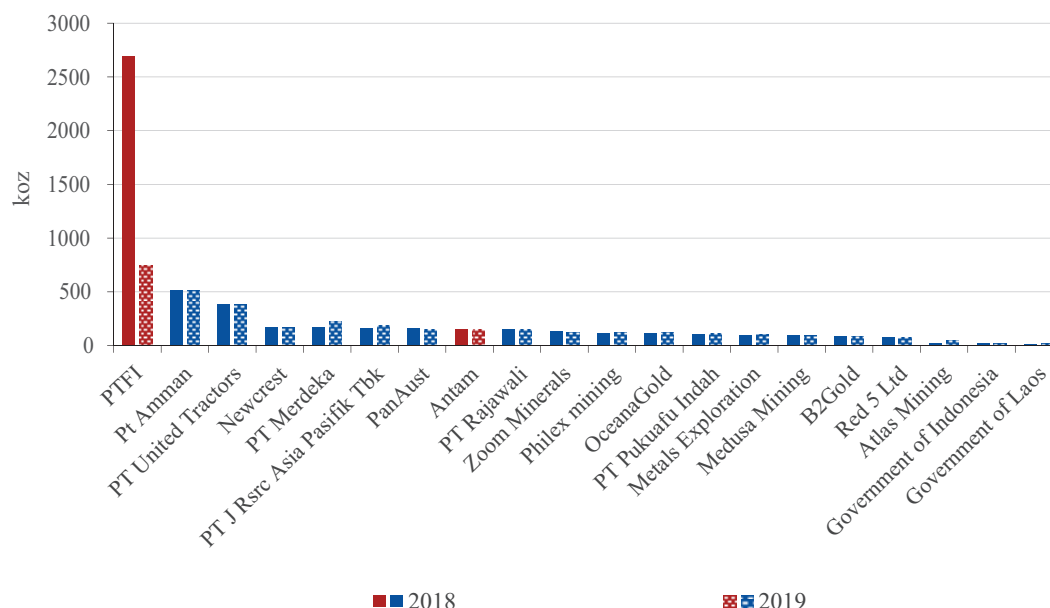
The Grasberg Mine holds the largest amount of gold reserves in the world as of December 31, 2019 and was the largest gold mine in terms of gold production volume in 2018.

Gosowong gold mine was the fourth largest gold mine in Southeast Asia in 2019, while Pongkor Gold Mine and Cibaliung Gold Mine are two smaller-size gold mines in terms of gold production. Hence, Antam was the sixth largest gold producer in Southeast Asia in terms of gold production volume on an equity basis in 2019.

Accounting for the gold production of Antam and PTFI, Inalum was the largest gold producer in Southeast Asia in 2019.

In 2019, Antam and PTFI together accounted for 27.1% of Indonesia's total gold production and 10.1% of Indonesia's total exports.

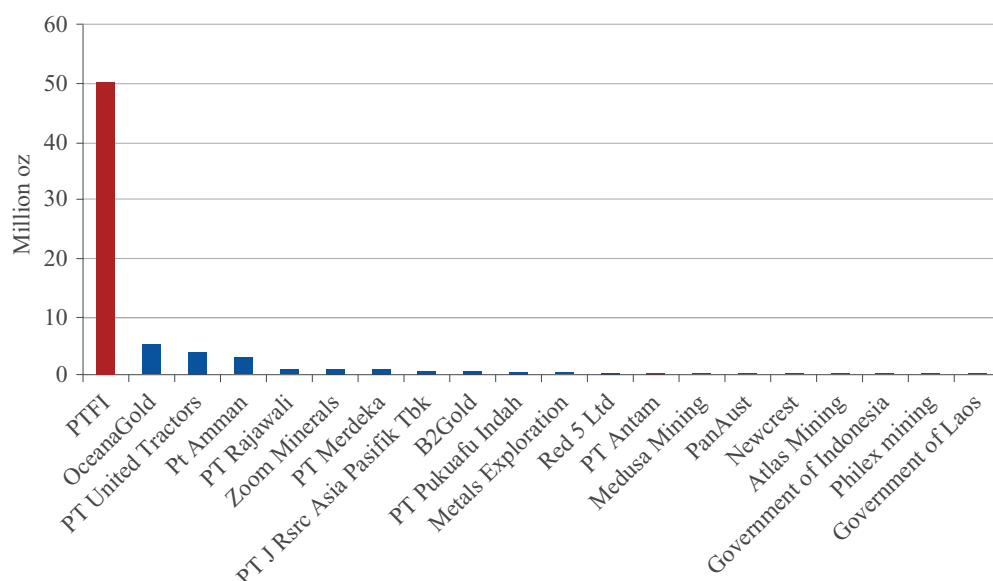
The following diagram sets forth the gold production in Southeast Asia by company and government in 2018 and 2019, respectively, in koz.



Source: CRU

As of December 31, 2019, Antam and PTFI together held approximately 57.6% of Indonesia's gold reserves. On a consolidated basis, Inalum had the highest gold reserves globally in 2019 with 50.8 million oz.

The following diagram sets forth the gold reserves in Southeast Asia by company and government on an equity basis in 2019, in million oz.



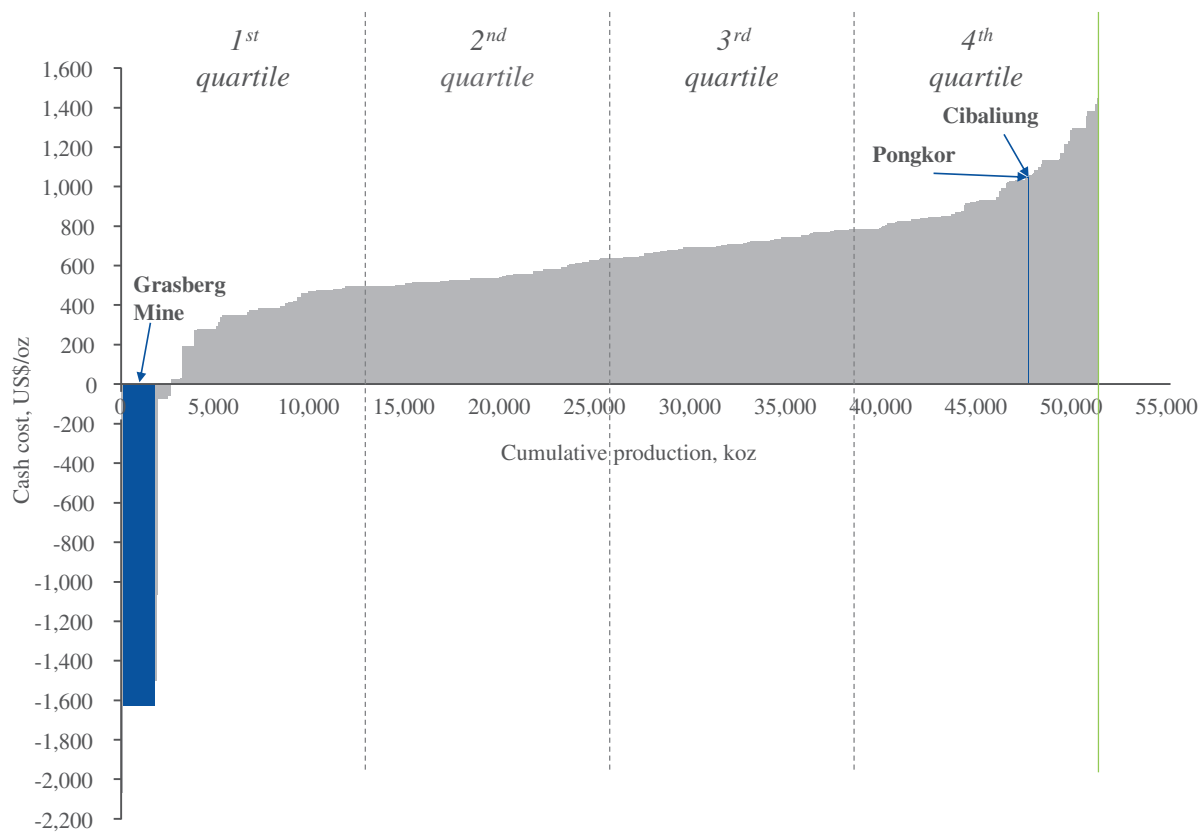
Source: CRU

The Grasberg Mine's cost of gold production was estimated at US\$71/oz in 2019 based on CRU's assumptions and data from PTFI's 2018 annual report. The cost of production was higher than 2018 which was US\$480/oz, mainly due to the lower production levels at the Grasberg Mine. Antam's cost of production at its gold mines was estimated around US\$800/oz, due to the relatively small scale of these mines.

Gold production volume at the Grasberg Mine was lower than usual in 2019 as PTFI was completing mining the final phase of the Grasberg open-pit mine and transitioning to its underground ore bodies during the year, but is expected to return to full capacity by 2023. CRU forecasts that the Grasberg Mine's net-of-by-product cash cost will be strongly competitive after mine production resumes to its previous level. It is expected to be one of the lowest cost gold mines in the world and sit in the front of the first quartile on both the 2023 and 2024 global gold cash cost curves, due to its large economies of scale and high by-product credit from copper and silver. When PTFI resumes production at previous levels following this transition, the Grasberg Mine is expected to return to being the largest gold mine in the world in terms of production volume by 2023 as well as one of the lowest cost gold mines in the world with estimated cash costs in 2023 of approximately US\$-1,626/oz on a net-of-by-product basis (subtracting credits from copper and silver production), which would place it in the first quartile of the 2023 global cash cost curve for gold. The Pongkor Gold Mine and Cibaliung Gold Mine is expected to sit in the fourth quartile of the global cash cost curve due to their higher site cost and lower by-product credits. The Gosowong gold mine is expected to be depleted by the end of 2022.

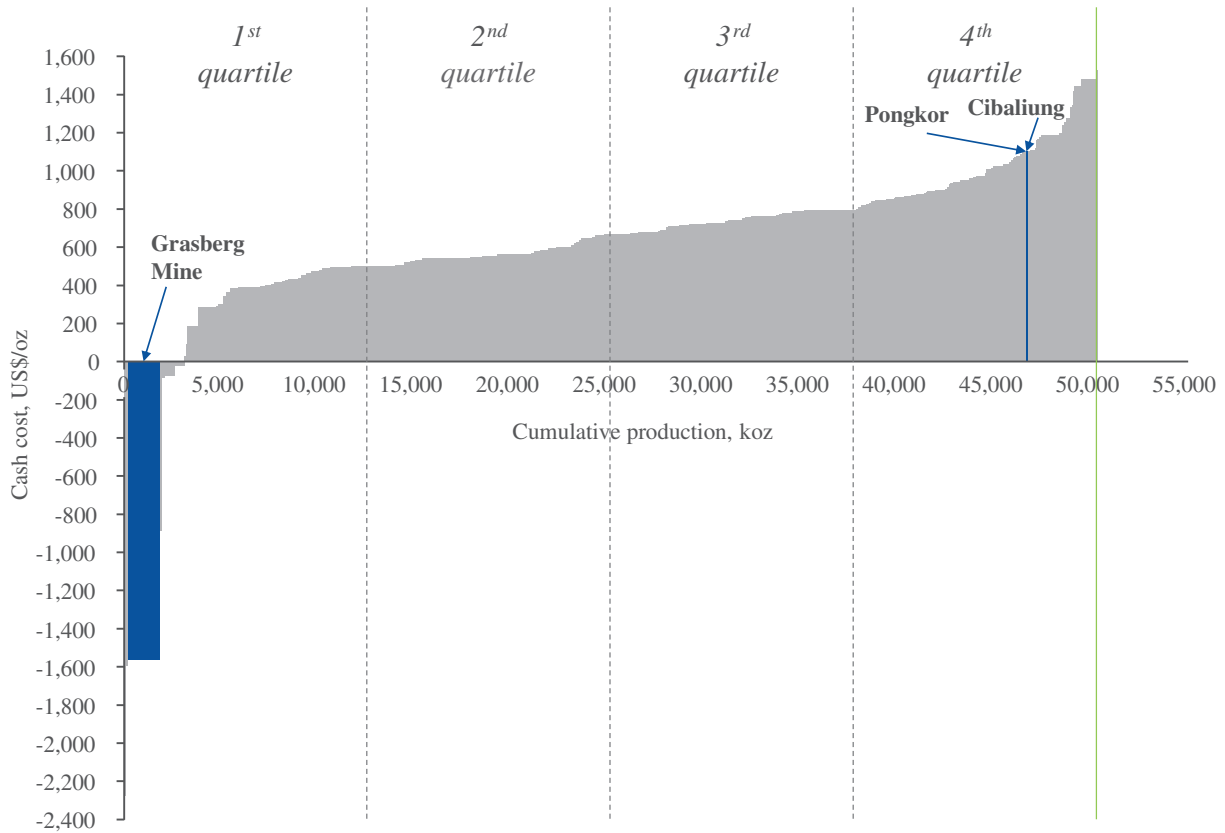
Net-of-by-product cash cost is a common methodology used to compare the costs of mining assets in the base metals industry. This methodology provides an indication of competitiveness in one commodity whilst holding everything else constant. However, net-of-by-product cash costs should not be used to infer anything about the commodity prices required for an asset to breakeven and generate free cashflow. Furthermore, the addition of net-of-by-product cash costs for mines that obtain substantial revenues from more than one commodity (i.e. co-product mines like the Grasberg Mine) will not reveal anything meaningful about the competitiveness of the asset as a whole.

The following diagram sets forth the global gold (net-of-by-product) cash cost curve in 2023, in U.S. dollar per oz.



Source: CRU

The following diagram sets forth the global gold mine (net-of-by-product) cash cost curve in 2024, in U.S. dollar per oz.



Source: CRU

When discussing a mining asset, it is sometimes more appropriate to use the pro-rata cash cost of a mine, particularly for co-product mines such as the Grasberg Mine. Unlike most gold mines where by-products constitute a relatively small proportion of the revenue of the mine, PTFI obtains significant revenue from both copper and gold from the Grasberg Mine. The pro-rata cash cost methodology allocates costs to each of these revenue streams rather than subtract by-product credits from the total cost. CRU estimates the Grasberg Mine's pro-rata cash cost for gold to be US\$700/oz and US\$751/oz in 2023 and 2024, respectively.

Copper Industry

Overview

Copper can be found in the free metallic state in nature. Native copper exists as a primary mineral in basaltic lavas and also can be found in copper compounds, such as sulfides, arsenide, chlorides, and carbonates. Copper is mined from two main types of ore: sulfides and oxides. According to USGS, Chile, Peru, Australia, Russia, Indonesia, China and the Democratic Republic of Congo accounted for 60.0% of global copper reserves in 2018. More than 80.0% of copper is mined from open-pit mines, using traditional mining methods including blasting, loading and hauling. Today, refined copper is produced via two main process routes namely, the conventional flotation and electro-refined process for sulfide ores, and the hydrometallurgical route of leaching copper from ore and electro-winning mainly for oxide ores.

The first processing route is usually composed of a crushing and grinding circuit, followed by a flotation process resulting in a copper concentrate which can also contain other payable metals such as gold and silver. The concentrate, which typically ranges from 18.0% to 35.0% copper grade, is further refined in smelting and

refining facilities which can be integrated next to the mine, or sold to smelters around the world. In the smelter, a chemical reducing agent, typically sulfur, and heat are used to reduce the oxygen content of the copper ore to produce copper matte which consists approximately 60.0% copper. This process also produces large quantities of sulfuric acid. The matte is then transferred to a converter where it is further purified to produce blister copper which consists approximately 98.0% copper. The blister copper is transferred to an anode furnace, where it is cast into copper anodes which consists approximately 98.0 to 99.5% copper. Finally, the copper anodes are refined using electrolysis. The copper passes from the anode into the solution leaving behind the remaining impurities in the form of anode slime and depositing itself in the cathode. Copper cathodes are generally considered a commodity and are traded on the LME, Shanghai Futures Exchange (“SHFE”) and the New York Commodity Exchange. In 2019, 83.1% of global refined copper production came from the conventional flotation and electro-refining process.

For copper oxide ores, leaching and solvent extraction and electrowinning (“SX-EW”), is used to produce refined copper. Crushed ore is stacked into a heap, where a leaching solution is used to extract copper by a series of chemical reactions. Copper is recovered from this pregnant leach solution through a solvent extraction process (“SX”), resulting in a copper-rich solution that is transferred to an electrolytic tank house where copper is electro-deposited as a cathode onto stainless steel starter sheets known as electrowinning (“EW”). In 2019, 16.0% of global refined copper production was through the SX-EW process.

Copper cathodes are extruded or rolled to produce semi-fabricated products known as copper semis. The most common is the wire rod which is mostly used for making copper wire and cable which consists of over 70.0% of total refined copper demand, such as low voltage energy cable or building wire, medium and high voltage power cable, internal data cable, external telecom cable and winding wire.

Copper can also be alloyed with other materials such as zinc to make brass or tin to make bronze.

Copper is a recyclable metal. Scrap copper can be used directly in the production of copper semi-fabricated products or in refined copper production, which can be in smelting or anode casting, as a secondary copper supply. Copper scrap was accounted for 29.0% of refined copper production in 2019.

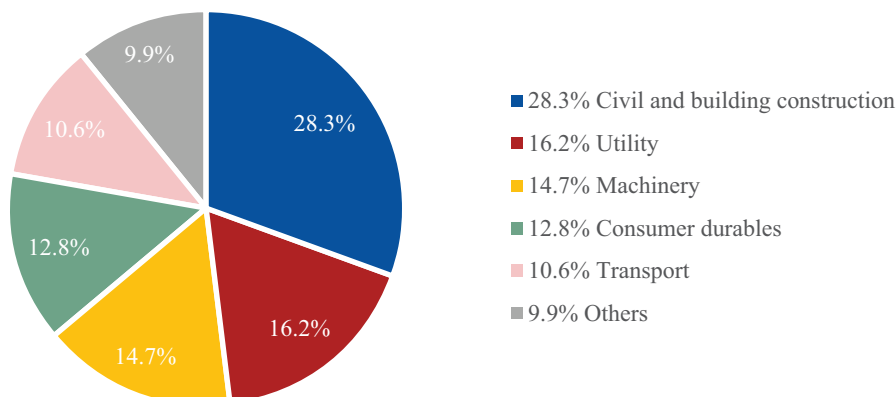
Total copper demand

Total global copper demand in 2019 was 28 million tonnes, up by 10.9% since 2013. Civil and building construction is the largest end-use sector, consuming 28.3% of total copper in 2019. Copper’s malleability and machinability makes it a material of choice for water or fluid conveyance such as copper tubing for water supply or refrigerant, plumbers’ goods such as brass, often plated with brushed nickel or stainless steel, architectural and decorative hardware and other architectural uses such as copper roofing, cladding and panels. Copper is also the main material used in interior building wire and data cable. Utility, in particular power and cables used in the utility sector, and machinery are the next two largest copper consuming sectors, and comprised 16.2% and 14.7% of total copper demand respectively, in 2019. In machinery, copper is used in tubing for heat exchange applications, components for valves, wiring harness for electrical power and data communication, winding wire in motors, and in miscellaneous electronic applications such as electrical contacts or printed circuit boards. The balance is used in consumer durables such as microwaves and washing machines, transport, air conditioners and refrigeration. New emerging copper demand in recent years is in electric vehicles (“EVs”), covering multiple end-use sectors as it includes motors, chargers, battery storage and grid infrastructure. The proportion of refined copper consumed in EVs only accounts for 1.5% of total copper demand in 2019 but is expected to remain a long-term driver for copper demand growth.

Global copper demand is highly dependent on economic cycles. Over the forecast period from 2020 to 2028, total copper demand is expected to increase by 15.5% compared to the level in 2019 to reach 33 million tonnes at a CAGR of 1.7%, in line with the slow-down in global economic growth. The proportion of consumption by the end-use sectors is expected to remain almost the same as that in 2019.

The following diagram sets forth the total global copper consumption by end-use sectors in 2019.

2019 global copper demand = 28 million tonnes



Source: CRU

Refined copper demand

Primary copper refers to refined copper whereas secondary copper consists of copper scrap. In 2019, 23 million tonnes of the total copper consumption consisted of primary copper in the form of copper cathode and five million tonnes consisted of scrap consumed directly by end-users, typically for alloy production in brass mills.

Global refined copper demand increased by 2.7 million tonnes between 2013 and 2019, at a CAGR of 2.1%.

Growth between 2013 and 2019 from China alone stood at 2.7 million tonnes which offset decreases in global refined copper demand in other regions. As a result, Asia was the largest refined copper consuming region in 2019, accounting for 73.1% of total refined copper demand. China alone accounted for 50.5% of global refined copper demand in 2019 which is equivalent to 11.8 million tonnes.

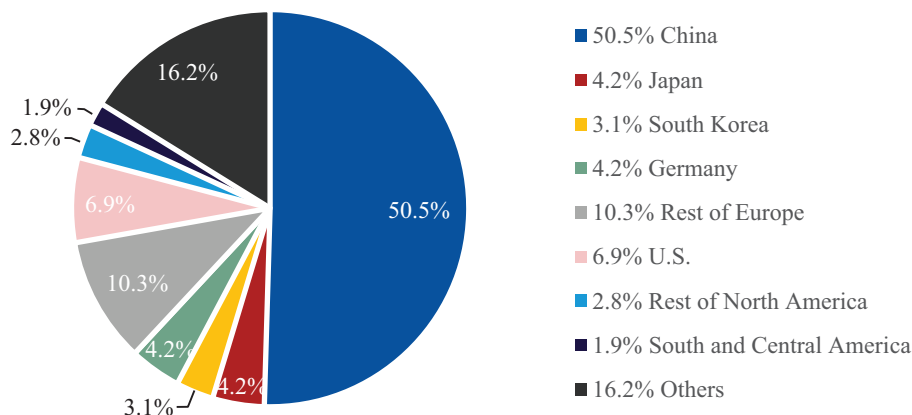
Japan and South Korea are ranked as the third and fifth largest consuming countries in 2019, but consumption in these two countries declined by 1.2% and 4.7%, respectively, between 2013 and 2019.

Southeast Asia, however, has shown prominent growth of 45.0% between 2013 and 2019, amounting to 418,000 tonnes, mainly driven by Vietnam, Thailand and Malaysia which increased by 189,000 tonnes, 146,000 tonnes and 77,000 tonnes, respectively. Investments in semi-fabricated products capacity contribute to the growth in demand from these countries. Consumption in Indonesia declined by 36,000 tonnes in 2019 due to a lack of semi-fabricated product capacity expansion as well as competition from other Southeast Asian countries.

Outside of Asia, the U.S. consumed the most refined copper at 1,626,000 tonnes in 2019 and is ranked as the second largest consuming country after China. Europe is a significant region for refined copper demand with Germany being the fourth largest consuming country in 2019, consuming 985,000 tonnes or 4.2% of total global consumption.

The following diagram sets forth the global refined copper demand by region in 2019.

2019 global refined copper demand = 23 million tonnes



Source: CRU

The LME three-month copper price more than tripled from US\$1,841/tonne in 2000 to US\$6,675/tonne in 2006 as producers struggled to keep up with the booming demand in China. The price fell in 2009 due to global financial crisis and bottomed at US\$5,164/tonne in 2009, the lowest level since 2006. As the market recovered from the financial crisis, copper price picked up and reached a record high of US\$8,811/tonne in 2011. The price then headed on a steep downward trend. Massive investment before the financial crisis led to an oversupply of copper. When combined with lukewarm Chinese industrial activity since the financial crisis, prices came under pressure, bottoming out at US\$4,867/tonne in 2016, 44.8% lower than the 2011 peak. Economic recovery and an inventory drawdown brought prices back up to US\$6,523/tonne in 2018. With inventories close to multi-year lows, an uncertain economic backdrop and market surplus, the LME three-month copper price only averaged US\$6,017/tonne in 2019, falling by 8.0% from 2018. The outbreak of COVID-19 globally has shaken investors' confidence and largely reversed the nascent recovery in copper prices in the first half of February. The LME three-month copper price fell below US\$6,000/tonne to an average of US\$5,703/tonne in February 2020. CRU forecasts that China will likely experience negative growth in copper demand for the first time since 2006 if the COVID-19 pandemic escalates.

CRU forecasts that the proportion of demand for refined copper by primary and secondary sources will remain stable to 2024. In 2024, refined copper demand is expected to still account for an expected 82.8% of total copper demand as in 2019, amounting to 26 million tonnes.

CRU expects that the growth in refined copper demand will be primarily driven by China, accounting for 46.5% of the total growth in refined copper demand from 2019 to 2024. CRU forecasts that China, as the largest consumer, will see construction shape demand growth despite a weaker electricity grid investment from 2020. But the growth of Chinese refined copper demand is slowing compared to the last decade. Not only is GDP growth expected to decline below 5.5% per annum from 2019 to 2024, CRU forecasts that there will be a shift away from physical infrastructure and heavy industry towards lighter manufacturing and services. In 2024, CRU also expects that a larger and more efficient domestic scrap industry will lower primary metal demand. As a result, refined copper consumption growth in China is expected to decline to less than 1.7% per annum. CRU forecasts that Chinese refined copper consumption will decline by over 20.0% in the first quarter of 2020 compared to the first quarter of 2019 due to shortage of labor and disruptions in logistics in relation to downstream industries such as wires and cables due to the outbreak of COVID-19 globally. The Chinese government has announced the adoption of various fiscal and monetary policies to support the Chinese economy amidst the COVID-19 pandemic.

CRU forecasts that India will be the next key driver of global refined copper demand growth after China, accounting for 14.8% of total global demand growth. The outlook for India till 2024 reflects semi-fabricated

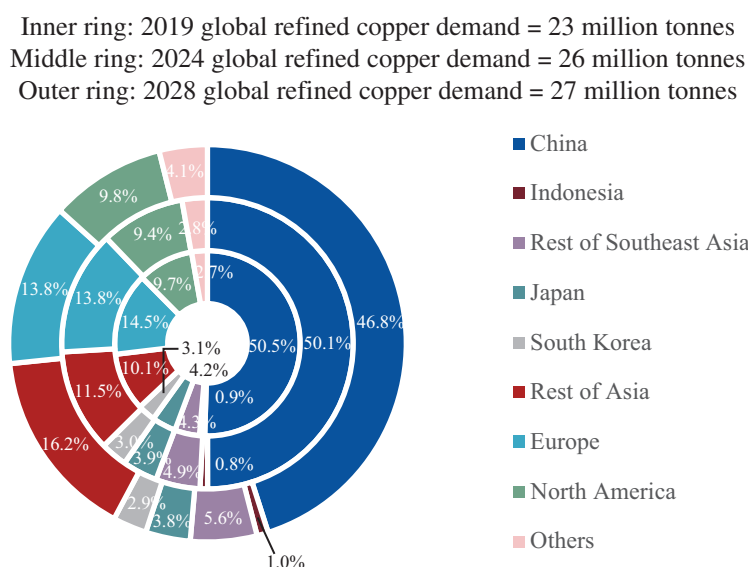
products import displacement and a recovery in the broader Indian economy. The latter includes new infrastructure projects announced following the re-election of Prime Minister Modi in 2019. Furthermore, a recent investigation by the Indian government and key industry participants found that several Southeast Asian countries were providing illegal subsidies to wire rod producers exporting to India. As a result, import duties on wire rods up to 10.5% have been imposed on imports from Thailand, Indonesia, Malaysia and Vietnam from January 2020, which is expected to potentially benefit domestic rod producers.

CRU forecasts that Southeast Asia will account for 10.9% of refined copper demand growth in 2024. Due to the lack of investments in downstream semi-fabricated product capacity, CRU forecasts that Indonesia will see a muted growth while Vietnam, Thailand and Malaysia will continue to pull up refined copper demand.

CRU forecasts that growth in Japan and South Korea will be subdued. With slowing industrial production, the CAGR from 2019 to 2024 is expected to only average 0.3% and 1.0%, respectively.

Outside Asia, CRU forecasts that Europe and North America will continue to dominate refined copper consumption from 2019 to 2024 and also witness moderate growth.

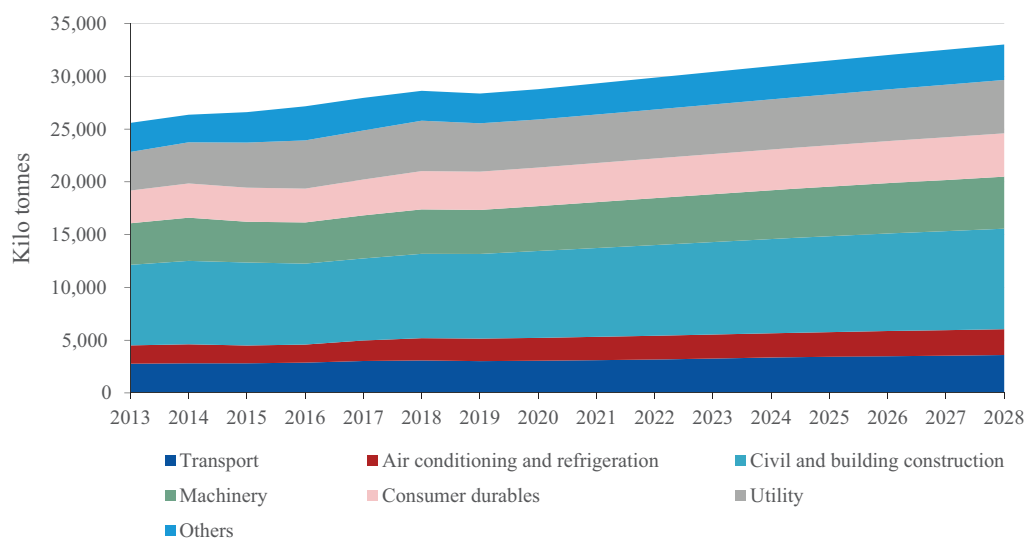
The following diagram sets forth the global refined copper demand by region in 2019, 2024 and 2028, respectively.



Source: CRU

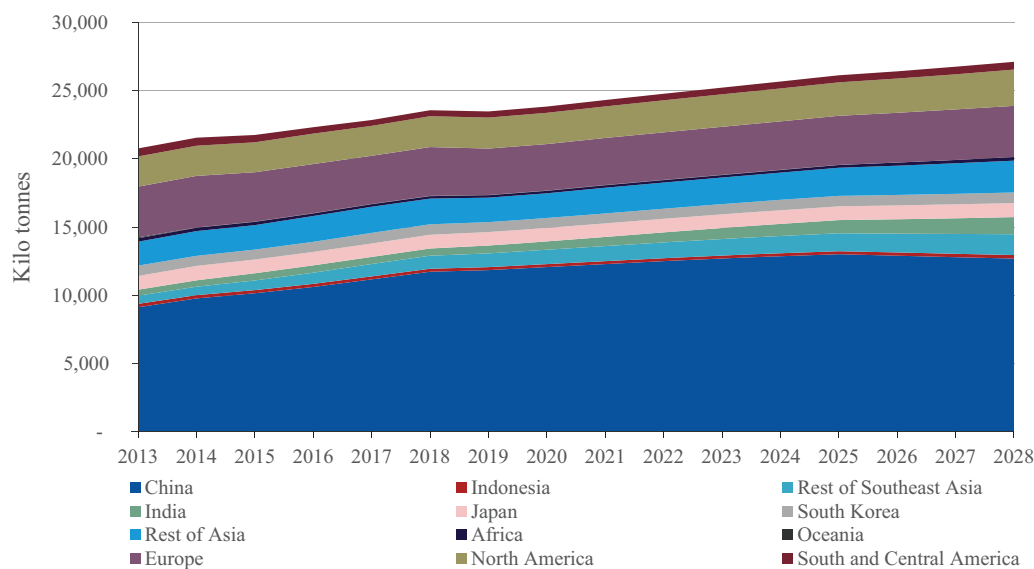
Total global copper demand is expected to increase at a CAGR of 1.6% between 2024 and 2028, and refined copper is expected to increase at a CAGR of 1.4% over the same period. As Chinese economic growth becomes less commodity-intensive, China is expected to gradually reduce its proportion of total demand to India and Southeast Asia, and only account for 46.8% of total demand by 2028. Many Southeast Asia countries is expected to enter a phase when their economic growth will need to be underpinned by resource-intensive projects and the emerging middle classes will demand more consumer goods and vehicles. This region still has huge potential for growth and CRU forecasts a CAGR of 4.7% for refined copper demand in Southeast Asia between 2024 and 2028.

The following diagram sets forth the total copper demand by end-use from 2013 to 2028, in kilo tonnes.



Source: CRU

The following diagram sets forth the refined copper demand by region from 2013 to 2028, in kilo tonnes.



Source: CRU

Refined copper supply

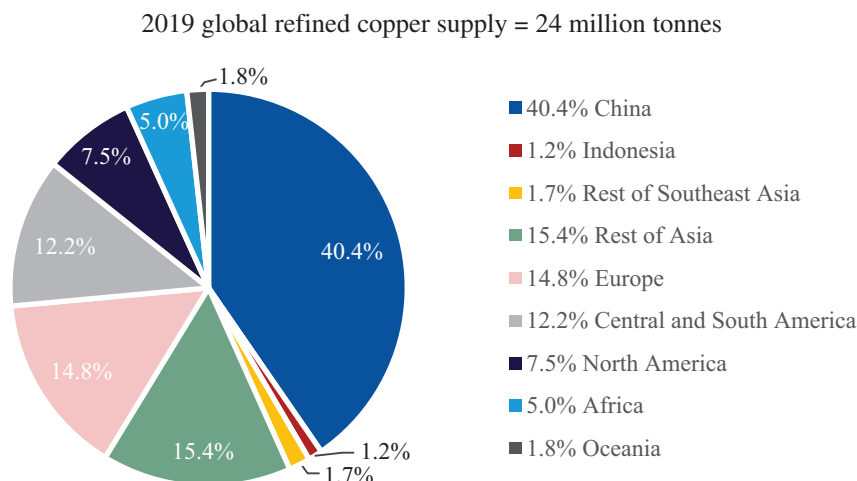
As mentioned above, refined copper can be produced via two processes, namely smelting and electro-refining, and leaching followed by solvent-extraction and electro-winning. Most refined copper is produced via smelting and electro-refining. Between 2013 and 2019, the proportion of electro-refined production in relation to refined copper supply has remained within the 80.0 to 83.0% range.

Unlike copper mine production which has traditionally taken place in remote parts of the world for geological reasons, copper refineries were historically located near to traditional consuming markets in Western Europe, the U.S. and Japan. From 1989 onwards, China has been rapidly growing as a producer of refined

copper. While China does not have low-cost power, it has been able to increase refined copper production to feed its rapidly growing domestic market largely due to low capital and labor costs. From 2013 to 2019, global refined copper production growth has been driven largely by China, accounting for 105.5% of total global refined copper production growth. The refined copper supply growth in China alone has offset all cuts in supply in other regions, and China's share of refined copper supply increased from 31.4% in 2013 to 40.4% in 2019.

Southeast Asia also demonstrated strong growth and its refined copper supply increased by 36.8% from 2013 to 2019 and reached 683,000 tonnes in 2019. Indonesia accounted for 31.4% of total growth in Southeast Asia.

The following diagram sets forth the refined copper supply by region in 2019.



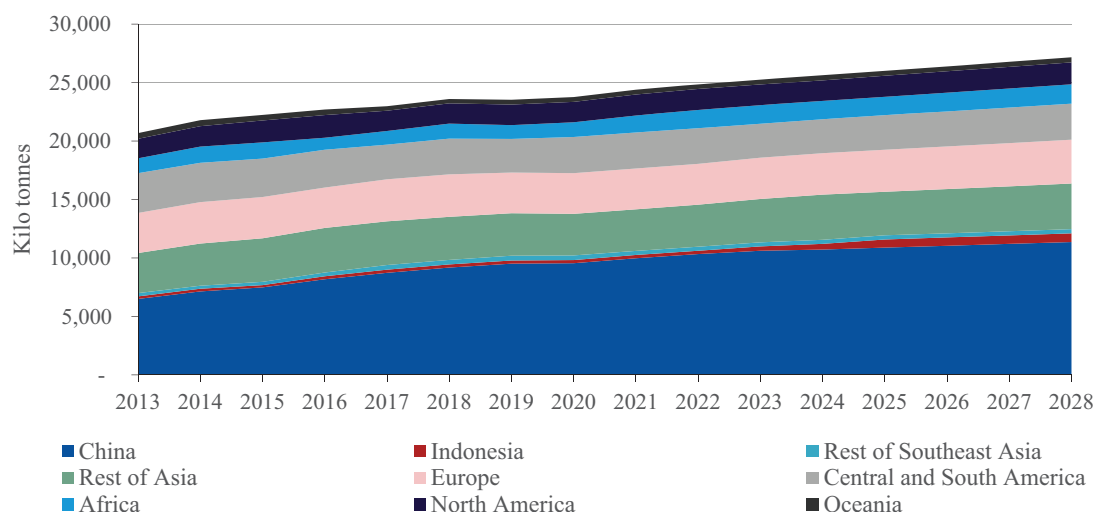
Source: CRU

CRU forecasts that global refined copper supply will grow at an annual average rate of 1.7% to 26 million tonnes in 2024. CRU forecasts that growth will continue to be dominated by China, but at a slower annual average growth rate of 2.4%. From 2019 to 2024, CRU forecasts that there will be nine new projects commencing operations in China which is expected to increase China's smelting and refining capacity by more than 1.7 million tonnes per year, and refined copper production in China will reach 10.8 million tonnes in 2024.

CRU forecasts that refined copper supply in Indonesia will gradually increase until 2022 and then shoot up in 2023 as two new smelting and refining projects start operations.

CRU forecasts that total refined copper supply will grow at a CAGR of 1.5% from 2024 to 2028 to reach 27 million tonnes by 2028.

The following diagram sets forth the global refined copper supply by region from 2013 to 2028, in kilo tonnes.



Source: CRU

Mined copper supply

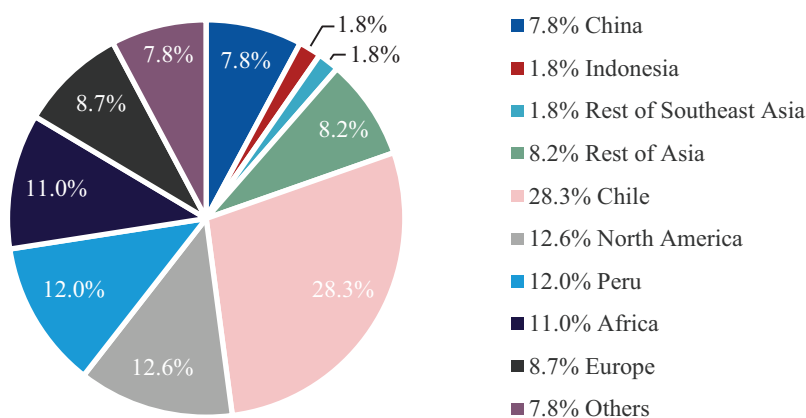
Global mined copper supply has risen from 17.8 million tonnes to 20.5 million tonnes between 2013 and 2019. Traditional mined copper suppliers are Chile and Peru, providing 28.3% and 12.0% of total mined copper supply in 2019, respectively.

Asia is the next biggest region for mined copper supply, accounting for 19.6% of total mined copper supply in 2019. Indonesia was growing until 2018 and then production nearly halved to 376,000 tonnes in 2019 as a result of the Grasberg Mine transitioning its operations to underground block cave mining. Laos, Myanmar, Vietnam, Malaysia and the Philippines all have stable mined copper output from 2013 to 2019.

Mined copper supply in North America, Africa and Europe all increased stably from 2013 to 2019, at a CAGR under 4.0%, and accounting for 12.6%, 11.0% and 8.7% of the total global mined copper supply, respectively. In Oceania, mined copper supply dropped by 17,000 tonnes or 1.6% over the same period.

The following diagram sets forth the mined copper supply in 2019.

2019 global mined copper supply = 20.5 million tonnes



Source: CRU

CRU forecasts that global total mined copper supply will reach 22.4 million tonnes in 2024 at a CAGR of 1.8% from 2019 to 2024. Several major mine supplying regions such as North America, the Democratic Republic of Congo and Chile will see lower mine output from operating mines.

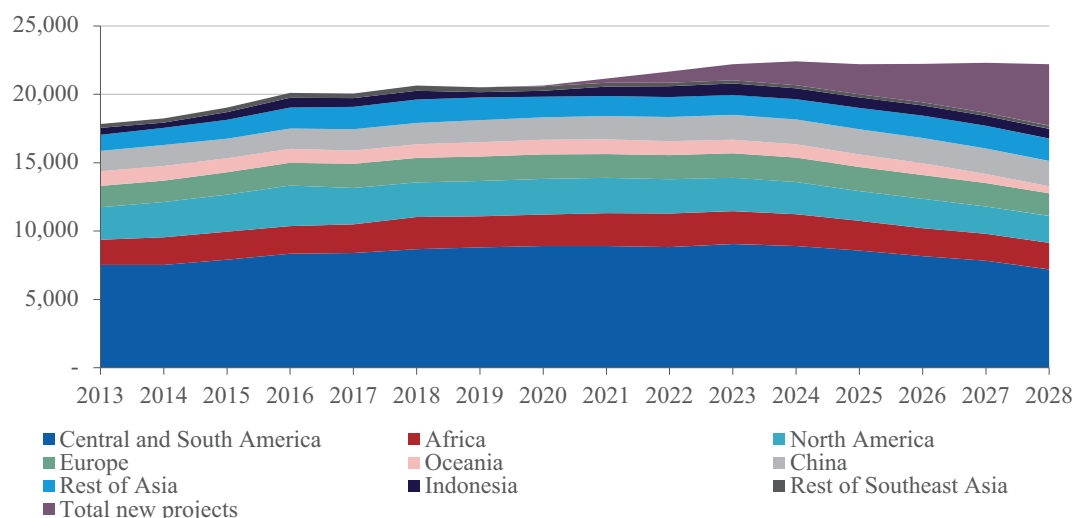
On the contrary, CRU expects that Asia will see an increase of 303,000 tonnes of mined copper supply from 2019 to 2024. Asia is the only region with positive growth of mined copper supply from existing mines.

CRU expects that block caves will account for over 20.0% of the growth in mined copper supply by 2024. Past block caving projects have encountered a range of challenges, which have typically led to delayed ramp-up and higher costs. However, new operations are much larger scale, typically in harder rocks, and at greater depths. Mines using block caving also have less flexibility to respond to any issues that may arise compared with conventional mining methods.

CRU forecasts that global copper mine output will be 22.2 million tonnes in 2028. Existing mine production is expected to start to decline sharply as mineral reserves start to be exhausted. CRU expects that new investments for mine projects will be required to come online and continuously increase mined copper production to meet the expected growth in copper demand. CRU forecasts that production from new projects will be able to fill the supply gap over the forecast period to 2028 notwithstanding that some of these new projects will face challenges and their production may be postponed.

Many large expansion projects are transitioning to underground block cave mining which would allow certain large, lower grade ores to be extracted. However, this method is technically demanding and may result in lower production levels. In addition, the nationalization of resources in many countries as well as environmental and other government regulations and social issues resulting from mining activities may affect the levels of production as well.

The following diagram sets forth the supply of copper from operating mines by region between 2013 and 2028, in kilo tonnes.

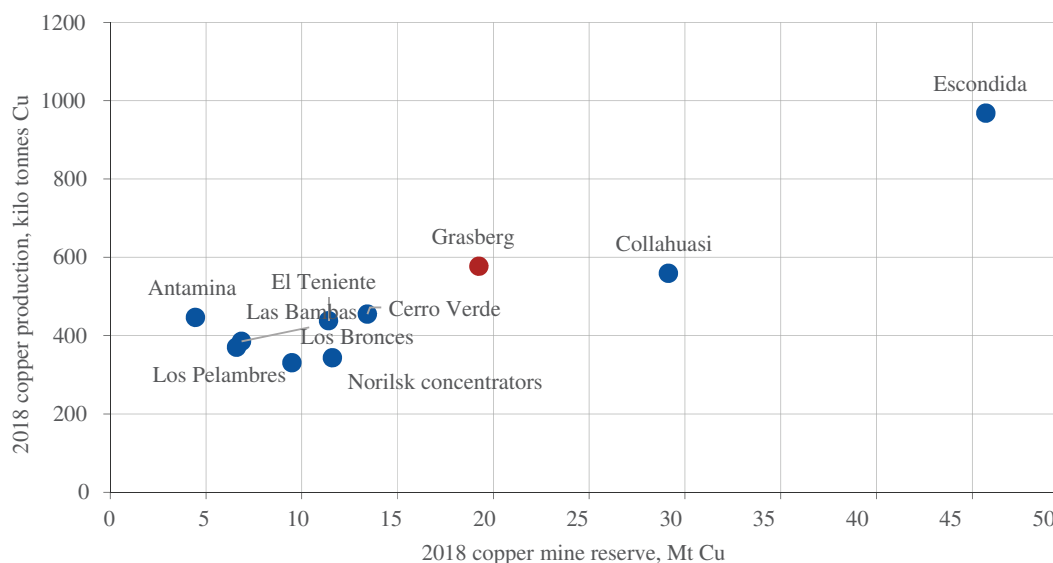


Source: CRU

Operational benchmarking

As of December 31, 2019, Inalum held 51.2% of PTFI, which owns 100.0% of the Grasberg Mine. In 2019, the Grasberg Mine produced 296,000 tonnes of copper in concentrate and accounted for 78.3% of Indonesia's copper mine production, in spite of the 48.7% fall in production in 2018. The Grasberg Mine holds the third largest amount of copper reserves in the world as of December 31, 2019. The Grasberg Mine was the largest copper mine in Southeast Asia and Asia in terms of copper production volume in 2018. It remained the largest copper mine in Southeast Asia in 2019 and was the 13th largest in the world. In 2019, PTFI's copper concentrate exports accounted for approximately 86.9% of Indonesia's total copper concentrate exports.

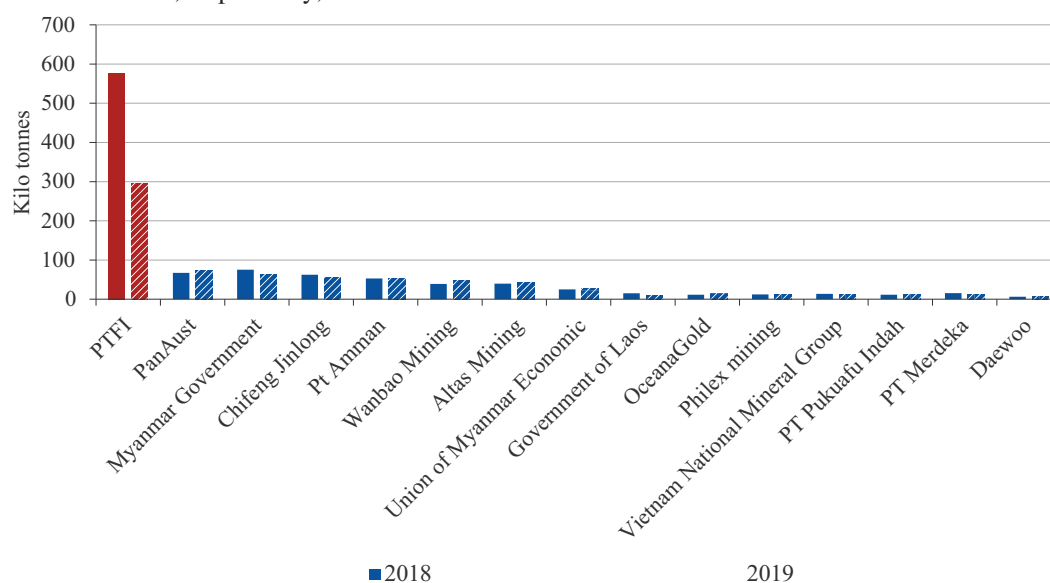
The following diagram sets forth the top 10 copper mines in terms of production and reserves in 2018.



Source: CRU

On an equity basis, Inalum was the largest copper mine producer in Southeast Asia and Asia in 2019.

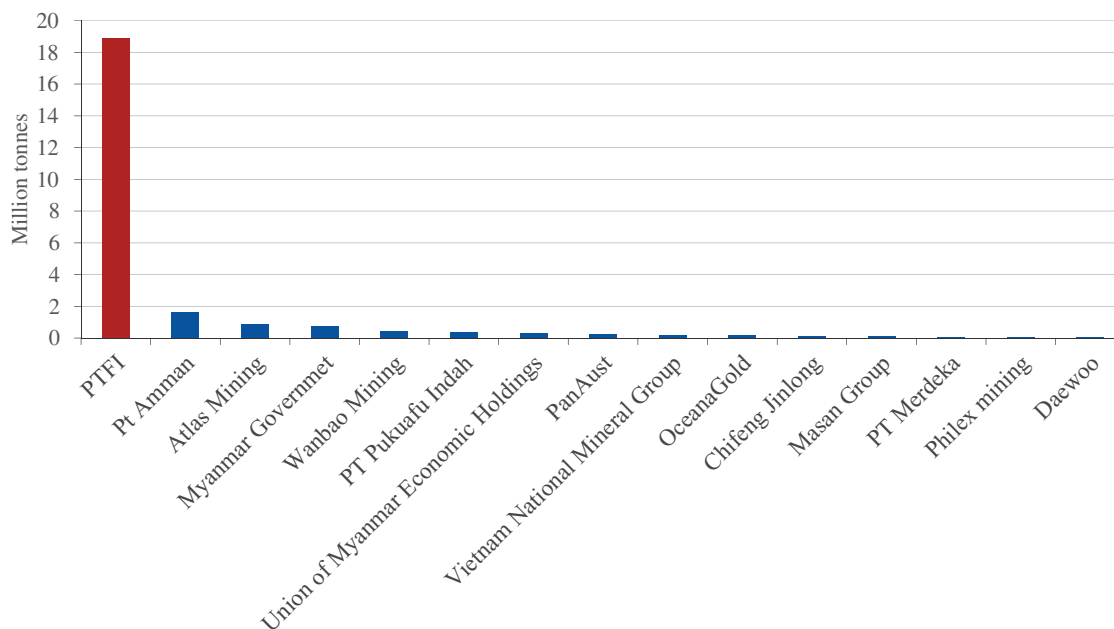
The following diagram sets forth the copper mine production in Southeast Asia by company on an equity basis in 2018 and 2019, respectively, in kilo tonnes.



Source: CRU

According to the 2019 Grasberg Reserves Statement included in this Offering Memorandum, the copper reserves of the Grasberg Mine were reported to be 18.9 million tonnes (41.7 billion pounds) by PTFI, the largest of any mine in Southeast Asia. As of December 31, 2019, PTFI held approximately 67.3% of Indonesia's copper reserves and therefore Inalum held 67.3% of Indonesia's copper reserves and was the largest holder of copper reserves in Southeast Asia.

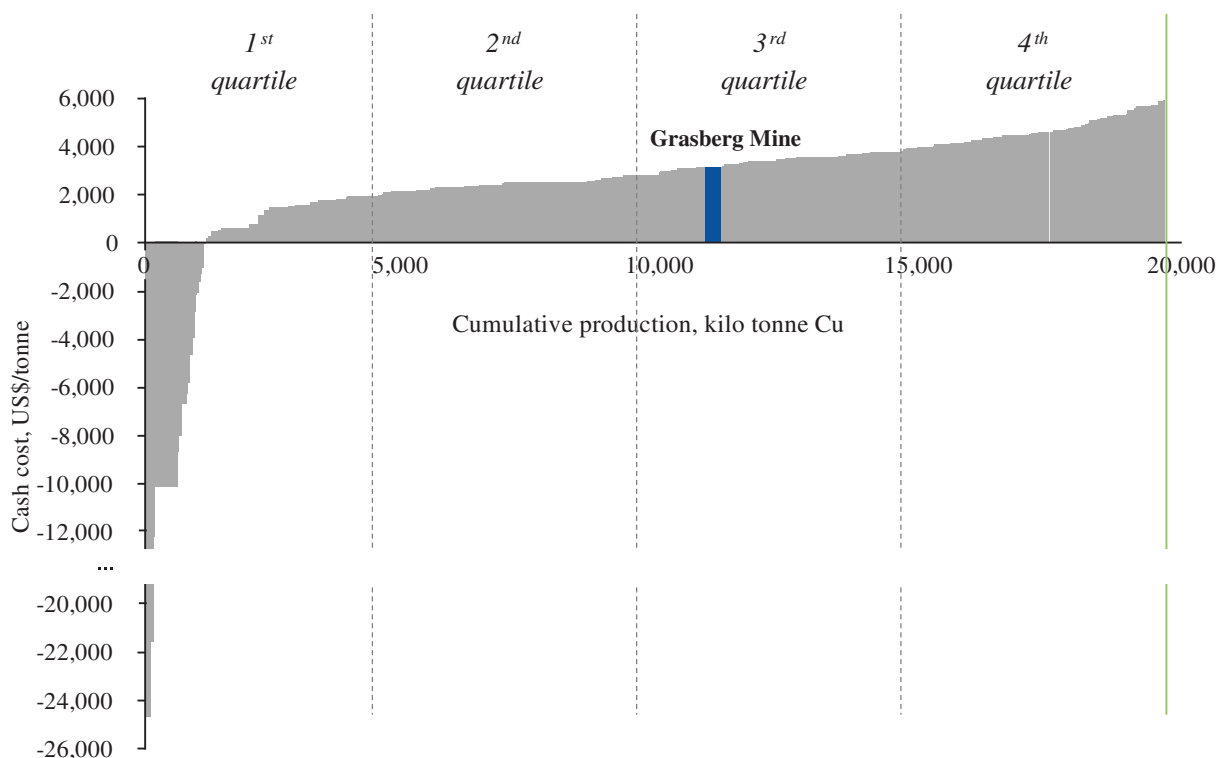
The following diagram sets forth the reserve in Southeast Asia by major company or government (on an equity basis) in 2019, in million tonnes.



Source: CRU

Copper production volume at the Grasberg Mine was lower than usual in 2019 as PTFI was mining the final phase of the Grasberg open-pit mine and transitioning to its underground ore bodies during the year, but it is expected to return to full capacity by 2023. Due to its transition to underground block cave mining and the sharp fall in production in 2019, the Grasberg Mine's copper cash cost rose significantly to US\$3,115/tonne and it sits in the third quartile of the global copper mine cost curve on a net-of-by-products basis (subtracting credits for gold and silver).

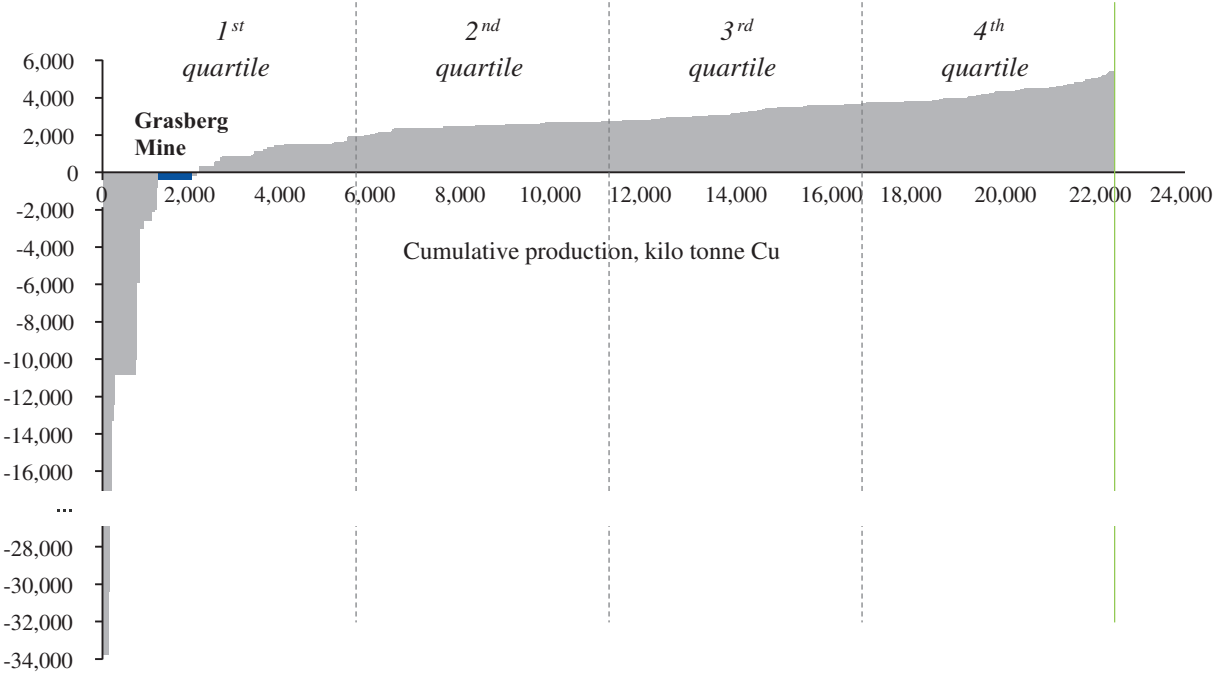
The following diagram sets forth the global copper mine (net-of-by-products) cash cost curve in 2019, in U.S. dollar per tonne.



Source: CRU

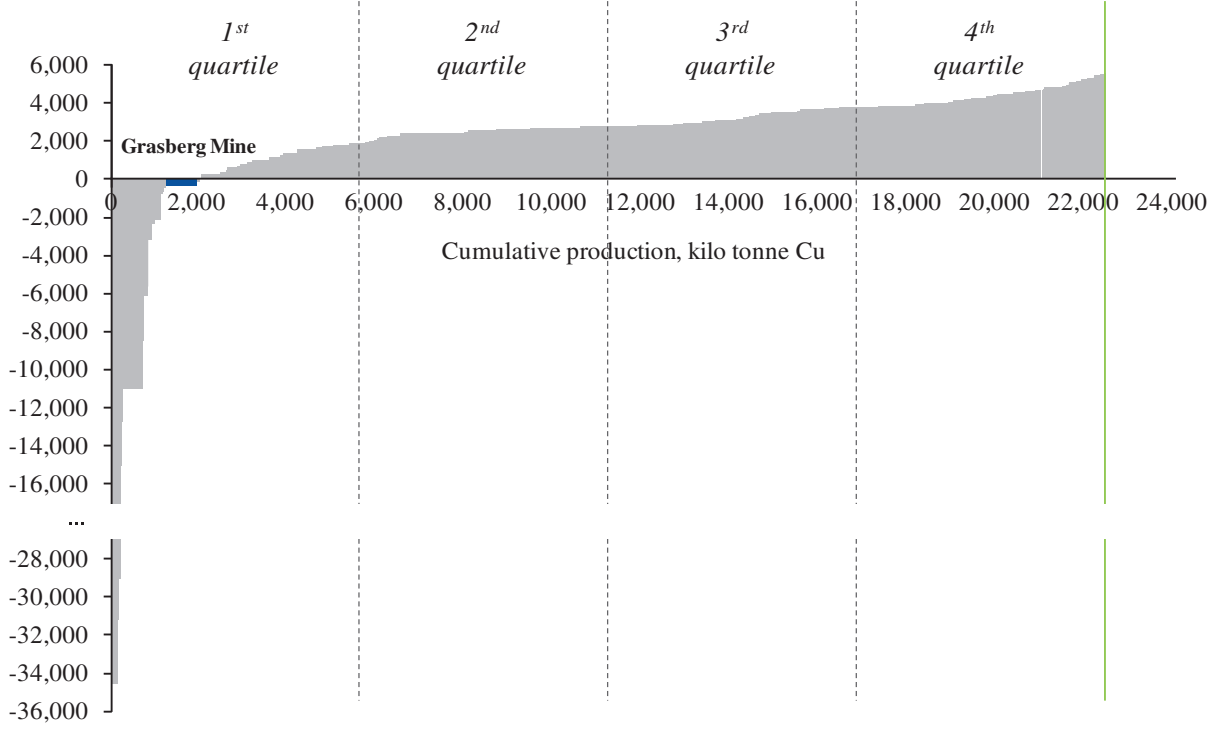
CRU forecasts that the Grasberg Mine's cost will return to expected levels as production reverts to over 700,000 tonnes copper content in concentrate in 2023 and 2024 after the transition to block caving is completed. The Grasberg Mine is expected to return to being one of the largest copper mines in the world in terms of production volume by 2023 as well as one of the lowest cost copper mines in the world with cash costs of approximately US\$-400/tonne and US\$-394/tonne in 2023 and 2024, respectively for its copper production on a net-of-by-product basis (subtracting credits for gold and silver). By then, the Grasberg Mine is expected to move back within the first quartile of the global cash cost curve for copper in 2023 and 2024.

The following diagram sets forth the global copper mine (net-of-by-products) cash cost curve in 2023, in U.S. dollar per tonne.



Source: CRU

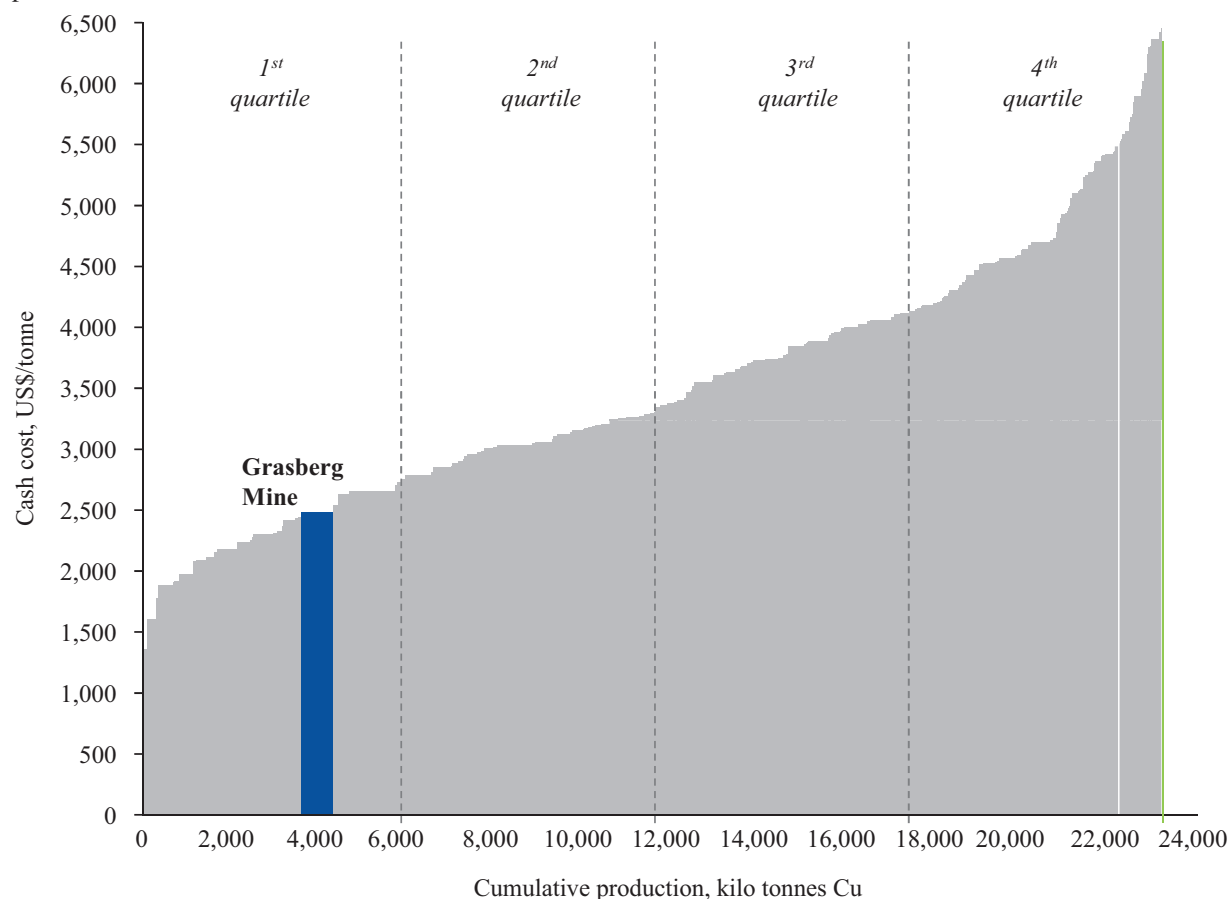
The following diagram sets forth the global copper mine (net-of-by-products) cash cost curve in 2024, in U.S. dollar per tonne.



Source: CRU

Unlike most copper mines where by-products constitute a relatively small proportion of the revenue of the mine, PTFI obtains significant revenue from both copper and gold from the Grasberg Mine. The pro-rata cash cost methodology allocates costs to each of these revenue streams rather than subtract by-product credits from the total cost. CRU estimates the Grasberg Mine's pro-rata cash cost for copper to be US\$2,482/tonne and US\$2,793/tonne in 2023 and 2024, respectively.

The following diagram sets forth the global copper mine (pro rata) cash cost curve in 2023, in U.S. dollar per tonne.



Source: CRU

Overall, the Grasberg Mine is a world-class asset. Following the transition to underground block cave mining, the Grasberg Mine is expected to return to being one of the lowest-cost copper-gold mines in the world. CRU estimates the Grasberg Mine's pro-rata cash cost for copper and gold to be US\$2,482/tonne and US\$700/oz, respectively, in 2023.

Nickel Industry

Overview

Nickel typically occurs in combination with other metals, predominantly copper, iron and cobalt. There are two broad categories of nickel ore namely, sulfide (typically pentlandite) ores and laterite ores.

Nickel reserves in 2019 were estimated by USGS to be around 89 million tonnes of nickel, equivalent to approximately 40 years of production at 2017 rates of mine production. Nickel reserves are concentrated geographically. Indonesia, Australia, Brazil and Russia holds 23.6%, 22.5%, 12.4% and 7.8% of the global nickel

reserves, respectively. Indonesia has the world's largest nickel reserves, with 21 million tonnes of nickel or 1,140 million tonnes nickel ores.

Sulfide ores have historically provided the majority of primary nickel production but these resources are being depleted faster than they are being discovered. Laterite resources have for many years been exploited for the production of ferronickel, especially since the emergence of rotary kiln electric furnace ("RKEF") technology for nickel pig iron production, but there is now a growing need to exploit laterite resources for the production of pure nickel metal and nickel chemicals.

The decline in discovery of new sulfide deposits in traditional mining districts has led to laterites receiving more attention and exploration in more challenging locations such as east-central Africa and the subarctic.

Primary nickel is mainly extracted from these two types of ores. It is then processed into various finished nickel products, including refined nickel cathodes, briquettes, or pellets and various nickel chemicals, which are sometimes collectively referred to as Class 1 nickel, as well as ferronickel and nickel pig iron, referred to as Class 2 nickel.

The type and composition of the ore will impact the processing route chosen to produce those useable finished nickel products. Sulfides typically undergo pyrometallurgical processing, whilst laterites being converted into non-stainless end products are hydro-metallurgically processed.

Nickel is a silvery white metal with a relatively high melting point of 1,455 degree Celsius when compared to other metals. Its most valuable properties are its hardness and resistance to oxidation. Finished nickel products are primarily used as an alloying agent in the production of stainless steel, superalloys and a variety of nickel-copper alloys, as well as plating material on steel and plastics. The majority (71.2% in 2019) of global nickel was consumed in stainless steel production, together with 10.5% chromium content by mass, which make it stain, corrode and rust less than carbon steel. As such, this product has been used in many applications where corrosion resistance, durability, appearance and hygiene are important. Stainless steel can be found in home appliances, cutlery, building materials, transport, food and beverage packaging, chemical plants and medical equipment.

Nickel demand

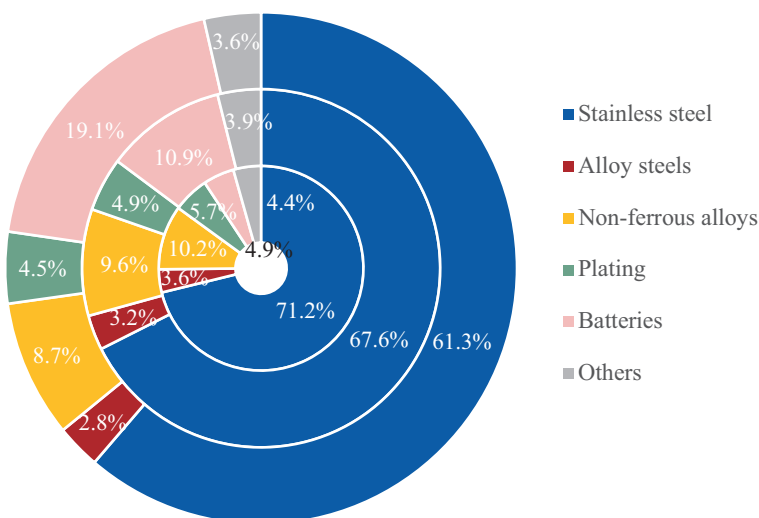
Since 2013, global nickel consumption has increased from 1.8 million tonnes to 2.4 million tonnes in 2019, at a CAGR of 4.6%. CRU expects consumption to reach 3.4 million tonnes in 2028, increasing at a CAGR of 4.1% from 2019 to 2028.

Stainless steel production is the most important end-use sector of finished nickel, accounting for 71.2% of global nickel consumption in 2019. Even though the share of nickel demand due to the manufacturing of stainless steel is forecast to fall to 61.3% in 2028, stainless steel is expected to still contribute 38.0% of nickel demand growth between 2019 and 2028. The manufacturing of batteries is expected to account for 51.6% of nickel demand growth from 2019 to 2028.

Demand for nickel in other sectors, such as alloy steels, non-ferrous alloy and plating, is forecast to remain modest from 2019 to 2028, increasing from 0.57 million tonnes in 2019 to 0.66 million tonnes in 2028.

The following diagram sets forth the finished nickel consumption by end-use in 2019, 2024 and 2028, respectively.

Inner ring: 2019 global primary nickel demand = 2.4 million tonnes
 Middle ring: 2024 global primary nickel demand = 2.9 million tonnes
 Outer ring: 2028 global primary nickel demand = 3.4 million tonnes



Source: CRU

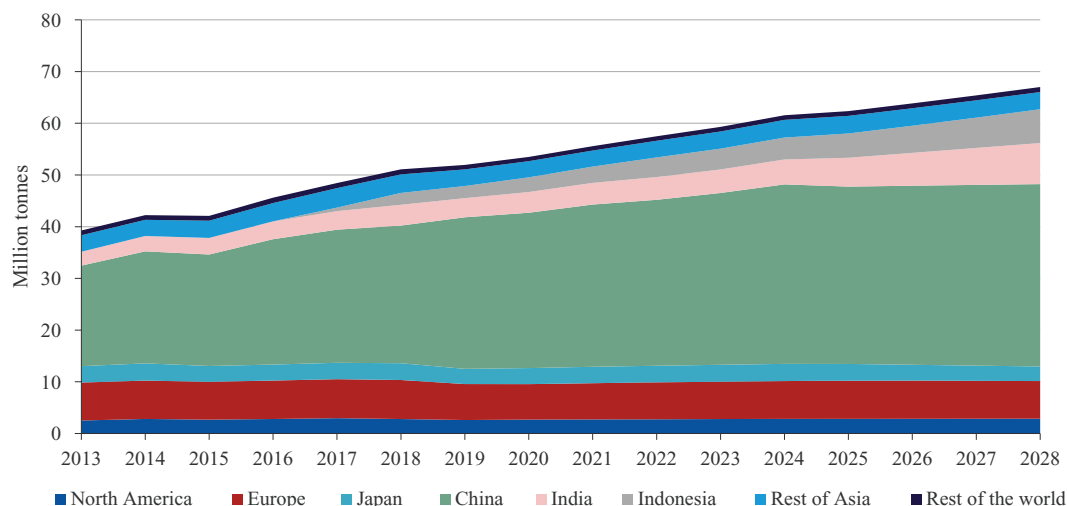
Nickel demand in stainless steel

The long-term outlook for stainless steel demand is positive, supported by income growth in developing economies, strong growth expectations in most end-use sectors and low risk of substitution with mild steel or cast iron due to the higher resistance to stain, lower corrosiveness and lower susceptibility to rust.

The intensity of use per capita of stainless steel is a key parameter to forecast the global stainless steel demand. On a global level, intensity of use is expected to rise to above 10 kg per capita in the long term, up from an average of around 7.4 kg per capita in 2019. The intensity of use in China, which has grown very rapidly since 2000, is expected to continue rising, albeit more slowly, to 2028. CRU forecasts that there will be a strong increase in the intensity of use per capita in Southeast Asia over the forecast period from 2019 to 2028. Meanwhile, India's intensity of use is expected to increase to 8.5 kg per capita, compared to 3 kg per capita in 2019. Intensity of use in Europe is expected to rise gradually from 11 kg per capita in 2019 to nearly 13 kg per capita in 2028, whilst in the longer term CRU sees North America rising more slowly.

As a result, global melted stainless steel production is forecast to grow at a CAGR of 2.5% from 52 million tonnes in 2019 to 67 million tonnes in 2028 as compared to a CAGR of 4.8% from 2013 to 2019.

The following diagram sets forth the global melted stainless steel production by region from 2013 to 2028, in million tonnes.



Source: CRU

CRU forecasts demand for nickel in stainless steel will increase to 2.1 million tonnes by 2028, up from 1.7 million tonnes in 2019, at a CAGR of 2.3% from 2019 to 2028, though it should be noted that there are two broadly offsetting trends.

Firstly, the percentage of nickel in stainless steel varies depending on its grade. 300-series stainless steel, which consists of roughly 8.0% nickel, traditionally accounted for a significant majority of total stainless production. However, low- and zero-nickel stainless steel, namely 200 and 400-series, respectively, have in recent years proven popular in China and in India. For this reason, India accounts for 7.9% of the world's total stainless steel output in 2018, but less than 4.0% of the global nickel demand. As China and India's output has grown as a proportion of the global total stainless steel output, the global average percentage of nickel in stainless steel has dropped from approximately 7.0% in 2000 to around 5.2% in 2019.

Secondly, stainless steel is a highly recyclable product and scrap forms an important raw material in stainless steel production around the world. CRU believes environmental restrictions on nickel pig iron and the availability of a large scrap pool will encourage a rise in the use of stainless steel scrap in China. CRU expects China's primary nickel ratio, which is the ratio of the demand for finished nickel products to the production of stainless steel, to decline to 71.0% by 2028 from 80.0% in 2019. CRU forecasts that this will decrease the global primary nickel ratio from 62.3% in 2019 to 58.0% in 2028.

Nickel demand in battery applications

The battery sector is key to long term nickel demand growth. CRU forecasts that 51.6% of nickel demand growth from 2019 to 2028 will come from the manufacturing of batteries, and it will account for 19.1% of total nickel demand by 2028.

The rate of growth in demand for nickel in batteries is a function both of the expansion in the use of batteries in various applications, of which EVs is by far the most important over the forecast period, and of the nickel intensity in those batteries.

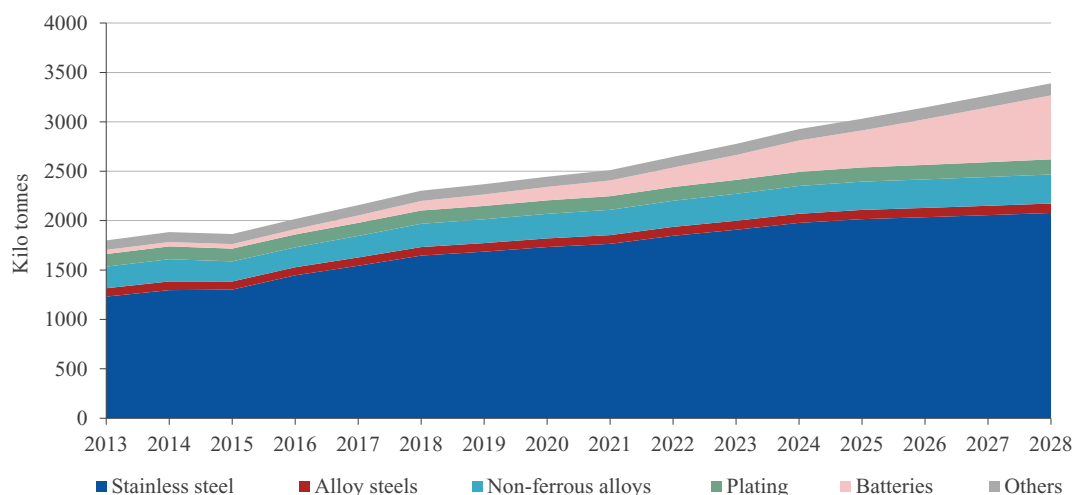
There are three main types of EVs, namely:

- Battery electric vehicles ("BEV"): BEVs are fully electric cars with an electric motor. They use chemical energy stored in rechargeable batteries. BEVs use large batteries ranging from 25 to 100kWh.

- Hybrid and plug-in hybrids (“HEV” and “PHEV”): HEVs are powered both by electricity and petrol. They use energy from the car’s own braking system to generate electrical energy and are also able to run on petrol. HEVs use 1kWh and PHEVs use 10kWh batteries.
- Fuel cells and plug-in fuel cells (“FCEV” and “PFCEV”): FCEVs use fuel cells alongside batteries to power their electric motor. PFCEVs can be charged like a PHEV. FCEVs use 1kWh and PFCEVs use 10kWh batteries.

In general, EV battery nickel usage is around 0.8 gram per watt-hour but this may vary. Nickel demand in batteries is mainly in the form of sulfate, a niche product form that is used directly in the production of Nickel-Manganese-Cobalt (“NMC”) and Nickel-Cobalt-Aluminum oxide (“NCA”) cathodes for Lithium-ion Battery (“LIB”), widely used in BEVs, while a small portion of nickel hydroxide is used in Nickel-Metal Hydride battery (“NiMH”) and Nickel-Cadmium battery (“NiCd”) that are installed in HEVs. The demand of high nickel content NMC cathodes for LIB are rapidly becoming the industry standard within the EV industry due to their high range, ease of manufacture and thermal stability. This trend is expected to continue to achieve lower cost of raw materials with an increase in nickel content and a decrease in cobalt content, as well as higher battery energy density, which is expected to drive the nickel demand in battery application in the long term.

The following diagram sets forth the global nickel consumption by end-use between 2013 and 2028, in kilo tonnes.

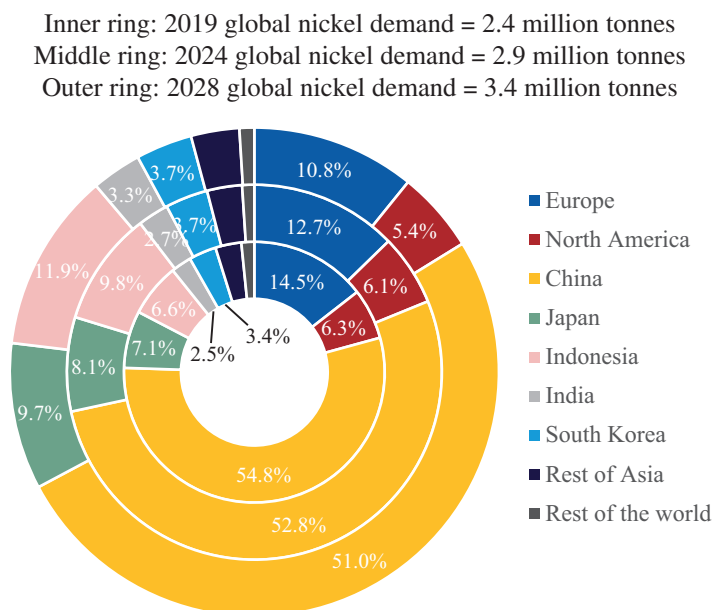


Source: CRU

On a country level, Indonesia and China are expected to be the main engines of nickel demand growth during the forecast period of 2019 to 2028, of which China is expected to contribute 42.2% of global nickel demand growth in absolute volume and Indonesia is expected to contribute 24.2% of this growth. China accounted for 54.8% of global nickel demand in 2019. CRU predicts that China will remain as the main consumer of finished nickel accounting for 52.8% and 50.8% of the global consumption of finished nickel in 2024 and 2028, respectively.

Other major consuming regions are Europe, Japan, Indonesia and North America which is expected to account for 14.5%, 7.1%, 6.6% and 6.3% of global nickel demand growth, respectively. CRU expects to see demand increasing in Japan and Indonesia at a CAGR of 7.7% and 11.0%, respectively from 2019 to 2028. Combined, Japan and Indonesia are expected to consume an additional 0.4 million tonnes, representing 15.7% and 24.2%, respectively of global demand growth.

The following diagram sets forth the global nickel consumption by region in 2019, 2024 and 2028, respectively.



Source: CRU

Nickel demand in China

Historically a net importer of stainless steel, Chinese production of stainless steel has more than trebled since 2008. In 2010, China became a net exporter of hot rolled and cold rolled stainless steel products. By 2016, China became the largest producer of stainless steel globally. This significant growth in stainless steel production, which was primarily driven by demand, was partly made possible by access to low-quality, low-cost nickel units in the form of nickel pig iron.

China consumed 1.3 million tonnes of nickel in 2019, driven by the growth in stainless steel production and accounted for 54.8% of global nickel demand. CRU forecasts that China's finished nickel demand will increase to 1.7 million tonnes by 2028 from 2019, at a CAGR of 3.2%. China has seen two decades of huge growth in carbon steel and copper demand as it developed, but it has now reached later stages of economic development, so CRU expects stainless steel demand growth will slow down.

Stronger demand from the battery sector is expected to help to cushion decreasing growth from the stainless steel sector. Chinese EVs sales have increased in recent years, albeit from a low base. Unit sales more than doubled from 0.5 million units in 2016 to 1.2 million units in 2019. CRU forecasts the number of EVs in China will reach 3.4 million units in 2024 and 8.6 million units in 2028.

Nickel demand in Japan

Japan used to be the second largest stainless steel producer in Asia, with 3.2 million tonnes produced in 2013. However, it was surpassed by India in 2015 and CRU expects it to be overtaken by Indonesia in 2021. CRU expects Japan's intensity of use per capita in relation to stainless steel to fall as the economy's focus shifts away from manufactured exports due to competition from China and Indonesia. Japan produced 2.9 million tonnes of stainless steel in 2019 and decreased to 2.8 million tonnes in 2028.

However, CRU expects that strong growth in the battery sector in Japan will largely offset decreasing nickel demand in stainless steel. Japanese companies are the main producers of NiMH and NiCd batteries. CRU expects nickel demand in the battery manufacturing sector in Japan to increase from 31,000 tonnes in 2019 to 83,000

tonnes in 2024, surpassing the volume consumed in the stainless steel sector which will be 75,000 tonnes in 2024. With the increasing proportion of nickel demand in the batteries sector in the period leading to 2028, nickel demand in Japan is expected to reach 327,000 tonnes in 2028, representing a CAGR of 7.7%, or 159,000 tonnes additional nickel demand per year from 2019 to 2028.

Nickel demand in Indonesia

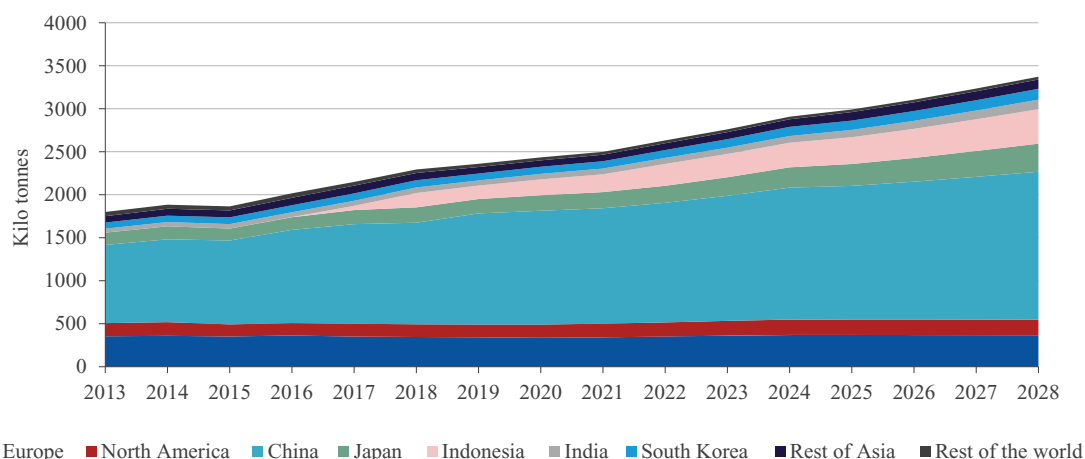
Indonesia used to be a major nickel laterite ores supplier to China, accounting for over half of Chinese nickel ore imports. However, Indonesia introduced an export ban on unprocessed nickel laterite ores in 2014. As the result, a significant amount of investment from Chinese companies went into developing nickel pig iron production bases in Indonesia. The export ban was relaxed from 2017 to 2019 and unprocessed low-grade nickel laterite ores which contain below 1.7% nickel were able to be exported outside of Indonesia. Following the relaxation of the export ban, many producers commenced setting up fully integrated nickel pig iron and stainless steel production operations which place production plants close to the supply of low-cost nickel ores and low-cost captive power. The export ban was re-introduced in the fourth quarter of 2019 and CRU expects that such integrated projects will continue to emerge in Indonesia. From 2015 to 2019, the Indonesian government was looking to facilitate the development of four industrial estates, which are close to mining areas, for stainless steel production outside Java.

In addition, recent environmental inspections by the Chinese regulators in China and forced closure of production plants which did not adhere to strict environmental standards have encouraged the shift in stainless steel production from China to Indonesia.

In July 2019, China imposed anti-dumping duties on stainless steel products imported from the European Union, Japan, South Korea and Indonesia. The anti-dumping duty for stainless steel imported from Indonesia is 20.2%. However, most of the stainless steel imports from Indonesia were from PT Indonesia Tsingshan Stainless Steel and is delivered to Tsingshan Holding Group's stainless steel plant in Fujian, China as raw material for further processing. In 2019, an estimated 465,000 tonnes of stainless steel was exported from PT Indonesia Tsingshan Stainless Steel to China, accounting for 21.0% of the total stainless steel exports from Indonesia to China. Upon processing the raw materials into hot or cold rolled stainless steel, Tsingshan Holding Group would then export it to other countries to avoid being levied value-added tax and being required to provide a cash deposit to the Chinese government. As a result, the anti-dumping duties imposed by the Chinese government will not likely have an immediate or significant impact on Indonesian stainless steel export volumes to China, and thus is not expected to hinder the growth of Indonesian stainless steel production. CRU forecasts that growth in stainless steel demand in markets such as Taiwan, India and South Korea would increase the demand for stainless steel from Indonesia despite anti-dumping duties imposed by the Chinese government.

Driven by superior economics and current investment in nickel pig iron production, Indonesian stainless steel production is forecast to increase from 2.3 million tonnes in 2019 to 6.5 million tonnes in 2028 though investment plans and timelines remain unclear and there remains a high degree of uncertainty around these forecasts. CRU forecasts that Indonesia will most certainly emerge as the second largest producer of stainless steel globally after China in the long term. As the result, nickel demand in Indonesia is expected to reach 0.4 million tonnes in 2028, at a CAGR of 11.0% from 2019 to 2028.

The following diagram sets forth the global nickel consumption breakdown by region from 2013 to 2028, in kilo tonnes.



Source: CRU

Nickel supply

Mined Nickel supply

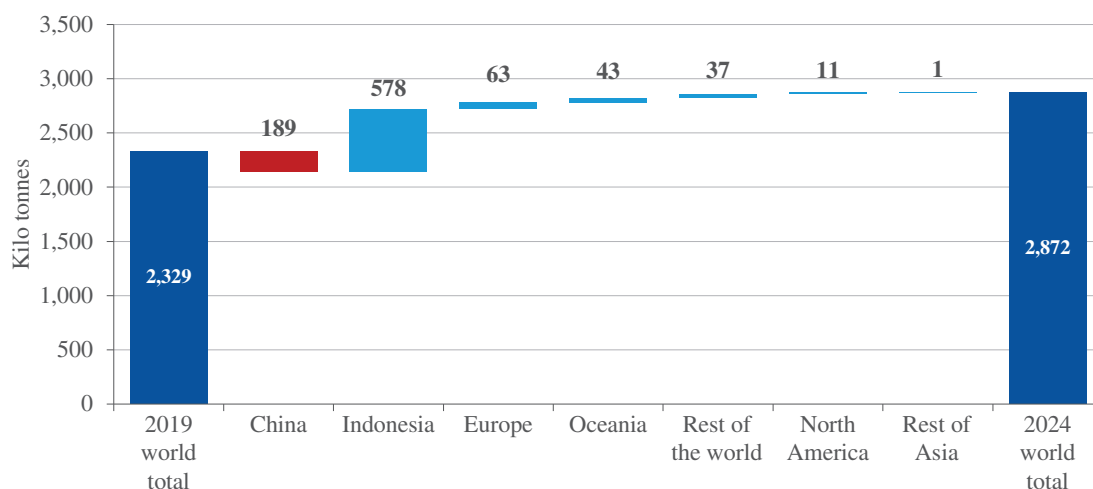
CRU forecasts that global mined nickel production will reach 3.1 million tonnes by 2024 from 2.6 million tonnes in 2019. In 2019, production from laterite ore accounted for 65.0% of the total and CRU expects this share to increase to over 75.0% by 2028 as sulfide ore becomes less available. Over the next five years, CRU forecasts nickel mine production to be dominated by Asia with Indonesia and the Philippines being major producing countries. Mined nickel production in this region is expected to increase from 1.4 million tonnes in 2019 to 1.7 million tonnes in 2024.

Indonesia began to export large volumes of nickel ore in 2017 due to a relaxation of government policies. According to data from IHS Markit, Indonesia exported 20 million wmt of nickel ore in 2018 and 32 million wmt of nickel ore in 2019, compared to none in 2016 and four million wmt of nickel ore in 2017. In 2019, Indonesia's total mined nickel production was estimated to be 0.86 million tonnes of nickel, with Antam and Vale being the two largest producers, accounting for 24.7% of the total mined nickel production in Indonesia.

Finished nickel supply

CRU forecasts global finished nickel supply will reach 2.9 million tonnes by 2024. Over the next two to three years, CRU expects new nickel pig iron and high pressure acid leaching ("HPAL") capacities to come online in Indonesia. As such, Indonesia is expected to add 579,000 tonnes nickel supply, mainly in the form of nickel pig iron, to offset supply decline in China of 189,000 tonnes in the same period.

The following diagram sets forth the global finished nickel production from 2019 to 2024, in kilo tonnes.



Source: CRU

Nickel supply from Indonesia

CRU forecasts the production of nickel pig iron in Indonesia to rise to 462,000 tonnes in 2020 from 339,000 tonnes in 2019. The increase is expected to be driven by the commissioning of additional lines at the Indonesian Morowali Industrial Park by Tsingshan Holding Group and new lines at the Weda Bay Nickel Project by Tsingshan Holding Group and Eramet. In January 2020, two additional furnaces at the Indonesian Morowali Industrial Park commenced operations which increased the RKEF production capacity to 304,000 TNi per year. In addition, Tsingshan Holding Group announced on March 10, 2020 that the first two furnaces at the Weda Bay Nickel Project have been commissioned. In addition, Tsingshan Holding Group announced their new plan to build 24 RKEF lines at the Weda Bay Nickel Project with total production capacity of 240,000 TNi per year. This will likely lead to an even higher nickel pig iron production than CRU's initial forecast of 766,000 tonnes by 2024 once the lines are operational. Antam's main expansion project in nickel is the expansion of the East Halmahera Ferronickel Plant. The first phase capacity is expected to produce 13,500 to 15,000 TNi per year. The construction is almost complete. Hence, CRU estimates that the East Halmahera Ferronickel Plant will commence production in 2020. With the commissioning and capacity ramp-up of new projects in Indonesia, the supply of finished nickel is expected to increase by 578,000 tonnes from 2019 to 2024 to 943,000 tonnes in 2024, of which 139,000 tonnes is expected to be from new HPAL facilities.

Up until now the focus for new capacity in Indonesia has been in building nickel pig iron capacity predominantly using RKEF technology. However, with the expected strong demand growth for nickel from the battery sector, several companies are now considering building HPAL facilities in Indonesia.

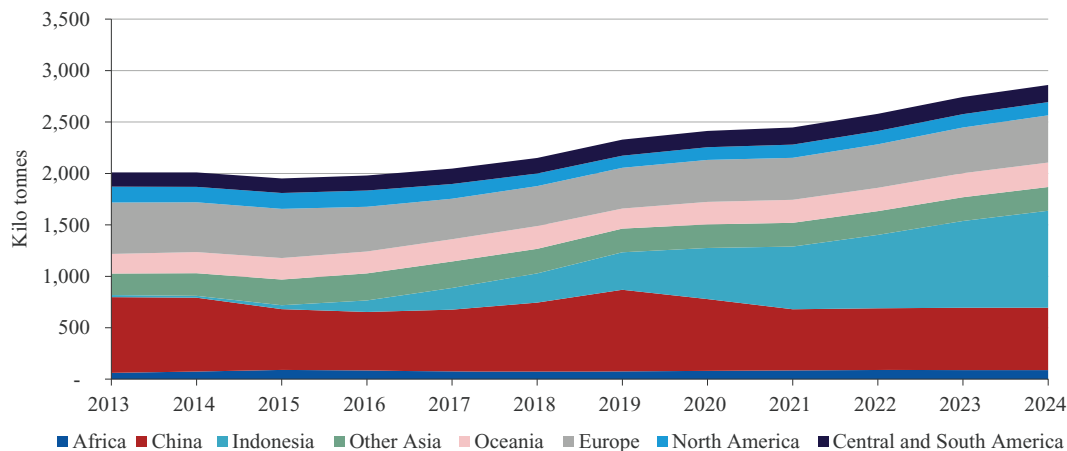
Nickel supply from China

China accounted for 34.2% of global finished nickel supply in 2019 of which 71.2% was in the form of nickel pig iron. China depends heavily on exports of nickel ore from Indonesia and the Philippines. However, the Indonesia nickel ore export ban which came into effect on January 1, 2020 is forecast to decrease Chinese nickel pig iron production to 470,000 TNi in 2020. CRU expects that the existing nickel ore inventory in China and an increase in nickel ore exports from the Philippines, Guatemala and New Caledonia will support China's level of nickel pig iron production in 2020 to some extent. This also drives the total finished nickel production in China to decrease from 0.8 million tonnes in 2019 to 0.6 million tonnes in 2024.

Nickel supply from the rest of the world

Finished nickel production in other regions is expected to stay relatively stable. CRU forecasts that additional capacity in Europe will add a total 78,000 tonnes of supply of finished nickel between 2019 and 2024.

The following diagram sets forth the global finished nickel supply from 2013 to 2024, in kilo tonnes.

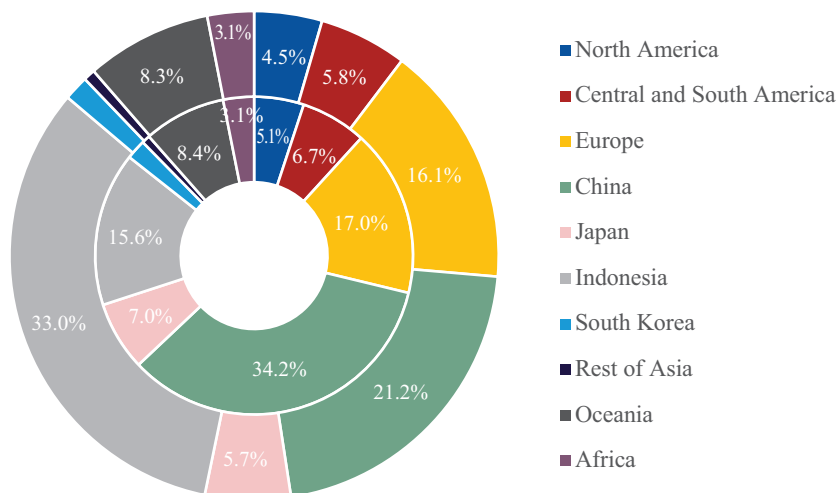


Source: CRU

Overall, in 2024, Indonesia is expected to replace China to become the largest finished nickel producer globally producing 33.0% of the total global finished nickel, followed by China with 21.2%, Europe with 16.1% and Oceania with 8.3%. Asia is expected to remain the largest finished nickel supply region with market share increasing from 59.7% in 2019 to 62.0% in 2024.

The following diagram sets forth the finished nickel supply breakdown by region in 2019 and 2024.

Inner ring: 2019 global finished nickel supply = 2.3 million tonnes
Outer ring: 2024 global finished nickel supply = 2.9 million tonnes

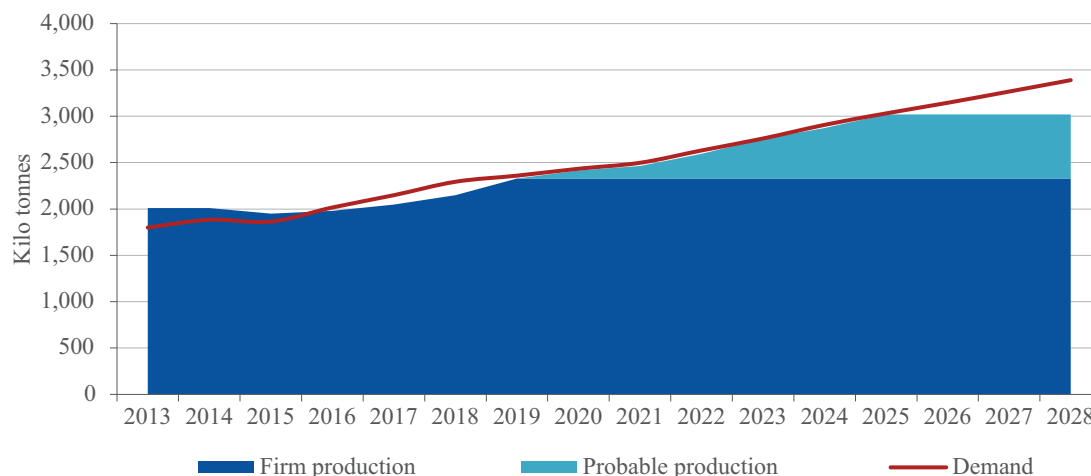


Source: CRU

CRU forecasts an additional 370,000 tonnes of finished nickel capacity to be required to fulfill demand by 2028. Over the past decade or so the growth in new capacity has been dominated by nickel pig iron, in China and

then in Indonesia. CRU expects further finished nickel production growth to be dominated by Indonesian nickel pig iron over the forecast period from 2020 to 2028. However, given that most of the growth in nickel demand is forecast to come from the battery sector, there is an increase in demand for Class 1 nickel capacity, which will likely be supplied through new HPAL capacity.

The following diagram sets forth the supply and demand for finished nickel between 2013 and 2028, in kilo tonnes.



Source: CRU

Ferronickel production

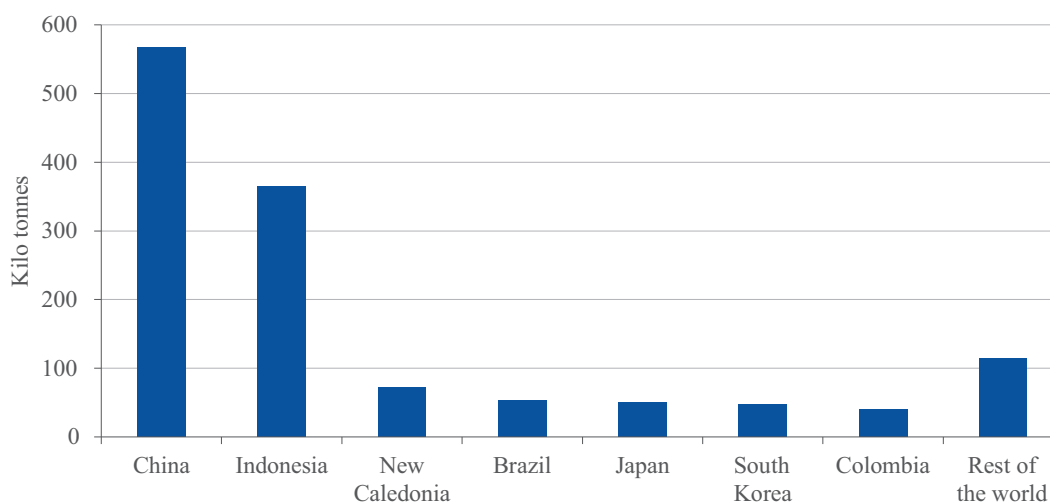
Ferronickel alloy products include ferronickel and nickel pig iron. Ferronickel normally contains approximately 20.0% to 40.0% nickel. It is mainly produced in New Caledonia, Brazil, Japan, South Korea and Colombia. Nickel pig iron is classified as an iron nickel alloy with nickel content of less than 20.0%. The production of nickel pig iron first appeared in China. However, due to the lack of laterite nickel ore resources in China and the imposition of Indonesian nickel ore ban in 2014, many Chinese companies have invested in nickel pig iron projects in Indonesia in recent years. As a result, nickel pig iron production is dominated by China and Indonesia.

Almost all ferronickel products are consumed in the stainless steel sector. There is a wide range of grades and surface quality of stainless steel to suit various application needs. Stainless steel is generally classified as austenitic, martensitic, ferritic or duplex. Austenitic stainless steel requires a certain amount of nickel while martensitic and ferritic stainless steels do not require nickel and are known as 400 series stainless steel. Austenitic stainless steel is classified into 200-series and 300-series stainless steel depending on nickel content. In general, the nickel content is normally less than 2.0% in 200-series stainless steel, and greater than 5.0% in 300-series stainless steel. 300- and 400-series stainless steel are the most widely used stainless steel globally.

In 2019, total ferronickel production including both ferronickel and nickel pig iron was 1,300,000 TNi, of which 43.3% was from China and 27.8% from Indonesia. In addition, 97.3% ferronickel products from China and Indonesia are nickel pig iron, while other countries produced ferronickel. In 2019, ferronickel represented 30.8% of the total ferronickel production.

In Indonesia, total ferronickel production in 2019 was 364,000 TNi, of which 339,000 tonnes was by the form of nickel pig iron with the rest being ferronickel.

The following diagram sets forth the ferronickel production by country in 2019 in kilo tonnes.



Source: CRU

CRU forecasts that total ferronickel production including both ferronickel and nickel pig iron will increase to 1.6 million tonnes in 2024 from 1.3 million tonnes in 2019, at a CAGR of 4.3%. The key driver of the growth is Indonesia, representing 140.9% of the global growth which is expected to offset the decline in China. By 2024, Indonesia is expected to be the largest producer, accounting for 50.7% of global ferronickel production.

China's production of ferronickel is heavily dependent on imports of nickel ore from Southeast Asia, namely Indonesia and the Philippines. Due to the Indonesia ore ban in 2020, CRU expects that production in China will decrease from 600,000 TNi per year in 2019 to 500,000 TNi per year in 2020 and stabilize at around 400,000TNi per year in 2021 and up to 2024. Ferronickel production in Indonesia is predicted to increase due to new capacities coming online.

Nickel prices have been subject to significant fluctuations since 2007. The LME nickel price reached a record high of US\$36,168/tonne in 2007, before falling to US\$14,778/tonne in 2009 due to the 2008 global financial crisis and recovering to US\$22,856/tonne in 2011 due to an increase in demand. The LME nickel price then gradually decreased between 2011 and 2016, hitting a low of US\$9,667/tonne in 2016, due to oversupply driven mainly by the rapid expansion of nickel pig iron capacity and weak demand. However, increase in demand and lack of supply since 2018 led to the LME nickel price increasing to US\$13,963/tonne in 2019. LME nickel price has fallen below US\$13,000/tonne in mid-February 2020 due to the outbreak of COVID-19 which has led to a decline in industrial and construction activities.

The outbreak and spread of COVID-19 has affected the nickel demand in China due to lower industrial and construction activities in China which resulted in a surplus of 41,000 tonnes of refined nickel in China's inventory in the first quarter of 2020. This led to a fall in the SHFE nickel price (inclusive of value-added tax) from RMB109,224/tonne in December 2018 to RMB108,333/tonne in January 2020 and RMB103,225/tonne in February 2020.

Ferronickel, which is typically priced relative to highly pure refined nickel, consisting of more than 99.0% nickel, also experience price volatility. The price of ferronickel is linked to the LME nickel price and is usually traded either at a discount or premium to the LME nickel price depending on the terms of the negotiation between ferronickel producers and consumers. Nickel pig iron has historically been produced exclusively in China, although in recent years, Indonesia has produced nickel pig iron as well. Hence, the price of nickel pig iron is consistently traded more closely to the SHFE nickel prices at a discount or premium depending on the terms of negotiation between the nickel pig iron producers and consumers. Historically, the prices of ferronickel relative to the LME nickel price was influenced by the supply and demand of different types of nickel units in

various consuming markets, primarily Europe but includes Japan, South Korea and Taiwan as well. If the availability of stainless steel scrap is reduced, or the regional premium on nickel cathode delivery increases, stainless steel mills would be prepared to pay more for ferronickel as a substitute for either product. The regional premium on cut nickel cathode may vary significantly from region to region. For example, cut nickel cathode commanded a premium of US\$280/tonne in Europe and a premium of US\$45/tonne in the U.S. in February 2020. In recent years, the prices of ferronickel have been strongly influenced by the prices of nickel pig iron.

CRU monitored the negotiated prices of CIF ferronickel consisting of 25.0% to 33.0% nickel and 17.0% to 22.0% nickel, as well as CIF nickel pig iron consisting of 8.0 to 10.0% nickel (excluding value-added taxes) in China over the past five years. These prices are linked to the LME and SHFE nickel prices. The average price of CIF ferronickel consisting 25.0% to 33.0% nickel fell from US\$11,835/TNi in 2015 to US\$9,748/TNi in 2016 in China due to the oversupply of nickel driven mainly by the rapid expansion of nickel pig iron capacity. In addition, the low prices of stainless steel over the same period reduced the profitability of stainless steel producers and exerted downward pressure on ferronickel prices. The average price of CIF ferronickel consisting 25.0% to 33.0% nickel in China increased from US\$10,545/TNi in 2017 to US\$13,096/TNi in 2018 due to an increase in demand for ferronickel in stainless steel production as a result of the growth in demand for refined nickel in the manufacturing of battery and the tight supply of ferronickel products due to the closure of a large number of nickel mines in the Philippines by the government due to alleged environmental abuses as well as the delayed commissioning of new nickel pig iron capacities in China. Meanwhile, the average prices of CFI nickel pig iron consisting of 8.0 to 10.0% nickel in China fell from \$15,832/TNi in 2014 to \$10,183/TNi in 2016 mainly driven by the rapid expansion of nickel pig iron capacity and then increased to US\$13,287/TNi in 2018 which is in line with the increase in the SHFE and LME nickel prices. From 2017 to 2018, the prices of CIF ferronickel and CIF nickel pig iron in China traded at a premium to the LME nickel price to reflect the tight supply of ferronickel during this period. The average prices of CIF ferronickel consisting 25.0% to 33.0% nickel increased from US\$13,096/TNi in 2018 to US\$13,267/TNi in 2019 mainly in line with the increase in the SHFE and LME nickel prices. In 2019, the prices of CIF nickel pig iron declined to US\$12,700/TNi and was trading at a discount to both the SHFE and LME nickel prices. This was due to weak nickel demand for stainless steel production in China and an increase of nickel pig iron supply in Indonesia and China in part due to the Indonesian government's relaxation of the nickel ore export ban in 2018.

Operational benchmarking

As of December 31, 2019, Antam holds 31.1% of total nickel ore reserves in Indonesia and is the fifth largest holder of nickel reserves on a consolidated basis globally. Antam is the largest producer of nickel ore in Indonesia, the second largest producer of nickel ore in Southeast Asia and the fourth largest producer of nickel ore globally in terms of nickel ore production volume in 2019. It owns the Pomalaa Ferronickel Plants in Sulawesi, which is the only ferronickel smelter currently in Indonesia. Antam is the third largest ferronickel producer in Indonesia and the third largest ferronickel producer in Southeast Asia with 26,000TNi in ferronickel production in 2019, accounting for 7.4% of ferronickel production in Indonesia in 2019.

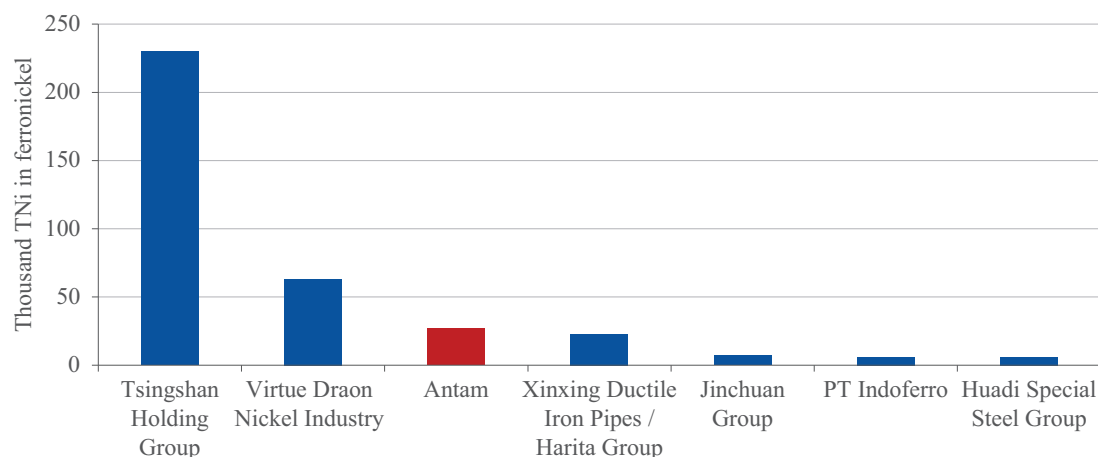
The largest nickel pig iron producer in Indonesia is PT Sulawesi Mining Investment owned by Tsingshan Holding Group and Bintang Delapan Group. It produced 230,000 TNi in ferronickel in 2019. PT Virtue Dragon Nickel Industry was the second largest Indonesian producer with 63,000 TNi in ferronickel production in 2019.

According to Antam's 2018 annual report, Antam had obtained an export quota of low-grade nickel ore (grade below 1.70% nickel) of 3.9 million wmt and made full use of that quota. Therefore, CRU estimates that Antam accounted for 20.0% of Indonesia's total exports of nickel ore in 2018.

In 2019, Antam's nickel ore production was slightly lower at 8.7 million wmt, accounting for 16.5% of national production. Antam applied to increase its nickel ore export quota by 1.3 million wmt to 5.2 million wmt. However, based on public information, the application was not approved by the government. CRU assumes that Antam's nickel ore exports in 2019 were constant at 3.9 million wmt, accounting for 12.2% of Indonesia's total exports.

According to Antam's annual report, its ferronickel products are fully exported to the international market, with the majority of customers being stainless steel manufacturers in China, South Korea, Taiwan and India. Therefore, CRU estimates that 7.7% of the ferronickel exports from Indonesia in 2019 were from Antam.

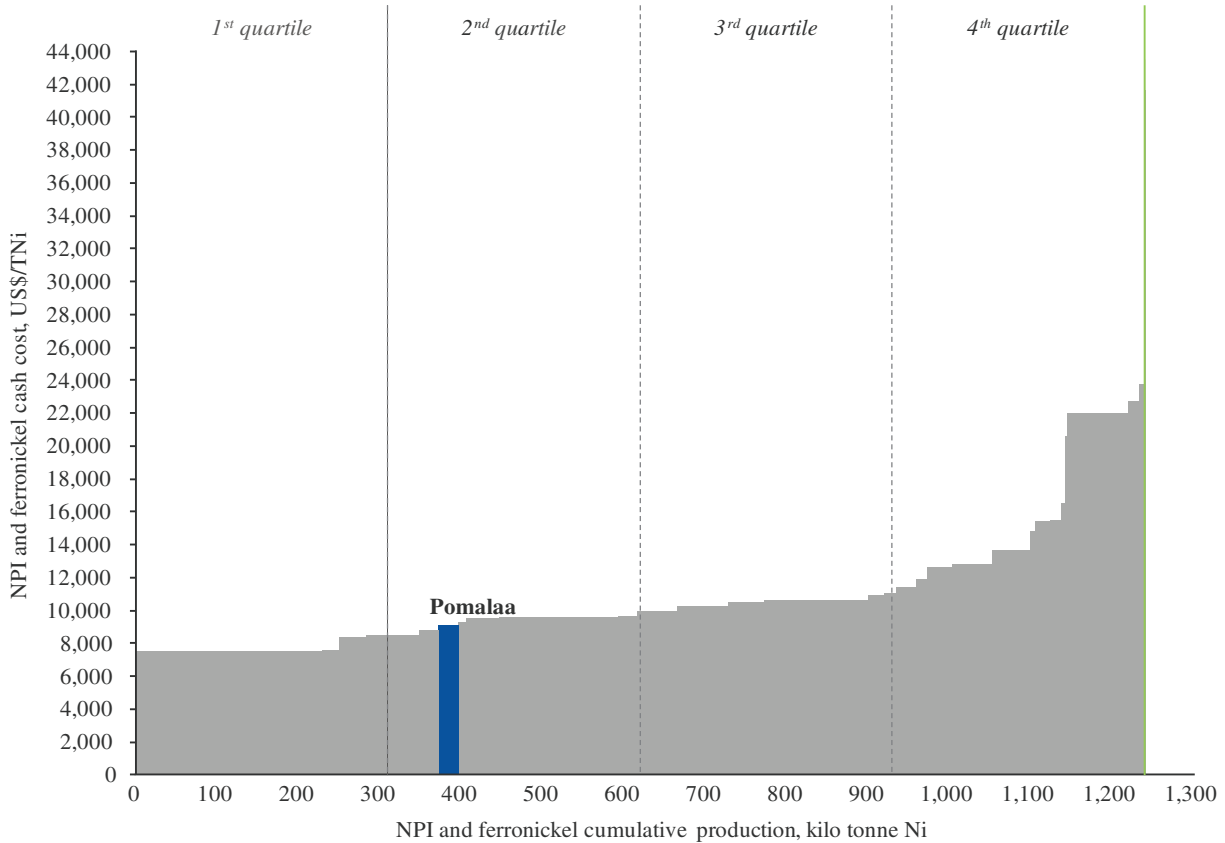
The following diagram sets forth the ferronickel and nickel pig iron production in Indonesia by company in 2019, in thousand TNi in ferronickel.



Source: CRU

The cash cost of Antam's Pomalaa Ferronickel Plants is US\$9,044/TNi in 2019, ranking it the sixth lowest cost producer among global ferronickel producers and sitting within the upper second quartile of the global ferronickel cash cost curve. The relatively strong cost competitiveness is due to the higher grade and quality of nickel ore feedstock used and captive nickel ore supply, along with low-cost captive power supply.

The following diagram sets forth the global ferronickel cash cost curve in 2019, in U.S. dollar per TNi.



Source: CRU

Aluminum Industry

Overview

Producing aluminum generally consists of four stages. The first stage is the mining of the main aluminum containing ore, bauxite. In the second stage, this bauxite is processed into alumina at an alumina refinery. In the third stage, the alumina is smelted into aluminum via an electrolytic process involving cathodes and electrodes to separate out impurities. In the final stage of the smelting process, aluminum is cast into various shapes at the casthouse.

In recent years, nearly the half of global bauxite production is transferred to an adjacent alumina refinery, often under the same ownership. As a rule of thumb, it requires 2.6 tonnes of bauxite to produce one tonne of alumina which is at fine, sand-like material that is smelted into aluminum. To produce one tonne of aluminum, it requires approximately 1.93 tonnes of alumina.

According to data from USGS in 2019, bauxite reserves are estimated to be 30 billion tonnes in the world, of which Guinea has the most at 7.4 billion tonnes, or 24.7%. At 6.0 billion tonnes or 20.0% of the world's reserves, Australia has the second largest reserves. Indonesia was estimated to possess around 1.3 billion tonnes of bauxite, which is approximately 4.2% of the total global bauxite reserves, ranking sixth in the world in terms of bauxite reserves.

In alumina production, the two leading determinants of competitiveness are access to low-cost energy and low-cost bauxite. The lowest cost refineries benefit from low bauxite mining costs, are energy efficient and use low-priced gas for fuel. These factors mean that successful alumina plants are usually integrated and achieve large economies of scale.

Alumina is converted into aluminum by electrolysis. The only commercial process for smelting is the Hall-Heroult process. This process is highly energy intensive.

After the process of aluminum smelting is completed, which has separated aluminum metal from its oxide, the molten aluminum must be cast into end-user friendly form. Nearly all finished aluminum smelters have an associated casthouse. These casthouses vary in complexity, but in its simplest form, aluminum is cast in basic moulds into pigs or larger sows for sale. This is often termed ‘re-melt’ aluminum because the end-user will have to re-melt the metal at their own casthouse in order to mould it into a more complex shape. Most aluminum smelters, however, have facilities for casting their aluminum into higher value shapes such as billet or slab that can be fed directly into the end-user’s manufacturing process.

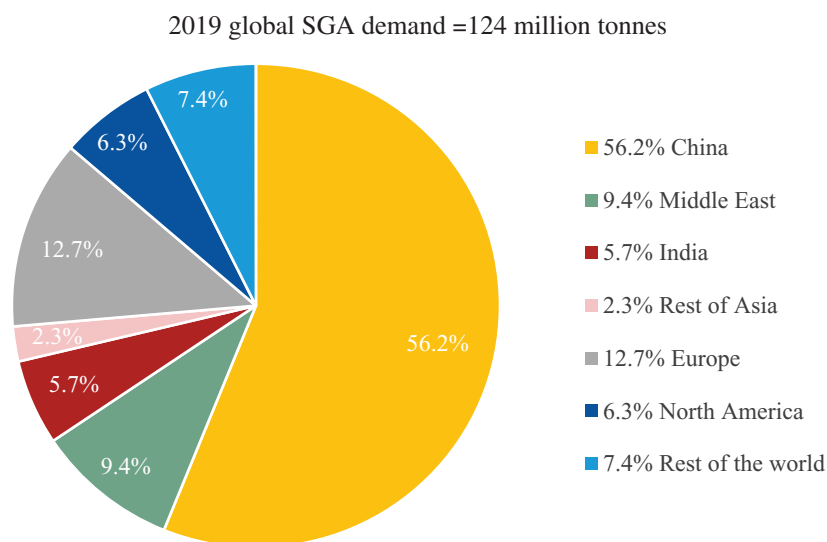
Alumina demand

Alumina is separated to smelter grade alumina (“SGA”) and chemical grade alumina (“CGA”). SGA is the key raw material for primary aluminum production. The intensity of use of SGA in a primary aluminum smelter depends on the smelting technology employed and the handling processes for SGA on the way to the smelter. SGA demand has always accounted for more than 90.0% of the total alumina demand with the rest being consumed by CGA demand.

Smelter grade alumina (SGA)

In 2019, global SGA consumption was 124 million tonnes. Regionally, the largest consumer of SGA was China, which was estimated to account for approximately 56.2% of global demand representing 70 million tonnes. This was followed by Europe, the Middle East, North America and India which accounted for 12.7%, 9.4%, 6.3% and 5.7% of global demand, respectively. Malaysia and Indonesia were the two largest SGA consuming countries in Southeast Asia, consuming 1.5 million tonnes and 0.5 million tonnes, respectively. As SGA’s finished use is for primary aluminum production, SGA demand is directly linked to primary aluminum production, resulting in the largest SGA consuming countries being the largest primary aluminum producing countries.

The following diagram sets forth the SGA demand by region in 2019.



Source: CRU

From 2013 to 2019, global SGA demand has grown from 99 million tonnes to 124 million tonnes at a CAGR of 3.9% and China was the key contributor to the growth of global SGA consumption. China accounted for 82.2% of the growth in absolute volume of SGA consumption during this period at a CAGR of 6.2% from 2013 to 2019, increasing from 49 million tonnes in 2013 to 70 million tonnes in 2019.

SGA demand is directly linked to primary aluminum production. Smelting capacity has moved from high-cost regions, such as North America, to low-cost regions like China. Even within China, primary aluminum smelters are moving from eastern China to middle or the western part of China due to cost savings. Overall, SGA demand in Asia has increased at a CAGR of 6.6% between 2013 and 2019, while outside Asia, demand only increased at a CAGR of 1.5% due to a decrease in SGA demand in many regions, such as Australia, Africa, North America and Central and South America, which decreased at a CAGR of 1.4%, 1.1%, 3.2% and 8.7%, respectively.

For the forecast period from 2019 to 2028, CRU forecasts that the growth rate of global SGA demand will slow to a CAGR of 2.0%, reaching 148 million tonnes in 2028. The regional structure of the demand is not expected to change drastically, with China still being the largest consumer of SGA accounting for 57.3% of the total global SGA demand in 2028, or 85 million tonnes, followed by Europe, Middle East, North America and India accounting for 11.7%, 9.7%, 6.0% and 5.5% of the total global SGA demand, respectively.

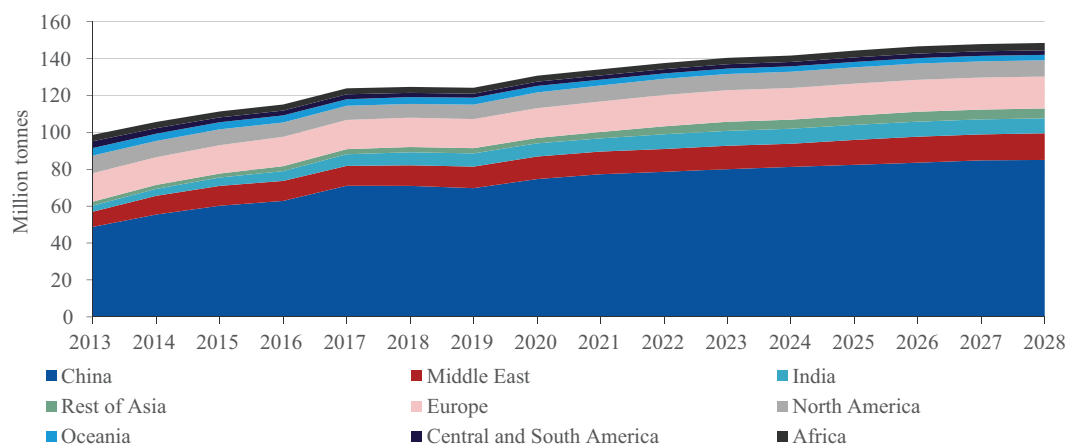
Chemical grade alumina (CGA)

Alumina is also used for applications other than the production of aluminum metal. Alumina hydrate is used as an additive in flame retardants, a component of synthetic marble, a cleaning agent in toothpaste, a paper additive to improve brightness, a feedstock for various chemicals and an additive in various sealants. Calcined alumina finds major uses in refractories, particularly in the steel industry, and in ceramics and abrasives.

CGA is mainly produced as an alternative to SGA at refineries that principally produce SGA. Since CGA is a slightly higher specification and higher value-added product, it typically commands a premium and refineries equipped to produce both categories of alumina would divert some capacity to CGA whenever demand justifies this because prices for this product are more attractive.

CGA consumption is forecast to remain in the 5.0 to 6.0% range of total alumina demand through the forecast period to 2028.

The following diagram sets forth the global alumina demand by region from 2013 to 2028, in million tonnes.



Source: CRU

Alumina supply

Since 2013, the total global SGA production has grown from 102 million tonnes to 125 million tonnes in 2019 at a CAGR of 3.4%.

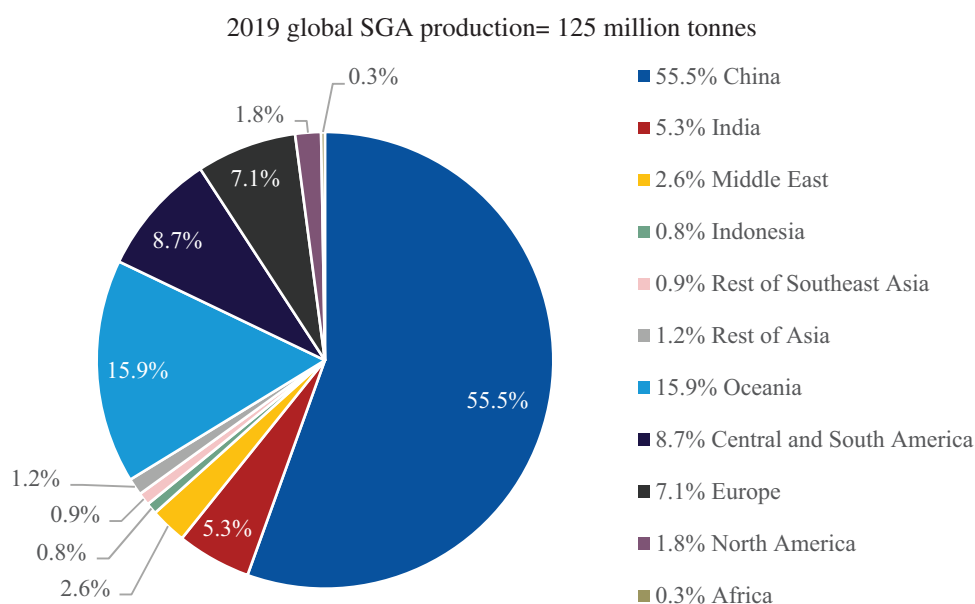
China is the largest producing region, accounting for 55.5% of the total global SGA production and grew from 48 million tonnes in 2013 to 69 million tonnes in 2019 at a CAGR of 6.4%. In 2019, Chinese SGA supply

declined by 3.2% year-on-year as refineries in north China cut production amid weak market conditions, environmental restrictions and, in the case of some Henan-based refineries, a reduction in production to comply with environmental regulations.

Between 2013 and 2019, in regions outside China, supply increased at a CAGR of 0.2%. Supply increased by 4.0% year-on-year in 2019. Oceania is the next largest producing region after China, accounting for 15.9% of the global SGA production in 2019. Production in the Middle East increased from 0.3 million tonnes to 3.2 million tonnes between 2013 and 2019. Indian production almost doubled from 3.4 million tonnes to 6.6 million tonnes. Production in Southeast Asia grew from 0.3 million tonnes in 2013 to 2.4 million tonnes in 2019. However, some SGA production has moved from high-cost regions to low-cost regions, most notably in North America, where production more than halved from 5.5 million tonnes in 2013 to 2.3 million tonnes in 2019.

Overall, in 2019, China was the largest SGA producer, accounting for 55.5% of global SGA production. For producers outside China, Australasia is the biggest contributor to the global SGA production, accounting for 15.9% of the global SGA production. This is followed by Central and South America, Europe and India which accounted for 8.7%, 7.1% and 5.3% of global SGA production, respectively. Southeast Asia accounted for approximately 2.1% of the global SGA production, attributing equally to Indonesia and Vietnam, with each accounting for approximately one million tonnes of SGA production in 2019.

The following diagram sets forth the global SGA production by region in 2019.



Source: CRU

Alumina prices are determined by factors such as the cost of production, the availability of alumina for refineries which do not have a captive alumina supply and the prices of aluminum. Alumina prices generally follow the same cyclical pattern as aluminum prices. In the past two decades, published indexes for alumina reflecting spot transactions globally has replaced the LME aluminum price-linked alumina prices.

The price of alumina has been falling since 2006 and hit the lowest levels in 2009 due to the impact of the global financial crisis in 2008. The prices for Australia FOB alumina according to CRU's Alumina Price Index fell by 31.0% to US\$248/tonne from 2008 to 2009. Alumina prices recovered in late 2009 and the first half of 2010. The prices for Australia FOB alumina averaged US\$339/tonne in 2010 and US\$376/tonne in 2011 due to high demand for alumina and lower production levels of refineries outside China, especially in the first half of 2011. The prices for Australia FOB alumina fell to US\$319/tonne in 2012 due to weak economic conditions and sluggish demand for aluminum from China. Prices recovered in 2013 to US\$326/tonne and remained relatively

consistent in 2014 at US\$330/tonne. The prices for Australia FOB alumina declined by approximately 43.4% from US\$352/tonne in January 2015 to US\$199/tonne in January 2016 due to the lower production cost of alumina resulting from lower fuel prices. Due to expectations of shortages, the price for Australia FOB alumina increased to US\$354/tonne in 2017. In the second and third quarter of 2018, alumina prices experienced a strong increase and reached record high levels. In February 2018, the price of Australia FOB alumina was US\$380/tonne. In March 2018, the price of Australia FOB alumina price increased above US\$400/tonne following alumina supply disruptions in Brazil. In April 2018, the price of alumina had reached US\$690/tonne, which was the highest alumina price level reported by CRU in the past 31 years. In May 2018, alumina spot prices retreated to US\$475/tonne. One of the main reasons for the fall in the price of alumina was that the market adjusted to the initial disarray from the fallout of previously disrupted alumina shipments from Rusal, the second largest aluminum producer in the world by production volume. The disrupted shipments from Rusal was a result of sanctions imposed by the U.S. In August 2018, positive sentiment overwhelmed the alumina spot market, and spot prices once again surged higher in the region of US\$523 to US\$600/tonne and lifted the price of Australia FOB alumina from an average of US\$354 in 2017 to US\$473 in 2018. The fluctuations in the price of alumina in 2018 resulted in an increase in the cost of production at primary aluminum smelters globally because alumina is the main feedstock for the production of primary aluminum. The prices of Australia FOB alumina continued to decline through 2019 to an average of US\$332/tonne in 2019 due to weak demand and an increase in alumina supply from China. The prices of Australia FOB alumina declined below US\$300/tonne in August 2019 for the first time since June 2017 due to a tight supply of alumina resulting from smelters maintaining higher volumes of alumina after the price volatility in 2018.

The price of Australia FOB alumina has increased over 7.0% in February 2020 from end-January 2020 to US\$305/tonne due to expectations of shortage of alumina resulting from the closure of alumina refineries amidst the outbreak of COVID-19 in China.

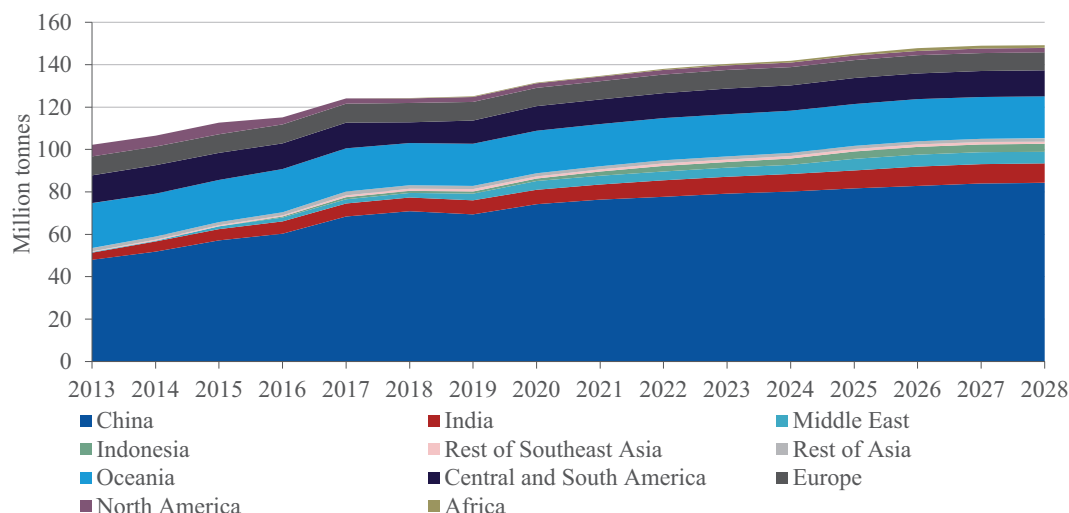
Traded CIF bauxite prices (excluding value-added tax) in China, which is the world's largest bauxite market, have fluctuated around US\$50 to US\$55/tonne in the past couple of years. Bauxite prices struggled in 2016 and 2017. Bauxite prices have remained at relatively low levels at the whole year price of US\$50.7/tonne in 2017 in China. This was mainly due to the oversupply in the world, particularly caused by the significant production increase in Guinea and sizable imports of relatively cheaper Malaysian bauxite in 2017. In 2018, bauxite prices in China were up by US\$2.8/tonne from 2017, mainly driven by a pickup in ocean freight rates, high alumina prices and robust bauxite demand in China. In particular, Chinese imports of high temperature bauxite from Australia have continued to grow. The price of bauxite in China fell to US\$51.1/tonne in 2019 due to pressure from high stockpiles in 2018 and bauxite being oversupplied due to several new bauxite mines in Australia which produce high temperature bauxite and significant increase in shipments from Guinea.

Global SGA production is expected to increase from 16.5 million tonnes in 2019 to 142 million tonnes in 2024 due to sizable growth in refining capacity in the next five years in Asia. Looking ahead to 2024, CRU expects Chinese SGA production to increase by 22 million tonnes compared to 2019 with supply mainly from Guangxi, Shanxi, Inner Mongolia and Shandong, due to the commencement of production at new projects and the expansion of capacity of existing projects. This forecast does not include a number of announced projects such as Guizhou Chalco Daozhen, Zunyi Dongneng, Jinjiang Guanyun and Shanxi Fenxi, which are assumed to be delayed in a weaker demand environment. Over the next five years, as large refining projects commence production, such as Inner Mongolia Chifeng, this increases the likelihood that relatively high-cost Chinese refineries will be forced to close. There is also the risk of alumina capacity closing for environmental reasons, as well as additional capacity in north China undertaking maintenance or flexible production schedules. CRU expects to see an increase in SGA production in India, the Middle East and Central and North America with capacity expansions and major refining projects commencing production over the next five years. In the current low alumina price environment, there is also the likelihood of relatively high cost capacity in Central and South America and Europe being curtailed. CRU has included a global (including China) total of one million tonnes of additional unallocated closures in 2021. The Mempawah Smelter Grade Alumina Refinery with a planned production capacity of approximately 1.0 million tonnes of smelter grade alumina per year is expected to commission in 2022.

Global SGA capacity is expected to grow by 24 million tonnes per year, reaching 193 million tonnes per year by 2028. CRU predicts that this growth will be driven by greenfield and brownfield projects in Asia, particularly in China, India and the Middle East. Asia's alumina capacity is set to reach 131 million tonnes per year in 2028, compared to 103 million tonnes per year 2019.

With the increasing capacity, CRU forecasts that the SGA production will be 149 million tonnes in 2028, of which 84 million tonnes representing 56.5% of the production will still come from China. Africa is forecast to grow the fastest, at a CAGR of 16.1% from 2019 to 2020, followed by Indonesia and Middle East at a CAGR of 15.6% and 6.1%, respectively.

The following diagram sets forth the global SGA production by region from 2013 to 2028, in million tonnes.



Source: CRU

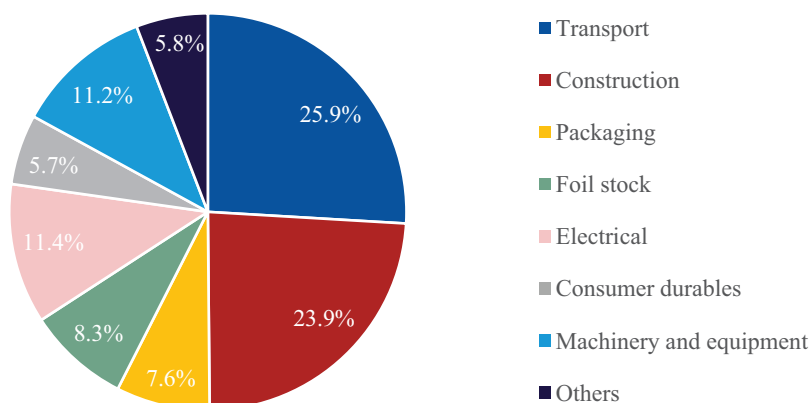
Primary aluminum demand

Primary aluminum is processed into semi-fabricated aluminum products, such as rolled products, extrusions, castings, wire and cable, forgings, powder and paste. Rolled products, extrusions and castings are the most popular forms used by end-use consumers, accounting for 31.3%, 32.7%, and 24.1% of total global demand for semi-fabricated aluminum products in 2019, respectively.

Global consumption of semi-fabricated aluminum products grew at a CAGR of 3.6% from 2013 to 2019 and is expected to increase at a CAGR of 2.6% to 113 million tonnes in 2028. The largest end-use sectors of semi-fabricated aluminum products are transport and construction. The proportion of demand for semi-fabricated aluminum products by the various sectors are expected to be relatively stable until 2028, although the transport sector is expected to grow slightly faster than the construction sector.

The following diagram sets forth the global semi-fabricated aluminum products consumption by end-use sectors in 2019.

2019 global semi-fabricated aluminum products consumption = 90 million tonnes



Source: CRU

Until the late 1980s, primary aluminum consumption was dominated by North America, Europe and Japan, which together accounted for approximately 80.0% of global consumption in 1990. Since 1990, there has been rapid growth of consumption in China and the rest of Asia and rapid decline and then recovery of several Eastern European countries.

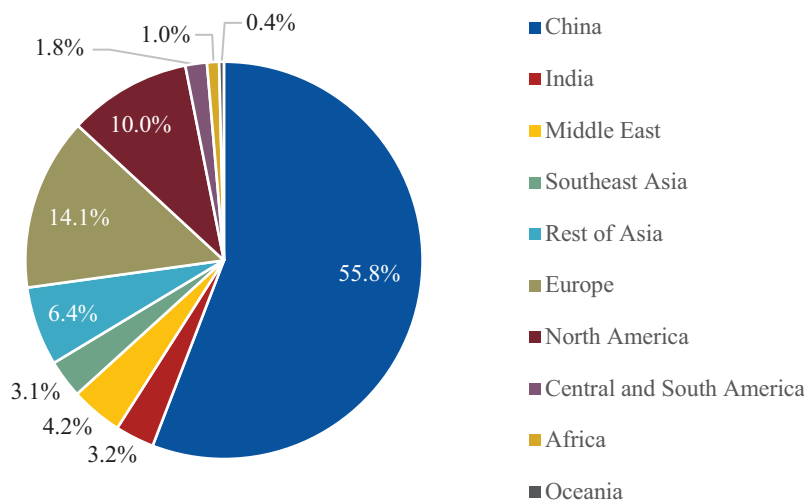
China has come to dominate the global consumption of all commodities, including aluminum. China overtook the U.S. in 2005 to become the world's largest consumer of primary aluminum. From 2013 to 2018, global primary aluminum demand has experienced a strong growth trend, at a CAGR of 5.2%, from 51 million tonnes in 2013 to 65 million tonnes in 2018. China played a key role in the growth, accounting for 75.9% of the growth, at a CAGR of 7.7% from 2013 to 2018, growing from 25 million tonnes to 36 million tonnes. In 2018, CRU estimates that China accounted for 55.8% of global primary aluminum consumption.

Primary consumption in the Middle East, India and Southeast Asia other than Indonesia also increased from 2013 to 2018, at a CAGR of 5.4%, 5.0% and 5.9%, respectively.

However, global primary aluminum demand decreased in 2019 by 1.1% year-on year to 64 million tonnes. This was the first annual decline in aluminum demand in the last decade. The bulk of the downgrades have been in China and Western Europe, due to a combination of regulatory, trade, and policy issues.

The following diagram sets forth the global primary aluminum demand breakdown in 2019.

2019 global primary aluminum demand = 64 million tonnes



Source: CRU

The price of aluminum is subject to pronounced cycles. The main driver of the price of aluminum is economic activity, particularly in the main industrial countries. From 1981 to 2004, the LME three-month aluminum prices averaged US\$1,468/tonne, with average prices varying from a low of US\$1,032/tonne in 1982 to a high of US\$2,319/tonne in 1988. Between 1991 and 1995, the price of aluminum hit a low of US\$1,161/tonne in 1993 and a high of US\$1,832/tonne in 1995. Between 1996 and 2004, annual average prices of aluminum fluctuated within a relatively narrow range of US\$1,364 to US\$1,721/tonne. Annual average prices of aluminum hit US\$2,594/tonne and US\$2,662/tonne, respectively in 2006 and 2007. In first half of 2008, the LME three-month aluminum prices sustained high levels, peaking at over US\$3,300/tonne in July, but subsequently fell to below US\$2,000/tonne, which was previously reached in 2005. The LME three-month aluminum price dropped further to below US\$1,400/tonne in early 2009, as the effects of the global financial crisis began to become manifest. However, aluminum prices recovered strongly in 2010 to an average of US\$2,173/tonne and rose again in 2011 to an average of US\$2,395/tonne due to increasing demand from sectors such as construction and transportation after the global financial crisis. The LME three-month aluminum price started to decline from April 2011 to below US\$2,000/tonne in 2012 which can be attributed to the slowdown of the growth of China's GDP and the growing debt crisis in Europe leading to lower consumption of aluminum. The LME three-month aluminum price decreased from a peak of US\$2,095/tonne in February 2013 to an average of US\$1,887/tonne in 2013 due to weak demand and high inventories outside China. The economic recovery in 2014 lifted prices moderately to US\$1,894/tonne. The LME three-month aluminum price declined further to an average of US\$1,661/tonne in 2015 and an average of US\$1,605/tonne in 2016. This was attributed to the weak demand for aluminum globally and the continuous oversupply of aluminum, particularly in China which commissioned new aluminum production facilities over this period. In 2017, the price of aluminum recovered and increased to US\$2,117/tonne due to strong global demand and the closure of aluminum production facilities in China which did not adhere to the Chinese government's environmental regulations. Global aluminum demand declined in 2019 due to a combination of regulatory, trade, and policy issues in connection with the U.S. and China trade war and corresponding protectionist measures, which resulted in a decline of the LME aluminum price to US\$1,811/tonne in 2019.

While the LME three-month aluminum price has declined due to the outbreak of COVID-19 which has reduced industrial and construction activities globally, it has been hovering above US\$1,700/tonne in January and February 2020. The aluminum industry has faced continuous disruptions from both demand and supply sides due to the outbreak of COVID-19. As concerns over a global recession mounted, the LME three-month aluminum price dropped further to below US\$1,500/tonne by early April.

Overall, CRU forecasts that global primary aluminum demand will increase from 64 million tonnes in 2019 to 76 million tonnes in 2028, at a CAGR of 1.8%. This is mainly because demand for primary aluminum in China is expected to grow at a slower CAGR of 1.6% from 2019 to 2028 compared to a CAGR of 6.4% from 2013 to 2019.

CRU forecasts that primary demand in China will increase to 40 million tonnes in 2024 and approximately 42 million tonnes in 2028 with only 20.0% of the demand growth being attributed to transportation and construction. Demand in the rest of Asia is expected to increase strongly over the forecast period. Consumption in the Asia excluding China is forecast to reach 14 million tonnes in 2028, from 11 million tonnes in 2019, lifting its proportion of global primary aluminum demand to 19.0% in 2028 from 17.0% in 2019. Demand in the region is expected to be driven by strong growth in India, in particular. India is forecast to achieve a CAGR of 6.8% from 2019 to 2028. Primary aluminum demand by Indonesia and other countries in Southeast Asia are predicted to increase smoothly at a CAGR of 2.1% and 2.8%, respectively, from 2019 to 2028.

In relation to primary aluminum consumption outside Asia, Africa is estimated to have the biggest growth rate, at a CAGR of 4.4% from 2019 to 2028, followed by Central and South America, at a CAGR of 3.7% from 2019 to 2028. CRU forecasts that the growth rate of primary aluminum consumption will decline to a CAGR of 1.8% from 2019 to 2028. Oceania and Europe are both predicted to become relatively flat, at a CAGR lower than 1.0% from 2019 to 2028.

Primary aluminum demand in China

Chinese GDP growth rate slowed to 6.1% in 2019, which is the lowest level in the last 29 years. CRU forecasts Chinese economic growth to slow further with projected GDP growth rate below 6.0% between 2020 and 2024.

Through 2019, CRU had been continuously adjusting Chinese primary aluminum demand growth downwards, from 2.9% at the beginning of the year to 0.5% at the end of 2019. This was driven by a combination of the slowdown in the economy, the cooling down of the real estate market, changes in emission policy for cars which resulted in lower car sales and hence, lower aluminum demand, and the on-going trade disputes between the U.S. and China. CRU expects demand to grow at a CAGR of 2.3% between 2019 and 2024, although the outbreak of COVID-19 will likely have a downside risk to aluminum demand in 2020. CRU forecasts demand to grow at a CAGR of 0.6% between 2024 and 2028.

According to China's National Bureau of Statistics, the floor space of completed buildings in 2019 was 959.42 million square meters, which is an increase of 2.6% year-on-year from 2018. This is an improving sign for aluminum usage in windows, doors, decoration, home durables and appliances. China is shifting its growth model to rely more on consumption and less on investment which will have a strong impact on the construction industry. The government is unlikely to stimulate the real estate market in big cities as long as growth targets are met. However, the Chinese government is still expected to continue to pour money into infrastructure projects. Consequently, CRU expects that the consumption of semi-fabricated aluminum products to grow at a CAGR of approximately 1.0% between 2019 and 2028.

At the end of October 2019, China Mobile, China Telecom and China Unicom jointly announced that 5G had officially come into commercial use in the country. The development of 5G could create extra demand for primary and secondary aluminum, especially aluminum casting products, as more 5G base stations are distributed.

China's automotive sector was weak in 2019, despite a strong finish to the year. According to data from the China Association of Automobile Manufacturers, auto production and sales declined by 7.5% and 8.2% in 2019, respectively. CRU forecasts that Chinese auto sales will see stable growth in the long term, driven by the robust growth of EV sales but a downward risk due to COVID-19 could significantly alter the forecast in 2020. CRU expects light-weighting trends and low emission requirements to push up aluminum consumption in the Chinese automotive sector at a CAGR of over 2.0% between 2019 and 2028.

State Grid, China's largest utility company, was expected to start the construction of 52,000 km of electric transmission lines with a voltage of 110 kV or above in 2019.

CRU forecasts that the consumption of recycled metal will accelerate from 2021 to 2023 and reduce demand for primary aluminum.

Export growth for semi-fabricated aluminum products is expected to continue through the forecast period, expanding at an average annual rate of 4.5% from 2021 to 2024. Additional trade barriers present a downside risk to this forecast.

Primary aluminum demand in India

Primary aluminum demand in India is predicted to receive a boost as the government announced a US\$1.5 trillion infrastructure plan on December 31, 2019 to construct infrastructure such as roads, railways and power generation plants, over the next five years to support and stimulate economic growth. CRU expects that this will stimulate the demand for semi-fabricated aluminum products resulting in an increase in demand for primary aluminum. However, the pick-up in aluminum demand is expected to be slow in the initial period as CRU forecasts that this infrastructure plan will take some time to kick start.

Primary aluminum demand in the Middle East

2019 was challenging for the Middle East, which saw a 3.7% decline in consumption of semi-fabricated aluminum products from 2018. Steady economic growth is forecast to sustain healthy demand growth for semi-fabricated aluminum products at 3.0% to 4.0% year-on-year between 2019 and 2028. CRU expects that the increase in infrastructure projects and automotive manufacturing moving to Turkey will be a key driver of growth. In addition, the export of semi-fabricated aluminum products is also a driver of future primary aluminum demand growth, which is expected to rise by an annual average rate of 4.3% from 2019 to 2024. Exports of semi-fabricated aluminum products increased by 19.0% in 2019 from 2018 and is expected to grow between 2.0 to 4.0% year-on-year over the next five years. Overall, demand for primary aluminum in the Middle East is expected to grow at a CAGR of 2.5% between 2019 and 2028.

Primary aluminum demand in the rest of Asia

In the rest of Asia, except for China, India and the Middle East, demand for primary aluminum is forecast to grow at a CAGR of 1.9% between 2019 and 2028, or by 1,132,000 tonnes. This is expected to be driven primarily by the transport and construction industries.

Primary aluminum demand in the rest of the world

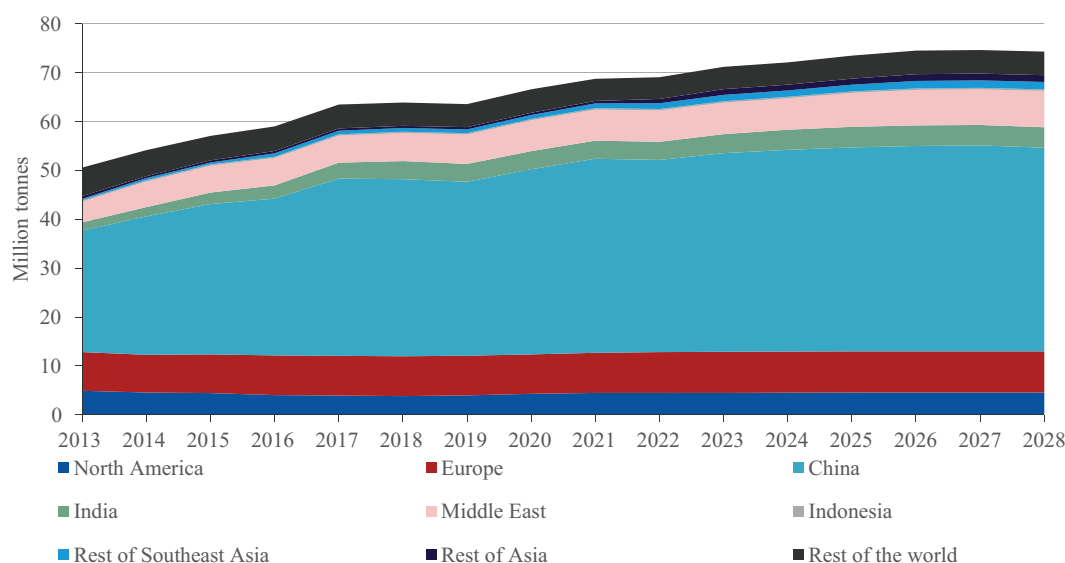
Demand for primary aluminum by the transport section in North America is forecast to contract again in 2020. In addition, demand for semi-fabricated aluminum products by the aerospace market is expected to decline in 2020 as the fallout from the Boeing 737 MAX grounding trickles through the supply chain. Furthermore, imports and production of semi-fabricated aluminum products by the U.S. is expected to drop in 2020. Despite this, CRU forecasts primary aluminum demand to grow at a CAGR of 1.6% between 2019 and 2028 with the transport industry being the key driver. Rolled products and extrusion demand is expected to remain strong as original equipment manufacturers will continue to reduce vehicle weight by swapping steel for aluminum in order to increase fuel efficiency. CRU forecasts that EV sales will account for approximately 16.0% of all automotive sales in North America in 2028.

Central and South America consumption in 2019 decreased by 4.5% from 2018. That was in line with industrial production in the region which also decreased by 4.0% in 2019 from 2018. Packaging demand in Brazil is expected to drive aluminum demand to grow at a CAGR of 3.7% from 2019 to 2028.

In Europe, CRU forecasts rising automotive production and increasing intensity-of-use of aluminum auto bodies from 2019 to 2028, although producers of semi-fabricated aluminum products are growing increasingly pessimistic about the outlook for automotive production in 2020. CRU has downgraded the forecast for European

automotive output from -0.4% to -1.4%. Airbus is steadily reducing its reliance on aluminum, driven by a rising focus on the environment and sustainability. Airbus expects to reduce its aluminum consumption by 50.0% between 2016 and 2030. Overall, aluminum demand in Europe is expected to grow at a CAGR of 0.8% between 2019 and 2028.

The following diagram sets forth the global primary aluminum consumption by region from 2013 to 2028, in million tonnes.



Source: CRU

Aluminum supply

Global primary aluminum production held reasonably steady in 2019 at 64 million tonnes, with only a slight -0.5% year-on-year decrease, partially due to the decline in global primary aluminum demand. It is estimated that 55.9% of the global primary aluminum production came from China in 2019, amounting to 36 million tonnes. Outside China, most of the primary aluminum production was attributed to Europe, accounting for 12.8% of the global production. This was followed by the Middle East, North America and India which accounted for 9.5%, 6.2% and 5.7% of the global production, respectively. Southeast Asia produced a total of 1.0 million tonne of primary aluminum which accounted for 1.6% of the global primary aluminum production, and the production was attributed to Indonesia and Malaysia. Malaysia produced 760,000 tonnes, while Indonesia produced 260,000 tonnes in 2019. Indonesia's entire production was from Inalum's aluminum smelter at Kuala Tanjung, North Sumatra.

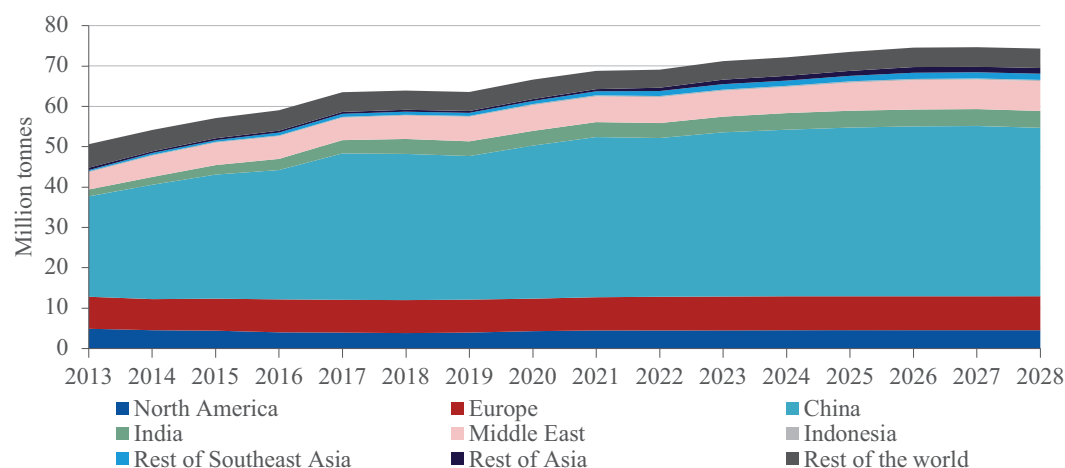
Since 2013, global primary aluminum production has grown from 51 million tonnes to 64 million tonnes in 2019, at a CAGR of 3.9%. Production did, however, fall by 0.5% in 2019. Production from China has increased from 25 million tonnes in 2013 to 36 million tonnes in 2019, at a CAGR of 6.1%. 55.9% of primary aluminum production, or 36 million tonnes, came from China in 2019. Production in India grew at a CAGR of 13.7%, more than doubling from 1.7 million tonnes to 3.6 million tonnes from 2013 to 2019. The Middle East also expanded quickly at a CAGR of 6.0%, from 4.3 million tonnes to 6.1 million tonnes from 2013 to 2019. In Southeast Asia, Malaysia increased its primary aluminum production from 298,000 tonnes in 2013 to 760,000 tonnes in 2017 and maintained this level of production to 2019. Production at Inalum's aluminum smelter at Kuala Tanjung, North Sumatra was stable from 2013 to 2019 at 250,000 to 260,000 tonnes per year. Production in Central and South America, North America, Oceania and Africa contracted from 2013 to 2019 by a CAGR of 8.7%, 3.5%, 1.5% and 1.2% respectively.

Overall, CRU expects that China's primary aluminum production will increase from 36 million tonnes in 2019 to 40 million tonnes in 2021 due to upcoming projects in China. While the COVID-19 pandemic has hit demand for aluminum around the world, CRU has not yet observed large curtailments of primary aluminum production at primary aluminum smelters. The resulting oversupply of primary aluminum is expected to lead to the closure of some primary aluminum smelters and production is expected to fall back to 39.3 million tonnes in 2022. After 2023, production is expected to increase at a CAGR of 1.8% to 42 million tonnes by 2028.

CRU forecasts that primary aluminum production outside China will increase only by 0.7 million tonnes in 2020. Production is expected to grow at a 1.6% CAGR between 2019 and 2028.

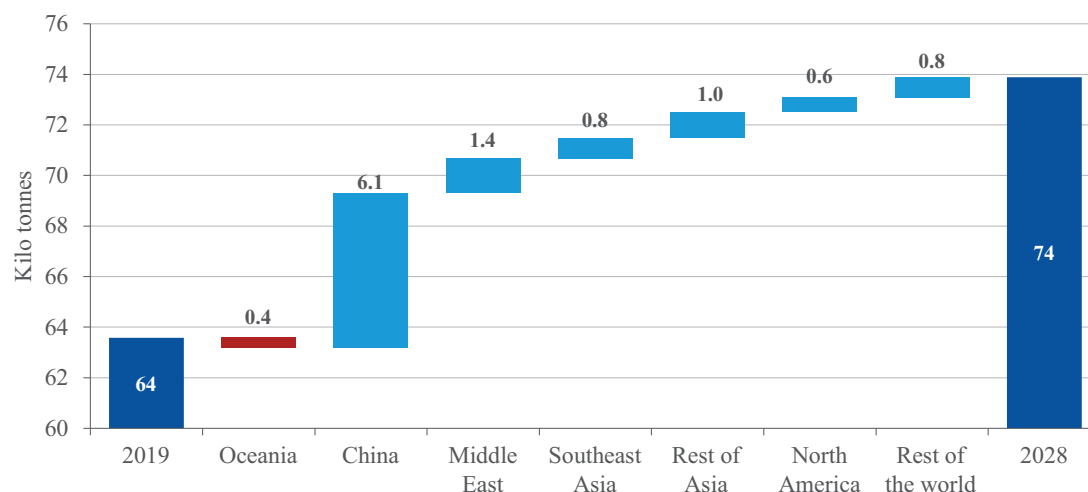
Overall, CRU forecasts that the global growth of primary aluminum production will slow to a CAGR of 1.7% from 2019 to 2028, reaching 74 million tonnes in 2028.

The following diagram sets forth the aluminum production by region from 2013 to 2028, in million tonnes.



Source: CRU

The following diagram sets forth the increase and decrease of aluminum supply by regions from 2019 to 2028, in kilo tonnes.



Source: CRU

Operational benchmarking

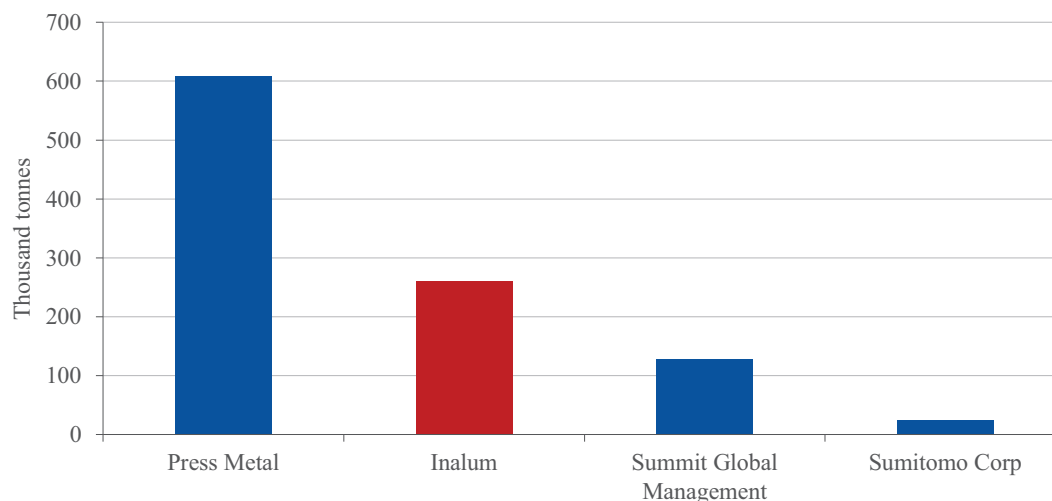
Aluminum Corporation of China Limited (CHALCO) is the largest producer of alumina and aluminum in China in terms of production volume in 2019, accounting for 17.2% and 15.4% of China's total alumina production and aluminum production, respectively. It is also the second largest alumina producer in the world in terms of production volume in 2019.

As of December 31, 2019, Antam held 151 million tonnes of bauxite reserves in Indonesia, accounting for approximately 12.0% of Indonesia's reserves.

Inalum owns an aluminum smelter in Kuala Tanjung, North Sumatra, which is the only aluminum smelter in Indonesia. In the Southeast Asia, there are two other smelters in Mukah and in Samalaju, which are both in Malaysia, and 80.0% owned by Press Metal Aluminium Holdings Sdn Bhd. Inalum is the second largest aluminum producer in Southeast Asia in terms of aluminum production volume in 2019, on an equity basis.

As the Inalum is the only primary aluminum producer in Indonesia, it contributed 100.0% of aluminum production in Indonesia in 2019, amounting to 260,000 tonnes. Inalum accounted for 100.0% of aluminum exports in Indonesia in 2019.

The following diagram sets forth the aluminum smelter production in Southeast Asia in 2019, in kilo tonnes by equity share.

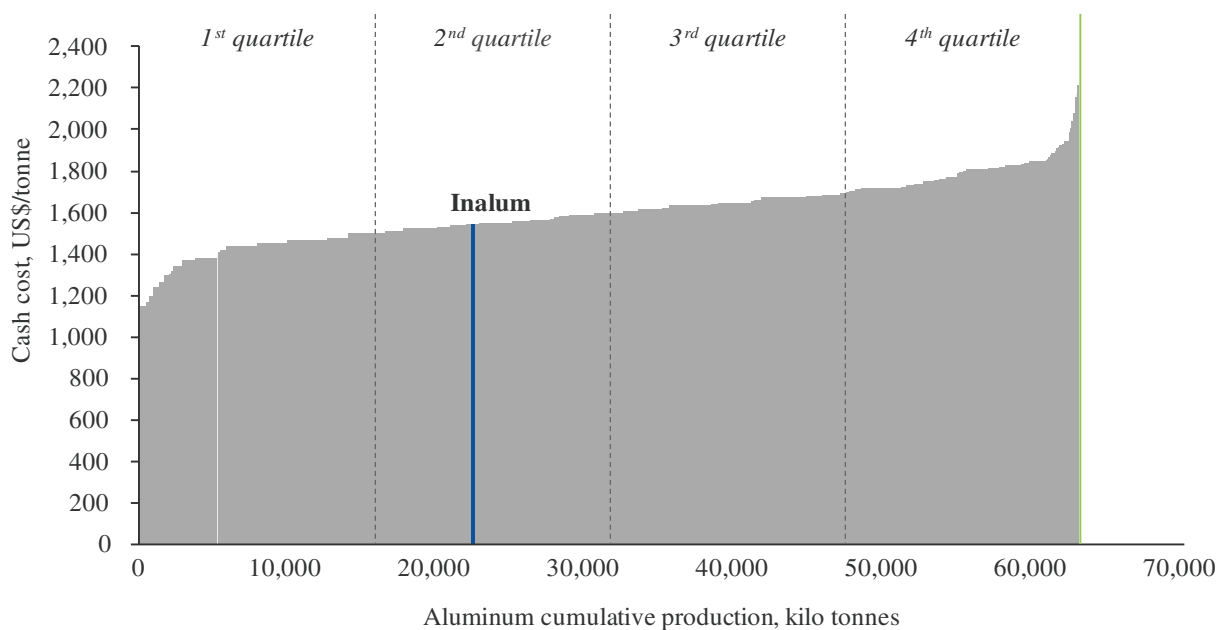


Source: CRU

Based on the cost data provided by Inalum, Inalum sits in the middle second quartile of the global aluminum cash cost curve in 2019 at US\$1,540/tonne. It has dominant cost advantages in the Southeast Asia and Asia markets. This competitive cost is mainly due to the very low-cost power from its fully integrated hydro power plant, offsetting the higher cost alumina that it must import from Australian and Asian producers.

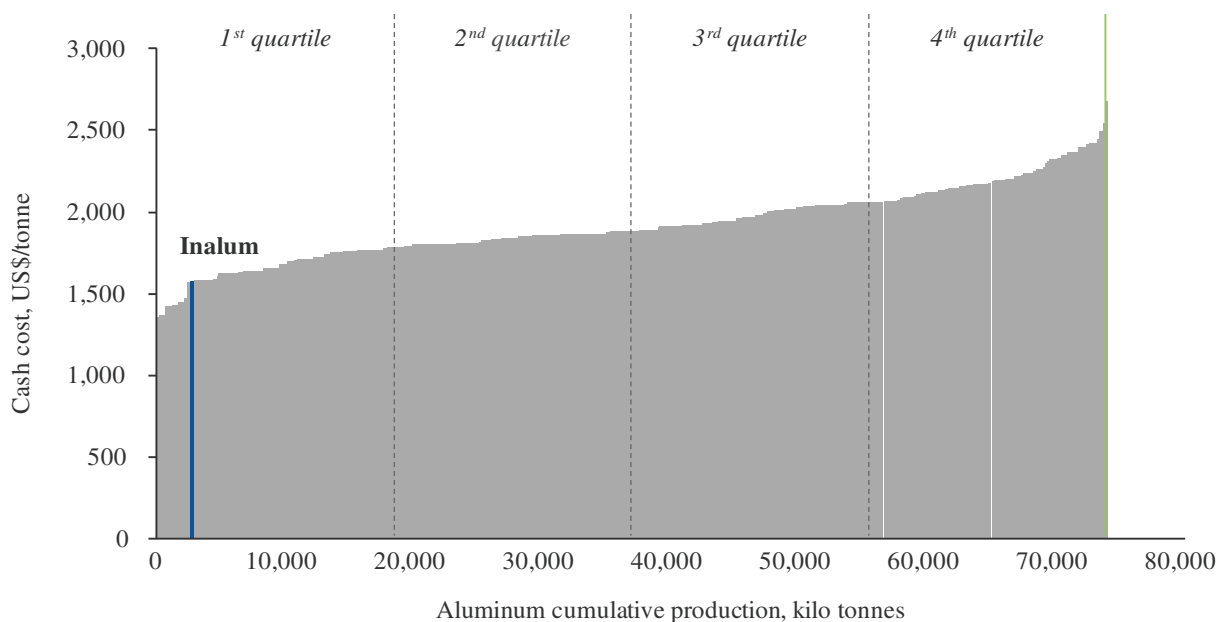
Inalum's aluminum cash cost is expected to likely move into the upper first quartile of the global aluminum cash cost curve by 2024. This will be a result of the development of Inalum's Mempawah Smelter Grade Alumina Refinery, which is expected to commission in 2022. CRU expects that Inalum will then be less exposed to changes in the international alumina market and ocean freight costs.

The following diagram sets forth the global aluminum production cash cost curve in 2019, in U.S. dollar per tonne.



Source: CRU

The following diagram sets forth the global aluminum production cash cost curve in 2024, in U.S. dollar per tonne.



Source: CRU

Update in relation to the current COVID-19 pandemic

The data relied on for the forecasts in this section were obtained in January and February 2020. Since then, the COVID-19 pandemic outside China has escalated rapidly. CRU forecasts that this will exert a significant downward impact on global economic activity and demand for commodities in 2020 and that there will be significant supply-side disruptions, the net-effect of which will vary by commodity and geography. While CRU forecasts a recovery in late 2020 or early 2021, the situation is rapidly evolving and there will likely be structural impacts to the demand and supply of the products discussed in this “Industry Overview” section.

INDONESIAN REGULATORY FRAMEWORK

Mining Regulation

Under the Indonesian Constitution, all natural resources in the Republic of Indonesia are controlled by the Government and must be used for the maximum benefit of the Indonesian people. Mining activities in Indonesia are governed by Law No. 4 of 2009 regarding Mineral and Coal Mining (the “Mining Law”), which was enacted on January 12, 2009 by former President Susilo Bambang Yudhoyono. The Government has issued several implementing regulations to implement the Mining Law, including: Government Regulation No. 23 of 2010 on Implementation of Mineral and Coal Mining Activities as recently amended by Government Regulation No. 8 of 2018 (“GR 23/2010 (as amended)”), Government Regulation No. 55 of 2010 on the Guidance and Supervision of Mining Business Practice (“GR 55/2010”); and Government Regulation No. 78 of 2010 on Reclamation and Post-mining (“GR 78/2010”).

One of the objectives of the Mining Law is to provide equal treatment to foreign and domestic investors introduced under the Investment Law (as defined below) through, among other things, (i) the abolishment of the contract of work system under the previous mining legal framework; (ii) the introduction of a license-based system equally applicable to both foreign and domestic investors; (iii) the allowance of foreign investment subject to certain divestment requirements; (iv) the authorization of the Government to designate mining areas (*Wilayah Pertambangan* or “WP”) within Indonesia; (v) the requirement of a tender process for the granting of new coal and mineral mining concessions; (vi) the regulation of larger mining areas and reduction terms for production; (vii) the requirement to comply with onshore processing obligations; and (viii) the regulation of mining services contractors.

The Mining Law also demonstrates the Government’s attempt to protect and promote national and local mining companies. This is reflected, for example, in the obligation of mining business license holders to engage either national or local mining service companies. However, foreign direct investment (*Penanaman Modal Asing* or “PMA”) mining services companies may be engaged in the event that national or local mining service companies are not available. Similarly, mining services companies have a similar obligation to prioritize both local contractors and human resources in supporting their businesses. A holder of an IUP or an IUPK is also prohibited from engaging its subsidiaries and/or affiliated mining services companies in its mining operational area, unless a permit has been obtained from the Ministry of Energy and Mineral Resources (the “MEMR”) in respect of such engagement.

Under GR 55/2010, the supervision of licensed mining activities is generally conducted by the MEMR and the governor of the province in which the mining area is located. GR 55/2010 also regulates the supervision of finances, mineral and coal processing data, conservation of minerals and coal, operational safety, environmental impacts, land reclamation, post-mining management, technical training of laborers, as well as a host of production data of the types, quality, and total amount of extracted minerals. Supervision of mining facilities is carried out by mining inspectors endorsed by the MEMR or by authorized representatives of the MEMR and/or the relevant governor. In any case, only a mining inspector has the authority to recommend to the Directorate General of Minerals and Coal (the “DGMC”) or the head of the provincial mining office, as applicable, that a mining business license holder temporarily suspend mining activities in part or entirely or permanently cease mining operations.

Mining licensing system

Old licensing system

The Mining Law abolished the old mining licensing system, which previously provided for mining authorizations (*Kuasa Pertambangan* or “KP”), contracts of work (*Kontrak Karya* or “CoW”) and coal contracts of work (*Perjanjian Karya Pengusahaan Pertambangan Batubara* or “CCoW”).

Under the Mining Law, all existing KPs, CoWs and CCoWs will remain valid for the remainder of their respective terms and, upon their expiration, may be converted into licenses under the new mining licensing system. Pursuant to GR 23/2010 (as amended), in order to extend an expiring CoW, the CoW must be converted

into a Production-Operation special mining business license within two years, at the earliest, and six months, at the latest, before the end of the CoW validity period. The terms of such CoWs and CCoWs had to be modified within one year following adoption of the Mining Law to bring them into conformity with the obligations of license holders under the Mining Law. However, the Mining Law expressly states that the provisions of these existing CoWs and CCoWs that relate to state revenue, including royalty and tax payments, need not be amended.

Current licensing system

The new mining licensing regime under the Mining Law introduced the following licensing classifications:

- *IUP*. A Mining Business License (*Izin Usaha Pertambangan* or “IUP”) grants the holder the right to mine one type of resource, including coal, rock, metal minerals or non-metal minerals, within a designated Mining Business License Area (*Wilayah Izin Usaha Pertambangan* or “WIUP”). A WIUP must be located within a Mining Business Area (*Wilayah Usaha Pertambangan* or “WUP”), which are areas stipulated by the Government, after being determined by the regional government and submitted in writing to the House of Representatives (*Dewan Perwakilan Rakyat* or “DPR”). An IUP comprises two stages: (i) Exploration IUP stage; and (ii) Production-Operation IUP stage. An Exploration IUP covers the general survey, exploration and feasibility study stages, while a Production-Operation IUP covers the stages of construction, mining, processing, refining, as well as transportation and sales. An IUP will only be granted to a business entity, individual or a cooperative. GR 23/2010 (as amended) provides additional guidance on what constitutes a business entity that may be granted an IUP. Both domestically owned business entities and PMA companies are eligible to apply for an IUP. The business entity must first secure the WUP through an auction process (except for rocks) and then apply for an IUP with respect to that WUP by submitting an application to the MEMR or the relevant governor based on its authority over the WUP. However, IUPs issued to PMA companies are issued by the MEMR irrespective of where the WUP is located. In the event that the WUP is found to contain more than one type of resource, the existing IUP holder’s additional IUP application for the newly discovered resource will be prioritized;
- *IUPK*. A Special Mining Business License (*Izin Usaha Pertambangan Khusus* or “IUPK”) grants the holder the right to mine coal or metal minerals within a Special Mining Business Area (*Wilayah Izin Usaha Pertambangan Khusus* or “WIUPK”). A WIUPK must be located within a State Reserved Area (*Wilayah Pencadangan Negara* or “WPN”) that has been approved by the DPR for mining operations and converted into a Special Mining Business Area (*Wilayah Usaha Pertambangan Khusus* or “WUPK”). Similar to an IUP, an IUPK may only be granted for the mining operation of one type of resource and comprises two stages: (i) Exploration IUPK stage; and (ii) Production-Operation IUPK stage. Further, an IUPK will only be granted to a legal entity established in one of the following forms: (i) a state-owned enterprise (*Badan Usaha Milik Negara* or “BUMN”); (ii) a regional government-owned enterprise (*Badan Usaha Milik Daerah* or “BUMD”); (iii) or a business entity. BUMNs and BUMDs have priority over non-government business entities in relation to obtaining an IUPK. If the BUMN or BUMD does not exercise its privilege to obtain an IUPK, a non-government business entity may obtain the IUPK by participating in the auction for the WIUPK and, upon winning the auction, submitting an application to MEMR to obtain the IUPK. However, GR 23/2010 (as amended) states that an existing holder of a CCoW or CoW under the previous licensing regime whose CCoW or CoW is expiring may submit an application to MEMR to obtain an IUPK without participating in an auction. In addition, a CoW holder may convert its CoW into a Production-Operation IUPK by submitting an application to MEMR prior to the expiry of the CoW’s term; and
- *IPR*. A People’s Mining License (*Izin Pertambangan Rakyat* or “IPR”) grants the holder the right to mine coal, rock, metal minerals and non-metal minerals within a limited mining operational area within an area designated by the Government, in consultation with the DPR, as a People’s Mining Area (*Wilayah Pertambangan Rakyat* or “WPR”). An IPR can be granted to individuals, community groups or cooperatives.

The following table sets forth certain details on the mining licenses available under the Mining Law.

No.	Type and description	Permitted minerals	Validity period	Permitted area (hectares)
1.	Exploration IUP is a mining business license that is granted for general surveys, explorations and feasibility studies in a WUP.	Metal minerals Non-metal minerals Certain types of non-metal minerals Rock Coal	Maximum 8 years Maximum 3 years Maximum 7 years Maximum 3 years Maximum 7 years	5,000 – 100,000 500 – 25,000 500 – 25,000 5 – 5,000 5,000 – 50,000
2.	Production-Operation IUP is a mining business license that is granted upon the completion of the exploration activities under the respective Exploration IUP to commence the construction, mining, processing and refining, transportation and sales activities.	Metal minerals Non-metal minerals Certain types of non-metal minerals Rock Coal	Maximum 20 years, which can be extended twice, each for a period of 10 years Maximum 10 years, which can be extended twice, each for a period of 5 years Maximum 20 years, which can be extended twice, each for a period of 10 years Maximum 5 years, which can be extended twice, each for a period of 5 years Maximum 20 years, which can be extended twice, each for a period of 10 years	Maximum 25,000 Maximum 5,000 Maximum 5,000 Maximum 1,000 Maximum 15,000
3.	Exploration IUPK is a special mining business license that is granted for general surveys, exploration, and feasibility studies in a WUPK.	Minerals Coal	Maximum 8 years Maximum 7 years	Maximum 100,000 hectares Maximum 50,000 hectares
4.	Production-Operation IUPK is a special mining business license that is granted upon completion of an Exploration IUP stage in order that production in a WUPK can be undertaken.	Minerals Coal	Maximum 20 years, which can be extended twice, each for a period of 10 years ⁽¹⁾ Maximum 20 years, which can be extended twice, each for a period of 10 years ⁽²⁾	Maximum 25,000 hectares Maximum 15,000 hectares
5.	IPR is a license to conduct mining within a small-scale mining area with a limited area size and investment.	Metal minerals and non-metal minerals, rock and coal	Maximum 5 years, which can be extended	Maximum 1 hectare, for individuals, 5 hectares for community groups and 10 hectares for cooperatives

Notes:

- (1) For holders of CoWs that have been converted into Production-Operation IUPKs, the validity period will be the remainder of CoW period, and can then be extended twice, each for a period of 10 years. For holders of CoWs that have been converted into the Production-Operation IUPKs within the last two years of the CoW's tenure, the validity period is for a maximum of 10 years. For holders of converted CoWs that have not yet been provided with a first CoW extension, the Production-Operation IUPK can be extended once, for a period of 10 years.
- (2) For holders of CCoWs that have been converted into Production-Operation IUPKs within the last two years of the CCoW's tenure, the validity period is for a maximum of 10 years. For holders of converted CCoWs that have not yet been provided with a first CCoW extension, the Production-Operation IUPK can be extended once, for a period of 10 years.

Transferability of license

While the Mining Law clearly prohibits the transfer of an IUP or IUPK to a third party, Article 7A of GR 23/2010 (as amended) provides that both an IUP and IUPK may be transferred, provided that the transferee is an affiliate of the transferor. For the purposes of this provision, an “affiliate” is an entity that is at least 51.0% owned by the transferor. Further, under MEMR Regulation 7/2020, the transfer of an IUP or IUPK may only be conducted upon obtaining written approval from the MEMR or the relevant governor.

Foreign divestment requirements

GR 23/2010 (as amended) sets out a foreign divestment scheme for foreign-owned entities holding an IUP or IUPK. Under the divestment obligation, foreign shareholders must divest their interest in the entity such that the ownership of Indonesian shareholders is not less than the following percentages in the respective years below from the commencement of production operation:

- 20% by the 6th year;
- 30% by the 7th year;
- 37% by the 8th year;
- 44% by the 9th year; and
- 51% by the 10th year.

If the share capital of a foreign-owned company is increased, then the aggregate shareholding of the Indonesian participants must not be diluted and must remain in compliance with the domestic shareholding requirement set forth in GR 23/2010 (as amended). The divestment obligation applies to holders of IUPs and IUPKs, regardless of whether the relevant IUP or IUPK was granted prior or subsequent to the issuance of GR 23/2010 (as amended).

The divestment obligation is further regulated by MEMR Regulation No. 9 of 2017 on the Procedure of Share Divestment and the Mechanism of Divestment Share’s Price Determination in Coal and Mineral Mining Business Activities, as amended by MEMR Regulation No. 43 of 2018 (“MEMR Regulation 9/2017”). Under MEMR Regulation 9/2017, to make a divestment to an Indonesian entity, the foreign-owned shares must initially be offered to the Government through the MEMR, who will have 90 days to evaluate and negotiate such offer and an additional 30 days to determine whether to accept such offer or not. If the Government does not purchase the shares, then the shares must then be offered to provincial and regent/municipal governments. If these provincial or regent/municipal governments also do not purchase these shares, these shares are then tendered to both state and regional-owned enterprises. In each case, parties are given 30 days from the date of the offer to declare their interest. If there is no state or regional-owned enterprise willing to purchase the shares, the shares can be tendered to private local companies, who are given 30 days from the date of the offer to declare their interest. If a local private company does not purchase these shares, the shares may then be offered to the public. Divestment may be executed through issuance of new shares and/or transfer of existing shares, whether directly or indirectly. The Government may form a consortium among provincial, municipal, state and/or regional-owned enterprises for the purpose of participating in the purchase of the shares.

Reclamation and post-mining activities

Reclamation plan

Under GR 78/2010, as implemented by MEMR Decree 1827/2018, mining companies are obliged to carry out reclamation and post-mining activities. Prior to undertaking any exploration activities, Exploration IUP or Exploration IUPK holders must prepare a reclamation plan in accordance with the approved environmental document and submit it to the MEMR or the respective governor for approval. The approval by the MEMR will state the amount of reclamation guarantee required to be paid by the license holder. The reclamation guarantee must be in the form of a time deposit and denominated either in U.S. dollars or Rupiah and placed in a

Government bank under the name of the DGMC or the respective governor and the name of the license holder. The period of the time deposit shall be in line with the reclamation's schedule.

Exploration IUP or Exploration IUPK holders are also required to submit a reclamation plan for the production-operation phase, which must be prepared in accordance with the feasibility study and the approved environmental document. The plan must be included in the submission of the application for a Production-Operation IUP or Production-Operation IUPK to the MEMR or the respective governor. Similar to the reclamation plan at the exploration phase, the approval of the reclamation plan for the production-operation phase shall also state the amount of reclamation guarantee which shall be paid by the holder of IUP or IUPK either in U.S. dollars or Rupiah. The reclamation guarantee may be placed in one of the following manners: (i) joint account in an Indonesian state-owned bank; (ii) time deposit in a Government's bank in Indonesia; (iii) bank guarantee issued by a Government bank in Indonesia; or (iv) accounting reserve for a Production-Operation IUP or Production-Operation IUPK holder who lists at least 40.0% of its shares on the Indonesian Stock Exchange or its paid-up capital is in the amount of at least US\$50.0 million. Production-Operation IUP or Production-Operation IUPK holders who place their reclamation guarantee in an accounting reserve are required to submit a statement letter made before a notary stating that the reclamation guarantee has been paid to MEMR or the respective governor.

The reclamation guarantee both in the exploration and production-operation phase may be withdrawn by the holder of the IUP or IUPK upon obtaining the approval from the MEMR or the respective governor and such approval will be based on the success rate of the reclamation activities.

Post-mining plan

In addition to the reclamation plan for the production-operation phase, Exploration IUP or Exploration IUPK holders are also required to prepare a post-mining plan as a prerequisite to obtain the Production-Operation IUP or Production-Operation IUPK. Similar to the reclamation plan, the post-mining plan's approval will be issued by the MEMR or the respective governor and shall contain the amount of post-mining guarantee which shall be paid by the Production-Operation IUP or Production-Operation IUPK holders, the payment schedule and the placement's period. The post-mining guarantee shall be placed in an Indonesian state-owned bank under the name of the Director of the DGMC or the respective governor and the name of the license holder, either in U.S. dollars or Rupiah. The post-mining guarantee may be withdrawn by the Production-Operation IUP or Production-Operation IUPK holder upon securing approval from the MEMR or the respective governor. Such approval will be based on the success rate of the post-mining activities. In the case that the Production-Operation IUP or Production-Operation IUPK's validity period is extended by the MEMR or the respective governor, the Production-Operation IUP or Production-Operation IUPK holders shall amend their post-mining plan.

Government royalties

Pursuant to Government Regulation No. 81 of 2019 on the Types and Tariffs of Non-State Tax Revenue Applicable in the Ministry of Energy and Natural Resources, IUP and IUPK holders are required to pay production royalties to the Government. Currently, a range of royalties apply with respect to different types of coal and mineral mining. Under the Mining Law, Production-Operation IUPK holders are required to pay 10.0% of net profit from the mine, which comprises 4.0% to be paid to the Government and 6.0% to be shared between the relevant provincial and regional governments in whose jurisdictions the mine is located.

Under the Mining Law, coal and other minerals mined within Indonesia are required to be processed and refined domestically in accordance with the standard set out by MEMR Regulation No. 25 of 2018 on Mineral and Coal Mining Business Operations as lastly amended by MEMR Regulation No. 11 of 2019 ("MEMR Regulation 25/2018"). However, to date, MEMR Regulation 25/2018 only sets out the standard processing and refining of mineral products. The minimum standard of processing of coal products has not yet been set out in any implementing regulations of the Mining Law. As of the date of this offering memorandum, the Mining Law provides that "processing and refinery" shall mean a process which increases the quality of minerals and/or coal and the utilization of and the extraction of associated minerals.

Domestic market obligations

GR 23/2010 (as amended) provides that Production-Operation IUP and Production-Operation IUPK holders must prioritize domestic needs for coal and minerals. Production-Operation IUP and Production-Operation IUPK holders may export their coal or minerals only after the Indonesian domestic market has been fulfilled. The same provision is adopted by MEMR Regulation 25/2018, which provides that the MEMR will control mineral and coal trading for the purposes of safeguarding the domestic mineral market, maintaining Indonesia's economic resilience as well as defense and security, and controlling the prices of coal and minerals. Accordingly, the MEMR may determine the type and amount of minerals which shall be provided for the domestic market, as well as the type and amount of mineral which may be exported. The MEMR has not yet issued a decree or regulation which sets out the type and amount of minerals which shall be provided for the domestic market.

Good mining practices

The Mining Law requires IUP and IUPK holders to implement Good Mining Principles (*Kaidah Pertambangan yang Baik* or "KPB"), further details of which are provided in its implementing regulations including MEMR Regulation No 26 of 2018 on Implementation of KPB and Supervision on Mineral and Coal Mining ("MEMR Regulation 26/2018") and MEMR Decree 1827/2018. The KPB consists of good mining engineering and good mining business governance.

Good mining engineering practices

Good mining engineering practices relates to several aspects of the mining process, including: (i) mining engineering, (ii) coal and mineral conservation, (iii) mining occupational health and safety, (iv) mining operational safety, (v) environmental management, reclamation and post mining, as well as post operation, and (vi) the utilization of technology, engineering skills, design, development, and implementation of mining technology. The implementation of good mining engineering practices shall be performed by, among others: (i) appointing a head of mining technician as the highest authority on the mining site and employing mining technical manpower, (ii) utilizing exploration, mining, processing and/or refining, and transportation methods in line with the approved annual Work and Budget Plan (*Rencana Kerja Anggaran dan Biaya* or "RKAB"), (iii) providing equipment, tools, self-safety equipment, facility, personnel, and adequate funds for the implementation of safe mining, (iv) implementing mining environment management and supervision in accordance with the environmental document, as well as environmental recovery and countermeasures in the event of environmental damage or pollution, and (v) planning and implementing the mining and processing recovery.

Good mining business governance

Good mining business governance relates to several aspects of the mining business, including: (i) marketing, (ii) accounting, (iii) data processing, (iv) utilization of goods, services and technology, (v) development of mining technical manpower, (vi) fostering and developing the surrounding community, (vii) other mining-related activities which relate to public interest, (viii) compliance with the IUP or IUPK conditions, and (ix) amount, type, and quality of the mining product. The implementation of good mining business governance practices shall be performed by, among others: (i) trading coal or minerals with qualities and quantities that are in line with the approved annual RKAB, (ii) prioritizing domestic market obligations, (iii) implementation of financial aspects in line with the approved annual RKAB, (iv) preparing financial statements in line with Indonesian accounting standards, (v) performing data management from the collection phase to deletion phase, (vi) utilizing goods, services and technologies in accordance with the approved RKAB, and (vii) fostering and developing surrounding communities.

Mining services

The Mining Law stipulates that IUP or IUPK holders must engage local and/or national mining services companies and if no local and/or national mining services company is available, IUP or IUPK holders may engage other Indonesian mining services companies. IUP or IUPK holders that engage mining services

companies shall retain responsibility for mining business activities. In addition, mining service companies must give preference to local contractors and workers in their hiring process. Mining services companies must be in the form of business entities, cooperatives, or individuals. In the case of an individual, only consultation and/or planning mining services may be provided.

Under MEMR Regulation 7/2020, mining services companies may only conduct overburden stripping based on an appointment from a holder of a Production-Operation IUP or Production-Operation IUPK. Further, mining services companies may be engaged for the other services including: (i) consultation, planning and performance (general surveys, exploration, feasibility studies, mining construction, mining environment, reclamation and post-mining, and/or mine safety) and (ii) consultation and planning (for mining or processing and refining). In addition, Production-Operation IUP or Production-Operation IUPK holders who perform underground mining may engage mining services companies for activities such as the construction of a tunnel or shaft access to vein ore/seam coal, ventilation and dewatering.

Under MEMR Regulation 7/2020, any party that intends to perform mining services activities in the territory of Indonesia is required to first obtain a Mining Service Business License (*Izin Usaha Jasa Pertambangan* or “IUIP”) issued by (i) the MEMR, if the business intends to conduct its operations in all Indonesian territories or if the applicant is a PMA company, or (ii) the governor, if the business will conduct its operations within one province in Indonesia. Further, MEMR Regulation 7/2020 stipulates that mining services may be provided to a business entity, cooperative or individual. The IUIP is valid for a maximum of 5 years and may be extended up to a period of 5 years for each extension. An IUIP covers the following activities: (i) consultation, planning, implementation and equipment testing with respect to general surveys, exploration, feasibility studies, mining construction, transportation, mining environment, post-mining and reclamation, and/or mining safety; and (ii) consultation and planning with respect to mining works and processing and refining.

The Mining Law prohibits mining concession holders from using their subsidiaries and/or affiliates to conduct mining operations in their mining concession areas, unless the MEMR approves such arrangement. The definition of a subsidiary and/or an affiliated mining service company is a mining service company that has a direct share ownership relationship with a mining company. According to the Director General of Mineral, Coal and Geothermal Regulation No. 376.K/30/DJB/2010 of 2010 on the Procedure and Requirements to Request Approval of Using Subsidiaries and/or Affiliates in the Mining Service Business (“Regulation 376”), a mining service company has a direct share ownership with a mining company if (i) 20% of the mining service company’s shares are directly owned by IUP or IUPK holders; (ii) 50.0% of the voting rights of a mining service company are held by an IUP or IUPK holder by virtue of an agreement directly controlling financial and operation policies of the mining service company; and/or (iii) an IUP or IUPK holder has the authority to appoint and discharge finance and operational directors (or persons having equivalent positions) of a mining service company. In addition to obtaining approval from the MEMR, for a mining company to engage its own subsidiary or an affiliated company for the supply of mining services, it must be unable to engage an unaffiliated mining services companies or there must be no mining services company classified as interested or capable of performing the mining services required based on certain criteria as stipulated under the Mining Law.

Further, MEMR Regulation 7/2020 prohibits IUIP holders from holding any other mining licenses, such as an IUP or IUPK. Under MEMR Regulation 7/2020, IUIP holders are obligated to, among other things, (i) prioritize using local products, sub-contractors and manpower, (ii) prepare and submit a written report on its business activities, (iii) appoint an operational person in charge as the head in the operational area, and (iv) submit all documents relating to mining service contracts entered into with IUP, IUPK or other IUIP holders.

Subject to the prior consent of the Director of the DGMCM, Production-Operation IUP and Production-Operation IUPK holders may assign the alluvial mineral sediment excavation to the surrounding community, provided that such community holds an IUIP, through a partnership program. The purpose of such partnership programs is to improve the welfare of the community around the mine. The partnership program shall be based on a cooperation agreement between the Production-Operation IUP or Production-Operation IUPK holder and the IUIP holder, in compliance with the criteria set out under MEMR Regulation 7/2020.

Sales price controls

Coal sales price controls

Pursuant to MEMR Regulation No. 7 of 2017 on Method of Determination of Minerals and Coal Benchmark Sale Price, as lastly amended by MEMR Regulation No. 19 of 2018 (“MEMR Regulation 7/2017 (as amended)”), the coal pricing arrangement between IUP, IUPK, or CCoW holders and coal purchasers (including their affiliated parties) should be no less than the coal benchmark price (*Harga Patokan Batubara* or “HPB”) that is determined by the MEMR. There are two types of HPB: HPB for steam (thermal) coal and HPB for coking (metallurgical) coal. The applicable HPB will be determined based on a formula containing several variables including moisture content, sulfur content, ash content, and the coal reference price (*Harga Batubara Acuan* or “HBA”). The HBA is determined by the MEMR on a monthly basis and the HPB will be determined based on market mechanisms and/or in accordance with general pricing in the international market. The HPB may be calculated in U.S. dollars or in Rupiah. If the price of coal is calculated in U.S. dollars, then the Rupiah conversion of this price shall be calculated in accordance with the middle exchange rate quoted by Bank Indonesia on a date or period agreed upon between the seller and the buyer.

Production-Operation IUP, Production-Operation IUPK or CCoW holders are allowed to sell certain types of coal below the HPB, in accordance with the formula determined by MEMR. Such exemption is applicable for the following type of coal: fine coal, rejected coal, and coal with certain impurities, provided that such sale is made for the following purpose: (i) coal utilized by the license holder for its own consumption, (ii) coal utilized by the license holder to increase the added value of coal from mine-mouth mining activities, and (iii) coal utilized for development of undeveloped areas around the mining area.

Coal selling price for electricity supply for public interest

Pursuant to MEMR Decree No. 261K/2019, the Government determined the coal price for national electricity purposes for 2020. The Government determined that the FOB coal sales price for local thermal power stations is US\$70/tonne for coal with specifications of 6,322 kcal/kg GAR, total moisture of 8.0%, total sulfur of 0.8% and ash content of 15.0%. For coal that does not meet these specifications, the coal sales price will be calculated based on the applicable calculation guidance stipulated in MEMR 261K.

Mineral sales price controls

Pursuant to MEMR Regulation No. 7 of 2017 (as amended), the metal (*logam*) mineral pricing arrangement between the IUP, IUPK or CoW holders and metal mineral purchaser (including their affiliated parties) should be no less than the metal mineral benchmark price (*Harga Patokan Mineral Logam* or “HPM”) that is determined by the MEMR. The applicable HPM will be determined based on certain formula, containing several variables, among others the content/value of the metal mineral, corrective factor, treatment and refining charges, and metal mineral reference price (*Harga Mineral Logam Acuan* or “HMA”). The HMA will be determined by the MEMR on a monthly basis. The HMA will be determined based on market mechanisms and/or in accordance with general pricing on the international market. Further, the HPM may be calculated in Rupiah or in U.S. dollars. If the price of metal mineral is calculated in U.S. dollars, then the Rupiah conversion of this price shall be calculated in accordance with the middle exchange rate quoted by Bank Indonesia on a date or period agreed upon between the seller and the buyer.

Export licensing

Coal export license

Minister of Trade Regulation No. 39/M-DAG/PER/7/2014 on Provision on Coal Export and Coal Products as lastly amended by Minister of Trade Regulation No. 95 of 2018 (“MOTR 39/2014”) sets forth limitations on the export of certain types of coal and coal products. The types of coal and coal products that are subject to MOTR 39/2014 are listed in its appendix, and includes, among others, benzol, toluene, xylene and coking coal. In addition, the types of coal and coal products listed in the appendix of MOTR 39/2014 may only be exported by

an entity that has obtained recognition from the Minister of Trade as a Registered Coal Exporter (*Eksportir Terdaftar Batubara* or “ET-Batubara”). An ET-Batubara registration is valid for a period of three years from the date of its issuance from the Ministry of Trade or the OSS Body, as applicable.

Tin export license

MOTR 44/2014 sets forth limitations on the export of certain types of tin products. Appendix I of MOTR 44/2014 lists the types of tin products which are subject to such limitations and appendix II sets forth technical requirements that must be fulfilled for the tin products to be eligible for export. The tin products that are not listed under the appendix I and do not meet the requirements set forth under appendix II may not be exported. In addition, tin products listed in appendix I of MOTR 44/2014 may only be exported by an entity that has obtained recognition from the Minister of Trade as a Tin Registered Exporter (*Eksportir Terdaftar Timah* or “ET-Timah”). An ET-Timah registration is valid for a period of three years from the date of its issuance from the Ministry of Trade or the OSS body, as applicable.

Further, to qualify for an ET-Timah registration, tin producers must comply with certain reporting requirements and good mining practices as stipulated under MEMR Decree 1827/2018. Under MOTR 44/2014, the tin products of the tin producer must have passed the verification and technical assessment of a surveyor. The surveyor must ensure and assess, among others, that the tin ore originated from a valid mining concession area registered with the MEMR. The surveyor will also examine the tin producer’s RKAB regarding the statement of estimation on the tin ore reserves and sources contained therein which, pursuant to MEMR Decree 1827/2018, must be prepared by a certified competent person.

Mineral export license

Minister of Trade Regulation No. 96 of 2019 on Export Provision for Processed and Refined Mining Products (“MOTR 96/2019”), which replaced MOTR 1/2017, sets forth limitations on the export of certain types of processed and/or refined mining products. Mining products which are subject to limitations under MOTR 96/2019 are listed in its appendix I, appendix II, and appendix III, which mainly list minerals that have been purified and/or processed in accordance with the applicable minimum level of processing and/or purification stipulated by the MEMR. MOTR 96/2019 further provides that mining products in the form of raw materials or ore, and mining products which have not met the minimum limits of processing and/or purifying, shall not be exported. The list of mining products that may not be exported is detailed in appendix IV of MOTR 96/2019.

The export of mining products listed under appendix I, appendix II, and appendix III of MOTR 96/2019 may only be performed by the following parties: (i) for appendix I, a holder of a Production-Operation IUP, Production-Operation IUPK, Production-Operation IUP for Processing and Refining (*Production-Operation IUP Khusus Pengolahan dan Pemurnian* or “Production-Operation IUP OM”), special Production-Operation IUP for Transportation and Trade (*Production-Operation IUP Khusus untuk Pengangkutan dan Penjualan*) or Industrial Business License (*Izin Usaha Industri* or “IUI”), (ii) for appendix II, a holder of a Production-Operation IUP, Production-Operation IUPK, Production-Operation IUP OM, special Production-Operation IUP for Transportation and Trade or IUI (only for anode slime export), and (iii) for appendix III, a holder of a Production-Operation IUP or Production-Operation IUPK that produces bauxite.

Export of processed and/or refined mining products listed in appendix I of MOTR 96/2019 may only be conducted after verification or technical investigation has been performed by a qualified surveyor, save for certain products which are excluded from such verification requirements as stipulated under MOTR 96/2019. Export of processed and/or refined mining products listed in appendix II and III of MOTR 96/2019 may only be conducted after verification or technical investigation has been performed by a qualified surveyor, and after securing export approval from the Directorate General of Offshore Trade on behalf of the Minister of Trade. Such verification or technical investigation shall be conducted by a qualified surveyor, which may be performed prior to and during the loading of the designated ship and/or stuffing of the container.

Mining products listed in appendix II and certain products listed under appendix III of MOTR 96/2019 may only be exported up to January 11, 2022. Further, on August 30, 2019, the MEMR issued MEMR Regulation No.11/2019 amending MEMR Regulation No.25/2018 on the Utilization of Mining Minerals and Coal (“MEMR 11/2019”), banning the export of low-grade nickel ore from Indonesia effective January 1, 2020.

Land rights for mining purposes in Indonesia

A mining company is not obliged to hold any land title in order to conduct mining operations in a mining concession area. Such mining company will rely on the mining licenses to conduct mining activities. The Mining Law imposes an obligation on holders of mining concessions to come to a “settlement” with people holding land titles within the mining concession. The purpose of this “settlement” is to compensate the land title holder for the disruption to their utilization of the surface of the land caused by the mining activities. A settlement only needs to be reached with land title holders in areas of the concession which will actually be affected by mining activities. There is no requirement to compensate every land title holder whose land title overlaps with the mining concession. Despite the Mining Law not requiring a mining concession holder to acquire ownership of overlapping land titles, mining concession holders sometimes do choose to acquire ownership of the underlying land title, particularly for mining infrastructure. This is to avoid disputes in the future in respect of whether compensation was adequately provided and to provide legal certainty in respect of the concession holder’s right to conduct activities in particular strategic areas.

Power generation for internal use

Pursuant to Law No. 30 of 2009 on Electricity and Government Regulation No. 14 of 2012 as amended by Government Regulation No. 23 of 2014, a company that uses a power plant to generate electricity for its own use shall obtain a license to operate the power plant. A power plant for internal use, commonly known as a Captive Power Plant, is usually constructed by a company in order to provide simultaneous electricity supply for its main business operations without reliance on services from other parties. Under MEMR Regulation No. 35 of 2013 as amended by MEMR Regulation No. 12 of 2016 on Procedures of Electricity Business Licensing, a power plant operator may generate electricity for its own use by obtaining an Operational License for power plants with a capacity of over 200 kVA, obtaining a Registration Certificate (*Surat Keterangan Terdaftar*) for power plants with a capacity between 25 kVA and 200 kVA or by submitting reports to the Directorate General of Electricity for power plants that have a capacity lower than 25 kVA. Operational License holders are also obliged to submit a semi-annual report regarding its business activities, non-compliance with which may result in administrative sanctions imposed by the Government in accordance with the applicable laws and regulations.

Smelting Regulation

The Mining Law provides that Production-Operation IUP and Production-Operation IUPK holders are allowed to assign their processing and refining activities to a party that holds a special Production-Operation IUP OM. Pursuant to MEMR Regulation 7/2020, a special Production-Operation IUP OM is a mining business license for a party that buys, transports, processes and refines mining products, as well as sells the processed mining products.

Under MEMR Regulation 7/2020, a special Production-Operation IUP OM holder is entitled to: (i) process and refine mining commodities of holders of a Production-Operation IUP, Production-Operation IUPK, special Production-Operation IUP OM, IPR, special Production-Operation IUP for Transportation and Trade (*Production-Operation IUP Khusus untuk Pengangkutan dan Penjualan*), CoW or CCoW; (ii) enter into cooperation agreements with third parties for the utilization of residual and/or side products of the processing and/or refining products for domestic industrial raw materials; (iii) mix mining commodity products in order to meet a buyer’s specifications; and (iv) utilize public facilities and/or infrastructure in order to support its business activities, in accordance with the prevailing laws and regulations.

Environmental Regulation

Environmental protection in Indonesia is governed by various laws, regulations and decrees, including the following:

- Law No. 32 of 2009 on Environmental Protection and Management (“Environmental Law”);
- Government Regulation No. 27 of 2012 on Environmental Permit (“Regulation 27/2012”);
- Government Regulation No. 24 of 2018 on Online Single Submission (OSS) (“Regulation 24/2018”);
- Minister of Environment Regulation No. P.38/MENLHK/SETJEN/KUM.1/7/2019 of 2019 on Businesses and/or Action Plans which must be completed with an Environmental Impact and Analysis Assessment (*Analisis Mengenai Dampak Lingkungan* or “AMDAL”);
- Minister of Environment Regulation No. 16 of 2012 on the Guidelines on Preparation of Environmental Documents (“ME Regulation 16/2012”);
- MEMR Regulation 7/2020;
- MEMR Regulation 26/2018;
- MEMR Decree 1827/2018; and
- Minister of Environment and Forestry Regulation No. P.26/MENLHK/SETJEN/KUM.1/7/2018 on the Guidelines for the Preparation, Assessment, and Examination of Environmental Documents in the Implementation of OSS (“MEF Regulation 26/2018”).

These laws generally provide, among others, that mining companies must have the facilities and bear the costs and expenses of reclamation and rehabilitation of concession areas, and shall prevent and minimize environmental pollution and destruction resulting from mining activities. Mining companies whose operations have a significant environmental or social impact must create and maintain AMDAL documents, which must contain:

- an analysis known as Terms of Reference on Environmental Impact Analysis;
- an environmental impact assessment;
- an environmental management plan; and
- an environmental monitoring plan.

In certain circumstances, AMDAL documents are not required and an Environmental Management Effort document and an Environmental Monitoring Effort document must be prepared instead. Technical guidelines for the preparation of these documents are set out in ME Regulation 16/2012.

Once AMDAL documents or the Environmental Management Effort and Environmental Monitoring Effort documents have been obtained, pursuant to Regulation 27/2012, a company must obtain an environmental permit which will be issued by the Minister of Environment and Forestry, Governor or Mayor/Regent (in accordance with their respective authorities) simultaneously with the issuance of the environmental feasibility decision. However, after the issuance of Regulation 24/2018 and MEF Regulation 26/2018, environmental permits will be issued by the OSS Body on behalf of the Minister of Environment and Forestry, Governor or Mayor/Regent (in accordance with their respective authorities) through the OSS system.

After all environmental documents are obtained, the company must conduct environmental management of the mining areas under the Good Mining Practice. MEMR Regulation 26/2018 states that environmental management of the mining areas include the implementation of environmental management and supervision according to the company’s environmental document; and prevention and recovery of the environment in the event of pollution and/or environmental damage. Mining companies have to prepare an annual RKAB which includes environmental aspects. Holders of Exploration IUP, Exploration IUPK, Production-Operation IUP, and Production-Operation IUPK are required to provide a reclamation guarantee, and for holders of Production-Operation IUP and Production-Operation IUPK are also required to provide post-mining guarantee. MEMR

Decree 1827/2018 further stipulates the guidelines on the environmental management of the mining areas. The environmental management activities are supervised by the mining inspector with further supervision from the head of the mining inspector.

In addition, mining companies are required to appoint a head of mining technology and Person-in-Charge for Technical and Environmental matters who is required to: submit regular reports on the environmental management and supervision activities to the mining inspector; report if there is a potential environmental pollution and/or damage indication to the mining inspector; submit a report regarding environmental case no later than 24 hours after the case occurred accompanied by the mitigation plan to the mine inspector; create procedural standard for environmental pollution and/or damage mitigation of the potentially caused environmental pollution and damaged area; and lead the reclamation and post-mining operation.

Under Indonesian environmental regulations, remedial and preventative measures and sanctions (such as the imposition of substantial criminal penalties, fines and the cancelation of concessions) may be imposed in order to remedy or prevent pollution caused by operations. Such sanctions range from three to 15 years of imprisonment for any person who intentionally has caused environmental pollution or environmental damage, and fines ranging from between Rp.3.0 million to Rp.15.0 billion, subject to an additional penalty of one-third of the fine amount if the charge is filed against the party who ordered the criminal act or against the criminal mastermind. The Ministry of Environment and Forestry (the “MOEF”) also reserves the right to impose a monetary penalty in lieu of any rehabilitation obligations of a liable person.

Wastewater disposal

Government Regulation No. 82 of 2001 on Water Quality Management and Water Pollution Control requires reports to be submitted by concession holders detailing their disposal of wastewater and compliance with applicable regulations. Such reports are to be submitted on a quarterly basis to the relevant authority, with a copy provided to the MOEF. The Decision of the MOEF No. 113 of 2003 concerning Standard Quality for Coal Mining Business and/or Activities requires mining companies to process their wastewater from mining and processing activities in accordance with mandated quality standards set out therein, and to manage water that is affected by mining activities by way of sedimentation pools. Mining companies are also required to monitor surface water quality where wastewater from the sedimentation pools or wastewater treatment facilities is discharged into streams and rivers, and to comply with any additional requirements stipulated in their respective concessions or licenses. Analysis of wastewater and daily flow rates must be submitted on a quarterly basis to the relevant authority and to the MOEF.

Hazardous and toxic substances

Government Regulation No. 101 of 2014 on Management of Hazardous and Toxic Waste Materials and Government Regulation No. 74 of 2001 on Management of Hazardous or Toxic Materials regulate the management of certain stipulated materials and waste. Flammable, poisonous or infectious waste from mining operations is subject to these regulations unless it can be proven scientifically by the applicant that it falls outside the categories set forth in such regulations. These regulations require a company using the specified materials, or which produces waste which is specified in the regulations, to obtain a license in order to store, collect, utilize, process and accumulate such waste. Such licenses may be revoked and the license-holder may be required to cease operations in the event of violation.

In addition, Decree of the Head of Regional Environmental Impact Controlling Agency (*Badan Pengendalian Dampak Lingkungan Daerah*) No. 255 of 1996 on Procedure on the Storing and Collecting of Used Lubricant Oil provides, among others, that an entity which collects used oil for further use or processing must comply with certain requirements as set out in the decree, including obtaining a license, ensuring that buildings used for the storage of such lubricants comply with the specifications set out in the decree, establishing procedures on the collection and distribution of used oil and submitting quarterly periodic reports with respect to these activities.

Usage of explosives

Explosives usage in Indonesia for mining purposes is regulated by Mining License Regulation and Regulation of Head of National Police No. 17 of 2017 on Licensing, Supervision, Control and Safety of Commercial Explosive Materials (“Regulation 17/2017”). Based on Regulation 17/2017, an “end-user” is defined as a legal entity performing a government project and/or a private entity that is directly responsible as the user of an explosive material. Regulation 17/2017 requires end-users who are engaging in the mineral, coal and geothermal sectors to have:

- an IUP, CoW, CCoW, concession, or other license;
- a head of mining technician and explosive expert that holds a Blasting Permit Card issued by the Director General of Mineral and Coal or the head of the provincial mining office, as applicable; or
- A local mineral business license for an entity that engages in the industrial mineral sector or C class material in accordance with the prevailing laws and regulations.

Regulation 17/2017 also provides that end-users may be granted certain explosive-related licenses including a storage license, ownership, possession, and storage license, purchasing and utilization license, transfer of use license, residual use license, transport of explosives license and annihilation license.

Corporate Social and Environmental Responsibility

In respect of limited liability companies, Law No. 40 of 2007 on Limited Liability Company (the “Company Law”) sets out an additional obligation imposed on companies operating in the natural resources industry, including mining companies. Such companies have corporate, social and environmental responsibility obligations. The purpose of this obligation is to create a sustainable relationship with the environment and to enhance the norms, values and culture of the local community. Such obligation is required to be budgeted and calculated as an expense of the company and it must be implemented in reasonable measures. Any non-compliance will be sanctioned in accordance with applicable laws.

On April 4, 2012, the government issued Government Regulation No. 47 of 2012 on Corporate Social and Environmental Responsibility (“Regulation No. 47 of 2012”) to implement Article 74(4) of the Company Law which imposes a mandatory corporate social and environmental responsibilities (“CSR”) on companies engaging in business activities in the field of and/or related to natural resources. Generally, Regulation No. 47 of 2012 declares that any company has social and environmental responsibilities.

Regulation No. 47 of 2012 stipulates that the Board of Directors of a company is responsible to implement the CSR in accordance with the annual working plan of the relevant company. The annual working plan shall include the business plan and budget to implement the CSR.

The Mining Law and MEMR Regulation 26/2018 also require the holders of an IUP or an IUPK to organize community development programs. The guidelines to organize community development programs is regulated in the Decree of MEMR No. 1824K/30/MEM/2018 on the Guidelines on Implementation of Community Development and Empowerment program.

Forestry Regulation

Law No. 41 of 1999 on Forestry, as amended by Government Regulation as Substitute of Law No. 1 of 2004 (“Forestry Law”), provides that open-pit mining operations cannot be conducted within protected forests. Notwithstanding this general prohibition, a number of licenses and contracts for open-pit mining in protected forest areas that existed prior to the enactment of Forestry Law 1999 remain valid until their expiration. Significant areas of forestry in Indonesia have been classified as protected forests.

Based on Forestry Law, if the WIUP is located in a forest area, the use of forests for mining purposes must be conducted with a Borrow to Use Forestry Permit (*Izin Pinjam Pakai Kawasan Hutan* or “IPPKH”) issued by the Minister of Forestry, with restrictions that mining activities can only be carried out in production forest

(*hutan produksi*) and protected forests (*hutan lindung*), where protected forests are only allowed to be used to conduct underground mining activities. Further, under Regulation of the Minister of Forestry No. P.27/Menlhk/Setjen/Kum.1/7/2018 regarding the Guidelines on Borrow and Use of Forest Area (“Regulation 27 of 2018”), a mineral and coal underground mining activities carried out in protected forest areas are only permitted if such activities do not cause land subsidence, permanent changes in forest function, or damage to groundwater aquifer.

Regulation 27 of 2018 also states that company applying for a IPPKH may deliver non-forest land as compensation or pay compensation for the use of forest area in the form of a non-tax state income. It also stipulates that an IPPKH is valid for the same period as the applicable operational license, such as the mining licenses (IUP or IUPK). Pursuant to the Forestry Law, to make any changes on the utilization of the forest, due to its strategic value, the Minister of Forestry must obtain the approval of the House of Representatives.

Pursuant to Regulation of the Minister of Forestry No. P. 4/Menhut-II/2011 dated January 18, 2011 on the Guidelines for Forest Reclamation, a mining company whose mining activities are conducted within a forest, based on an IPPKH from the Minister of Forestry, is required to include forest reclamation as a part of its mining activities. It further stipulates that the reclamation process is required to commence without waiting for the mining operations to be completed or no further than one year from the expiry of the IPPKH.

The reclamation process is required to be consolidated in a five-year plan with additional details contained in the annual plan. The reclamation plan will be assessed by the Directorate General of Watershed Management and Social Forestry at the Ministry of Forestry, on behalf of the Minister. If found to be adequate, then a recommendation will be issued by the Directorate General of Watershed Management and Social Forestry at the Ministry of Forestry, on behalf of the Minister of Forestry, and will be further approved by MEMR, the head of the regional or the regency government. If the mining period is less than five years, the reclamation plan will be adjusted to the mining period, while the assessment and the approval by the related authorities will follow the “five-year plan” steps.

The IPPKH holder is required to establish a special body to execute the forest reclamation process, which must include experts in forestry, agriculture, mining, soil and other fields related to forest reclamation. A progress report concerning the reclamation process must be submitted periodically to the Directorate General of Watershed Management and Social Forestry at the Ministry of Forestry, with a carbon copy to the Directorate General of Forestry Planology at the Ministry of Forestry, Directorate of the DGMC at the MEMR, Provincial Technical Agency that handles forestry matters, and the Regent Technical Agency that handles forestry matters, and such report must include quarterly and annual reports.

Regional Government Law

Indonesia is divided into provinces which are further sub-divided into regencies and municipalities. The regencies and municipalities within a province are autonomous in most of their activities and, therefore, are not subservient to the province.

On October 2, 2014, the Government enacted Law No. 23 of 2014 concerning the Regional Government (“Law 23”) which has revoked the previous Law No. 32 of 2004 concerning the Regional Government (“Law 32”), which substantially changed the legal and regulatory framework of the mining industry in Indonesia. Law 23 divides the governmental affairs into (i) absolute governmental affairs; (ii) concurrent governmental affairs; and (iii) general governmental affairs. Mining business activities are categorized as concurrent governmental affairs, which require the distribution of authority between the Government and other regional governments when discharging their governmental affairs. The distribution of authority will mainly be assessed based on the location, the customer, the impact and the efficiency of the natural resources utilization. To date, the Government has issued a number of amendments of Law 23 including Government Regulation as Substitute of Law No. 2 of 2014 and Law No. 9 of 2015 as the second amendment to Law 23.

Shipping Regulation

On May 7, 2008, the Indonesian Government issued Law No. 17 of 2008 on Shipping (the “Shipping Law”) to foster the development of the maritime industry in Indonesia, revoking and replacing the previous law on

shipping, namely Law No. 21 of 1992. The Shipping Law covers, among other matters, the implementation of the cabotage principle, minimum navigation requirements, good port governance, port tariffs and port status (including designation of ports for international seaborne trade), ship registration, standard requirements for crew members and maritime management and environmental safety requirements. The implementing regulations of the Shipping Law have been issued which include, among others, Government Regulation 20 of 2010 on Water Transportation, was issued on February 1, 2010 as amended by Government Regulation No. 22 of 2011 on the Amendment of Regulation 20/2010 (“Regulation 20/2010 (as amended)”), which further elaborates the regulation of water transportation including sea transportation.

Port business entities

Port business entity license

Under the Shipping Law, any state-owned port company or private port company that intends to be a port operator (a “Port Business Entity”) is required to apply for a Port Business Entity License (*Izin Badan Usaha Pelabuhan*) from the following institutions, as applicable:

- The Minister of Transportation, if the Port Business Entity operates at a port that falls under the category of “main ports,” which are ports that serve domestic and international sea transport activities, transfer of domestic and international sea transport freights of large quantities and provide inter-provincial service as the origin/destination of passengers and/or goods as well as ferries, or “collecting ports,” which are ports that serve domestic sea transport activities, transfer of domestic sea transport freights of medium quantities and provide inter-provincial service as the origin/destination of passengers and/or goods as well as ferries;
- The governor of the respective region, if the Port Business Entity operates at a port that falls under the category of “regional feeder ports,” which are ports that serve domestic sea transport activities, transfer of domestic sea transport freights and provide inter-provincial service as the origin/destination of passengers and/or goods as well as ferries; and
- The respective regent or mayor, if the Port Business Entity operates at a port that falls under the category of “local feeder ports,” which are ports that only provide services to support sea transportation within one city or regency.

A Port Business Entity may be assigned to operate one or several terminals within a port area with the following scope of business: (i) to provide terminal services for vessel berthing or anchorage; (ii) to provide fuel and fresh water supply; (iii) to provide embarkation and disembarkation facilities for passengers and/ or vehicles; (iv) to provide terminal services related to loading and unloading of goods and containers; (v) to provide warehouse and hoarding places for goods, loading and unloading equipment, as well as port equipment; (vi) to provide loading container, liquid bulk, dry bulk and roll-on/roll-off terminals; (vii) to provide stevedoring services; (viii) to provide good distribution and consolidation centers; and/or (ix) to provide towing services for ships.

In operating a port, a Port Business Entity liaises and cooperates with the local port authority (the “Port Authority”). The cooperation must be made in the form of a concession that is implemented under an agreement.

Port concessions

A port concession is a right granted by the local Port Authority or Port Administration Unit to a Port Business Entity, in order to operate a port or to provide certain port services within a certain period of time and in return for a certain compensation depending on the provision of the concession agreement (“Port Concession”).

In September 2015, the Minister of Transportation issued a regulation that specifically regulates the port concession mechanism namely Minister of Transportation Regulation No. PM 15 of 2015 as subsequently amended by Minister of Transportation Regulation No. PM 166 of 2015 concerning Concessions and Other Forms of Cooperation between the Government and Port Business Entities in the Business Line of Ports (“MoT

Regulation No. 15/2015”). Under the MoT Regulation No. 15/2015, the cooperation between the Government and Port Business Entities may be conducted through (i) a direct appointment mechanism; (ii) tender; or (iii) other forms of cooperation which may consist of Utilization Cooperation, Leasing, Management Contract and Operating Cooperation. The concession right must be granted through a tender mechanism as governed by Presidential Regulation No. 38 of 2015 on Public Private Partnership for Infrastructure Procurement.

A Port Business Entity together with the Port Authority shall prepare and discuss the draft of concession agreement which must, at the minimum, provide details of the parties, scope of work, duration of the concession agreement, concession fee, collateral, starting tariff rate and tariff adjustment mechanism, rights and obligation of the parties including risk allocation and mitigation, working standard and complain handling procedures, supervision mechanism on service performance, utilization and ownership of assets, representations and warranties, procedures for handling public complaints, share transfers, sanction for defaulting parties, dispute resolution, termination clause, governing law as Indonesian law, port facilities transfer or assignment to the Port Authority upon the expiration of concession, force majeure clause and amendment clause.

Cooperation agreement

Upon the expiration of the concession agreement, all of the port facilities constructed during the period of concession must be assigned or returned to the Port Authority. The Port Authority will appoint a Port Business Entity through a tender process to manage the port facilities under a cooperation agreement. This may result in the appointment of the Port Business Entity that previously held the port concession which would authorize such Port Business Entity to continue operating the port under a cooperation agreement.

There are slight differences between a cooperation agreement and a concession agreement. Under a concession agreement, the Port Business Entity receives a portion of the profit gained from the operation of the Port, whereas in a cooperation agreement, the Port Business Entity merely acts as the Port Authority’s contractor and only receives a fee payment for its services. The relevant regulations, however, do not specify when the profit or fee shall be paid to the Port Business Entity.

Port Master Plan approval

Before allowing a Port Business Entity to commence construction of a port, a Port Authority is required to obtain approval for a Port Master Plan. The Port Master Plan must include the detailed plan on land and waters area allocation which shall consist of an allocation plan for main and supporting facilities. The said Port Master Plan must be in line with the National Port Master Plan (*Rencana Induk Pelabuhan Nasional*), which must be used as guidance in determining the location of the port, and in the establishment, management, development and preparation of the Port Master Plan. Such Port Master Plan shall be determined by the Minister for Transportation for main ports and collecting ports, the relevant governor for regional feeder ports and the relevant regent/mayor for local feeder ports.

Following the issuance of the Port Master Plan, the Port Authority will then be required to apply for Port Location Permit with the Ministry of Transportation. Upon such application, the Ministry of Transportation will issue a decree determining the location of the port. This decision will contain, among other information, the location of the port, the name of the port and the name of the administrative area where the port is located.

Port construction permit

In order to construct a new port, the Port Authority is required to obtain a construction permit from the Minister of Transportation for main ports and collecting ports, the relevant governor for regional feeder ports and the relevant regent/mayor for local feeder ports. The construction of ports may be conducted only by either the Port Authority or a Port Business Entity based on a concession agreement or any other forms of management that may be determined by the Port Authority for a commercial port and by the Port Administrator Unit for a non-commercial port based on their sole discretion. The construction of facilities on the sea sides of the port can also be performed after a Public Port Construction Permit is issued.

The application for a construction permit is initiated by the Port Authority and includes the Port Master Plan, feasibility documents, technical design documents and environmental documents. The applicable regulation

does not define the terms “feasibility documents,” “technical design documents” or “environmental documents.” It is expected that this terminology will be explained in future implementing regulations. After the Port Master Plan is approved, the relevant government agency must issue a building construction permit (*Izin Mendirikan Bangunan* or “IMB”) before the construction of port facilities can commence.

Operational license

To conduct the business, a Port Business Entity shall obtain its business license issued by (i) Chairman of Indonesian Capital Investment Coordinating Body (*Badan Koordinasi Penanaman Modal* or “BKPM”) having authority over the main port and feeder port, (ii) Governor for Port Business Entity having authority over the regional collecting port; and (iii) Regent/Mayor for Port Business Entity having authority over the local feeder port.

Other local governmental licenses

Regulation 20/2010 (as amended) requires any party providing port-related services to obtain specific business licenses such as for stevedoring. These business licenses are issued by the regional government where such specific port service activities are conducted.

Use and operation of ports, jetties or terminals for internal use

An Indonesian entity must obtain a location permit with respect to any ports, jetty or terminal for internal use, pursuant to the Shipping Law; Government Regulation No. 61 of 2009 concerning Ports as amended by Government Regulation No. 64 of 2015; Ministry of Transportation Regulation No. PM 51 of 2015 on Sea Port Operation as amended by Ministry of Transportation Regulation No. PM 146 of 2016; and Ministry of Transportation Regulation No. PM 20 of 2017 on Special Terminal and Terminal for Internal Use. Location permits are issued by the Minister of Transportation and are different from the location permits issued by the land office which evidence acquisition and possession of a land area. This location permit is issued by considering the National Port Master Plan regulated in the Decree of Minister of Transportation No. KP 414 of 2014 as amended by the Decree of Minister of Transportation No. KP 725 of 2014.

Under these regulations, a location permit for any special port or terminal and terminal for internal use must be issued based on recommendations by the governor, mayor or regent, as applicable. For jetty or terminal for internal use, in order to operate a jetty or terminal for internal use to support its business activities, an Indonesian entity is required to obtain a jetty construction license and a terminal operating license, issued by the Minister of Transportation. Once the terminal construction license has been obtained, the license holder has one year in which to commence the construction of the terminal, and the construction must be completed within three years of the date of issuance of the license. The terminal operating license is valid for five years and may be extended.

Cabotage Principle

The Shipping Law implements the Cabotage Principle in connection with water transportation for all marine transportation companies by requiring that sea transportation in the domestic waters must be conducted by national shipping companies using Indonesian-flagged vessels and employing Indonesian crews. The Shipping Law was issued for the purpose of implementing the Cabotage Principle for the protection of the sovereignty of the Indonesian archipelago and to provide opportunities for domestic sea transportation companies to gain market share.

Regulation 20/2010 (as amended) allows certain types of foreign vessels to operate in Indonesia provided that such vessels do not transport passengers and/or goods, Indonesian-flagged vessels are not, or not sufficiently available, and such vessels have obtained licenses from the Minister of Transportation. Activities which are defined as not transporting passengers and/or goods include surveying oil and gas, drilling, offshore construction, offshore operational support (including anchor handling tug supply vessels larger than 5,000 BHP with dynamic positions (DP2/DP3), platform supply vessels (“PSV”) and diving support vessels (“DSV”)), dredging, and salvage and underwater works. The terms and conditions for granting the operational licenses of foreign-flagged

vessels are regulated by the Minister of Transportation Regulation No. PM 100 of 2016 on Procedures and Requirements of Granting the Operational Licenses of Foreign-Flagged Vessels Engaged in Activities Other Than Passengers and/or Goods Transportation in Domestic Sea Transportation Activities (as amended from time to time). In the event foreign-flagged carriers violate these regulations, the carriers will not be able to obtain services from any port in Indonesia. Other sanctions under the Shipping Law may also apply.

Under Minister of Transport Regulation No. KM. 22 of 2010 on Goods/Cargo Transportation Inter-Domestic Sea Ports as amended by Minister of Transportation Regulation No. PM 73 of 2010, goods transported to and from inter-domestic sea ports should be conducted by national shipping companies using Indonesian flagged vessels and employing crew of Indonesian nationality.

Special vessels

The Shipping Law defines special vessels as vessels used for internal transport activities by a business entity in order to support its main business, such as to transport materials, production equipment, and/or the final product for internal use. Regulation 20/2010 (as amended) further stipulates that a business entity engaging in special vessel activity must be an Indonesian legal entity whose main business activity is in the industrial, forestry, tourism, mining, agricultural, fishery, salvage, dredging, construction, or research sector. The special vessel must be an Indonesian-flagged vessel that has fulfilled the ship feasibility requirement and employs Indonesian crew. Ministry of Transportation Regulation No. PM 93 of 2013 on Management and Administration of Sea Transport as amended by Ministry of Transportation Regulation No. 74 of 2014 regulates that the special vessel activity is conducted based on its Operational License for Special Sea Transportation Companies (*Surat Izin Operasi Perusahaan Angkutan Laut Khusus* or “SIOPSUS”). The special vessels company must report its ship operational activity to the Minister of Transportation. Special vessels are prohibited from transporting cargo or property of a third party and/or transporting general cargo or property of a third party except if there is no other ship available for transporting the cargo or property and there is no transportation company that is able to provide, partially or entirely, such service demands.

Safety and security requirements

Any seagoing vessel operating within Indonesian waters shall be subject to Indonesian safety regulations. Article 117 of the Shipping Law sets forth certain safety and security requirements for ship sea-worthiness and navigation that must be fulfilled. Requirements regarding ship-seaworthiness relate to vessel safety, prevention of pollution from vessel manning, ship guards, lines and loading and unloading of vessels, crew prosperity and passengers’ health, vessel legal status, management of safety and prevention of pollution from ships and management of ship safety. Requirements regarding navigation relate to navigation aid means, telecommunications, hydrograph and meteorology, lanes and crossings, dredging and reclamation, scouting, handling of vessel bodies and salvage and underwater works.

In connection with the enforcement of safety and maintenance requirements, Indonesian marine inspectors are authorized to carry out the necessary surveys or inspections on board vessels including initial surveys, annual surveys, renewal surveys and interim surveys. Initial surveys are carried out for a new vessel built at a shipyard or for the reflagging of a foreign-flagged vessel to an Indonesian-flagged vessel. Renewal surveys are conducted once every five years. Interim surveys are conducted annually to every five years. In addition to such regularly scheduled surveys, spot inspections and surveys due to vessel damage or repair are also conducted.

Indonesia is a signatory to numerous international conventions including the International Convention for the Prevention of Pollution from Ships and the International Convention for the Safety for Life at Sea.

BUSINESS

Overview

We are the state-owned national mining company appointed by the Government as the holding company for Indonesia's mining operators. We engage in mining and processing coal, gold, tin, nickel and bauxite, and aluminum smelting and production. PTFI, our unconsolidated subsidiary in which we hold a majority beneficial stake, engages in mining and processing copper and gold, see "PT Freeport Indonesia."

According to CRU, we are (i) the largest holder of coal reserves in Indonesia, as of December 31, 2019, and the fifth largest coal producer in Southeast Asia in terms of coal production volume in the year ended December 31, 2019; (ii) the sixth largest gold producer in Southeast Asia and, after taking into account 100.0% of PTFI's gold production, the largest gold producer in Southeast Asia in terms of gold production volume in the year ended December 31, 2019; (iii) the largest tin producer in the world in terms of refined tin production volume in the year ended December 31, 2019; and (iv) the only primary aluminum producer in Indonesia and the second largest aluminum producer in Southeast Asia in terms of aluminum production volume in the year ended December 31, 2019.

We commenced business operations in 1979 as an aluminum smelter and have, over the course of 40 years, acquired in-depth expertise in managing and operating downstream production plants and supporting facilities for the refining of minerals and production of downstream mineral products. As the holding company for Antam, Bukit Asam and Timah, following the Government's transfer of its 65.0% equity interests in each of these entities to us in 2017, we oversee the management and exploitation of the coal and mineral resources held by these entities and aim to leverage our expertise to develop the various downstream businesses of these entities so as to achieve stronger financial performance and growth of our Group. Concurrent with the Government's transfer of its equity interests in Antam, Bukit Asam and Timah, the Government also transferred its 9.36% equity interests in PTFI to us, and, in December 2018, we increased our beneficial equity interests in PTFI to 51.24%. See "PT Freeport Indonesia."

Our business operations are divided into six main segments, namely (i) coal, (ii) gold, (iii) tin, (iv) nickel, (v) bauxite and (vi) aluminum smelting.

- **Coal.** We are the largest holder of coal reserves in Indonesia as of December 31, 2019, and the fifth largest coal producer in Southeast Asia in terms of coal production volume in the year ended December 31, 2019, according to CRU. Our coal business is vertically integrated and we undertake all stages of mining and processing coal, starting from exploration, mining and processing coal to marketing our coal products. We own and operate four coal mines located on the islands of Sumatra and Kalimantan, Indonesia, which span an aggregate total area of approximately 65,632 hectares. Our coal products benefit from having a relatively low ash and low sulfur content, and high HGI and AFT. We sell a large proportion of our coal domestically to PLN, the state-owned electricity generation and distribution company, and internationally to commodity traders and coal-fired power producers. For the years ended December 31, 2017, 2018 and 2019, we produced 24.2 million tonnes, 26.4 million tonnes and 29.1 million tonnes of coal, respectively, and sold 23.6 million tonnes, 24.7 million tonnes and 27.8 million tonnes of coal, respectively. For the same years, our revenue from sale of coal was Rp.19,133.5 billion, Rp.20,792.7 billion and Rp.21,420.1 billion (US\$1,540.9 million), respectively.
- **Gold.** We are the sixth largest gold producer in Southeast Asia in terms of gold production volume in the year ended December 31, 2019, according to CRU. After taking into account 100.0% of PTFI's gold production, we are the largest gold producer in Southeast Asia in terms of gold production volume in the year ended December 31, 2019, according to CRU, see "PT Freeport Indonesia." We own and operate three gold mines located in West Java and Banten, Indonesia, which span an aggregate total area of approximately 11,540 hectares, and PTFI owns the Grasberg Mine, which holds the largest amount of gold reserves in the world as of December 31, 2019 and is the largest gold mine in the world in terms of gold production volume in the year ended December 31, 2018, according to CRU. Our gold and precious metals business is vertically integrated and we undertake all stages of mining and

processing gold and precious metals. We produce and sell fine gold, mainly in the form of gold bars, as well as other precious metal products such as platinum and fine silver. Our fine gold is produced at our Logam Mulia Precious Metals Refinery, the only precious metals refinery in Indonesia that is accredited by the LBMA, from gold doré bullion, which we purchase from third-party precious metals trading companies, and gold doré, which we produce at our gold mines. In addition to producing and selling fine gold and other precious metal products, we provide precious metals refining services to other third-party mining companies. For the years ended December 31, 2017, 2018 and 2019, we produced 63,240 oz t, 62,887 oz t and 63,080 oz t of gold, respectively, and sold 424,454 oz t, 896,812 oz t and 1.1 million oz t of gold, respectively. For the same years, our revenue from sale of gold was Rp.7,375.5 billion, Rp.16,693.4 billion and Rp.22,465.8 billion (US\$1,616.1 million), respectively.

- **Tin.** We are the largest refined tin producer in the world in terms of refined tin production volume in the year ended December 31, 2019, according to CRU. Our tin business is vertically integrated and we undertake all stages of mining and processing tin, starting from exploration, mining and processing of tin to marketing of our tin products. We own and operate tin mines in Indonesia across the Bangka Belitung Islands, the Riau Islands and Riau, which span an aggregate total area of approximately 473,388 hectares. We produce refined tin products, such as tin metal, as well as other downstream tin products, including tin solder and tin chemical, which we primarily sell in international markets, including Japan, South Korea, Singapore, India, Taiwan, France, Germany and the United States, mainly to the trading arms of automobile manufacturers and customers in the manufacturing industry. Our Banka tin, Mentok tin and Kundur tin are registered and traded on the LME, which requires our refined tin products to be of at least “Grade A” quality. For the years ended December 31, 2017, 2018 and 2019, we produced 30,249 tonnes, 33,444 tonnes and 76,389 tonnes of refined tin, respectively, and sold 29,914 tonnes, 33,818 tonnes and 67,704 tonnes of refined tin, respectively. For the same years, our revenue from sale of tin metal and tin solder was Rp.8,481.7 billion, Rp.10,152.9 billion and Rp.18,107.5 billion (US\$1,302.6 million), respectively, and our revenue from sale of tin chemical was Rp.428.5 billion, Rp.428.0 billion and Rp.335.0 billion (US\$24.1 million), respectively.
- **Nickel.** We are the second largest producer of nickel ore and the third largest producer of ferronickel in Southeast Asia in terms of production volumes in the year ended December 31, 2019, according to CRU. Our nickel business is vertically integrated and we undertake all stages of mining and processing nickel ore. We also produce ferronickel from the nickel ore we mine and process. We own and operate ten nickel mines located in Indonesia across the Southeast Sulawesi, North Maluku and West Papua provinces, which span an aggregate total area of approximately 81,438 hectares. We operate three ferronickel plants, FeNi II, FeNi III and FeNi IV located in Southeast Sulawesi, our Pomalaa Ferronickel Plants, which have a combined production capacity of approximately 27,000 TNi to 30,000 TNi per year. Our ferronickel products generally consist of approximately 20.0% nickel content and 80.0% iron content and are sold in the form of shots or pellets, either with high or low carbon content. For the years ended December 31, 2017, 2018 and 2019, we produced 5.6 million wmt, 9.3 million wmt and 8.7 million wmt of nickel ore, respectively, and sold 2.9 million wmt, 6.3 million wmt and 7.6 million wmt of nickel ore, respectively. For the same years, we produced 21,762 TNi, 24,868 TNi and 25,713 TNi of ferronickel, respectively, and sold 21,878 TNi, 24,135 TNi and 26,349 TNi of ferronickel, respectively. For the same years, our revenue from sale of nickel ore and ferronickel was Rp.4,592.4 billion, Rp.7,675.5 billion and Rp.8,651.4 billion (US\$622.4 million), respectively.
- **Bauxite.** Our bauxite business is vertically integrated and we undertake all stages of mining and processing bauxite. We own and operate a bauxite mine located in Tayan, West Kalimantan, spanning a total area of approximately 34,360 hectares. We sell bauxite of varying alumina content based on our customers’ requirements, although we typically sell bauxite with a minimum alumina content of 42.0%. We also use the bauxite ore we produce as raw material for the production of chemical grade alumina at our alumina production plant located near our bauxite mine in Tayan. For the years ended December 31, 2017, 2018 and 2019, we produced 0.6 million wmt, 1.1 million wmt and 1.7 million wmt of bauxite ore, respectively, and sold 0.8 million wmt, 0.9 million wmt and 1.7 million wmt of

bauxite ore, respectively. For the year ended December 31, 2019, we produced and sold 104,537 tonnes and 70,517 tonnes of alumina, respectively. For the years ended December 31, 2017, 2018 and 2019, our revenue from sale of bauxite ore was Rp.398.1 billion, Rp.482.4 billion and Rp.758.1 billion (US\$54.5 million), respectively, and for the year ended December 31, 2019, our revenue from sale of alumina was Rp.547.3 billion (US\$39.4 million).

- **Aluminum smelting.** We produce, smelt and sell aluminum products such as aluminum ingots, aluminum billets and aluminum alloys. We are the second largest aluminum producer in Southeast Asia in terms of aluminum production volume in the year ended December 31, 2019, according to CRU. Our aluminum production plants and facilities, comprising our aluminum smelter, casting plant, power plants, regulating dams and ports, are located at Kuala Tanjung, North Sumatra. We are able to produce our aluminum products more cost effectively as compared to other aluminum producers as we have access to hydroelectric power that we generate at our Siguragura Power Plant and Tangga Power Plant, which are located along the Asahan River. For the years ended December 31, 2017, 2018 and 2019, we produced 218,816 tonnes, 242,043 tonnes and 249,531 tonnes of aluminum, respectively, and sold 207,276 tonnes, 246,892 tonnes and 254,083 tonnes of aluminum, respectively. For the same years, our revenue from sale of aluminum products was Rp.5,744.3 billion, Rp.7,802.3 billion and Rp.6,910.2 billion (US\$497.1 million), respectively.

For the years ended December 31, 2017, 2018 and 2019, our total revenue was Rp.47,184.3 billion, Rp.65,277.4 billion and Rp.80,628.7 billion (US\$5,800.2 million), respectively, and our gross profit was Rp.14,223.4 billion, Rp.16,470.3 billion and Rp.14,497.8 billion (US\$1,042.9 million), respectively. For the same years, our EBITDA was Rp.11,500.3 billion, Rp.18,511.2 billion and Rp.10,696.2 billion (US\$769.5 million), respectively, and our adjusted EBITDA was Rp.10,273.3 billion, Rp.10,746.4 billion and Rp.8,415.3 billion (US\$605.4 million), respectively.

Strengths

We believe that we have the following key competitive strengths:

Leading state-owned national mining company with a mandate to manage and develop domestic reserves

We are the state-owned national mining company with a mandate from the Government to productively and sustainably utilize and develop value-added downstream businesses for Indonesia's domestic reserves. We own and control a significant proportion of Indonesia's coal and mineral reserves, and own and operate mining assets and production facilities that are strategically distributed across Indonesia. According to CRU, as of December 31, 2019, we held approximately 90.0%, 31.1%, 12.0% and 7.8% of Indonesia's tin, nickel, bauxite and coal reserves, respectively, and, after taking into account 100.0% of reserves held by PTFI, we held 67.3% and 57.6% of Indonesia's copper and gold reserves, respectively. In addition to having ownership and control over a significant proportion of Indonesia's coal and mineral reserves, we are also a leading commodities producer and a significant contributor to Indonesia's commodity exports. According to CRU, in 2019, we accounted for (i) all of Indonesia's total aluminum production and exports; (ii) approximately 97.2% and 94.8% of Indonesia's total refined tin production and exports, respectively; (iii) approximately 78.3% and 86.9% of Indonesia's total copper production and exports, respectively, after taking into account 100.0% of PTFI's copper production and exports; (iv) approximately 27.1% and 10.1% of Indonesia's total gold production and exports, respectively, after taking into account 100.0% of PTFI's gold production and exports; (v) approximately 16.5% and 12.2% of Indonesia's total nickel ore production and exports, respectively; (vi) approximately 7.4% and 7.7% of Indonesia's total ferronickel production and exports, respectively; and (vii) approximately 5.2% and 4.1% of Indonesia's total coal production and exports, respectively.

Diversified and integrated business to minimize cash flow volatility from commodity cycles

We believe that our diversified and integrated business structure, which provides us with exposure to several major commodities, namely coal, gold and silver, tin, nickel and ferronickel, bauxite and alumina, and aluminum

products, as well as copper through PTFI, allows us to maintain steady cash flows across commodity cycles. Further, stemming from the vertically integrated nature of our businesses, we produce multiple commodities across the value chain of the coal and minerals that we mine, allowing us to capture increasing margins as we move downstream, minimize our exposure to cyclicality in demand for commodities generally, and reduce our customer concentration risk. For example, we mine and sell processed nickel ore, which our customers use to produce ferronickel, and we also produce higher margin downstream nickel products, such as ferronickel, which is used as feed material for stainless steel production.

Our ability to manufacture a combination of products processed from the same underlying mineral allows us to not only benefit from the sale of downstream products from which we derive higher margins, but also adapt to shifting demand and supply cycles so as to maintain steady cash flows for our business operations. For the year ended December 31, 2019, our revenue from our upstream businesses, comprising our revenue from sale of coal, nickel ore and bauxite, was Rp.25,958.2 billion (US\$1,867.3 million), representing 32.2% of our total revenue. For the same year, our revenue from our downstream businesses, comprising our revenue from sale of gold and silver, refined tin and tin chemical, aluminum, ferronickel, alumina and other products, and our revenue from provision of services, was Rp.54,670.5 billion (US\$3,932.9 million), representing 67.8% of our total revenue.

Through our broad range of upstream and downstream commodity products, we benefit from having a geographically diverse customer base, with customers from Indonesia, Singapore, China, India, South Korea and Japan accounting for 40.9%, 24.8%, 8.1%, 6.7%, 4.7% and 3.8%, respectively, of our total revenue for the year ended December 31, 2019. For the same year, our top three customers, namely ICBC Standard Bank PLC, PLN (including its subsidiary, Indonesia Power) and Raffemet Pte Ltd, accounted for 15.0%, 13.2% and 3.3%, respectively, of our total revenue, and substantially all of our remaining customers each accounted for less than 3.0% of our total revenue. We believe that our diverse customer base also provides us with steady cash flows across commodity cycles.

Competitively positioned in the global commodity market

We believe that our fast growing production volumes and large range of commodity products well-positions us to be competitive in the global commodity market. According to CRU, we are the largest producer of refined tin in the world, the second largest producer of nickel ore and the third largest producer of ferronickel in Southeast Asia, and ninth largest producer of thermal coal in the world, in terms of production volumes of each respective commodity in the year ended December 31, 2019. Between 2017 and 2019, (i) our annual refined tin production grew at a CAGR of approximately 58.9% from 30,249 tonnes to 76,389 tonnes; (ii) our annual nickel ore production grew at a CAGR of approximately 24.6% from 5.6 million wmt to 8.7 million wmt; (iii) our annual ferronickel production grew at a CAGR of approximately 8.7% from 21,762 TNi to 25,713 TNi; and (iv) our annual coal production grew at a CAGR of approximately 9.5% from 24.2 million tonnes to 29.1 million tonnes.

Low cost structure

We benefit from a low cost structure for most of our commodity products, which we believe allows us to enjoy stronger margins as compared to other commodity producers and provides us with a buffer against individual commodity price cycles. According to CRU, our coal production cost was within the second quartile of the 2019 global seaborne FOB coal cost curve. Unlike most of the other Indonesian coal producers who rely on barging as part of the transportation chain to export coal, we utilize rail and port facilities similar to those used by our international peers for the export of coal. Further, according to CRU, our Pomalaa Ferronickel Plants make us the sixth lowest cost ferronickel producers in the world, which is mainly attributable to the higher grade of nickel ore feedstock used and captive nickel ore supply, along with a low cost captive power supply. We are able to produce our aluminum products more cost effectively as compared to other aluminum producers as our aluminum smelter is powered by our Siguragura Power Plant and Tangga Power Plant, hydroelectric power plants which we own and operate.

Majority beneficial stake in the world-class Grasberg Mine

PTFI owns the Grasberg Mine in Papua, Indonesia, see “PT Freeport Indonesia.” The Grasberg Mine holds the largest amount of gold reserves and third largest amount of copper reserves in the world as of December 31, 2019, and is the largest gold mine and second largest copper mine in the world in terms of production volumes in the year ended December 31, 2018, according to CRU. In 2019, PTFI was in the process of mining the final phase of the Grasberg open-pit mine and transitioning production operations to its underground ore bodies and, as a result, gold and copper production volumes at the Grasberg Mine were lower than usual during the year. According to CRU, PTFI is expected to resume gold and copper production levels at previous levels by 2023, upon which the Grasberg Mine is expected to return to being the largest gold mine and one of the largest copper mines in the world in terms of production volumes as well as one of the lowest cost gold mines and copper mines in the world with expected pro-rata cash costs in 2023 of approximately US\$700/oz for its gold production and approximately US\$2,482/tonne for its copper production.

The Grasberg Mine is operated by FCX, which holds the remaining 48.76% beneficial equity interests in PTFI. Operations at the Grasberg Mine require strong technical expertise, especially in light of current development of the underground, more complex, phase of the mine. We expect the Grasberg Mine’s substantial amount of ore reserves to, following PTFI’s completion of its planned infrastructure projects in 2020, support production at its previous 2018 production levels through 2041 and we believe that continued control of operations at the Grasberg Mine by FCX, an experienced operator of the Grasberg Mine, will ensure that the high technical requirements of the Grasberg Mine will be met and will optimize production during the remainder of its mine life.

Led by a highly-experienced management team with high standards of corporate governance

Our management team has extensive experience in the mining and metals industry, geology and engineering, as well as accounting, law, economics, and business and financial management. We believe that the extensive experience of our management team gives us the ability to manage our operations efficiently, maintain profitability through commodity price cycles and develop new downstream projects strategically. We also believe that our management team was instrumental in transitioning our Group into a fully integrated diversified coal and metals mining company in 2017, when we became the holding company of Antam, Bukit Asam and Timah.

Our management team is committed to actively monitoring, evaluating and refining the corporate governance practices throughout our corporate structure. Stemming from our high standards in corporate governance, we were granted “Gold” status for the Indonesia Good Corporate Governance Award-III-2017, in the non-listed state-owned enterprise category, from the Indonesia Economic Review, and “Trusted Company” status from the Indonesia Institute for Corporate Governance in 2018 and 2019. Antam, Bukit Asam and Timah also maintain high corporate governance standards in compliance with the listing rules of the IDX and the Indonesian Capital Markets Law. In the past three years, Antam, Bukit Asam and Timah have each achieved recognition as The Most Trusted Company by the Indonesia Institute of Corporate Governance. In addition, as part of the corporate governance processes of our Group, business decisions made by Antam, Bukit Asam and Timah relating to certain matters must be approved by (i) the respective company’s Board of Commissioners, (ii) both the respective company’s Board of Commissioners and the Government, by virtue of the Series A Dwiwarna share it holds in each of Antam, Bukit Asam and Timah, or (iii) us, as their majority shareholder, as the case may be, depending on the nature and commercial significance for our Group. See “Management — Good Corporate Governance and Risk Management Committee.” We believe that such processes allow us to maintain our operational excellence and safeguard the interests of all our stakeholders.

Strategies

The main elements of our business strategy include the following:

Transform into a first-class holding company that oversees Indonesia's mining reserves and resources

In line with the Government's mandate to establish an ultimate parent company for Indonesia's mining sector that would productively and sustainably manage Indonesia's mining reserves and resources as well as develop value-added downstream coal and mineral products, we are in the process of strategically reorganizing our Group.

In August 2019, we established the MIND ID brand, with a plan to use this brand as the name of the ultimate parent company of our Group, which would function as a holding company, without directly operating mining and mineral processing businesses. To achieve this, we may establish a new wholly Government-owned holding company that would directly hold shares of our Company and our directly-held subsidiaries and minority-owned companies, or transfer our Company's aluminum smelting business into a newly established subsidiary. We believe that this would allow our Group to harness significant synergies among Group companies through, among other things, centralizing certain functions, including trading activities for all our business lines, and implementing standardized supply chain management guidelines and procedures in order to increase cost efficiency.

To deliver on the Government's mandate, we have also established various strategic initiative committees that are working together to formulate a cohesive plan and to provide guidance to our management team in relation to the reorganization of our Group. These committees, comprising the Executive Committee, the Integrated Management Office Team, the Accounting and Finance Committee, the Information Technology Committee, the Marketing Committee, the Operational and Logistics Committee, the Exploration Committee, the Human Resource Committee, the Risk Management and Audit Committee, the Legal and Governance Committee and the Business Development and Investment Committee, meet monthly to develop internal processes and protocols for each of their respective functions, which we plan to incorporate as components of our Group reorganization plan.

We also plan to continue to undertake targeted exploration activities in our mining concession areas and increase our holdings of key minerals and resources. We plan to acquire other Indonesian mining companies and additional mining concessions and to own between approximately 15.0% and 20.0% of the domestic reserves and resources, respectively, for coal and the minerals that we currently mine. For example, on October 11, 2019 (as subsequently amended on December 16, 2019 and March 27, 2020), we entered into a heads of agreement with PTVI, a publicly-listed nickel mining company in Indonesia, and certain of PTVI's shareholders, to acquire 20.0% of PTVI's outstanding shares. We believe that our strategic initiatives to transform into a first-class holding company for Indonesia's mining sector, including our continued consolidation and increase of control over domestic mining reserves and resources, will solidify our position as the state-owned national mining company and allow us to become an impactful Fortune 500 global mining company by 2035.

Develop production facilities to increase production capacity and expand into new capabilities

We plan to expand our existing production facilities and construct new production facilities to grow our production capacity and develop downstream value chains of relevant industries. For example, we are in the process of upgrading works at our aluminum reduction plant at Kuala Tanjung, North Sumatra, to increase the plant's aluminum production capacity from 260 ktpa to 280 ktpa. We are also exploring the development of a coal gasification plant, which we expect will enable us to convert the coal we produce into final products with higher selling value than coal. In addition, we are in the process of converting an idle primary aluminum billet plant located next to our existing aluminum smelter in Kuala Tanjung into a secondary aluminum billet plant that will have a production capacity of 50,000 tonnes of secondary aluminum billets per year. See "— Our Aluminum Smelting Business — Aluminum development projects" and "— Our Coal Business — Downstream coal businesses — Coal gasification plant project."

We also aim to develop our integrated capabilities with respect to our bauxite business and aluminum smelting business. We are in the process of constructing a refinery in Mempawah, West Kalimantan, which we expect to have a production capacity of up to 1.0 million tonnes of smelter grade alumina per year. We plan to use the bauxite produced as part of our bauxite business as ore feed for the plant, and the alumina produced at the plant as supply for our aluminum smelting business. We believe that the new alumina refinery will significantly facilitate our growth into a fully integrated aluminum smelter, allowing us to exercise better control of our supply chain and reduce our aluminum production costs. See “— Our Bauxite Business — Alumina production plants — Mempawah Smelter Grade Alumina Refinery project.”

Facilitate higher coal production by increasing transportation capacity and expanding our coal downstream business

We are undertaking several infrastructure projects with the goal of substantially increasing our coal transportation capacity. In order to support higher levels of coal production, we are in the process of building two new railway tracks to transport coal from our Tanjung Enim Coal Mine. We also recently completed the upgrade of one of our existing railways, our Kertapati Line, and are in the process of upgrading another one of our existing railways, our Tarahan Line. Our railway expansion projects are expected to allow us to transport and thereby increase coal production to approximately 60.0 mtpa of coal by 2024 as compared to our existing transportation capacity of 25.0 mtpa. See “— Our Coal Business — Infrastructure development projects.”

Further, given our substantial coal reserves and strong potential to increase production capacity, we believe that we are well placed to exploit opportunities for downstream growth. We are currently constructing the Sumsel 8 CFPP, a coal-fired power plant with a planned output capacity of 2x620 MW that is expected to consume coal at a rate of 5.4 mtpa and is intended to be fueled by coal from our Tanjung Enim Coal Mine. Upon commencing commercial operations, the Sumsel 8 CFPP is expected to be the biggest coal-fired power plant in Indonesia, in terms of output capacity. In addition, we are exploring the development of a coal gasification plant, which we expect will enable us to convert the coal we produce into final products with higher selling value than coal. We believe that growing our coal downstream business will allow us to further optimize coal production and extract maximum value from our coal reserves. See “— Our Coal Business — Downstream coal businesses.”

Leverage our position as the state-owned holding company for Indonesia’s mining operators and selectively collaborate and grow our business with experienced world-class partners

We believe that our status as a state-owned entity gives us an advantage when acquiring domestic mining concessions and also makes us as an attractive domestic partner for experienced world-class mining and commodity producing companies. As the owner of Indonesia’s mineral reserves and resources, the Government, through the MEMR, in accordance with MEMR Regulation 7/2020, conducts a priority bidding process for mining concessions among state-owned entities and regional government-owned entities, before opening the opportunity to bid for such mining concessions to the public. We have in the past leveraged and intend to continue capitalizing on our priority access to domestic mining concessions to continue to grow our business. Further, we also intend to leverage our state-owned entity status and selectively collaborate and grow our business with experienced world-class partners. We believe that collaborating with such experienced partners would allow us to develop our technical know-how and grow our downstream businesses.

History

We were incorporated in January 1976 as a joint venture company between the Government and Nippon Asahan Aluminium Co. Ltd. (“Nippon Asahan”), a company formed by a consortium of Japanese investors, to construct two hydroelectric power plants and an aluminum smelter along the Asahan River in Indonesia. We have since grown to become the second largest aluminum producer in Southeast Asia in terms of aluminum production volume in the year ended December 31, 2019, according to CRU, as well as a vertically integrated coal and mineral production company which undertakes all stages of mining and processing coal, tin, gold, nickel and bauxite. The following table sets forth a number of key milestones in our history.

<u>Year</u>	<u>Event/s</u>
July 1975	Master agreement was signed by the Government and Nippon Asahan.
January 1976	Inalum is established as a joint venture company between the Government and Nippon Asahan.
July 1979	Inalum commenced operation of its aluminum smelter.
July 1982	Inalum commenced operation of the Siguragura Power Plant.
March 1983	Inalum commenced operation of the Tangga Power Plant.
December 2013	The Government and Nippon Asahan signed a termination agreement and Nippon Asahan transferred all its shareholding interests in Inalum to the Government.
April 2014	Inalum was appointed by Indonesia’s Ministry of State-Owned Enterprises as a state-owned enterprise.
January 2015	Groundbreaking by President Joko Widodo of several strategic projects of Indonesian state-owned enterprises in North Sumatra, including Inalum’s diversification project.
December 2016	The Government made a capital contribution to Inalum in the form of land assets amounting to a total value of Rp.5,049.2 billion.
April 2017	Inalum began commercial production of aluminum billets.
May 2017	Inalum began commercial production of foundry alloys.
November 2017	Inalum was appointed the holding company of Indonesia’s state-owned mining entities including Antam, Bukit Asam, and Timah, which were listed on the IDX in November 1997, December 2002 and October 1995, respectively, and became a vertically integrated coal and metals company.
December 2018	Inalum acquired a majority beneficial stake in PTFI.
August 2019	Inalum rebranded itself as MIND ID.

Our Coal Business

We conduct our coal mining and processing business primarily through Bukit Asam. As of December 31, 2019, Bukit Asam was the largest holder of coal reserves in Indonesia and the fifth largest coal producer in Southeast Asia in terms of coal production volume in the year ended December 31, 2019, according to CRU. As a vertically integrated coal mining company, we undertake all stages of the coal production process, starting from the exploration, mining and processing of coal to the marketing and sale of our coal products. We also engage in the production and sale of coal-fired power.

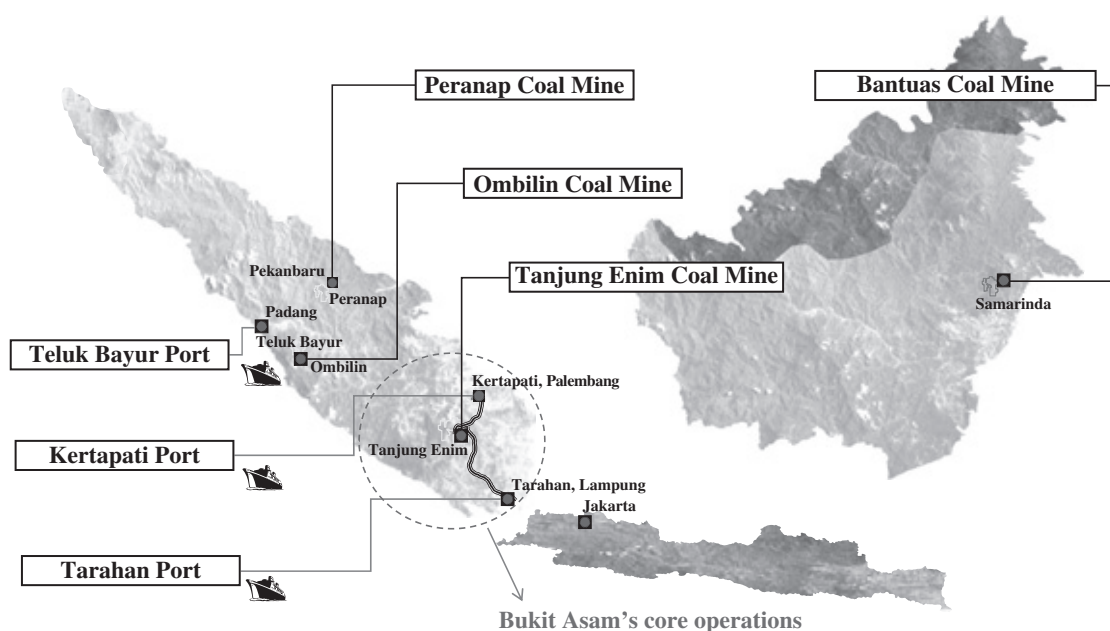
As of December 31, 2019, our aggregate coal reserves and resources was 3,125 million tonnes and 5,503 million tonnes, respectively, and for the year ended December 31, 2019, our aggregate coal production volume and sales volume was 29.1 million tonnes and 27.8 million tonnes, respectively. For the years ended

December 31, 2017, 2018 and 2019, our revenue from sale of coal was Rp.19,133.5 billion, Rp.20,792.7 billion and Rp.21,420.1 billion (US\$1540.9 million), respectively, representing 40.6%, 31.9% and 26.6% respectively, of our total revenue.

We own and operate four coal mines located on the Indonesian islands of Sumatra and Kalimantan:

- Our Tanjung Enim coal mine (“Tanjung Enim Coal Mine”), which is situated in Muara Enim, South Sumatra, spans a total area of approximately 41,229 hectares. Substantially all our coal is produced at our Tanjung Enim Coal Mine. See “Risk Factors — Risks Common to All Our Mining Businesses — We depend on a small number of mines for a substantial portion of our production volume.” It comprises six coal mining concessions including the (i) Tambang Air Laya, (ii) Muara Tiga Besar, (iii) Banko Barat, (iv) Banko Tengah A, (v) Banko Tengah B and (vi) Bukit Kendi coal mining concessions. The Bukit Kendi coal mining concession is not currently in operation.
- Our Bantuas coal mine (“Bantuas Coal Mine”), which is situated in Samarinda, East Kalimantan, spans a total area of approximately 3,238 hectares. It comprises the Bantuas coal mining concession held by our subsidiary, PT Internasional Prima Coal (“IPC”).
- Our Peranap coal mine (“Peranap Coal Mine”), which is situated in Indragiri Hulu, Riau, spans a total area of approximately 18,230 hectares. It comprises the Peranap coal mining concession and is currently in the initial production phase.
- Our Ombilin coal mine (“Ombilin Coal Mine”), which is situated in Sawahlunto, West Sumatra, spans a total area of approximately 2,935 hectares. It comprises the Ombilin coal mining concession and is not currently in operation.

The following map sets forth the location of our coal mines and the amount of reserves and resources at each coal mine, as well as the location of the main transshipment points for onward delivery of our coal products to our customers.



Tanjung Enim Coal Mine

Our Tanjung Enim Coal Mine comprises six coal mining concessions in the form of IUPs with expiry dates ranging from December 2020 to September 2035. Our Tanjung Enim Coal Mine previously also included the Lahat coal mining concession, which was revoked in 2004 as a result of a political dispute with the local Lahat

regency government. See “Risk Factors — Risks Common to All Our Mining Businesses — Our mining operations and expansion programs depend on our ability to obtain, maintain and renew necessary permits and approvals from the Government.” Our Tanjung Enim Coal Mine is accessible by an approximately one-hour flight from Jakarta to Palembang, the capital of South Sumatra, followed by an approximately five-hour journey by car to the mine site.

The following table sets forth certain information on the active coal mining concessions at our Tanjung Enim Coal Mine, as of December 31, 2019.

Mining concession	Concession holder	Concession expiry	Concession area (hectares)	Reserves ⁽¹⁾		Resources ⁽¹⁾		
				Proved	Probable	Measured	Indicated	Inferred
				(tonnes in millions)		(tonnes in millions)		
Tambang Air Laya	Bukit Asam	December 2020	7,621	293.0	112.0	433.0	229.0	49.0
Muara Tiga Besar	Bukit Asam	August 2029	2,866	192.0	14.0	275.0	56.0	21.0
Banko Barat	Bukit Asam	April 2027	4,500	284.0	4.0	446.0	86.0	18.0
Banko Tengah A	Bukit Asam	September 2035	2,423	181.0	182.0	184.0	185.0	2.0
Banko Tengah B	Bukit Asam	September 2035	22,937	389.0	1,170.0	426.0	1,300.0	1,030.0
Total⁽²⁾			40,347	1,339.0	1,482.0	1,764.0	1,856.0	1,120.0

Notes:

- (1) According to the 2019 Coal Reserves Statement, see Appendix A.
- (2) Not including the Bukit Kendi mining concession, which is part of our Tanjung Enim Coal Mine but not currently in operation. See “— Coal mining concessions not in operation — Bukit Kendi coal mining concession.”

Substantially all our coal is produced at our Tanjung Enim Coal Mine. See “Risk Factors — Risks Common to All Our Mining Businesses — We depend on a small number of mines for a substantial portion of our production volume.” For the years ended December 31, 2017, 2018 and 2019, we produced a total of 23.4 million tonnes, 25.4 million tonnes and 28.1 million tonnes of coal, respectively, at our Tanjung Enim Coal Mine, representing 96.4%, 96.3% and 96.6%, respectively, of our total coal production.

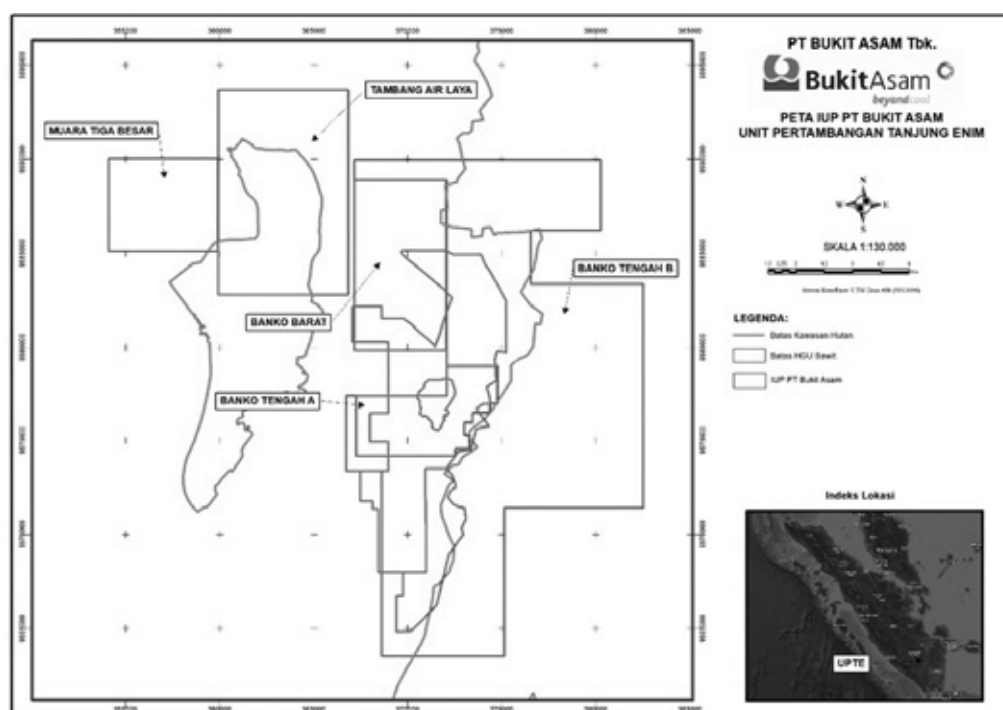
The following table sets forth certain production and sales information on the coal produced at our Tanjung Enim Coal Mine, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Sales (Rp. in billions)	17,563.0	19,738.0	20,687.4
Average selling price (Rp. in millions/tonne) ⁽¹⁾	0.8	0.8	0.8
Cash cost (Rp. in millions/tonne) ⁽²⁾	0.6	0.6	0.6

Notes:

- (1) Average selling price per tonne is calculated by dividing sales by sales volumes for the relevant years.
- (2) Cash cost per tonne is calculated as (a) the sum of mining costs, transportation, freight and handling costs, royalties paid to the Government, coal processing and other cash production costs, restoration costs and increases or decreases in coal inventories, divided by (b) coal sales volumes for the relevant years. Although depreciation and amortization related to the production of coal is added to our cost of revenue, it is not included in cash costs.

The following map sets forth the relative location of the mining concession areas in operation within our Tanjung Enim Coal Mine.



Tambang Air Laya coal mining concession

Our Tambang Air Laya coal mining concession at our Tanjung Enim Coal Mine is an IUP valid from October 2010 until December 2020. Our Tambang Air Laya coal mining concession area is approximately 7,621 hectares and contains bituminous and sub-bituminous coal with calorific values, as-received, between 5,000 kcal/kg and 7,200 kcal/kg.

The following table sets forth certain production information on the coal produced at our Tambang Air Laya coal mining concession, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Production volume (tonnes in millions)	5.6	7.8	7.8
Average strip ratio ⁽¹⁾	4.7	5.7	7.5

Note:

- (1) Average strip ratio is calculated by dividing the number of bank cubic meters of overburden (rock and soil) removed during such year by the number of tonnes of coal produced during such year.

Muara Tiga Besar coal mining concession

Our Muara Tiga Besar coal mining concession at our Tanjung Enim Coal Mine is an IUP valid from August 2019 until August 2029. The Muara Tiga Besar coal mining concession area is approximately 2,866 hectares and contains sub-bituminous coal with calorific values, as-received, between 4,400 kcal/kg and 5,000 kcal/kg.

The following table sets forth certain production information on the coal produced at our Muara Tiga Besar coal mining concession, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Production volume (tonnes in millions)	5.9	5.9	7.0
Average strip ratio ⁽¹⁾	3.8	3.4	3.9

Note:

- (1) Average strip ratio is calculated by dividing the number of bank cubic meters of overburden (rock and soil) removed during such year by the number of tonnes of coal produced during such year.

Banko Barat coal mining concession

Our Banko Barat coal mining concession at our Tanjung Enim Coal Mine is an IUP valid from October 2011 (as amended in June 2014) until April 2027. The Banko Barat coal mining concession area is approximately 4,500 hectares and contains sub-bituminous coal with calorific values, as-received, between 4,600 kcal/kg and 5,000 kcal/kg.

The following table sets forth certain production information for the coal produced at our Banko Barat coal mining concession area, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Production volume (tonnes in millions)	11.9	11.6	13.2
Average strip ratio ⁽¹⁾	2.4	2.8	2.8

Note:

- (1) Average strip ratio is calculated by dividing the number of bank cubic meters of overburden (rock and soil) removed during such year by the number of tonnes of coal produced during such year.

Banko Tengah A coal mining concession

Our Banko Tengah A coal mining concession at our Tanjung Enim Coal Mine is an IUP valid from April 2010 until September 2035. The Banko Tengah A coal mining concession area is approximately 2,423 hectares and contains sub-bituminous and lignite coal with calorific values, as-received, between 3,500 kcal/kg and 4,500 kcal/kg. The Banko Tengah A coal mining concession area is still being developed for large-scale coal mining. We expect to use the low-rank lignite coal produced at the Banko Tengah A coal mining concession area to fuel the Sumsel 8 CFPP, see “— Downstream coal businesses — Sumsel 8 CFPP project.”

The following table sets forth certain production information on the coal produced at our Banko Tengah A coal mining concession, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Production volume (tonnes in thousands)	5.7	26.0	32.5
Average strip ratio ⁽¹⁾	0.7	1.3	3.5

Note:

- (1) Average strip ratio is calculated by dividing the number of bank cubic meters of overburden (rock and soil) removed during such year by the number of tonnes of coal produced during such year.

Banko Tengah B coal mining concession

Our Banko Tengah B coal mining concession at our Tanjung Enim Coal Mine is an IUP valid from April 2010 until September 2035. The Banko Tengah B coal mining concession area is approximately 22,937 hectares

and contains sub-bituminous and lignite coal with calorific values, as-received, between 3,000 kcal/kg and 4,500 kcal/kg. The Banko Tengah B coal mining concession area is still being developed for large-scale coal mining. We expect to use the low-rank lignite coal produced at the Banko Tengah B coal mining concession area to fuel the Sumsel 8 CFPP. See “— Downstream coal businesses — Coal-fired power plant development project.”

The following table sets forth certain production information on the coal produced at our Banko Tengah B coal mining concession, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Production volume (tonnes in thousands)	5.9	12.1	5.6
Average strip ratio ⁽¹⁾	2.3	3.4	3.5

Note:

(1) Average strip ratio is calculated by dividing the number of bank cubic meters of overburden (rock and soil) removed during such year by the number of tonnes of coal produced during such year.

Bantuas Coal Mine

Our Bantuas Coal Mine comprises one coal mining concession in the form of an IUP valid from November 2016 until November 2026, which we hold through Bukit Asam’s subsidiary, IPC. Our Bantuas Coal Mine is accessible by an approximately two-hour flight from Jakarta to Samarinda, the capital of East Kalimantan, followed by an approximately two-hour journey by car to the mine site. The Bantuas coal mining concession area is approximately 3,238 hectares and contains sub-bituminous and lignite coal with calorific values, on an as-received basis, between 4,800 kcal/kg and 4,900 kcal/kg.

The following table sets forth certain information on our coal mining concession for our Bantuas Coal Mine, as of December 31, 2019.

Mining concession	Concession holder	Concession expiry	Concession area (hectares)	Reserves ⁽¹⁾		Resources ⁽¹⁾		
				Proved (tonnes in millions)	Probable (tonnes in millions)	Measured (tonnes in millions)	Indicated (tonnes in millions)	Inferred (tonnes in millions)
Bantuas	IPC	November 2026	3,238	3.7	1.6	20.0	2.0	1.0

Note:

(1) According to the 2019 Coal Reserves Statement, see Appendix A.

For the years ended December 31, 2017, 2018 and 2019, we produced a total of 870,505 tonnes, 985,287 tonnes and 989,042 tonnes of coal, respectively, at our Bantuas Coal Mine, representing 3.6%, 3.7% and 3.4%, respectively, of our total coal production.

The following table sets forth certain production and sales information on the coal produced at our Bantuas Coal Mine, for the years indicated.

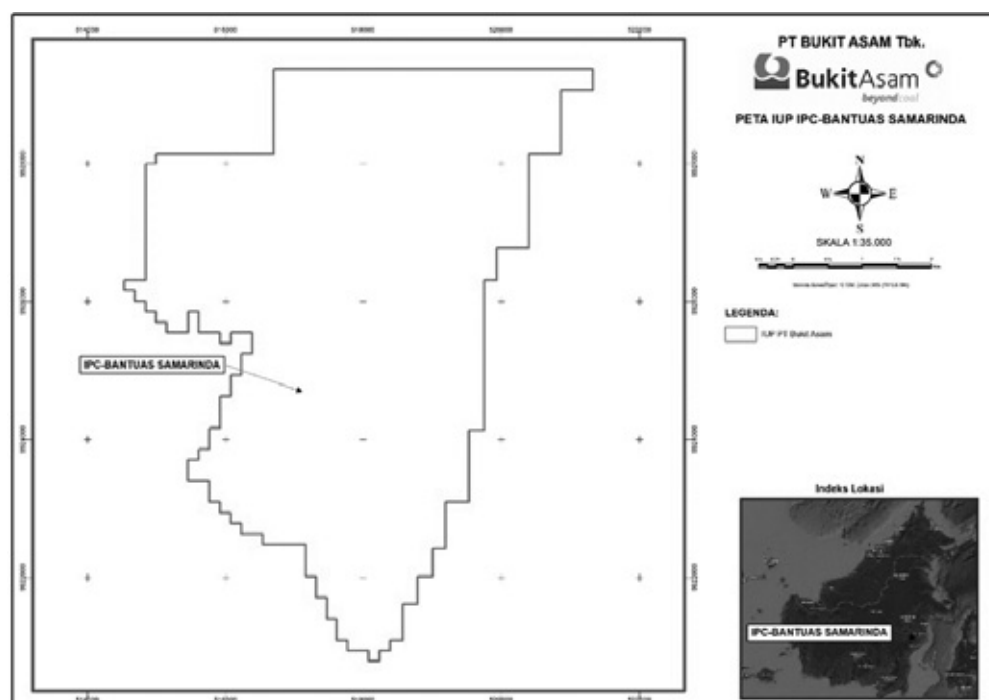
	For the years ended December 31,		
	2017	2018	2019
Sales (Rp. in billions)	659.1	875.4	703.3
Average strip ratio ⁽¹⁾	10.2	11.7	11.6
Average selling price (Rp. in millions/tonne) ⁽²⁾	0.8	0.9	0.7
Cash cost (Rp. in millions/tonne) ⁽³⁾	0.5	0.5	0.5

Notes:

(1) Average strip ratio is calculated by dividing the number of bank cubic meters of overburden (rock and soil) removed during such year by the number of tonnes of coal produced during such year.

- (2) Average selling price per tonne is calculated by dividing sales by sales volumes for the relevant years.
- (3) Cash cost per tonne is calculated as (a) the sum of mining costs, transportation, freight and handling costs, royalties paid to the Government, coal processing and other cash production costs, restoration costs and increases or decreases in coal inventories, divided by (b) coal sales volumes for the relevant years. Although depreciation and amortization related to the production of coal is added to our cost of revenue, it is not included in cash costs.

The following map sets forth the location of our Bantuas coal mining concession.



Peranap Coal Mine

Our Peranap Coal Mine comprises one coal mining concession in the form of an IUP valid from April 2010 until April 2035. Our Peranap Coal Mine is accessible by an approximately one and a half-hour flight from Jakarta to Pekanbaru, the capital of Riau, followed by an approximately six-hour journey by car to the mine site. The Peranap coal mining concession area is approximately 18,230 hectares and contains lignite coal with calorific values, as-received, between 2,300 kcal/kg and 3,200 kcal/kg.

In December 2018, we began initial production operations at our Peranap Coal Mine. For the years ended December 31, 2018 and 2019, we produced a total of 2,115 tonnes and 4,445 tonnes of coal, respectively, at our Peranap Coal Mine.

The following table sets forth certain information on our coal mining concession for our Peranap Coal Mine, as of December 31, 2019.

Mining concession	Concession holder	Concession expiry	Concession area (hectares)	Reserves ⁽¹⁾		Resources ⁽¹⁾		
				Proved (tonnes in millions)	Probable (tonnes in millions)	Measured (tonnes in millions)	Indicated (tonnes in millions)	Inferred (tonnes in millions)
Peranap	Bukit Asam	April 2035	18,230	151.0	124.0	211.0	362.0	61.0

Note:

- (1) According to the 2019 Coal Reserves Statement, see Appendix A.

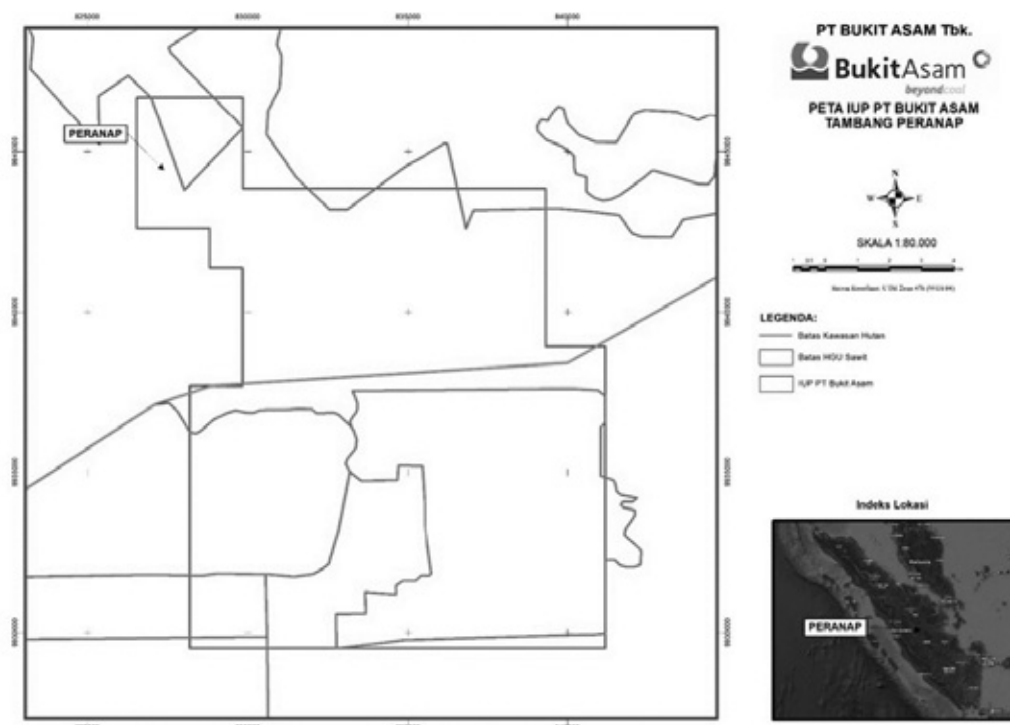
The following table sets forth certain production and sales information on the coal produced at our Peranap Coal Mine, for the years indicated.

	For the years ended December 31,		
	2017	2018	2019
Sales (Rp. in millions)	— ⁽³⁾	— ⁽³⁾	1,061.0
Average strip ratio	— ⁽³⁾	— ⁽³⁾	— ⁽⁴⁾
Average selling price (Rp. in thousands/tonne) ⁽¹⁾	— ⁽³⁾	— ⁽³⁾	189.7
Cash cost (Rp. in thousands/tonne) ⁽²⁾	— ⁽³⁾	— ⁽³⁾	31.0

Notes:

- (1) Average selling price per tonne is calculated by dividing sales by sales volumes for the relevant years.
- (2) Cash cost per tonne is calculated as (a) the sum of mining costs, royalties paid to the Government, coal processing and other cash production costs, restoration costs and increases or decreases in coal inventories, divided by (b) coal sales volumes for the relevant years. Although depreciation and amortization related to the production of coal is added to our cost of revenue, it is not included in cash costs.
- (3) Production operations at our Peranap Coal Mine commenced in December 2018.
- (4) Stripping is not required at our Peranap Coal Mine as all overburden at the mine had already been removed before we began production operations there in December 2018.

The following map sets forth the location of our Peranap coal mining concession.



Coal mining concessions not in operation

The following table sets forth certain information on our coal mining concessions at which we do not have active production operations, as of December 31, 2019.

Mining concession	Concession holder	Concession expiry	Concession area (hectares)	Reserves ⁽¹⁾		Resources ⁽¹⁾		
				Proved (tonnes in millions)	Probable (tonnes in millions)	Measured (tonnes in millions)	Indicated (tonnes in millions)	Inferred (tonnes in millions)
Bukit Kendi	PT Batubara							
	Bukit Kendi	October 2025	882	0.7	0.3	2.1	0.4	0.2
Ombilin	Bukit Asam	February 2029	2,935	23.0	—	86.0	16.0	—
Total			3,817	23.7	0.3	88.1	16.4	0.2

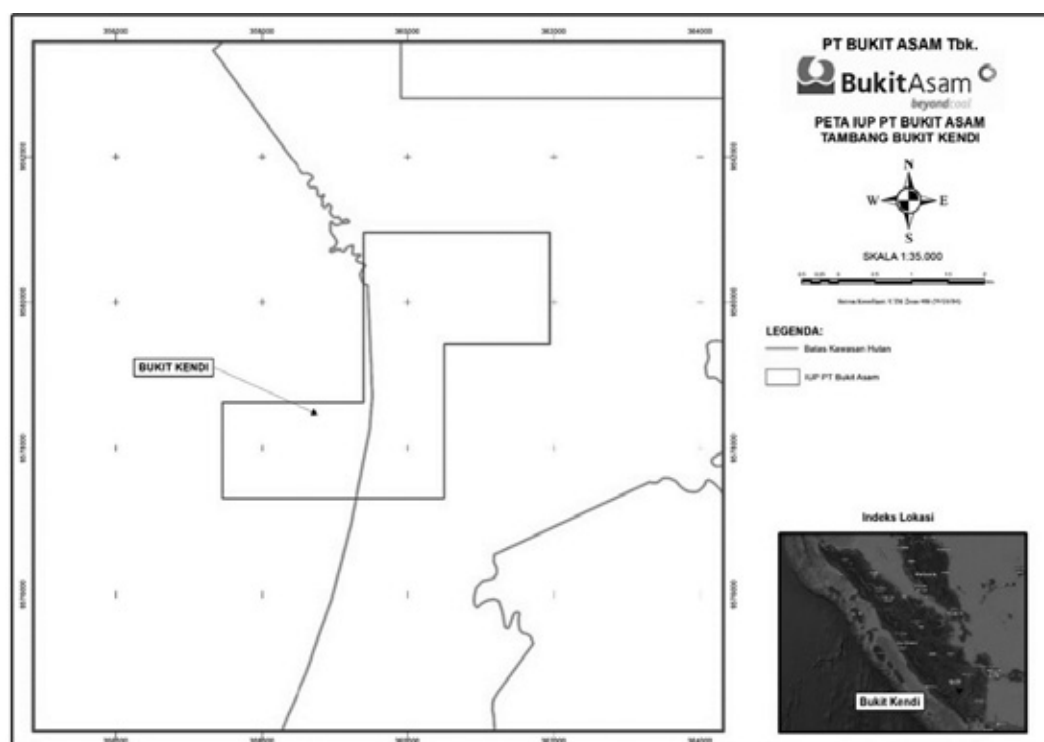
Note:

(1) According to the 2019 Coal Reserves Statement, see Appendix A.

Bukit Kendi coal mining concession

Our Bukit Kendi coal mining concession at our Tanjung Enim Coal Mine is an IUP valid from April 2010 until October 2025, which we hold through Bukit Asam's subsidiary, PT Batubara Bukit Kendi. The Bukit Kendi coal mining concession area is approximately 882 hectares. We do have active production operations at the Bukit Kendi coal mining concession due to a lack of mineable reserves in the concession area. We are evaluating the continuity of our Bukit Kendi coal mining concession.

The following map sets forth the location of our Bukit Kendi coal mining concession.



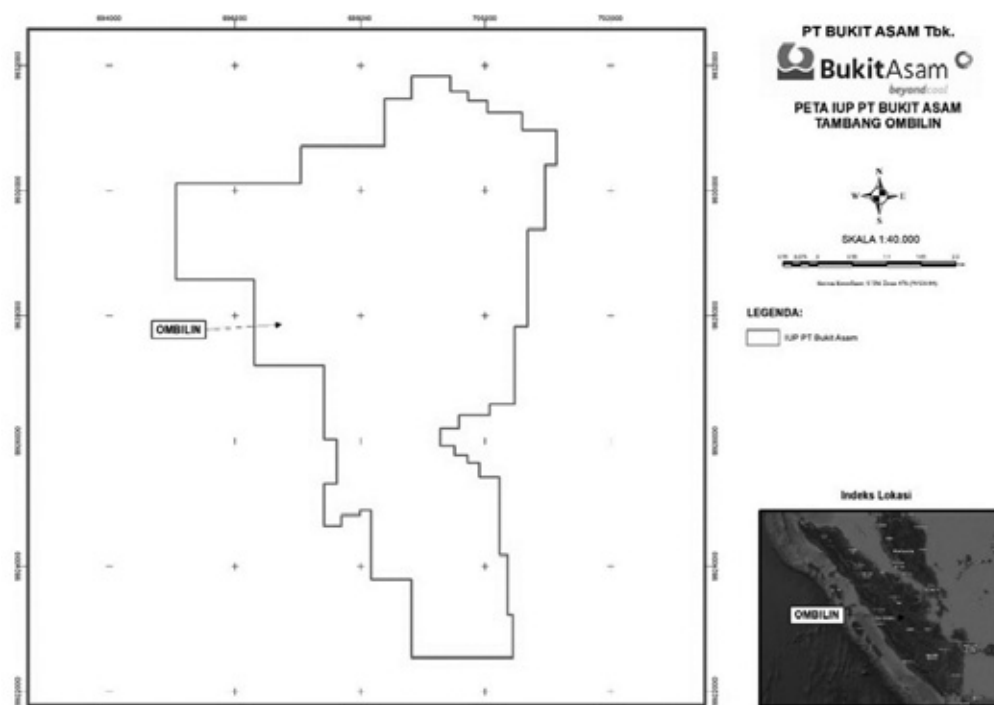
Ombilin Coal Mine

Our Ombilin Coal Mine comprises one coal mining concession in the form of an IUP valid from March 2019 until February 2029. Our Ombilin Coal Mine is accessible by an approximately one and a half-hour flight

from Jakarta to Padang, the capital of West Sumatra, followed by an approximately four-hour journey by car to the mine site. The Ombilin coal mining concession area is approximately 2,935 hectares and contains bituminous coal with calorific values, as-received, between 6,400 kcal/kg and 7,200 kcal/kg.

Unlike our Tanjung Enim Coal Mine and Bantuas Coal Mine, where we undertake open-pit surface mining, our Ombilin Coal Mine requires underground mining. As compared to surface mining, the process of underground mining involves more extensive labor and advanced machinery and is therefore more capital intensive. We had therefore chosen not to commence production operations at our Ombilin Coal Mine due to the higher costs associated with underground mining. In addition, in July 2019, after extended consultation with us, the Sawahluto Regional Government, the West Sumatra Provincial Government and the Ministry of Education and Culture, our Ombilin Coal Mine was declared a world heritage site and named “The Ombilin Coal Mining Heritage of Sawahluto” by the United Nations Educational, Scientific and Cultural Organization (UNESCO). As such, we do not expect to commence production at our Ombilin Coal Mine in the near future.

The following map sets forth the location of our Ombilin coal mining concession.



Coal mining operations

Mine planning

With information collected through our exploration activities such as the environmental impact studies and mine feasibility studies conducted by our geologists, we prepare mine plans in relation to further exploration and operation of each pit within our mines. We begin with a conceptual life-of-mine plan and determine the optimum production rate in order to maximize reserves for a particular mine throughout its life. We then begin discussions with our third-party mining contractors to agree on optimal fleet sizes and annual production rates that are necessary to reach our optimum production rate. As ongoing mining operations are conducted, more exploration data is collected and the geological model is revised, allowing us to review and increase the accuracy of our mine plans. In cooperation with our mining contractors, our mine planning committee prepares our mine plans for 12-month periods, which are then reviewed on a monthly basis.

Our mine planning process takes into consideration our sales obligations to PLN (including its subsidiary, Indonesia Power), our primary offtaker of coal produced from our Tanjung Enim Coal Mine with whom we have

collaborated with since 1988. We enter into long-term offtake contracts with PLN, which enables us to secure our future coal sales and cash flows against the risk of decrease in global coal demand. We adjust our coal production rates according to the volume of coal to be supplied to PLN, which is determined with PLN on an annual basis. See “— Customers — Coal — Coal offtake agreements with PLN.”

We also account for surface features such as topography, position of rivers and creeks, local villages and associated infrastructure, and begin planning for rehabilitation of disturbed areas. See “Risk Factors — Risks Common to All Our Mining Businesses — Our operations are subject to environmental laws and regulations which may cause us to incur significant costs, liabilities or interrupt or cease mining operations, any of which may adversely affect our results of operations.” In addition, our mine plans also factor in adverse weather conditions, particularly during the rainy season, when heavy rains can completely stop overburden removal and reduce coal production volumes. By using historical rainfall data to statistically predict the wet seasons every year, we are able to adjust our production rates and overall mine plan accordingly. See “Risk Factors — Risks Common to All Our Businesses — We may experience unexpected disruptions to our mining and smelting operations as a result of operational and infrastructure risks.”

Coal mining

In its natural state, the land in our Tanjung Enim Coal Mine and Bantuas Coal Mine is covered with primary and secondary forest that has to be cleared to get to the coal seam. First, we conduct an initial environmental impact analysis to assess the potential impact on the environment from the planned mining activity. After that, marketable timber is recovered and vegetation is cleared. Top soil is then removed and transported directly to reclamation areas or stockpiled until required. To shatter the overburden layer, drilling, blasting and dozer ripping are performed to fragment the layer. Waste is then removed using typical hydraulic shovel-and-truck configuration. Waste is typically removed to a level slightly above the coal seam.

Our Tanjung Enim Coal Mine and Bantuas Coal Mine generally feature coal seams with a minimum thickness of five meters. The coal is mined using surface open-cut mining methods. Once the coal is exposed, it is mined using a hydraulic backhoe and transported by rear dump trucks. Coal is delivered to our coal handling facilities and dumped directly into either a reclaimer unit, crusher surge bin hopper or stockpiled. As our mines generally benefit from a relatively parallel seam structure, we enjoy relatively lower strip ratios.

Reclamation

Pursuant to Decree No. 1827 of 2018 of the Minister of Energy and Mineral Resources, we are required to provide reclamation and post-mining guarantees. See “Indonesian Regulatory Framework — Mining Regulation — Reclamation and post-mining activities.” Reclamation is part of the ongoing mining activities and we carry out the reclamation process on the previous digging area while mining in other areas. We also conduct revegetation in our mining areas and have implemented initiatives to support our revegetation process including the establishment of a 2.5 hectare plant breeding center in our Tambang Air Laya coal mining concession. As of December 31, 2019, we have conducted revegetation in a total of approximately 2,053 hectares of our post-mining areas.

Our coal products

We have a variety of coal products that we market under our “Bukit Asam” brand. We believe that our coal products are superior due to their relatively low ash and low sulfur content, as well as high HGI, which measures the coal’s resistance to crushing, and high AFT, which predicts the coal’s reactivity to high boiler temperatures.

The following table sets forth standard marketing coal specifications for our coal brands.

Company	Coal brand	Average calorific value ⁽¹⁾ (kcal/kg)	Total moisture ⁽¹⁾ (%)	Inherent moisture ⁽²⁾ (%)	Ash content ⁽²⁾ (%)	Volatile matter ⁽²⁾ (%)	Fixed carbon ⁽²⁾ (%)	Total sulfur ⁽²⁾ (%)	HGI
Bukit Asam	BA – 48	4,800	30	14	6	39	41	0.7	55
	BA – 50	5,000	28	13	6	39	41	0.7	57
	BA – 64	6,400	14	6	6	35	50	0.7	61
	BA – 67	6,700	11	4	6	33	53	0.7	63
	BA – 71	7,100	7	3	6	28	61	0.7	77
IPC ⁽³⁾	GAR 4,600	4,600	31	15	6	38	41	0.5	42
	GAR 4,700	4,700	28	15	6	38	41	0.5	42
	GAR 4,800	4,800	27	15	6	38	41	0.5	42

Notes:

- (1) Measured on an “as-received” basis.
- (2) Measured on an “air-dried” basis.
- (3) Refers to coal produced at our Bantuas coal mining concession, which we hold through Bukit Asam’s subsidiary, IPC. See “— Bantuas Coal Mine.”

Coal hauling, processing and delivery

Coal handling facilities

All handling of our coal is conducted in accordance with the Quality Management System ISO 9001. See “— Quality control.” At our Tanjung Enim Coal Mine, we have coal handling facilities comprising ROM coal handling and stockpiles located near each of the active mining concession areas. At our Tambang Air Laya coal handling facility, coal is conveyed into a stockpile via a bucket wheel excavator and then placed into discrete stockpiles by a stacker/reclaimer or using a shovel-truck system. At our Muara Tiga Besar coal handling facility, coal is pushed via a bulldozer or directly transported by a truck into a stockpile and then placed into discrete stockpiles via an overland conveyer. At our other coal handling facilities, coal is conveyed into a stockpile via a hopper wagon and then placed into discrete stockpiles via an overland conveyer. We conduct the coal blending process ourselves at the mine stockpiling area using our dump hopper. Coal is then reclaimed from the discrete stockpiles at each coal handling facility via underground feeders, conveyed over land and then transferred to a designated customer stockpile for onward distribution to our local customers or to the designated train loading stations for transport to our transshipment points.

At our Bantuas Coal Mine, coal is processed manually using excavators and the shovel-and-track system at the mine site. The coal is conveyed into a temporary stockpile by trucks and then directly transferred to our terminal located in Samarinda for onward distribution to our customers via haul roads or barge ports.

Coal train loading stations

We have train loading stations located near each of our Tanjung Enim coal handling facilities. Coal is transported from the coal handling facilities by front-end loaders to the designated train loading station. At the train loading station, the coal is loaded via a conveyor system onto train carriages operated by KAI for onward distribution to our transshipment points. See “— Coal transportation agreement with KAI,” “— Coal transshipment points” and “Related-Party Transactions — Agreements with KAI — Mining services agreement.” The coal is unloaded from the train carriages using rotary car dumpers at our terminal at Tarahan, Lampung (“Tarahan Port”) and using apron feeders at our terminal at Kertapati, Palembang (“Kertapati Port”).

Coal transshipment points

Coal produced at our Tanjung Enim Coal Mine is primarily served by our Tarahan Port and Kertapati Port. Our Tarahan Port has a throughput capacity of 22.0 mtpa, a stockpile capacity of 1.0 million tonnes and is

capable of handling Capesize vessels of up to 210,000 DWT. Our Kertapati Port has a throughput capacity of 5.0 mtpa, a stockpile capacity of 100,000 tonnes and is capable of handling vessels of up to 8,000 DWT. Our terminal located at Teluk Bayur, Padang (“Teluk Bayur Port”) has a throughput capacity of 2.5 mtpa, a stockpile capacity of 90,000 tonnes and is capable of handling vessels of up to 40,000 DWT. We do not currently transport any coal through our Teluk Bayur Port as it typically serves our Ombilin Coal Mine, at which we do not have active production operations. See “— Coal mining concessions not in operation — Ombilin Coal Mine.” Coal produced at our Bantuas Coal Mine is served by haul roads and three barge port alternatives with stockpiling capacities of up to 8,000 tonnes. Coal produced at our Peranap Coal Mine is sold at the mine site and further transportation costs are borne by the customer.

Coal transportation agreement with KAI

We have collaborated with KAI, Indonesia’s state-owned railway operator, for over 30 years for the provision of transportation services. KAI owns and operates the trains that transport the coal from our Tanjung Enim train loading stations to our transshipment points at our Tarahan Port and Kertapati Port.

On June 9, 2017, we entered into a five-year transportation agreement with KAI. Under the terms of the agreement, KAI committed to transporting coal from our Tanjung Enim Coal Mine to our Tarahan Port and Kertapati Port from January 1, 2017 until December 31, 2021. See “— Coal hauling, processing and delivery — Coal transshipment points” and “Related-Party Transactions — Agreements with KAI — Mining services agreement.” For the years ended December 31, 2017, 2018 and 2019, KAI transported 21.4 million tonnes, 22.7 million tonnes and 24.2 million tonnes, respectively, of our coal. For the years ending December 31, 2020 and 2021, KAI has committed to transporting a minimum of 30.0 million tonnes of our coal per year. In the event that KAI does not transport the minimum amount of coal stipulated for any given year, KAI’s fees for that year may be reviewed and adjusted by agreement by both parties. In addition, if the fuel price paid by KAI is 10.0% more than Rp.5,649/liter, we are required to bear the difference in cost. The agreement with KAI may be terminated by either party in the event of, among others, default or bankruptcy of either party or if the parties are unable to agree on the transportation cost. KAI’s fees are reviewed on an annual basis and are paid in a combination of U.S. dollars and Rupiah. For the years ended December 31, 2017, 2018 and 2019, total expenses for KAI’s transportation services amounted to Rp.4,043.5 billion, Rp.4,453.9 billion and Rp.4,848.5 billion (US\$348.8 million), respectively, representing 36.9%, 35.3% and 34.2%, respectively, of the total cost of revenue for our coal business.

We are also cooperating with KAI with respect to developing our railway infrastructure in order to increase our transportation capacity and efficiency. See “— Infrastructure development projects” and “Related-Party Transactions — Agreements with KAI — Cooperation framework agreement.”

Coal-fired power plants

We own and operate two coal-fired power plants, comprising one located at our Tanjung Enim Coal Mine (the “Tanjung Enim CFPP”) and one located at our Tarahan Port (the “Tarahan CFPP”), both of which are fed by coal from our Tanjung Enim Coal Mine. The Tanjung Enim CFPP, which began operations in 2013, has an output capacity of 3x10 MW and supplies power for mining operations and employee housing at our Tanjung Enim Coal Mine. The Tarahan CFPP, which began operations in 2014, has an output capacity of 2x8 MW and supplies power for coal handling operations at our Tarahan Port. Our mining operations require a substantial amount of electricity and producing our own electricity with coal from our Tanjung Enim Coal Mine contributes to our cost efficiency.

Third-party contractors

We contract certain of our coal mining activities to third-party contractors in order to maximize efficiency and minimize costs. We typically select mining contractors through direct negotiations with existing contractors or by way of a competitive open tender, with potential contractors submitting their bids based on the requirements we specify. We select our mining contractors after considering various factors such as price, equipment, experience and previous track record in our mining operations. See “Risk Factors — Risks Common

to All Our Mining Businesses — We rely on third-party contractors to conduct certain of our mining operations, and such contractors may be constrained by labor disputes, face operational difficulties or perform unsatisfactory work.”

Mining service agreement with PT Pama Persada Nusantara (“Pama”)

We have contracted with Pama since 2011 for the provision of mining-related services in relation to overburden removal and coal hauling services to the stockpile and train loading stations, including the supply of heavy equipment and dump trucks, at our Tambang Air Laya and Muara Tiga Besar coal mining concessions. We have five existing agreements with Pama, two of which are in the process of being extended, pursuant to which Pama provides us with overburden removal and coal hauling services as well as operators for our heavy equipment and other supporting mining equipment.

On November 17, 2011 (as lastly amended on June 28, 2019), we entered into a services agreement with Pama for overburden removal and coal hauling services at our Tanjung Enim Coal Mine. Under the terms of the agreement, Pama is required to remove a total of 228.5 million bank cubic meters of overburden and haul a total of 48.8 million tonnes of coal over the period of the agreement. The agreement expired on December 31, 2019, and we are currently in the process of extending the agreement to June 2020.

On April 11, 2014 (as lastly amended on December 31, 2018), we entered into a services agreement with Pama for overburden removal and coal hauling services at our Tanjung Enim Coal Mine. The agreement sets out production schedules of overburden to be removed and coal to be hauled from 2014 to 2019, and requires that Pama remove a total of 189.8 million bank cubic meters of overburden and haul a total of 32.9 million tonnes of coal over the period of the agreement. The agreement expired on December 31, 2019, and we are currently in the process of extending the agreement to December 2020.

On December 27, 2018, we entered into a services agreement with Pama for overburden removal and coal hauling services at our Tanjung Enim Coal Mine. The agreement sets out production schedules for the amount of overburden to be removed and coal to be hauled by Pama in each year between 2019 and 2023, and requires that Pama remove a total of 80.0 million bank cubic meters of overburden and haul a total of 20.0 million tonnes of coal over the period of the agreement. Under the terms of the agreement, Pama is required to provide us with a performance bond in the amount of Rp.195.0 billion which we can liquidate in the event that Pama unilaterally terminates the agreement or defaults on its obligations under the agreement. The agreement is valid until December 31, 2023.

On March 29, 2019, we entered into another services agreement with Pama for overburden removal and coal hauling services at our Tanjung Enim Coal Mine. The agreement sets out production schedules for the amount of overburden to be removed and coal to be hauled by Pama in each year between 2020 and 2024, and requires that Pama remove a total of 262.5 million bank cubic meters of overburden and haul a total of 35.0 million tonnes of coal over the period of the agreement. The agreement is valid until December 31, 2024.

On February 12, 2020, we entered into an agreement with Pama pursuant to which Pama provides us with operators for our heavy equipment and other supporting mining equipment for a total contract value of Rp.105.4 billion. Under the terms of the agreement, Pama is required to provide us with a performance bond in the amount of Rp.5.3 billion which we can liquidate in the event that Pama unilaterally terminates the agreement or defaults on its obligations under the agreement. The agreement is valid until December 31, 2024.

For the years ended December 31, 2017, 2018 and 2019, total expenses for Pama’s mining services amounted to Rp.2,226.3 billion, Rp.3,062.2 billion and Rp.3,541.2 billion (US\$254.7 million), respectively, representing 20.3%, 24.3% and 25.0%, respectively, of our total cost of revenue for our coal business.

Quality control

We maintain a strict quality-control process during all stages of our mining and logistics operations to ensure that the product delivered to our customers satisfies the minimum quality requirements specified in our sales contracts. Quality control begins during exploration drilling where coal samples taken from the cores of

boreholes are analyzed to assess the quality of such coal. The analysis of the quality of the coal is conducted in our laboratory, which is ISO 9001 certified by the National Accreditation Committee of Indonesia. During this stage, the *in situ* coal quality of a particular coal block or seam is checked for consistency. Coal from different blocks or seams, and separate pits, is then scheduled and mined in accordance with the detailed mine plan in order to meet our coal brand requirements. See “— Our coal products.” The next phase of quality control is during the stockpiling process conducted at the coal processing facility at each mining area before being distributed to local customers or at the train loading station before the coal is transported to the transshipment point for onward delivery. The coal is separately stockpiled according to its quality classification and additional testing is conducted on samples from each stockpile to ensure consistency. At the transshipment point, the quality of the coal is again sampled and analyzed before the vessels leave the port and coal quality is certified by PT Surveyor Indonesia, an independent laboratory.

As of December 31, 2019, we have received the following quality assurance certifications and awards in respect of our coal production and sale processes:

No.	Certification/award	Awarding body/authority	Validity period of certificate/award	Process
1.	ISO 9001:2015	TÜV SÜD PSB Pte Ltd	Until March 5, 2021	Process from mining the coal up to marketing of the coal
2.	ISO 14001:2015	TÜV SÜD PSB Pte Ltd	Until March 4, 2021	Process from mining the coal up to marketing of the coal
3.	OHSAS 18001:2007	TÜV SÜD Asia Pacific TÜV SÜD Group	Until February 27, 2021	Process from mining the coal up to marketing of the coal
4.	GOLD PROPER	MOEF	Awarded on January 8, 2020	Mining and processing operations at our Tanjung Enim Coal Mine
5.	ISO/IEC 17025:2017	National Accreditation Committee (<i>Komite Akreditasi Nasional</i> or “KAN”)	Until October 3, 2024	Testing laboratory in Kertapati Port
6.	ISO/IEC 17025:2005	KAN	Until March 20, 2022	Testing laboratory in Tarahan Port
7.	ISO/IEC 17025:2005	KAN	Until March 21, 2021	Testing laboratory in Tanjung Enim Coal Mine
8.	ISO/IEC 17025:2005	KAN	Until August 28, 2022	Exploration and geotechnical office in Lahat, South Sumatra
9.	ISO/IEC 17025:2005	KAN	Until March 21, 2021	Calibration laboratory in Tanjung Enim

Infrastructure development projects

We undertake various projects to develop our transportation infrastructure in order to support the high levels of coal production at our Tanjung Enim Coal Mine and thereby increase our operational efficiency. In December 2019, we completed the upgrade to our Kertapati Line, which increased the annual coal transportation capacity on the route to 5.0 mtpa, as compared to the previous capacity of 3.7 mtpa.

We intend to further develop our transportation infrastructure to serve our Tanjung Enim Coal Mine, and we are aiming to reach a coal transportation capacity of approximately 60.0 mtpa by 2024. In order to reach this target, we have collaborated with PT KAI, who currently transports our coal from Tanjung Enim to our Tarahan Port and Kertapati Port, to improve our railway infrastructure through the following projects:

- *Tarahan Line Upgrade.* We are upgrading the existing single-track railway leading to the Tarahan Port into a double-track railway (the “Tarahan Line Upgrade”). We commenced the Tarahan Line Upgrade in February 2018 and have completed construction of a new flyover bridge that serves to accommodate trans-Sumatra traffic crossing over from the railway and the placement of the second track. KAI commenced construction of the railway signaling system for the new double-track railway in March 2020, and is expected to commence construction of the double-track railway in the second quarter of 2020. The Tarahan Line Upgrade is expected to be completed by the end of 2020. Progress on the

Tarahan Line Upgrade to date has increased our annual coal transportation capacity on the route to 22.0 mtpa, and we expect such capacity to reach approximately 25.0 mtpa upon completion of the upgrade. We do not expect to incur any further capital expenditure for the Tarahan Line Upgrade as we have contributed our portion for the Tarahan Line Upgrade, and the rest of the project will be financed and completed by KAI.

- *Tarahan Line II.* We are in the process of constructing a new port in Tarahan, Lampung and a new railway track that will lead to the new port (the “Tarahan Line II”). We have completed the designs and land acquisition for the new port, and are in the process of obtaining the permits and approvals for the Tarahan Line II project. We plan to commence construction of the Tarahan Line II in the fourth quarter of 2021. We expect the Tarahan Line II to be operational by 2024 and, together with our existing Tarahan Line, to have a total capacity of approximately 45.0 mtpa. Our total planned capital expenditure for the construction of the Tarahan Line II is approximately Rp.72.7 billion, Rp.308.6 billion and Rp.1,177.2 billion for the years ending December 31, 2020, 2021 and 2022, respectively.
- *Prajin Line.* We are in the process of constructing a new port in the northern part of South Sumatra and a new railway track that will lead to the new port (the “Prajin Line”), as well as a new train loading station to serve the Prajin Line. We have completed the designs and land acquisition for the new port, and obtained the required permits and approvals for the Prajin Line project. We plan to commence construction of the Prajin Line in the third quarter of 2021. We expect the Prajin Line to be operational by 2024 and have a capacity of approximately 10.0 mtpa. Our total planned capital expenditure for the development of the Prajin Line is approximately Rp.385.2 billion, Rp.1,228.1 billion and Rp.1,548.9 for the years ending December 31, 2021, 2022 and 2023, respectively.

We expect to finance the capital expenditures for the above projects using cash flow generated from operations and bank loans. See “Risk Factors — Risks Common to All Our Mining Businesses — The mining industry is capital intensive and we may experience limited availability of funds,” and “Management’s Discussion and Analysis of Financial Condition and Results of Operation — Capital Expenditures.”

Downstream coal businesses

Coal-fired power plant business

In addition to our coal mining business, we also engage in the production and sale of coal-fired power. We hold a 59.8% ownership interest in BPI, a joint venture among us, PT Pembangkitan Jawa Bali (a subsidiary of PLN) and PT Navigat Innovative Indonesia. Through BPI, we own and operate a coal-fired power plant located at Banjarsari, South Sumatra (the “Banjarsari CFPP”) that is also fed by coal from our Tanjung Enim Coal Mine. The Banjarsari CFPP began operations in January 2015 and has an output capacity of 2x110 MW.

On January 16, 2007 (as lastly amended on August 28, 2012), BPI entered into a power purchase agreement with PLN, as the offtaker of the electricity generated by BPI’s Banjarsari CFPP. The price to be paid by PLN under the agreement is a base tariff of approximately US\$0.055/kWh, subject to further adjustments that may be made pursuant to pre-agreed formulas. The agreement is valid for 30 years from the date that the Banjarsari CFPP began commercial operations.

Sumsel 8 CFPP project

We are further expanding our downstream coal business through the development of a coal-fired power plant located in Muara Enim, South Sumatra (the “Sumsel 8 CFPP”). We hold a 45.0% ownership interest in HBAP, a joint venture between us and China Huadian Hong Kong Company Limited, through which we will operate the Sumsel 8 CFPP. The Sumsel 8 CFPP will be fueled by the coal from our Tanjung Enim Coal Mine. Construction of the Sumsel 8 CFPP commenced in June 2018 and is expected to be completed by 2022. However, as the EPC contractors for the Sumsel 8 CFPP are based in China and are unable to re-enter Indonesia due to travel restrictions stemming from the current COVID-19 pandemic, we may experience delay to our planned timeline for the Sumsel 8 CFPP, see “Risk Factors — Risks Common to All Our Businesses — Outbreak

of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia, and elsewhere may adversely impact our business, financial condition and results of operations.” Upon completion, the Sumsel 8 CFPP is expected to consume coal at a rate of 5.0 mtpa and have an output capacity of 2x620 MW. Our total planned capital expenditure for the development of the Sumsel 8 CFPP is approximately Rp.777.6 billion, Rp.702.8 billion and Rp.129.1 billion for the years ending December 31, 2020, 2021 and 2022, respectively.

On September 17, 2012 (as lastly amended on October 19, 2017), HBAP entered into a power purchase agreement with PLN, as the offtaker of the electricity to be generated by HBAP’s Sumsel 8 CFPP. The price to be paid by PLN under the agreement is a base tariff of approximately US\$0.05/kWh, subject to further adjustments that may be made pursuant to pre-agreed formulas. The agreement is valid for 25 years from the date that the Sumsel 8 CFPP begins commercial operations.

Coal gasification plant project

On January 16, 2019, we entered into a principle agreement with Pertamina and Air Products and Chemicals Inc. (“Air Products”) to explore the development of a coal gasification plant to convert the coal we produce into final products with higher selling value than coal through the process of gasification, see “Related-Party Transactions — Agreements with Pertamina — Coal gasification plant project.” We plan to utilize gasification technology to convert coal into synthesis gas, a raw material for further processing into products such as dimethyl ether (“DME”) and methanol fuel. We have completed the bankable feasibility study for the coal gasification plant project and are in the process of negotiating the business model, product mix and ownership structure for the project. We currently do not have any capital expenditure planned for the coal gasification plant project.

We expect to finance the capital expenditures for the above projects using cash flow generated from operations and bank loans. See “Risk Factors — Risks Common to All Our Mining Businesses — The mining industry is capital intensive and we may experience limited availability of funds,” and “Management’s Discussion and Analysis of Financial Condition and Results of Operation — Capital Expenditures.”

Our Gold Business

We conduct our gold and precious metals mining and processing business primarily through Antam. Antam is the sixth largest gold producer in Southeast Asia in terms of gold production volume in the year ended December 31, 2019, according to CRU. As a vertically integrated gold mining company, we undertake all stages of mining and processing gold.

Our Logam Mulia Precious Metals Refinery is the only precious metals refinery in Indonesia which is accredited by the LBMA. We produce and sell fine gold, mainly in the form of gold bars, as well as other precious metal products such as fine silver and platinum. Our fine gold is produced at our Logam Mulia Precious Metals Refinery from gold doré bullion which we purchase from third-party precious metals trading companies and gold doré which we produce at our gold mines.

As of December 31, 2019, our aggregate gold doré reserves and resources was 269.4 koz and 1,205.1 koz, respectively, and for the year ended December 31, 2019, our aggregate gold production volume and sales volume was 63,080 oz t and 1.1 million oz t, respectively. As of December 31, 2019, our aggregate silver ore reserves and resources was 3,576.6 koz and 13,504.1 koz, respectively, and for the year ended December 31, 2019, our aggregate silver production volume and sales volume was 530,969 oz t and 660,440 oz t, respectively. For the years ended December 31, 2017, 2018 and 2019, our revenue from sale of gold products was Rp.7,375.5 billion, Rp.16,693.4 billion and Rp.22,465.8 billion (US\$1,616.1 million), respectively, representing 15.6%, 25.6% and 27.9%, respectively, of our total revenue. For the same years, our revenue from sale of silver products was Rp.125.7 billion, Rp.136.0 billion and Rp.152.0 billion (US\$10.9 million), respectively, representing 0.3%, 0.2% and 0.2%, respectively, of our total revenue.

We own and operate three gold mines located in Java, Indonesia:

- Our Pongkor gold mine (“Pongkor Gold Mine”), which is situated in Bogor, West Java, spans a total area of approximately 6,047 hectares. It comprises the Pongkor gold mining concession;
- Our Cibaliung gold mine (“Cibaliung Gold Mine”), which is situated in Pandeglang, Banten, spans a total area of approximately 1,340 hectares. It comprises the Cibaliung gold mining concession held by Antam’s subsidiary, PT Cibaliung Sumberdaya; and
- Our Papandayan gold mine (“Papandayan Gold Mine”), which is situated in Garut, West Java, spans a total area of approximately 4,513 hectares. It comprises the Papandayan gold mining concession and is not currently in operation.

The following map sets forth the locations of our gold mines and Logam Mulia Precious Metals Refinery.



Pongkor Gold Mine

Our Pongkor Gold Mine, which is situated in Bogor, West Java, spans a total area of approximately 6,047 hectares. Our Pongkor Gold Mine comprises one gold mining concession in the form of an IUP valid from June 2010 until March 2021. We previously operated our Pongkor Gold Mine by virtue of a CoW that was granted in March 1991 and converted into our existing IUP in June 2010. Our Pongkor Gold Mine is accessible by an approximately three-hour journey by car from Jakarta.

The following table sets forth certain information on our gold mining concession for our Pongkor Gold Mine, as of December 31, 2019.

Mining concession	Concession holder	Concession expiry	Concession area	Reserves ⁽¹⁾				Resources ⁽¹⁾							
				Proved		Probable		Measured		Indicated		Inferred			
				Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver		
				(koz)				(koz)				(koz)			
				(hectares)				(koz)				(koz)			
Pongkor	Antam	March 2021	6,047	39.5	321.2	0.3	2.2	288.7	3,394.3	191.7	1,893.5	19.6	252.9		

Note:

(1) According to the 2019 Nickel, Gold, Silver and Bauxite Reserves Statement, see Appendix B.

Our Pongkor Gold Mine has three primary veins of gold, Ciguha, Kubang Cicau and Ciurug, all of which are currently being mined by us. For the years ended December 31, 2017, 2018 and 2019, we produced a total of 44,335 oz t, 43,082 oz t and 45,056 oz t of gold doré, respectively, at our Pongkor Gold Mine, representing 70.1%, 68.5% and 71.4%, respectively, of our total gold doré production. The following table sets forth certain production and sales information on the gold doré produced at our Pongkor Gold Mine, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Sales (Rp. in billions)	872.7	783.3	852.9
Average selling price (Rp. in millions/oz t) ⁽¹⁾	15.5	18.0	19.6
Cash cost (Rp. in millions/oz t) ⁽²⁾	11.2	12.6	12.6
Gold grade (gram of gold/tonne of ore)	5.4	5.4	5.8

Notes:

- (1) Average selling price per oz t is calculated by dividing sales by sales volumes for the relevant years.
- (2) Cash cost per oz t is calculated as (a) the sum of mining costs, gold doré processing and other cash production costs, restoration costs and increases or decreases in gold doré inventories, divided by (b) gold production volumes for the relevant years. Although depreciation and amortization related to the production of gold doré is added to our cost of revenue, it is not included in cash costs.

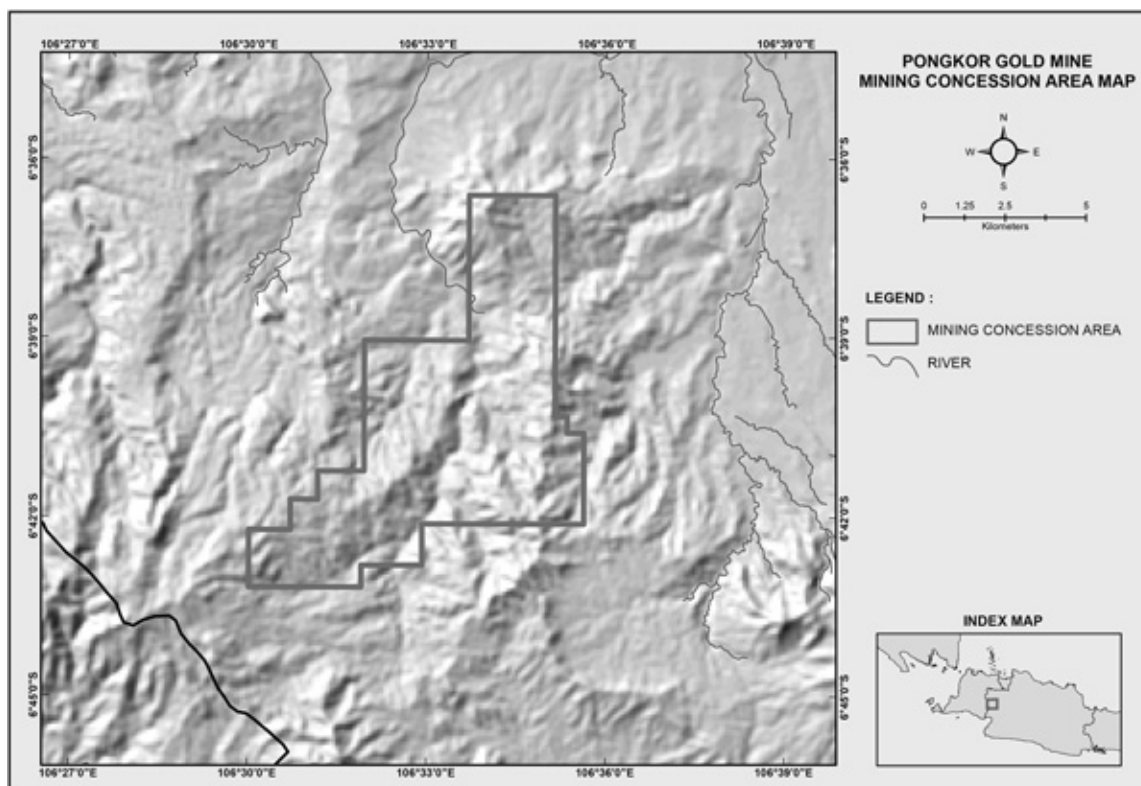
We produce silver as a by-product of the gold doré we produce at our Pongkor Gold Mine. For the years ended December 31, 2017, 2018 and 2019, we produced a total of 322,279 oz t, 342,534 oz t and 365,570 oz t of silver, respectively, from the gold doré we produced at our Pongkor Gold Mine. The following table sets forth certain production and sales information on the silver ore produced at our Pongkor Gold Mine, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Sales (Rp. in billions)	81.1	82.4	79.0
Average selling price (Rp. in millions/oz t) ⁽¹⁾	0.2	0.2	0.2
Cash cost (Rp. in millions/oz t) ⁽²⁾	0.2	0.1	0.2
Silver grade (gram of silver/tonne of ore)	67.2	70.2	77.5

Notes:

- (1) Average selling price per oz t is calculated by dividing sales by sales volumes for the relevant years.
- (2) Cash cost per oz t is calculated as (a) the sum of mining costs, silver ore processing and other cash production costs, restoration costs and increases or decreases in silver ore inventories, divided by (b) silver production volumes for the relevant years. Although depreciation and amortization related to the production of silver ore is added to our cost of revenue, it is not included in cash costs.

The following map sets forth the location of our gold mining concession for our Pongkor Gold Mine.



Cibaliung Gold Mine

Our Cibaliung Gold Mine, which is situated in Pandeglang, Banten, spans a total area of approximately 1,340 hectares. Our Cibaliung Gold Mine comprises one gold mining concession in the form of an IUP valid from July 2015 until July 2025 and which we hold through Antam's subsidiary, PT Cibaliung Sumberdaya. Our Cibaliung Gold Mine is accessible by an approximately six-hour journey by car from Jakarta.

The following table sets forth certain information on our gold mining concession for our Cibaliung Gold Mine, as of December 31, 2019.

Mining concession	Concession holder	Concession expiry	Concession area (hectares)	Reserves ⁽¹⁾				Resources ⁽¹⁾					
				Proved		Probable		Measured		Indicated		Inferred	
				Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver
				(koz)		(koz)		(koz)		(koz)		(koz)	
Cibaliung	PT												
	Cibaliung												
	Sumberdaya	July 2025	1,340	20.0	166.7	10.2	66.2	292.5	2,172.5	71.9	786.6	24.7	184.3

Note:

(1) According to the 2019 Nickel, Gold, Silver and Bauxite Reserves Statement, see Appendix B.

Our Cibaliung Gold Mine comprises high grade Cikoneng and Cibitung gold-silver shoots in an epithermal quartz vein system, with a known strike length of 0.5 km. For the years ended December 31, 2017, 2018 and 2019, we produced a total of 18,904 oz t, 19,805 oz t and 18,004 oz t of gold doré, respectively, at our Cibaliung Gold Mine, representing 29.9%, 31.5% and 28.6%, respectively, of our total gold doré production. The following table sets forth certain production and sales information on the gold doré produced at our Cibaliung Gold Mine, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Sales (Rp. in billions)	313.8	364.3	351.9
Average selling price (Rp. in millions/oz t) ⁽¹⁾	15.5	18.6	20.2
Cash cost (Rp. in millions/oz t) ⁽²⁾	14.1	12.5	10.9
Gold grade (gram of gold/tonne of ore)	6.2	4.3	4.5

Notes:

- (1) Average selling price per oz t is calculated by dividing sales by sales volumes for the relevant years.
- (2) Cash cost per oz t is calculated as (a) the sum of mining costs, gold doré processing and other cash production costs, restoration costs and increases or decreases in gold doré inventories, divided by (b) gold production volumes for the relevant years. Although depreciation and amortization related to the production of gold doré is added to our cost of revenue, it is not included in cash costs.

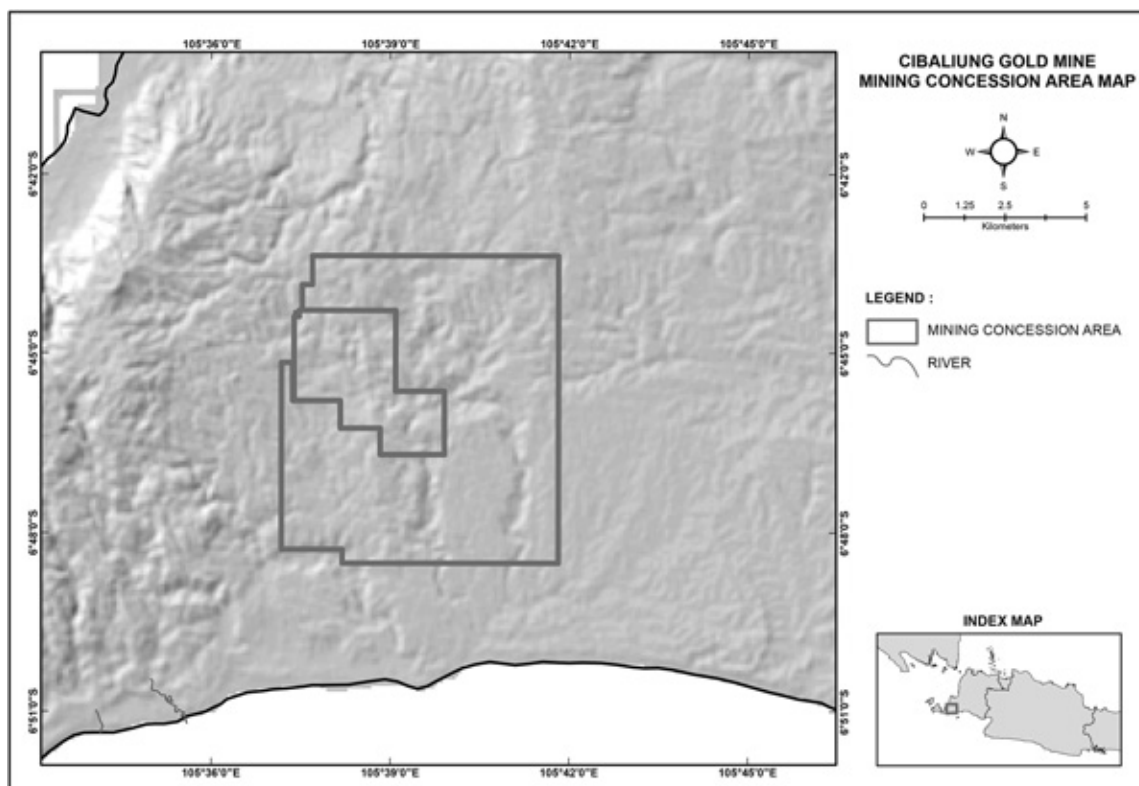
We produce silver as a by-product of the gold doré we produce at our Cibaliung Gold Mine. For the years ended December 31, 2017, 2018 and 2019, we produced a total of 133,972 oz t, 158,246 oz t and 167,827 oz t of silver, respectively, from the gold doré we produced at our Cibaliung Gold Mine. The following table sets forth certain production and sales information on the silver ore produced at our Cibaliung Gold Mine, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Sales (Rp. in billions)	29.0	36.0	36.9
Average selling price (Rp. in millions/oz t) ⁽¹⁾	0.2	0.2	0.2
Cash cost (Rp. in millions/oz t) ⁽²⁾	0.2	0.1	0.1
Silver grade (gram of silver/tonne of ore)	39.8	65.5	63.7

Notes:

- (1) Average selling price per oz t is calculated by dividing sales by sales volumes for the relevant years.
- (2) Cash cost per oz t is calculated as (a) the sum of mining costs, silver ore processing and other cash production costs, restoration costs and increases or decreases in silver ore inventories, divided by (b) silver production volumes for the relevant years. Although depreciation and amortization related to the production of silver ore is added to our cost of revenue, it is not included in cash costs.

The following map sets forth the location of our gold mining concession for our Cibaliung Gold Mine.



Papandayan Gold Mine

Our Papandayan Gold Mine, which is situated in Garut, West Java, spans a total area of approximately 4,513 hectares. Our Papandayan Gold Mine comprises one gold mining concession in the form of an IUP valid from July 2010 until November 2027. The Papandayan Gold Mine is accessible by an approximately five-hour journey by car from Jakarta. We do not currently have active production operations at our Papandayan Gold Mine and are in the process of evaluating the most cost-efficient mining method for the mine.

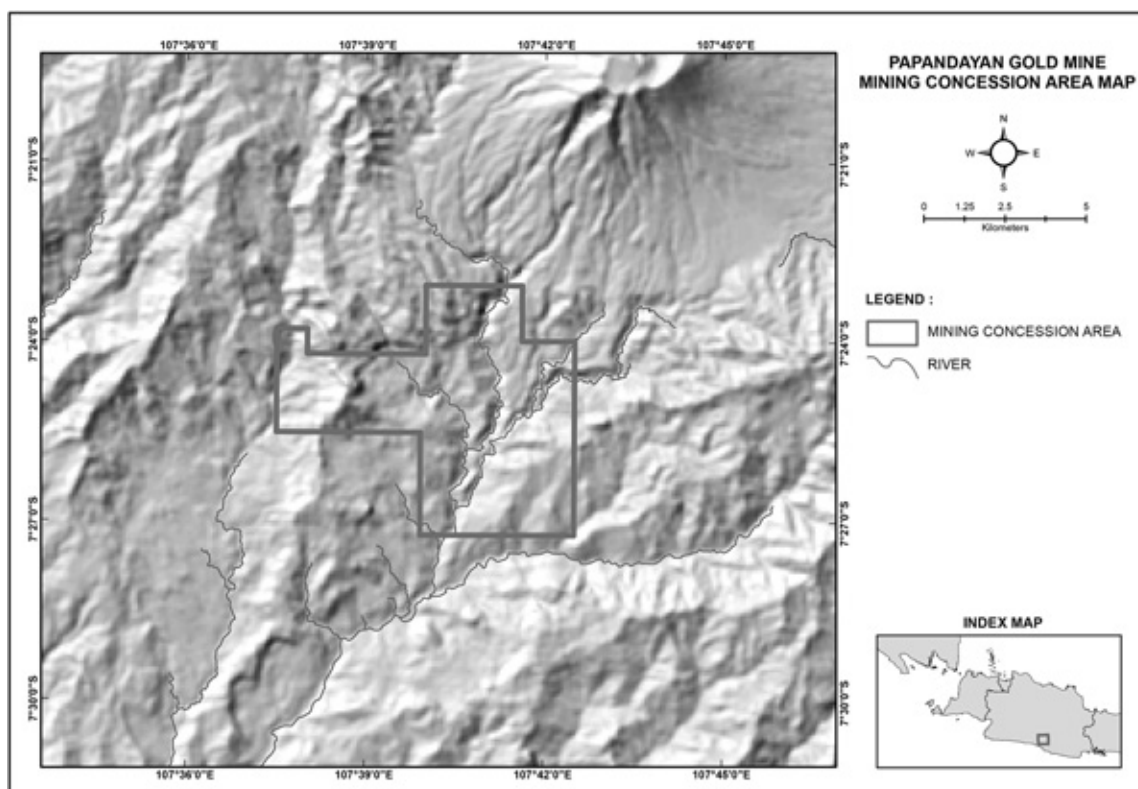
The following table sets forth certain information on our gold mining concession for our Papandayan Gold Mine.

Mining concession	Concession holder	Concession expiry	Concession area (hectares)	Reserves ⁽¹⁾				Resources ⁽¹⁾					
				Proved		Probable		Measured		Indicated		Inferred	
				Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver	Gold	Silver
				(koz)				(koz)					
Papandayan	Antam	November 2027	4,513	—	—	199.4	3,020.2	177.0	2,793	113.0	1,669	26.0	358.0

Note:

(1) According to the 2019 Nickel, Gold, Silver and Bauxite Reserves Statement, see Appendix B.

The following map sets forth the location of our gold mining concession for our Papandayan Gold Mine.



Logam Mulia Precious Metals Refinery

We own and operate a precious metals refinery, the Logam Mulia Precious Metals Refinery, the only precious metals refinery in Indonesia which is accredited by the LBMA. Our Logam Mulia Precious Metals Refinery comprises two units: (i) a refining unit with a refining capacity of approximately 75 tonnes of gold per year and approximately 250 tonnes of silver per year, at which we smelt and refine gold doré that we produce at our own gold mines and gold doré of third-party mining companies as part of our precious metals refining services and (ii) a minting production unit with a production capacity of approximately 40 tonnes of fine gold per year, at which we process the gold bullion which we import from third-party gold trading companies. The following table sets forth our Logam Mulia Precious Metals Refinery's production volume for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Gold (tonnes)	49.3	42.4	43.6
Silver (tonnes)	182.8	184.9	204.4

Gold mining and processing operations

Mine planning

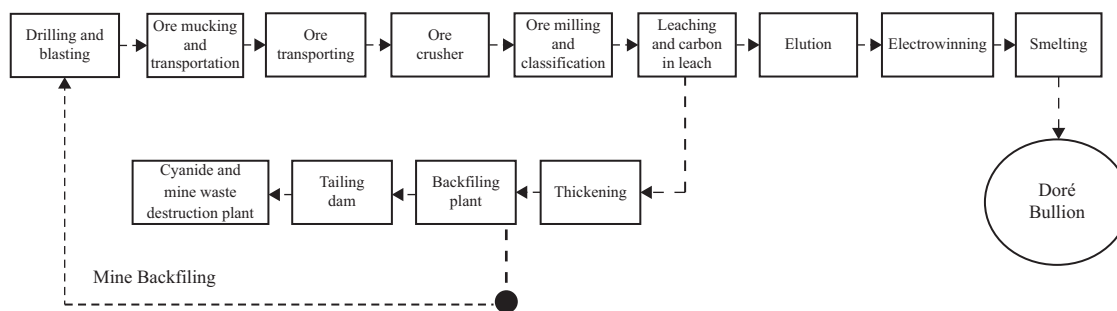
With information collected through our exploration activities, we prepare mine plans in relation to further exploration and operation of each pit within our mines. We begin with a conceptual life-of-mine plan and determine the potential production profiles for a particular mine throughout its life. We also account for surface features such as topography, position of rivers and creeks, local villages and associated infrastructure, and begin planning for rehabilitation of disturbed areas. See "Risk Factors — Risks Common to All Our Mining Businesses

— Our operations are subject to environmental laws and regulations which may cause us to incur significant costs, liabilities or interrupt or cease mining operations, any of which may adversely affect our results of operations.” As more exploration data is collected, the geological model is revised, which necessitates revisions to mine plans. We prepare plans for 12-month periods on an ongoing basis alongside three-month and monthly rolling mine plans which are intended to capture differences arising from equipment failures and malfunctions, changes in operating costs and weather conditions.

Gold mining and processing

We use a conventional cut-and-fill stoping mining method with hydraulic replacement of tailings as fill for the Ciguha gold vein and the Kubang Cicau gold vein at our Pongkor Gold Mine. For the Ciurug gold vein at our Pongkor Gold Mine, we use a mechanized cut-and-fill method, with hydraulic jumbo drill and load haul dump. At our Cibaliung Gold Mine, we use mechanized cut-and-fill and undercut and fill methods to maintain the stability of underground mining infrastructure.

The following diagram sets forth the principal stages of our gold and silver processing, smelting and refining processes.



Ore from the stopes is carried via dump trucks to the primary crusher at the respective processing plants at our Pongkor Gold Mine and Cibaliung Gold Mine. The product from the primary crusher continues to the fine ore bin via a double-deck washing screen which separates out the oversize and undersize material. The oversize material is fed to a secondary crusher while the undersize, a 12.5 millimeters (+1 millimeter) fraction, feeds directly to the fine ore storage bin and the finest fraction (-1 millimeter) comprising clays is collected in a surge pond. Mined ore is further processed using the cyanide process, followed by the carbon-in-leach process and electro-winning. The processing plant at our Pongkor Gold Mine has a processing capacity of 400,000 wmt of ore per year and 340,000 dmt of ore per year, with recoveries of 95.0% and 70.0% for gold and silver, respectively. The processing plant at our Cibaliung Gold Mine has a processing capacity of 200,000 wmt of ore per year and 170,000 dmt of ore per year, with recoveries of 60.0% and 65.0% for gold and silver, respectively.

The processed material from each processing plant is then allowed to cool down and change from its molten form into solid doré bullion, which is transported via armored vehicles to our Logam Mulia Precious Metals Refinery to be further processed into fine gold and silver. In our Logam Mulia Precious Metals Refinery, the gold and silver bullion is smelted in furnaces to produce anodes. Following the smelting process, the anodes are undergoes electro-refining to produce fine gold and fine silver. See “— Logam Mulia Precious Metals Refinery.”

Reclamation

Reclamation is part of the ongoing mining activities and we carry out the reclamation process on the previous digging area while mining in other areas. We carry out our reclamation works in collaboration with the local community as part of our corporate and social responsibility efforts and are required to comply with the requirements set out in the respective mine’s environmental documents including the AMDAL document, reclamation plan, post-mining plan and the MEMR Decree 1827/2018. See “Indonesian Regulatory Framework — Mining Regulation — Reclamation and post-mining activities.”

Security

Gold and gold-bearing materials are kept in the storages of our own mines with access restricted to authorized persons. Each storage is attended by security guards and is equipped with stringent security systems. We hire a third-party security services provider, PT Nawakara Perkasa Nusantara, to provide secure transportation services for our gold. Transportation of gold-bearing materials to the processing plants and Logam Mulia Precious Refinery is guarded by police officers and carried via armored vehicles. In addition, our Pongkor Gold Mine and our processing plant at the mine have been designated as National Vital Objects and therefore benefit from security services provided by the Indonesian national police force.

Third-party contractors

We contract certain of our gold mining activities to third-party contractors in order to maximize efficiency and minimize costs. We typically select our mining contractors through direct negotiations with existing contractors or by way of a competitive open tender, with potential contractors submitting their bids based on the requirements we specify. We select our mining contractors after considering various factors such as price, equipment, experience and previous track record in our mining operations. See “Risk Factors — Risks Common to All Our Businesses — We rely on third-party contractors to conduct certain of our mining operations, and such contractors may be constrained by labor disputes, face operational difficulties or perform unsatisfactory work.”

Logam Mulia gold boutiques and depository services

We operate 15 gold boutiques located across Indonesia, in Jakarta, Surabaya, Medan, Bandung, Banjarmasin, Balikpapan, Palembang, Makassar, Yogyakarta, Denpasar and Semarang. Our gold boutiques capture the retail customers in Indonesia and diversify our customer base for our gold products. In addition, we also launched our precious metals depository services in 2016, which we brand as “BRANKAS.” We currently offer three types of services under BRANKAS, namely (i) the “Corporate BRANKAS” service which caters to corporations looking to invest their liquid funds as well as employees of such corporations who are interested in investing a portion of their monthly income in gold stored in ANTAM, (ii) the “BRANKAS Berzakat” service which is an investment service that caters to Muslims and includes automatic computation of the zakat on the gold investment, and (iii) the “Individual BRANKAS” service which caters to individuals interested in investing in gold products.

Our gold, silver and other precious metal products

Our gold products are predominantly fine gold in the form of gold bars. In addition to gold bars, we also produce and sell custom-made gold products including jewelry and gold dinar coins. Other precious metal products which we produce and sell include silver products such as silver bars, silver dirham coins, silver granules and silver nitrate, as well as other precious metal products such as platinum products. We sell our gold and other precious metal products in both the domestic market and overseas markets including Singapore, South Korea, Japan and India. For the years ended December 31, 2017, 2018 and 2019, 48.8%, 23.6% and 53.4%, respectively, of our revenue from sale of gold and precious metal products were from export sales.

Quality control

We have implemented comprehensive quality assurance and monitoring procedures to ensure that our products meet our stringent quality control standards and the expectations and requirements of our customers. Our quality assurance system encompasses stringent quality control checks at each stage of our production process, from procurement and processing of the raw materials, to the inspection of the end product. Our quality control department monitors the internal production process, storage and delivery of raw materials and products as well as conduct on-site inspections from time to time. It closely monitors the various production process by taking samples at different checkpoints for examination at our laboratories. We keep our production records to facilitate the continued improvement of our quality control management systems. In addition, as part of our quality control policies, we require that all our contractors possess the requisite qualifications for undertaking

their respective works in exploration, mining, processing or production. Our quality assurance procedures are subject to semi-annual internal quality audits by a team of trained internal quality auditors. Surveillance audits and re-certification audits are carried out annually by SAI Global and TUV Rheinland, internationally accredited external ISO auditors, to ensure we comply with the certified standards.

As of December 31, 2019, we have received the following quality assurance certifications and awards in respect of our gold production processes:

No.	Certification/award	Awarding body/authority	Validity period of certificate/award	Process awarded
1.	ISO 9001:2015 (Quality Management System)	SAI Global	Until November 5, 2020	Gold and silver mining and processing operations at our Pongkor Gold Mine
2.	ISO 14001:2015 (Environmental Management System)	SAI Global	Until September 17, 2020	Gold and silver mining and processing operations at our Pongkor Gold Mine
3.	ISO 18001:2007 (Occupational, Health and Safety Management System)	SAI Global	Until October 14, 2020	Gold and silver mining and processing operations at our Pongkor Gold Mine
4.	ISO 9001:2015 (Quality Management System)	TUV Rheinland	Until June 8, 2020	Logam Mulia Precious Metals Refinery for quality management assurance
5.	ISO 14001:2015 (Environmental Management System)	TUV Rheinland	Until June 8, 2020	Logam Mulia Precious Metals Refinery for environmental assurance
6.	LBMA Accreditation	LBMA	Certified on March 16, 2018	Gold certification processes at our Logam Mulia Precious Metals Refinery
7.	GREEN PROPER (Silver Environment Award)	MOEF	Awarded on December 21, 2018	Mining and processing operations at our Pongkor Gold Mine
8.	GREEN PROPER (Silver Environment Award)	MOEF	Awarded on December 21, 2018	Mining and processing operations at our Logam Mulia Precious Metals Refinery
9.	BLUE PROPER (Bronze Environment Award)	MOEF	Awarded on December 21, 2018	Mining operations at our Cibaliung Gold Mine
10.	Indonesia Original Brands Award 2018	SWA Magazine	Awarded on May 15, 2018	Logam Mulia Precious Metals Processing and Refinery
11.	PRATAMA Bronze Award on Mining Safety Management Category of Mining Business Permits and Special Mining Operations Permits for Processing and Refinery for 2018	MEMR	Awarded on May 8, 2018	Mining and processing operations at our Pongkor Gold Mine and Cibaliung Gold Mine
12.	ADITAMA Gold Award on the Mining Environmental Management Category for Holders of Mining Business Permits for 2018	MEMR	Awarded on May 8, 2018	Mining and processing operations of our Pongkor Gold Mine and Mining operations at our Cibaliung Gold Mine

No.	Certification/award	Awarding body/authority	Validity period of certificate/award	Process awarded
13.	UTAMA Silver Award on Mining Safety Management Category of Mining Business Permits and Special Mining Operations Permits for Processing and Refinery for 2018	MEMR	Awarded on May 8, 2018	Processing operations at our Logam Mulia Precious Metals Refinery
14.	Environmental Trophy in the Mining Environmental Management Category for 2018	MEMR	Awarded on May 8, 2018	Mining and processing operations of our Pongkor Gold Mine
15.	Subroto Award in the Mineral and Coal Environment Protection Management Category for 2019	MEMR	Awarded on September 27, 2019	Gold Mining Business Unit
16.	Subroto Award in the Mineral and Coal Non-Tax Revenue Compliance Category for 2019	MEMR	Awarded on September 27, 2019	Cibaliung Gold Mine

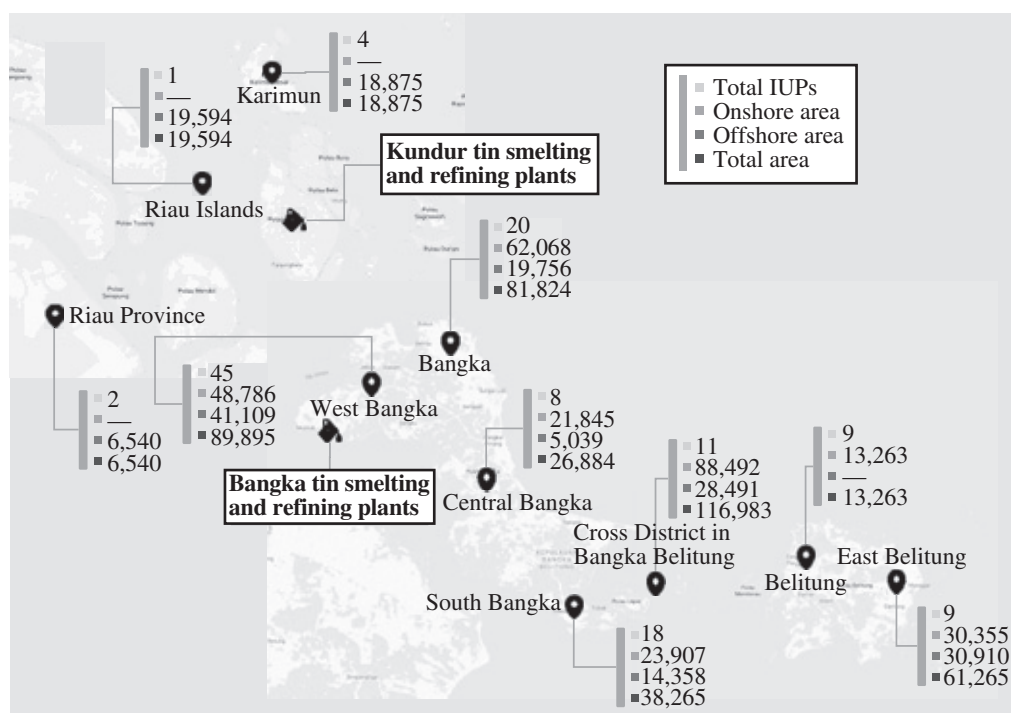
Our Tin Business

We conduct our tin mining and processing business through Timah. Timah is the largest refined tin producer in the world in terms of refined tin production volume in the year ended December 31, 2019, according to CRU. As a vertically integrated tin mining company, we undertake all stages of the production process of our refined tin, starting from the exploration, mining and processing of tin to the marketing and sale of our refined tin. In addition to refined tin, we also sell other tin products such as tin solder and tin chemical.

As of December 31, 2019, our aggregate tin ore reserves and resources was 327,520 tonnes and 787,140 tonnes, respectively, and for the year ended December 31, 2019, our aggregate refined tin production volume and sales volume was 76,389 tonnes and 67,704 tonnes, respectively. For the years ended December 31, 2017, 2018 and 2019, our revenue from sale of tin metal and tin solder was Rp.8,481.7 billion, Rp.10,152.9 billion and Rp.18,107.5 billion (US\$1,302.6 million), respectively, representing 18.0%, 15.6% and 22.5%, respectively, of our total revenue. For the same years, our revenue from sale of tin chemical was Rp.428.5 billion, Rp.428.0 billion and Rp.335.0 billion (US\$24.1 million), respectively, representing 0.9%, 0.7% and 0.4%, respectively, of our total revenue.

We own and operate several onshore and offshore tin mines spread across three regions in Indonesia, namely (i) Bangka Island, (ii) Belitung Island and (iii) the Kundur Island and Karimun Island, both of which are part of the Riau Islands, and the province of Riau.

The following map sets forth the location of our tin mines and tin smelting and refining plants.



The following table sets forth certain information on our tin mining concessions situated on Bangka Island (“Bangka Tin Mines”), Belitung Island (“Belitung Tin Mines”), and the Riau Islands and the province of Riau (“Kundur Tin Mines”), as of December 31, 2019.

Tin mines	Number of concessions		Concessions holder	Concessions expiry	Concession area		Reserves ⁽¹⁾		Resources ⁽¹⁾		
	Onshore	Offshore			Onshore	Offshore	Proved	Probable	Measured	Indicated	Inferred
					(hectares)		(tonnes)		(tonnes)		
Bangka . . .	79	19	Timah	2023 – 2027	235,693	108,753	104,450	68,420	262,210	54,500	189,160
Belitung . . .	21 ⁽²⁾	1	Timah	2025 – 2026	53,023	30,910	1,130	83,940	67,980	35,570	72,030
Kundur . . .	—	7	Timah	2020 – 2026	—	45,009	51,810	17,770	88,090	11,010	6,590
Total	100	27	—	—	288,716	184,672	157,390	170,130	418,280	101,080	267,780

Notes:

(1) According to the 2019 Tin Reserves Statement, see Appendix C.

(2) Includes one IUP for iron ore mining.

The following table sets forth certain production and sales information on our refined tin, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Sales (Rp. in billions)	8,481.7	10,152.9	18,107.5
Average tin grade (% of tin content)	99.9%	99.9%	99.9%
Average selling price (Rp. in millions/tonne) ⁽¹⁾	276.8	290.0	280.3
Cash cost (Rp. in millions/tonne) ⁽²⁾	217.9	225.5	216.8
Tin quality (grade in Sn, Kg/M3) ⁽³⁾	0.4	0.4	0.4

Notes:

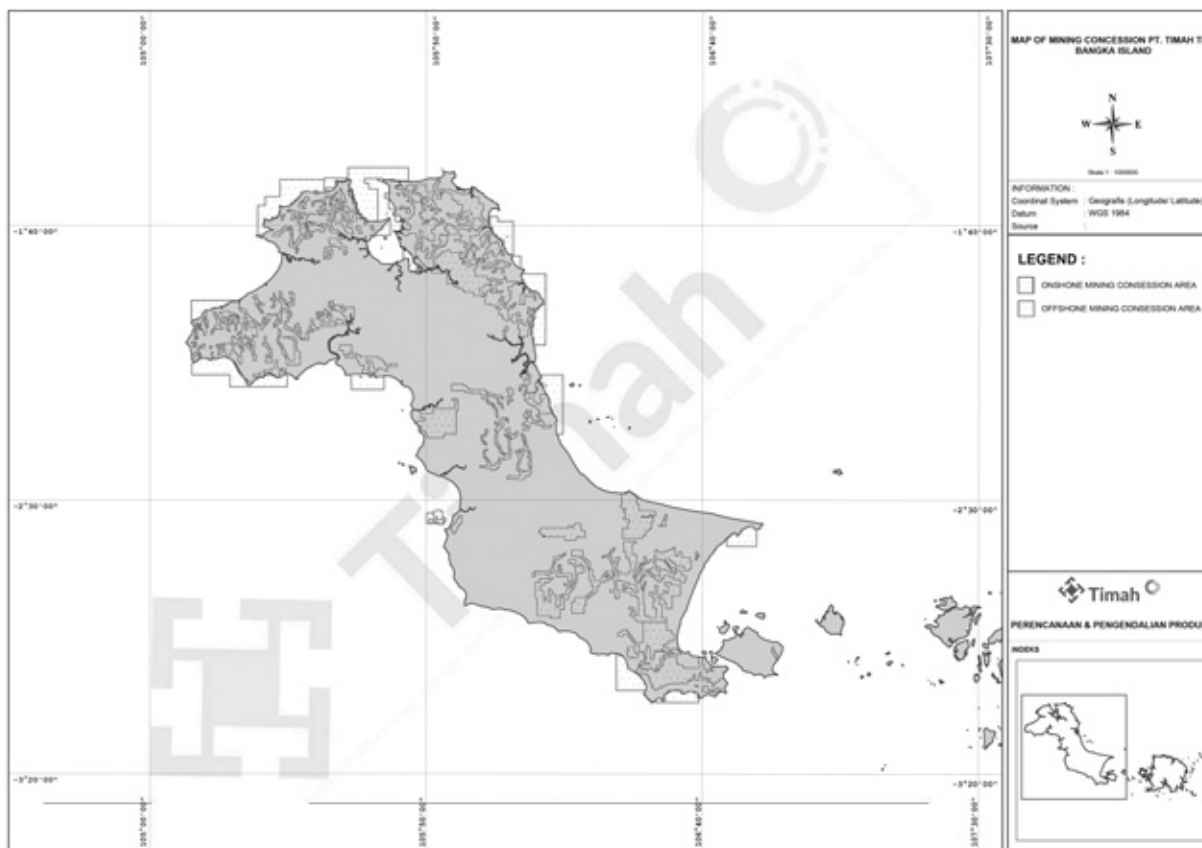
- (1) Average selling price per tonne is calculated by dividing sales by sales volumes for the relevant years.
- (2) Cash cost per tonne is calculated as the sum of (a) costs of raw materials, royalties paid to the Government, tin processing and other cash production costs and increases or decreases in tin inventories, divided by (b) refined tin production for the relevant years. Although depreciation and amortization related to the production of tin is added to our cost of revenue, it is not included in cash costs.
- (3) Refers to ore grade of proven tin reserves.

Bangka Tin Mines

Our Bangka Tin Mines, which are situated on Bangka Island, span a total onshore area and total offshore area of approximately 235,693 hectares and 108,753 hectares, respectively. Our Bangka Tin Mines comprise 98 tin mining concessions (of which 19 are located offshore) in the form of IUPs granted from April 2010 to March 2017 with expiry dates ranging from February 2023 to August 2027. Our Bangka Tin Mines are accessible by an approximately one-hour flight from Jakarta to Pangkalpinang, the capital of the Bangka Belitung Islands, followed by an approximately two-hour journey by car to the mine site. The offshore area of our Bangka Tin Mines is accessible through the use of a small boat to the dredger vessel or cutter section dredger stationed at the offshore area. Tin produced at our Bangka Tin Mines are processed at our tin smelting and refining plants located on Bangka Island. See “— Tin smelting and refining plants — Bangka smelting and refining plants.”

Our Bangka Tin Mines contain alluvial tin and primary tin. Substantially all our tin ore is produced at our Bangka Tin Mines. See “Risk Factors — Risks Common to All Our Mining Businesses — We depend on a small number of mines for a substantial portion of our production volume.” For the years ended December 31, 2017, 2018 and 2019, we produced a total of 20,348 tonnes, 31,485 tonnes and 62,869 tonnes of tin ore, respectively, at our Bangka Tin Mines, representing 65.3%, 70.7% and 76.8%, respectively, of our total tin ore production.

The following map sets forth the location of our Bangka Tin Mines.

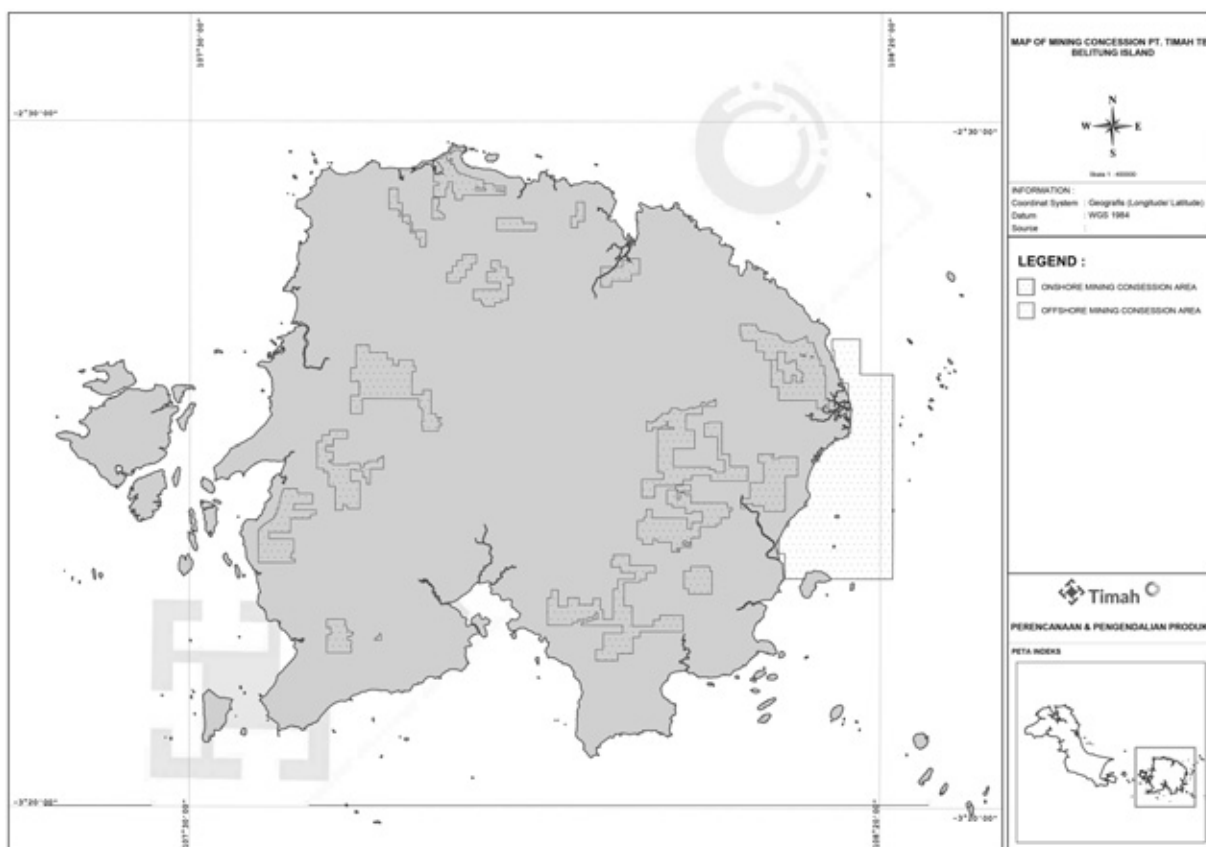


Belitung Tin Mines

Our Belitung Tin Mines, which are situated on Belitung Island, span a total onshore area and total offshore area of approximately 53,024 hectares and 30,910 hectares, respectively. Our Belitung Tin Mines comprise 22 tin mining concessions (of which one is located offshore) in the form of IUPs granted from July 1995 to October 2016 with expiry dates ranging from July 2025 to July 2026. Our Belitung Tin Mines are accessible by an approximately one-hour flight from Jakarta to Belitung, followed by an approximately two-hour journey by car to the mine site. The offshore area of our Belitung Tin Mines is accessible through the use of a small boat to the dredger vessel or cutter section dredger stationed at the offshore area. Tin from our Belitung Tin Mines are processed at our facilities on Bangka Island. See “— Tin smelting and refining plants — Bangka smelting and refining plants.”

Our Belitung Tin Mines contain alluvial tin and primary tin. For the years ended December 31, 2017, 2018 and 2019, we produced a total of 2,193 tonnes, 4,495 tonnes and 13,639 tonnes of tin ore, respectively, at our Belitung Tin Mines, representing 7.0%, 10.1% and 16.5%, respectively, of our total tin ore production.

The following map sets forth the location of our Belitung Tin Mines.



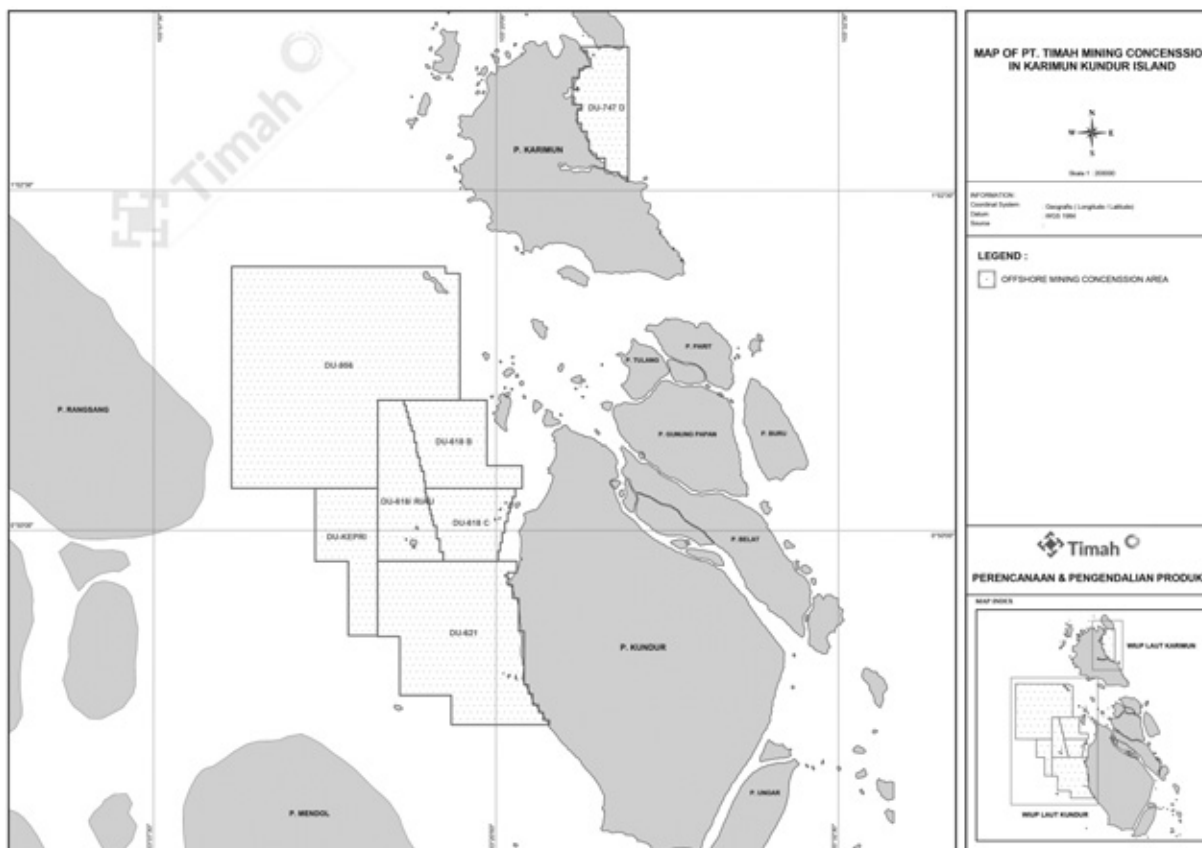
Kundur Tin Mines

Our Kunder Tin Mines, which are situated across the Riau Islands and the province of Riau, span a total offshore area of approximately 45,009 hectares. Our Kunder Tin Mines comprise seven tin mining concessions (all of which are located offshore) in the form of IUPs granted from May 2011 to April 2018 with expiry dates ranging from April 2020 to November 2026. Our Kunder Tin Mines are accessible by an approximately two-hour flight from Jakarta to Batam, the capital of the Riau Islands, followed by an approximately one-hour journey by boat to Karimun Island, and then by an approximately one-hour journey by boat to the mine site. Tin from our

Kundur Tin Mines are processed at our facilities on Kundur Island. See “— Tin smelting and refining plants — Kundur smelting and refining plants.”

Our Kundur Tin Mines contain alluvial tin. For the years ended December 31, 2017, 2018 and 2019, we produced a total of 8,627 tonnes, 8,534 tonnes and 6,014 tonnes of tin ore, respectively, at our Kundur Tin Mines, representing 27.7%, 19.2% and 7.3% respectively, of our total tin production.

The following map sets forth the location of our Kundur Tin Mines.



Tin smelting and refining plants

We own and operate eight tin smelting and refining plants located in Indonesia, six of which are located in Muntok, Bangka Island and two of which are located in Kundur, Riau Islands.

Bangka smelting and refining plants

The following table sets forth certain operating data on our Bangka tin smelting and refining plants, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Smelting:			
Total smelting capacity (tonnes/year)	42,000	42,000	42,000
Processed tin ore concentrate (tonne)	23,539	25,135	32,335
Crude tin production volume (tonne)	26,764	30,087	35,729
Refining:			
Total refining capacity (tonnes/year)	40,000	40,000	40,000
Crude tin fed (tonne)	26,764	30,087	35,729
Refined tin production volume (tonne)	26,482	31,367	35,609

Kundur smelting and refining plants

The following table sets forth certain operating data on our Kundur tin smelting and refining plants, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Smelting:			
Total smelting capacity (tonnes/year)	12,000	12,000	12,000
Processed tin ore concentrate (tonne)	8,650	8,010	7,782
Crude tin production volume (tonne)	8,597	8,696	7,789
Refining:			
Total refining capacity (tonnes/year)	10,800	10,800	10,800
Crude tin fed (tonne)	8,597	8,696	7,789
Refined tin production volume (tonne)	8,748	8,089	7,744

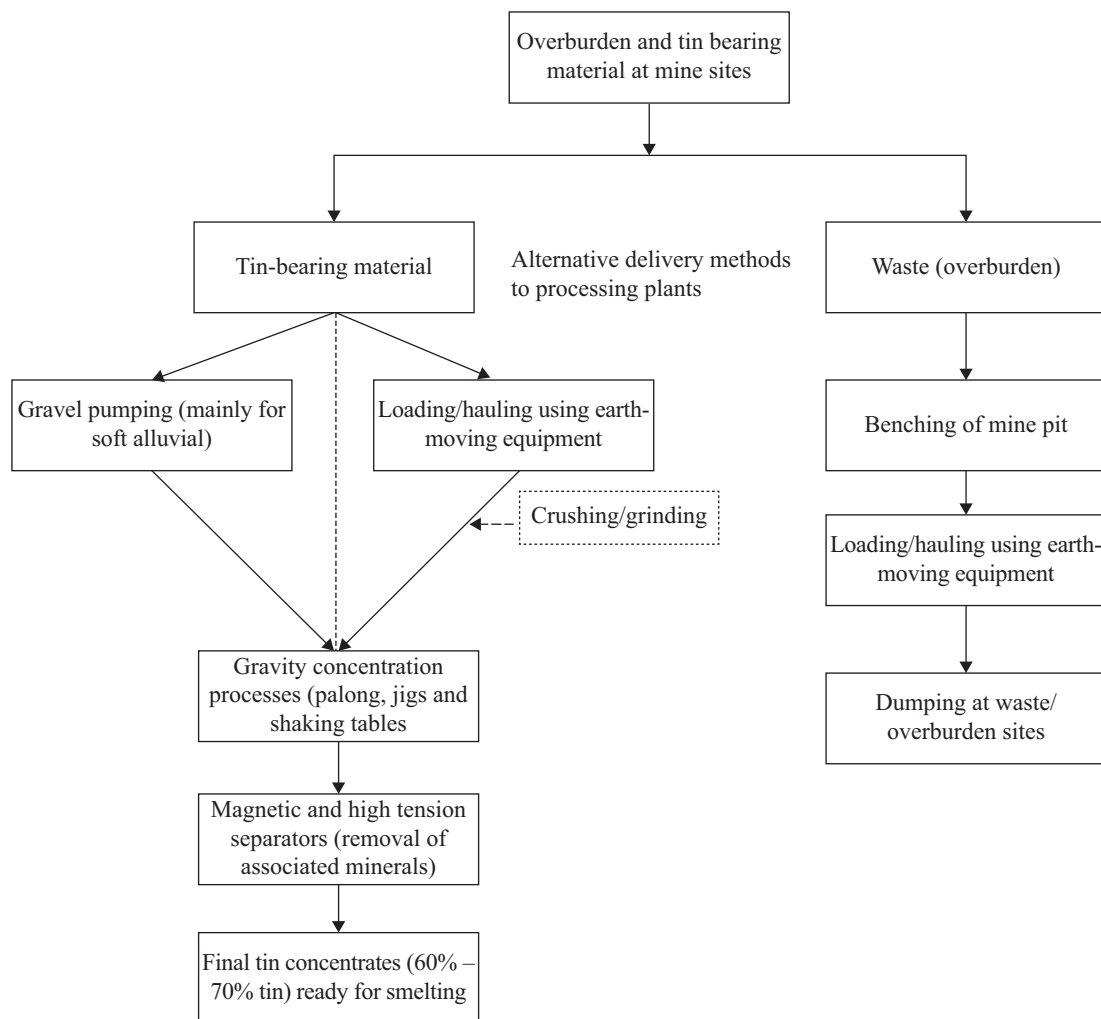
Tin mining and processing operations

Mine planning

With the data on our tin reserves and resources collected through our exploration activities, we prepare mine plans based on several factors, including (i) our annual, mid-term and long-term tin ore production targets; (ii) our number and type of production equipment; (iii) the mine lifetime; (iv) type of deposit including whether the deposit is onshore or offshore and the depth of layer of tin ore; and (v) the mine's surface and subsurface topography. We begin with a conceptual life-of-mine plan and determine the potential production profiles for a particular mine throughout its life. We also account for surface features such as topography, position of rivers and creeks, local villages and associated infrastructure, and begin planning for rehabilitation of disturbed areas. See "Risk Factors — Risks Common to All Our Mining Businesses — Our operations are subject to environmental laws and regulations which may cause us to incur significant costs, liabilities or interrupt or cease mining operations, any of which may adversely affect our results of operations." As more exploration data is collected, the geological model is revised, which necessitates revisions to mine plans. We prepare plans for 12-month periods on an ongoing basis alongside three-month and monthly rolling mine plans which are intended to capture differences in equipment failures and malfunctions, changes in operating costs and weather conditions.

Tin ore mining and processing

We are engaged in both onshore and offshore tin mining activities. The following diagram sets forth the principal stages of our tin mining and processing procedures.



- Onshore mining.** We undertake open-pit mining at our tin mines which involves drilling and blasting of the hard rock with a proper benching system in accordance with our mine design and planning. First, the overburden is removed from the mine pit using excavators and the tin-bearing ore is hauled to our processing plant using earth-moving equipment. Overburden which is removed is transported to the designated overburden dumping areas. We also minimize excavation by drilling directly on the surface into the ore, spraying the ore with high pressure water to separate it from the ground, and then sucking the ore out using a ground pump.
- Offshore mining.** Alluvial tin deposits located offshore are mined using dredges or smaller cutter suction dredges. The operating depths for offshore mining may be up to one meter of water and a maximum of 70 meters of alluvium. The mining of tin deposits located at greater depths require larger and deeper-digging dredges. The dredges have onboard processing plants comprising mainly jigs for initial concentration of the tin ore, before the tin concentrates are brought to onshore processing plants for further tin concentration as well as for separation of associated minerals.

- *Tin ore processing.* The softer-weathered tin ore is fed directly to the palong or sluice box. The palong is a traditional and cost-effective method for the initial stage of processing of large volumes of alluvium, where tin is concentrated at the bottom while sand and other lighter material overflow and are discarded at the end of the troughs. The palong is typically constructed of wood and built on an inclined foundation (with gradients of 1:12 to 1:16) or on stilts. The size of the palong varies from a small single-lane palong with two or three troughs to a large palong with up to 20 lanes, each with more than 10 troughs. A larger palong may have dimensions of 50.0 meters by 30.0 meters.
- *Crushing and grinding.* While the softer-weathered tin ore is processed, the harder rocky material is pulverized using crushers and grinding mills to liberate the tin.
- *Jigging and shaking.* Further processing follows by gravity concentration using jigs and shaking tables to separate the tin. During a jigging operation, water is forced upwards through the jig beds by using diaphragms for separating the tin and other heavy material from lighter sandy material using gravity. The jigging is done in two or three stages for gradual tin concentration. Jigs typically handle tin ore with particle sizes in the range of 2.5 mm to 10.0 mm while finer particles are treated using shaking tables.

Shaking tables receive feed from the jigs for further tin concentration. These tables are equipped with longitudinal ridges or ripples to regulate the flow of tin-bearing slurry. The longitudinal movement of the shaking tables and the cross-flow of the water cause the particles to become stratified. This results in the heavier particles including tin being carried to the short end of the table, while the lighter sandy materials are washed away. In order to achieve final tin concentration, the tabling process is performed in two to three stages.

Various associated minerals such as ilmenite, monazite and zircon are further separated using magnetic and high-tension separators. The final tin concentrate contains between 60.0% and 70.0% of tin content which is then ready to be sent for smelting.

- *Smelting.* The tin concentrate, which typically has an average tin content of 69.0%, is sent to our smelters to be smelted in furnaces at a temperature of approximately 1,350 degree Celsius. During the smelting stage, tin oxide is reduced to molten crude tin metal and a by-product called tin slag, which floats above the molten crude tin metal. Due to our limited smelting capacities, we also enter into agreements with third-party tin smelters that smelt our tin ore into crude tin in exchange for a processing fee, enabling us to produce larger volumes of refined tin. For the years ended December 31, 2018 and 2019, third-party tin smelters processed 5,466 tonnes and 41,578 tonnes, respectively, of our tin ore.
- *Refining.* The resulting crude tin metal undergoes a refining process to remove impurities present. The tin slag is re-smelted to recover more tin and the resulting final slag which typically contains tin content of less than 2.0% is removed and stored in our inventory. In August 2019, we completed the installation of a new tin fuming technology equipment at one of our tin smelting and refining plants located in Bangka. The tin fuming technology enables us to re-smelt tin slag with tin content of between 8.0% and 12.0%, and recover more refined tin from our tin ore. As of December 31, 2019, we had a volume of approximately 135,061 tonnes of tin slag in our inventory.
- *Casting.* The refined tin metal is casted into our various tin products at our smelting and refining plants.

Our vessels and dredges

As part of our offshore mining process, we require the use of cutter suction dredges to mine alluvial tin deposits located beneath the seabed. See “— Tin ore mining and processing.” As of December 31, 2019, we own and operate 16 cutter suction dredges, one bucket-wheel dredge and two bucket lines for our offshore tin mining activities. The following table sets forth certain information on our vessels and dredges, as of December 31, 2019.

No.	Name	Type	Year constructed	Gross tonnage (tonnes)	Installed power (horsepower)	Digging capacity (m ³ /hour)	Digging depth (meters)
1.	KIP TIMAH II	Cutter suction dredger	2008	459	2,819	250	35
2.	KIP TIMAH III	Cutter suction dredger	2008	459	2,819	250	35
3.	KIP TIMAH IV	Cutter suction dredger	2008	459	2,819	250	35
4.	KIP TIMAH 6	Cutter suction dredger	2009	459	2,819	250	35
5.	KIP TIMAH 7	Cutter suction dredger	2009	624	2,819	250	45
6.	KIP TIMAH 8	Cutter suction dredger	2009	624	2,819	250	45
7.	KIP TIMAH 9	Cutter suction dredger	2010	566	3,137	250	45
8.	KIP TIMAH 11	Cutter suction dredger	2010	506	3,137	250	45
9.	KIP TIMAH 12	Cutter suction dredger	2010	507	3,137	250	45
10.	KIP TIMAH 15	Cutter suction dredger	2012	566	2,819	250	45
11.	KIP TIMAH 16	Cutter suction dredger	2012	566	2,819	250	45
12.	KIP TIMAH 17	Cutter suction dredger	2012	548	2,819	250	45
13.	KIP TIMAH 18	Cutter suction dredger	2012	548	2,819	250	45
14.	KIP TIMAH 19	Cutter suction dredger	2013	537	2,819	250	45
15.	KIP TIMAH 20	Cutter suction dredger	2017	854	3,761	500	60
16.	BWD Kundur 1	Bucket wheel dredger	1997	4,929	12,786	1,200	60
17.	KK Singkep 1	Bucket line	1984	4,703	8,806	860	50
18.	KK Bangka II	Bucket line	1978	4,203	8,397	859	50

Reclamation

Reclamation is part of the ongoing mining activities and we carry out the reclamation process on the previous digging area while mining in other areas. We conduct reclamation activities on both our onshore mining areas, which consists of land stewardship and revegetation, and our offshore mining areas, which consists of coral reef transplants, fish shelter placements, sea wall construction and planting of mangroves. Our reclamation activities are carried out, under our full supervision, by a total of 18 third-party contractors, which include state-owned companies, regional-owned companies, private companies and academic institutions. We typically contract with our third-party reclamation services providers for three-year periods, in the case of our onshore reclamation activities, and for one-year periods, in the case of our offshore reclamation activities. In addition, pursuant to Decree No. 1827 of 2018 of the Minister of Energy and Mineral Resources, we are required to provide reclamation and post-mining guarantees. See “Indonesian Regulatory Framework — Mining Regulation — Reclamation and post-mining activities.”

Security

We have security systems in place to protect against illegal and small-scale mining, as well as for safeguarding of the transportation of our products from the mine site. See “Risk Factors — Risks Common to All Our Mining Businesses — We may be affected by issues relating to small-scale and illegal mining.” In addition to our own internal security guards, our onshore and offshore tin mining operations are also protected by the national armed forces and national police. Our tin ore is escorted by security guards and police officers from the mine site, and then to and from all checkpoints until delivered to the designated smelting facility.

Third-party contractors and small-scale miners

We have also made efforts to cooperate with third-party mining contractors and small-scale miners who may otherwise be operating, unauthorized, in our tin mining concession areas. We cooperate with such third-

party mining contractors and small-scale miners by entering into agreements with them under which we collect the tin ore mined by them from our tin mines based on an annual quantity approved by the authorities and in exchange for a fee. Under these agreements, we require such third-party mining contractors and small-scale miners to comply with our standard operating procedures, including our health, safety and environmental guidelines, when operating within our concession areas. All materials procured from third-party mining contractors and small-scale miners are documented to ensure that the origin of the tin ore is from within the tin mining concession area. For the years ended December 31, 2017, 2018 and 2019, collection of tin ore from third-party mining contractors and small-scale miners is estimated to have accounted for approximately 36.1%, 9.0% and 18.0%, respectively, of our total tin ore production.

Our tin products

We produce refined tin products which we market under our “BANKA” brand, “MENTOK” brand and “KUNDUR” brand as well as other downstream tin products. Our tin products are primarily sold to the trading arms of automobile manufacturers and customers in the manufacturing industry. Our Banka tin, Mentok tin and Kundur tin are registered on the LME, which enables us to quote LME-linked prices. As registered brands, our refined tin products are at least of the “Grade A” quality standard which requires, among others, tin content of at least 99.92%. Our tin products include five main types of Banka tin, one main type of Mentok tin and four main types of Kundur tin.

Banka tin

We sell five main types of Banka tin. Our Banka tin is produced by mixing tin ore produced at our Bangka Tin Mines and Belitung Tin Mines. The following table summarizes the key specifications of our different types of Banka tin.

	<u>Minimum tin content</u>	<u>Maximum lead content</u>
	(%)	(parts/million)
Banka	99.9	300
Banka LL 200	99.9	200
Banka LL 100	99.9	100
Banka LL 50	99.9	50
Banka 99.99	99.99	24

Mentok tin

We sell one main type of Mentok tin. Our Mentok tin is produced by mixing tin ore produced at our Bangka Tin Mines and Belitung Tin Mines. The following table summarizes the key specifications of our Mentok tin.

	<u>Minimum tin content</u>	<u>Maximum lead content</u>
	(%)	(parts/million)
Mentok	99.9	300

Kundur tin

We sell four main types of Kundur tin. Our Banka tin is produced from the tin ore produced at our Kundur Tin Mines. The following table summarizes the key specifications of our different types of Kundur tin.

	<u>Minimum tin content</u>	<u>Maximum lead content</u>
	(%)	(parts/million)
Kundur	99.9	300
Kundur LL 200	99.9	200
Kundur LL 100	99.9	100
Kundur LL 50	99.9	50

Other downstream tin products

We commenced selling tin chemical in 2011 under our registered brand “BANKASTAB,” and tin solder in 2016 under our brand “BANKAESA.” The following table sets forth the volume of sales for our downstream tin products, for the years indicated.

	For the year ended December 31,		
	2017	2018 (tonnes)	2019
Methyl tin stabilizer	4,739	4,019	3,470
Tin intermediate	380	80	—
Tin solder	1,078	1,357	1,388

We sell the majority of our tin products in the international market, including Japan, South Korea, Singapore, India, Taiwan, France, Germany and the United States. For the years ended December 31, 2017, 2018 and 2019, 96.1%, 96.6% and 98.3%, respectively, of our revenue from sale of tin products were from export sales.

Quality control

We have implemented comprehensive quality assurance and monitoring procedures to ensure that our products meet our stringent quality control standards and the expectations and requirements of our customers. Our quality assurance system encompasses stringent quality control checks at each stage of our production process, from procurement and processing of the raw materials, to the inspection of the end product. Our quality control department monitors the internal production process, storage and delivery of raw materials and products, as well as conduct on-site inspections from time to time. It closely monitors the various production processes by taking samples at different checkpoints for examination at our laboratories. We keep our production records to facilitate continual improvement of our quality control management systems. In addition, as part of our quality control policies, we require that all our contractors possess the requisite qualifications for undertaking their respective works in exploration, mining, processing or production. Our quality assurance procedures are subject to semi-annual internal quality audits by a team of trained internal quality auditors. Surveillance audits and re-certification audits are carried out once every six months and once every three months, respectively, by members of SGS S.A., an internationally accredited external ISO auditor, to ensure we comply with the certified standards.

As of December 31, 2019, we have received the following quality assurance certifications and awards in respect of our tin production processes:

No.	Certification/award	Awarding body/authority	Validity period of certificate/award	Process
1.	ISO 9001:2015	SGS United Kingdom Ltd	Until April 18, 2022	Tin mineral processing, tin smelting, refining and casting of Banka, Banka Low Lead and Banka Low Nine
2.	ISO 9001:2015	SGS United Kingdom Ltd	Until February 20, 2023	Tin mineral processing and smelting, refining and casting of Kundur
3.	ISO 14001:2015	SGS United Kingdom Ltd	Until October 12, 2021	Tin ore processing, materials preparation for smelting, refining and casting, and other supporting processes such as mechanic and electric engineering, logistic warehousing and telecommunication system
4.	OHSAS 18001:2007	SGS Indonesia	Until March 30, 2021	Tin ore processing, materials preparation for smelting, refining and casting, and other supporting processes such as mechanic and electric engineering, logistic warehousing and telecommunication system
5.	ISO 45001:2018	SGS United Kingdom Ltd	Until March 30, 2021	Tin ore processing, materials preparation for smelting, refining and casting, and other supporting processes such as mechanic and electric engineering, logistic warehousing and telecommunication system
6.	ISO/IEC 17025:2008	KAN	Until August 6, 2021	Laboratory testing
7.	ISO/IEC 17025:2008	KAN	Until July 17, 2022	Laboratory testing

Tin development projects

As part of our expansion plans, we are currently engaged in the following key development projects which are in various stages of development:

Ausmelt TSL tin smelting technology

In July 2017, we entered into a license agreement with Outotec Pty Ltd (“Outotec”) for the acquisition of licenses for the use of Outotec’s Ausmelt Top Submerged Lance (“TSL”) technology at our Bangka smelting and refining plants. While our existing six furnaces at our Bangka tin smelting and refining plants currently have a total smelting capacity of 42,000 tonnes of crude tin per year, we have been unable to utilize the full capacity of these furnaces as they are not equipped with technology to smelt certain types of the tin concentrate that we mine. We plan to replace these existing six furnaces with one furnace which will be equipped with the Ausmelt TSL technology. We expect the application of the Ausmelt TSL technology to allow us to smelt tin concentrates with tin content of less than 60.0% as well as maintain a production capacity of 40,000 tonnes of crude tin per year at our Bangka tin smelting and refining plants with the use of less furnaces, thereby enabling us to increase our smelting efficiency. Pursuant to a supply agreement we entered into with Outotec in July 2018, the core equipment for the integration of the Ausmelt TSL technology into our plant was expected to be delivered in March 2020. However, as the core equipment is being delivered from China, the delivery has been delayed due to the current COVID-19 pandemic, see “Risk Factors — Risks Common to All Our Businesses — Outbreak of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia,

and elsewhere may adversely impact our business, financial condition and results of operations.” We currently expect the equipment to be delivered in the second quarter of 2020, upon which we plan to begin the installation and implementation process. We expect to complete implementation of the Ausmelt TSL technology by the end of 2021 and to begin utilization of the technology by early 2022. Our total planned capital expenditure for the Ausmelt TSL technology is approximately US\$47.0 million and US\$20.0 million for the years ending December 31, 2020 and 2021, respectively.

Nigeria tin project

In December 2017, we entered into an agreement with Topwide Ventures Limited to establish a joint venture (the “Nigeria JV”) for the purpose of expanding our tin operations and sales into Nigeria. We are currently conducting exploration activities within six mining concession areas situated in the states of Plateau and Kaduna, Nigeria, to identify the location of mineable tin deposits, and are in the process of obtaining the relevant approvals and permits from the Nigerian government. We also plan to build a tin smelter in Nigeria to support our Nigeria tin mining operations. We expect to commence construction of tin smelter in Nigeria in the fourth quarter of 2020 and to have a production capacity of approximately 2,000 tonnes per annum. Our total planned capital expenditure for our Nigeria tin project is approximately US\$15.2 million for the year ending December 31, 2020.

Rare earth project

We are also exploring opportunities involving the extraction and production of rare earth elements at our Bangka Tin Mines. We are in the process of conducting the bankable feasibility study and looking for strategic partners to collaborate with on the rare earth project. Our total planned capital expenditure for our rare earth project is approximately US\$2.5 million for the year ending December 31, 2020.

Borehole mining technology

We carry out sub-surface mining at our tin mines using the borehole mining method, which is conducted at our onshore mines through the use of our borehole mining equipment that we developed in 2012. We are currently experimenting with the use of the borehole method at our offshore mines with borehole mining equipment which we currently rent from a third-party vendor, and are in the process of designing new technology to develop in-house capabilities for our own offshore borehole mining equipment. Upon completion of the design, we plan to construct a prototype and apply for a patent for the technology.

We expect to finance the capital expenditures for the above projects using cash flow generated from operations and bank loans. See “Risk Factors — Risks Common to All Our Mining Businesses — The mining industry is capital intensive and we may experience limited availability of funds,” and “Management’s Discussion and Analysis of Financial Condition and Results of Operation — Capital Expenditures.”

Our Nickel Business

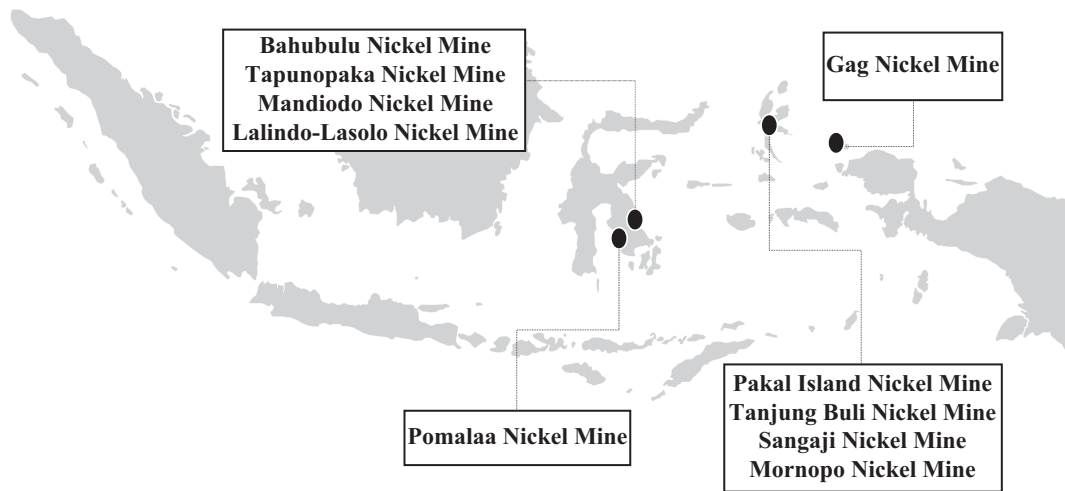
We conduct our nickel mining and processing business through Antam. Antam is the second largest nickel producer and the third largest ferronickel producer in Southeast Asia in terms of production volumes in the year ended December 31, 2019, according to CRU. As a vertically integrated nickel mining company, we undertake all stages of mining and processing nickel ore. Apart from mining and processing nickel ore, we also produce ferronickel from the nickel ore we mine and process.

As of December 31, 2019, our aggregate nickel ore reserves and resources was 354 million wmt and 1,362 million wmt, respectively. For the year ended December 31, 2019, our aggregate nickel production volume and sales volume was 8.7 million wmt and 7.6 million wmt, respectively, and our aggregate ferronickel production volume and sales volume was 25,713 TNi and 26,349 TNi, respectively. For the years ended December 31, 2017, 2018 and 2019, our revenue from sale of nickel ore and ferronickel was Rp.4,592.4 billion, Rp.7,675.5 billion and Rp.8,651.4 billion (US\$622.4 million), respectively, representing 9.7%, 11.8% and 10.7%, respectively, of our total revenue.

We own and operate ten nickel mines located across three provinces in Indonesia, namely Southeast Sulawesi, North Maluku and West Papua:

- Our Pomalaa nickel mine (“Pomalaa Nickel Mine”), which is situated in Kolaka, Southeast Sulawesi, spans a total area of approximately 6,129 hectares. Our Pomalaa Nickel Mine comprises four nickel mining concessions, namely our Pomalaa, Tambea, Bt. Kilat and Sitallo nickel mining concessions.
- Our Sangaji nickel mine (“Sangaji Nickel Mine”), Mornopo nickel mine (“Mornopo Nickel Mine”), Tanjung Buli nickel mine (“Tanjung Buli Nickel Mine”) and Pakal Island nickel mine (the “Pakal Island Nickel Mine”) are located within one nickel mining concession, our Buli Serani nickel mining concession. Our Buli Serani nickel mining concession is situated in East Halmahera, North Maluku, and spans a total area of approximately 39,040 hectares.
- Our Lalindu-Lasolo nickel mine (“Lalindu-Lasolo Nickel Mine”), Mandiodo nickel mine (“Mandiodo Nickel Mine”), Tapunopaka nickel mine (“Tapunopaka Nickel Mine”) and Bahubulu nickel mine (“Bahubulu Nickel Mine”) are located across two nickel mining concessions, our Asera & Molawe nickel mining concession and Lasolo nickel mining concession. Our Asera & Molawe and Lasolo nickel mining concessions, which are situated adjacent to each other in North Konawe, Southeast Sulawesi, span total areas of approximately 16,920 hectares and 6,213 hectares, respectively.
- Our Gag nickel mine (“Gag Nickel Mine”), which is situated on Gag Island in West Papua, spans a total area of approximately 13,136 hectares. It comprises one nickel mining concession, the Gag nickel mining concession.

The following map sets forth the locations of our nickel mines.



Pomalaa Nickel Mine

Our Pomalaa Nickel Mine comprises four nickel mining concessions, namely our Pomalaa, Tambea, Bt. Kilat and Sitallo nickel mining concessions, in the form of IUPs granted from June 2010 to March 2014 with expiry dates ranging from June 2020 to March 2024. Our Pomalaa Nickel Mine is accessible by an approximately three-hour flight from Jakarta to Kolaka, followed by a less than one hour journey by car from Kolaka airport. Our nickel operations began with the discovery of nickel in Pomalaa in 1909, and we commenced nickel production at our Pomalaa Nickel Mine in 1962. Our Pomalaa Nickel Mine contains limonite and saprolite nickel ore.

The following table sets forth certain information on our nickel mining concessions at our Pomalaa Nickel Mine, as of December 31, 2019.

Mining concession	Concession holder	Concession expiry	Concession area (hectares)	Reserves		Resources		
				Proved	Probable	Measured	Indicated	Inferred
				(wmt in millions)		(wmt in millions)		
Pomalaa	Antam	June 2020	1,954	—(1)	—(1)	—(1)	—(1)	—(1)
Tambea	Antam	March 2024	2,712	—(1)	—(1)	—(1)	—(1)	—(1)
Bt. Kilat	Antam	June 2020	878	—(1)	—(1)	—(1)	—(1)	—(1)
Sitallo	Antam	March 2024	584	—(1)	—(1)	—(1)	—(1)	—(1)
Total			6,129	5.7⁽²⁾	8.0⁽²⁾	18.2⁽²⁾	34.0⁽²⁾	21.1⁽²⁾

Notes:

- (1) Reserves and resources for our nickel mining concessions within our Pomalaa Nickel Mine are measured in aggregate.
- (2) According to the 2019 Nickel, Gold, Silver and Bauxite Reserves Statement, see Appendix B.

For the years ended December 31, 2017, 2018 and 2019, we produced a total of 3.5 million wmt, 3.5 million wmt and 2.8 million wmt of nickel ore, respectively, at our Pomalaa Nickel Mine, representing 63.5%, 37.4% and 32.3%, respectively, of our total nickel ore production.

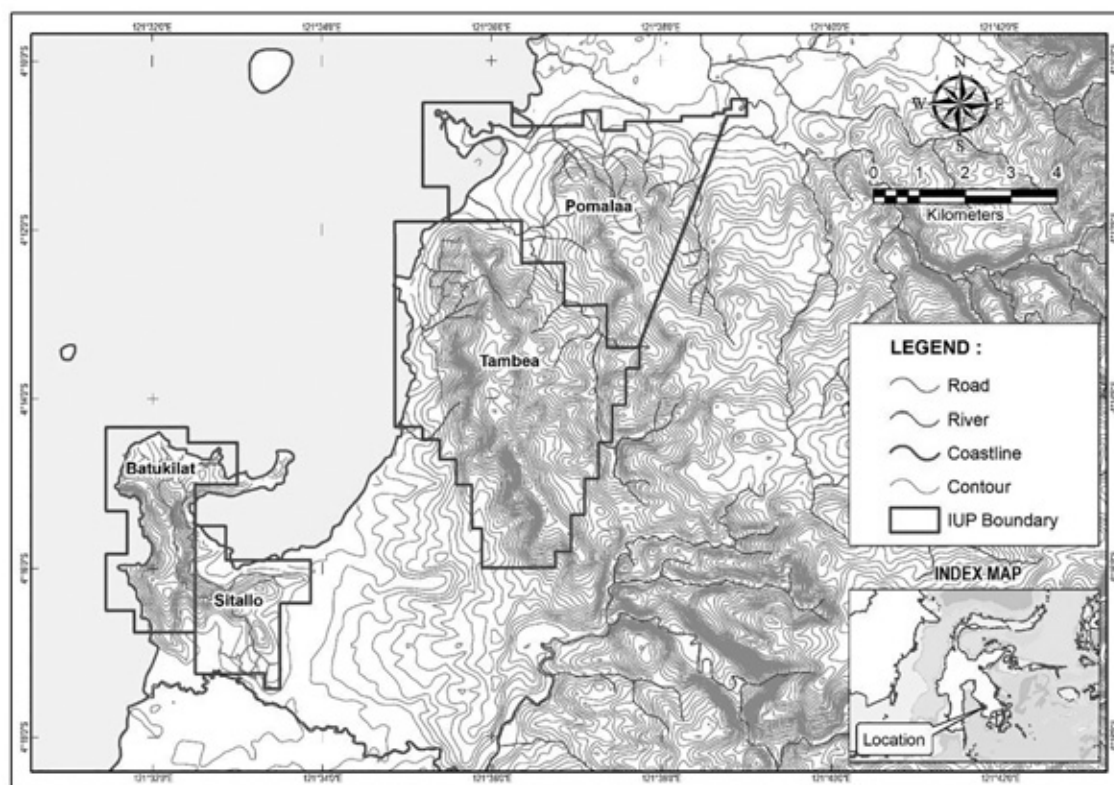
The following table sets forth certain production and sales information on the nickel ore produced at our Pomalaa Nickel Mine, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Sales (Rp. in billions)	811.9	1,289.8	1,177.5
Average selling price (Rp. in millions/wmt) ⁽¹⁾	0.5	0.4	0.5
Cash cost (Rp. in millions/wmt) ⁽²⁾	0.2	0.3	0.3
Nickel ore grade (% of nickel content)	1.75 – 1.9	1.75 – 1.9	1.75 – 1.9

Notes:

- (1) Average selling price per wmt is calculated by dividing sales by sales volumes for the relevant years.
- (2) Cash cost per wmt is calculated as (a) the sum of mining costs, nickel ore processing and other cash production costs, restoration costs and increases or decreases in nickel ore inventories, divided by (b) nickel production volume for the relevant years. Although depreciation and amortization related to the production of nickel ore is added to our cost of revenue, it is not included in cash costs.

The following map sets forth the location of the nickel mining concession areas at our Pomalaa Nickel Mine.



Sangaji Nickel Mine, Mornopo Nickel Mine, Tanjung Buli Nickel Mine and Pakal Island Nickel Mine

Our Sangaji Nickel Mine, Mornopo Nickel Mine, Tanjung Buli Nickel Mine and Pakal Island Nickel Mine are located within our Buli Serani nickel mining concession, which is an IUP valid from October 2011 until October 2040. Our Buli Serani nickel mining concession is accessible by an approximately five-hour flight from Jakarta to Tanjung Buli, followed by a less than one hour journey by car from Tanjung Buli airport. Our Buli Serani nickel mining concession contains limonite and saprolite nickel ore.

The following table sets forth certain information relating to our Buli Serani nickel mining concession, as of December 31, 2019.

Mining concession	Concession holder	Concession expiry	Concession area (hectares)	Reserves ⁽¹⁾		Resources ⁽¹⁾		
				Proved	Probable	Measured	Indicated	Inferred
Buli Serani	Antam	October 2040	39,040	87.8	108.8	161.2	163.8	199.4

Note:

(1) According to the 2019 Nickel, Gold, Silver and Bauxite Reserves Statement, see Appendix B.

We currently have active production operations at our Mornopo Nickel Mine, Tanjung Buli Nickel Mine and Pakal Island Nickel Mine and do not have active production operations at our Sangaji Nickel Mine. For the years ended December 31, 2017, 2018 and 2019, we produced a total of 2.0 million wmt, 4.8 million wmt and 3.9 million wmt of nickel ore, respectively, at our Buli Serani nickel mining concession, representing 36.5%, 51.5% and 44.8% respectively, of our total nickel ore production.

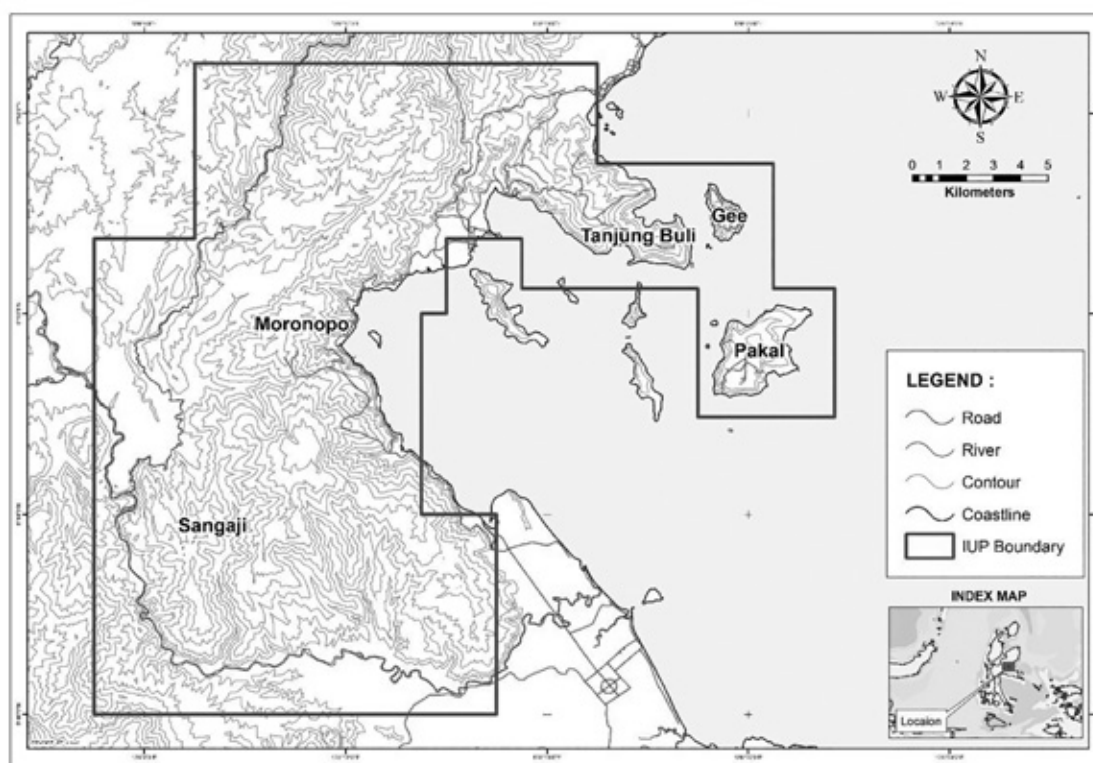
The following table sets forth certain production and sales information on the nickel ore produced at our Mornopo Nickel Mine, Tanjung Buli Nickel Mine and Pakal Island Nickel Mine, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Sales (Rp. in billions)	508.4	1,320.2	1,593.3
Average selling price (Rp. in millions/wmt) ⁽¹⁾	0.4	0.4	0.5
Cash cost (Rp. in millions/wmt) ⁽²⁾	0.2	0.3	0.3
Nickel ore grade (% of nickel content)	1.75 – 1.9	1.75 – 1.9	1.75 – 1.9

Notes:

- (1) Average selling price per wmt is calculated by dividing sales by sales volumes for the relevant years.
- (2) Cash cost per wmt is calculated as (a) the sum of mining costs, nickel ore processing and other cash production costs, restoration costs and increases or decreases in nickel ore inventories, divided by (b) nickel production volume for the relevant years. Although depreciation and amortization related to the production of nickel ore is added to our cost of revenue, it is not included in cash costs.

The following map sets forth the location of our Buli Serani nickel mining concession area.



Lalindu-Lasolo Nickel Mine, Mandiodo Nickel Mine, Tapunopaka Nickel Mine and Bahubulu Nickel Mine

Our Lalindu-Lasolo Nickel Mine, Mandiodo Nickel Mine, Tapunopaka Nickel Mine and Bahubulu Nickel Mine are located across two nickel mining concessions, our Asera & Molawe nickel mining concession and Lasolo nickel mining concession. Our Asera & Molawe nickel mining concession is an IUP valid from April 2010 until April 2030, and contains limonite and saprolite nickel ore. Our Lasolo nickel mining concession is an IUP valid from January 2010 until January 2028, and also contains limonite and saprolite nickel ore. Our Asera & Molawe and Lasolo nickel mining concessions are accessible by an approximately four-hour flight from Jakarta to Kendari, the capital of Southeast Sulawesi, followed by an approximately three-hour journey by car from Kendari airport.

The following table sets forth certain information on our Asera & Molawe and Lasolo nickel mining concessions, as of December 31, 2019.

Mining concession	Concession holder	Concession expiry	Concession area (hectares)	Reserves		Resources		
				Proved	Probable	Measured	Indicated	Inferred
				(wmt in millions)		(wmt in millions)		
Asera & Molawe	Antam	April 2030	16,920	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾
Lasolo	Antam	January 2028	6,213	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾
Total			23,133	40.9⁽²⁾	45.9⁽²⁾	110.4⁽²⁾	159.7⁽²⁾	167.4⁽²⁾

Notes:

- (1) Reserves and resources for the mines located within our Asera & Molawe nickel mining concession and Lasolo nickel mining concession are measured at each mine site rather than each mining concession area.
- (2) According to the 2019 Nickel, Gold, Silver and Bauxite Reserves Statement, see Appendix B.

We commenced nickel mining operations at our Tapunopaka Nickel Mine in August 2018, and have not yet commenced production operations at the other mines located within our Asera & Molawe and Lasolo nickel mining concessions as we are currently focusing on the development of our Tapunopaka Nickel Mine. For the years ended December 31, 2018 and 2019, we produced a total of 127,875 wmt and 197,756 wmt of nickel ore, respectively, at our Tapunopaka Nickel Mine, representing 1.4% and 2.3% respectively, of our total nickel ore production.

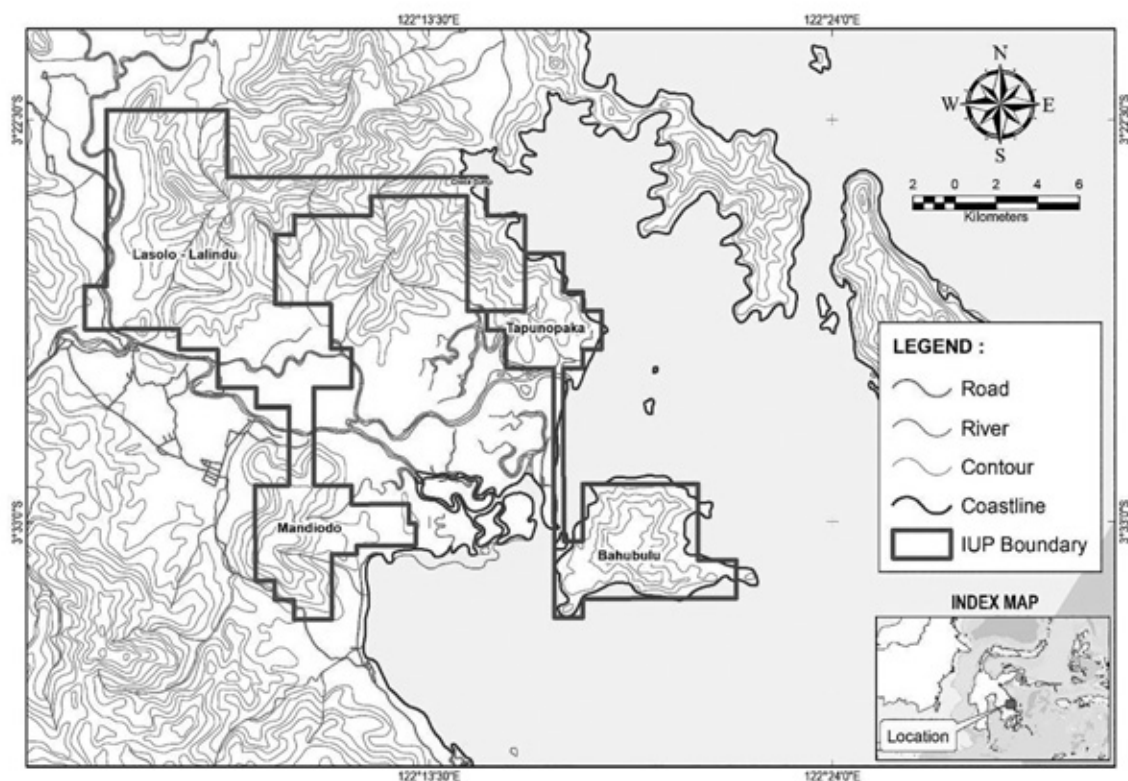
The following table sets forth certain production and sales information on the nickel ore produced at our Tapunopaka Nickel Mine, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Sales (Rp. in billions)	— ⁽³⁾	— ⁽³⁾	141.7
Average selling price (Rp. in millions/wmt) ⁽¹⁾	— ⁽³⁾	— ⁽³⁾	0.5
Cash cost (Rp. in millions/wmt) ⁽²⁾	— ⁽³⁾	— ⁽³⁾	0.3
Nickel ore grade (% of nickel content)	— ⁽³⁾	— ⁽³⁾	1.75 – 1.9

Notes:

- (1) Average selling price per wmt is calculated by dividing sales by sales volumes for the relevant years.
- (2) Cash cost per wmt is calculated as (a) the sum of mining costs, nickel ore processing and other cash production costs, restoration costs and increases or decreases in nickel ore inventories, divided by (b) nickel production volume for the relevant years. Although depreciation and amortization related to the production of nickel ore is added to our cost of revenue, it is not included in cash costs.
- (3) We commenced nickel mining operations at our Tapunopaka Nickel Mine in August 2018 and began selling the nickel ore produced at the mine in 2019.

The following map sets forth the location of our Asera & Molawe and Lasolo nickel mining concession areas.



Gag Nickel Mine

Our Gag Nickel Mine comprises one nickel mining concession in the form of a CoW granted in January 1998 and valid until November 2047, which we hold through Antam’s subsidiary, PT Gag Nickel. The Gag Nickel Mine is accessible by an approximately four-hour flight from Jakarta to Sorong, followed by an approximately four-hour journey by speedboat from Sorong. The Gag Nickel Mine contains limonite and saprolite nickel ore.

The following table sets forth certain information on our Gag nickel mining concession, as of December 31, 2019.

Mining concession	Concession holder	Concession expiry	Concession area (hectares)	Reserves ⁽¹⁾		Resources ⁽¹⁾		
				Proved (wmt in millions)	Probable (wmt in millions)	Measured (wmt in millions)	Indicated (wmt in millions)	Inferred
Gag	PT Gag Nickel	November 2047	13,136	9.5	47.0	20.2	70.1	236

Note:

(1) According to the 2019 Nickel, Gold, Silver and Bauxite Reserves Statement, see Appendix B.

We commenced nickel production at our Gag Nickel Mine in November 2017. For the years ended December 31, 2018 and 2019, we produced a total of 912,899 million wmt and 1.8 million wmt of nickel ore, respectively, at our Gag Nickel Mine, representing 9.7% and 20.7% respectively, of our total nickel ore production.

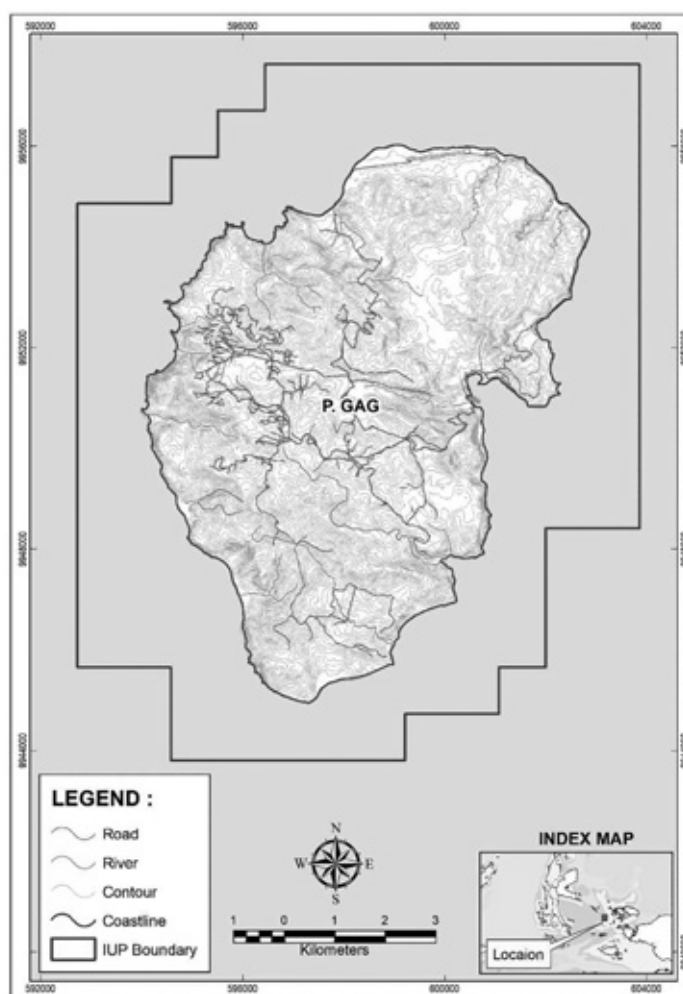
The following table sets forth certain production and sales information on the nickel ore produced at our Gag Nickel Mine, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Sales (Rp. in billions)	— ⁽³⁾	376.6	795.8
Average selling price (Rp. in millions/wmt) ⁽¹⁾	— ⁽³⁾	0.4	0.5
Cash cost (Rp. in millions/wmt) ⁽²⁾	— ⁽³⁾	0.3	0.3
Nickel ore grade (% of nickel content)	— ⁽³⁾	1.9	1.9

Notes:

- (1) Average selling price per wmt is calculated by dividing sales by sales volumes for the relevant years.
- (2) Cash cost per wmt is calculated as (a) the sum of mining costs, nickel ore processing and other cash production costs, restoration costs and increases or decreases in nickel ore inventories, divided by (b) nickel production volume for the relevant years. Although depreciation and amortization related to the production of nickel ore is added to our cost of revenue, it is not included in cash costs.
- (3) We did not commence nickel mining operations at our Gag Nickel Mine until November 2017 and did not record any sales of nickel ore from our Gag Nickel Mine for the year ended December 31, 2017.

The following map sets forth the location of our Gag Nickel Mine on Gag Island in West Papua, Indonesia.



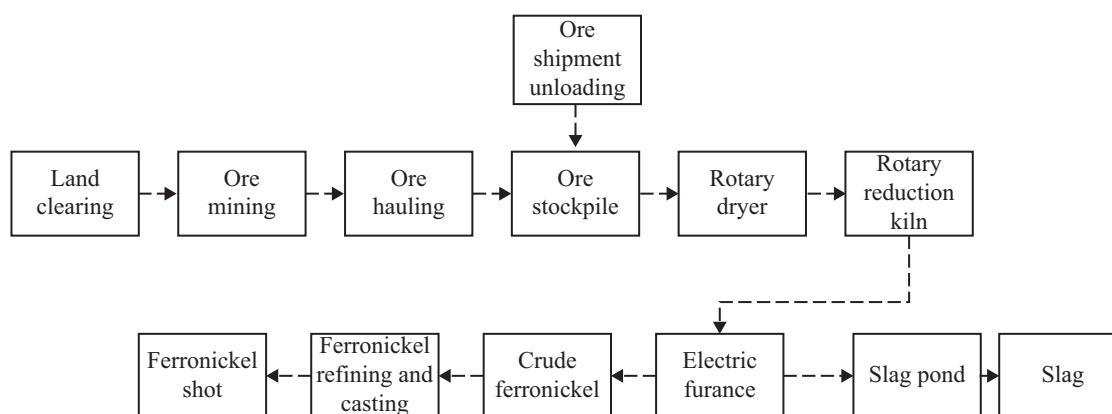
Nickel mining and processing operations

Mine planning

With information collected through our exploration activities, we prepare mine plans in relation to further exploration and operation of each pit within our mines. We begin with a conceptual mine plan and determine the potential production profiles for a particular mine throughout its life. We also account for surface features such as topography, position of rivers and creeks, local villages and associated infrastructure, and begin planning for rehabilitation of disturbed areas. See “Risk Factors — Risks Common to All Our Mining Businesses — Our operations are subject to environmental laws and regulations which may cause us to incur significant costs, liabilities or interrupt or cease mining operations, any of which may adversely affect our results of operations.” As more exploration data is collected, the geological model is revised, which necessitates revisions to mine plans. We prepare plans for 12-month periods on an ongoing basis alongside three-month and monthly rolling mine plans which are intended to capture differences arising from equipment failures and malfunctions, changes in operating costs and weather conditions.

Nickel ore mining and processing

Our nickel ore and ferronickel production process starts with the land clearing process and ends with the processing of nickel ore into ferronickel. The following diagram sets forth the principal stages of our nickel ore mining and ferronickel production process.



As our nickel deposits are generally located at a shallow depth beneath the earth’s surface, mining for nickel ore can be carried out under an open-pit mining method, with the use of trucks and shovels and with limited need for blasting. Little beneficiation is required other than drying and screening as well as some limited crushing of oversized material. For instance, saprolite nickel ores which rest deeper beneath the earth’s surface is often lumpy and requires crushing to reduce it to the required size specifications.

The mining operations conducted at each of our nickel mines are largely similar, with slight variations that are mostly due to topographical differences. First, the vegetation is cleared and the overburden is stripped to expose the limonite nickel ore. Following which, the limonite nickel ore and the saprolite nickel ore are extracted through the use of bench mining techniques. Limonite nickel ore rests above saprolite nickel ore and extraction of limonite nickel ore takes place before mining of saprolite nickel ore. Each bench has a height of three meters. At some of our nickel mines, production drilling is carried out for grade control. Sampling is conducted at three-meter intervals along each bench. The samples are assayed and each sample area is designated using colored stakes, thereby enabling miners to effectively determine the product they are mining and to which stockpile the ore must be transported based on its type and grade.

At the Pomalaa Nickel Mine where we mine saprolite nickel ore, the rocky portions of the site are segregated to maximize ore recovery. Oversized ore is then reduced in size. The low grade limonite is pushed out of the way and used for backfill after extraction of the ore is completed. Bulldozers are used to strip the

overburden, which is pushed to the side and used where possible for reclamation after mining. Similar techniques are used in the other nickel ore mines. After mining, the saprolite nickel ore is solar dried by placing it in narrow piles and turning it over every several days. Solar drying reduces the moisture content of ore to a range of approximately 30.0% to 35.0%, making it suitable for shipment.

The nickel ore is then moved to the stockyards at the port and piled for barging, where it is covered with tarpaulins for dust control and for protection from rainfall. Ore is transported from the mine face to the stockpile areas by trucks operated by contractors for processing at our Pomalaa Ferronickel Facilities to produce ferronickel. See “— Ferronickel production facilities.” Large vessels are loaded using barges approximately 500 meters to 600 meters offshore due to limited draft closer to the shore. Loading usually takes two to three days, but can occasionally take longer under poor weather conditions. Our Pomalaa Nickel Mine has its own port for the loading and unloading of ore and ferronickel and for the delivery of fuel and other supplies used in the smelting process. The port is divided into two areas which include a quay of 120 meters with a draft of six meters allowing vessels of up to 7,000 dwt to dock. Unloading is also undertaken at a separate area of the port with a land fixed crane.

Our mining operations are usually interrupted during Indonesia’s rainy season due to the challenging working conditions posed by the heavy rainfall. See “Risk Factors — Risks Common to All Our Mining Businesses — Our mines are subject to inclement weather and natural disasters.”

Reclamation

Reclamation is part of the ongoing mining activities and we carry out the reclamation process on the previous digging area while mining in other areas. We carry out our reclamation works in collaboration with the local community as part of our corporate and social responsibility efforts and are required to comply with the requirements set out in the respective mine’s environmental documents including the environmental impact assessment (AMDAL), reclamation plan, post-mining plan and MEMR Decree 1827/2018. See “Indonesian Regulatory Framework — Mining Regulation — Reclamation and post-mining activities.”

Security

We hire third-party security services providers, PT Nawakara Perkasa Nusantara and PT Kartika Cipta Indonesia, to provide general labor services including security guards for surveillance at our nickel mines and processing plants. In addition, our nickel mines and processing plants located within the South Sulawesi and North Maluku area have been designated as National Vital Objects and therefore benefit from security services provided by the local police force.

Third-party contractors

We contract certain of our nickel mining activities to third-party contractors in order to maximize efficiency and minimize costs. We typically select our mining contractors through direct negotiations with existing contractors or by way of a competitive open tender, with potential contractors submitting their bids based on the requirements we specify. We select our mining contractors after considering various factors such as price, equipment, experience and previous track record in our mining operations. See “Risk Factors — Risks Common to All Our Businesses — We rely on third-party contractors to conduct certain of our mining operations, and such contractors may be constrained by labor disputes, face operational difficulties or perform unsatisfactory work.”

Ferronickel production facilities

Pomalaa Ferronickel Facilities

We own and operate ferronickel production and processing facilities located at our Pomalaa Nickel Mine in Kolaka, Southeast Sulawesi (“Pomalaa Ferronickel Facilities”). Our Pomalaa Ferronickel Facilities consist of (i) our Pomalaa Ferronickel Plants, which comprise three active ferronickel production plants, namely FeNi II, FeNi III and FeNi IV, (ii) an oxygen plant for the production of oxygen gas used as a reactant in the ferronickel

refining process, (iii) a coal-fired power plant with a capacity of 2x30MWh and a diesel power plant with a capacity of 8x17MWh, both of which provide power to the Pomalaa Ferronickel Plants, and (iv) port and jetty facilities.

The Pomalaa Ferronickel Plants commenced operations in 1995, 2007 and 2017, respectively, and have a combined production capacity of approximately 27,000 TNi to 30,000 TNi per year. For the years ended December 31, 2017, 2018 and 2019, the Pomalaa Ferronickel Facilities produced 21,762 TNi, 24,868 TNi and 25,713 TNi of ferronickel, respectively.

The following table sets forth certain production and sales information on the ferronickel produced at our Pomalaa Ferronickel Plants, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Sales (Rp. in billions)	3,222.6	4,662.1	4,871.4
Average selling price (Rp. in millions/TNi) ⁽¹⁾	146.8	193.1	186.4
Cash cost (Rp. in millions/TNi) ⁽²⁾	103.8	120.5	116.7
Ferronickel ore grade (% of nickel content)	20.0	20.0	20.0

Notes:

- (1) Average selling price per TNi is calculated by dividing sales by sales volumes for the relevant years.
- (2) Cash cost per TNi is calculated as (a) the sum of mining costs, ferronickel processing and other cash production costs, restoration costs and increases or decreases in ferronickel inventories, divided by (b) ferronickel production volume for the relevant years. Although depreciation and amortization related to the production of ferronickel is added to our cost of revenue, it is not included in cash costs.

East Halmahera Ferronickel Plant

In July 2019, we completed the construction of a new ferronickel plant, our East Halmahera Ferronickel Plant, on the island of Halmahera. On January 24, 2020, we entered into a memorandum of understanding with PLN pursuant to which PLN will collect information and conduct evaluations in order to determine if PLN will be able to provide us with electricity to power operations at our East Halmahera Ferronickel Plant. The memorandum of understanding is valid for a period of six months. We plan to enter into a definitive agreement with PLN in the second quarter of 2020, pursuant to which PLN will finance, build and operate a power plant to exclusively provide electricity for our East Halmahera Ferronickel Plant. Once we commence operations at our East Halmahera Ferronickel Plant, which has a production capacity of approximately 13,500 TNi per year, our annual ferronickel production capacity would increase by 50.0% to 40,500 TNi from the existing 27,000 TNi supported by our Pomalaa Ferronickel Plants. After achieving optimal production at our East Halmahera Ferronickel Plant, we plan to further expand its production capacity by another 13,500 TNi per year.

Ferronickel production process

Ferronickel generally consists of 20.0% to 25.0% nickel and 75.0% to 80.0% iron and its processing consumes saprolite nickel ore. Ferronickel production depends on the grade of ore feed and the smelter load, and is produced by smelting nickel ore to produce ferronickel in the form of shots or pellets, using a pyro-metallurgy processing which consumes large amounts of electricity. Approximately 75 to 90 wmt of saprolite nickel ore is required to produce one TNi.

Saprolite nickel ore typically with a grade above 1.8% of nickel content is fed through a shakeout machine to a rotary drier to lower its moisture content from a range of 30.0% to 33.0%, to a range of 20.0% to 22.0%, using heat produced from the combustion of pulverized coal at an operating temperature of 800 degrees Celsius. The dried ore is screened at five centimeters at the impeller breaker and passed to the ore bins in the mixing house. The oversized ore is crushed in a breaker and re-joins the undersized ore and the dust from the rotary dryer. Other bins contain anthracite, limestone and coal which are mixed with the ore in exact proportions. The addition of limestone is required to increase slag basicity in the electric furnace. The ore is then fed into the rotary kilns. In order to process the ore in the electric furnace, the rest of the moisture inside the ore must be

removed, including water of hydration of minerals such as serpentine and goethite contained in the ore. This is carried out in rotary kilns where the operating temperature is approximately 1,000 degrees Celsius. Dust is collected from the kiln in the form of exhaust gas through a dust collecting system. It is formed into pellets for recycling as kiln feed. The calcined product from the kiln is collected in a surge hopper, weighed and charged into insulated, closed containers to conserve heat and to minimize dust. These containers are automatically transferred and charged to the top bin of the electric furnace. The electric furnace is a cylindrical furnace. Smelting temperature is approximately 1,600 degree Celsius. Slag is tapped at one side of the furnace while metal is tapped at the other. The off-gases from the furnace pass through a baghouse system to remove particulates prior to recycling to the rotary drier. The crude ferronickel from the ferronickel plants are collected in 25-tonne lots in ladles and transferred to the refinery. The crude ferronickel is de-sulfurized by the addition of calcium carbide and soda ash which are stirred into the molten ferronickel. The slag produced in this process is skimmed off manually. This slag contains approximately 8.0% to 9.0% nickel. Metal and slag are separated by hand picking and the metal so recovered is returned to the electric furnace. The de-sulfurization process takes approximately 20 minutes to complete. The maximum final sulfur content is 0.03%.

The high carbon ferronickel product from de-sulfurization is either routed to a casting unit if a high carbon product is required. If a low carbon product is required, the de-sulfurized ferronickel is passed to an oxygen converter where oxygen is top blown onto the liquid metal to remove carbon, phosphorous and to slag off chromium and silica. Burnt lime and limestone are added as flux. The converting process takes approximately an hour to complete. The off-gases from the shaking converter are cleaned in an electrostatic precipitator and the collected dust sent to the pelletizer and briquette machine.

Our nickel and ferronickel products

We sell processed nickel ore which we extract from our active nickel mining concession areas, as well as ferronickel products which we produce at our Pomalaa Ferronickel Plants.

- *Nickel ore.* We sell saprolite nickel ore, which are high grade nickel ore, as well as, limonite nickel ore, which are low grade nickel ore. Saprolite nickel ore are found deeper beneath the earth's surface as compared to limonite nickel ore and as a result, are generally more difficult and expensive to mine. Our saprolite nickel ore is composed of nickel content of up to 1.8%. Our limonite nickel ore is composed of nickel content typically ranging between 1.2% and 1.7% and a minimum of 30.0% iron content. Saprolite nickel ore is also used as the primary raw material in the production of ferronickel. For the years ended December 31, 2017, 2018 and 2019, our revenue from sale of nickel ore was Rp.1,369.8 billion, Rp.3,013.4 billion and Rp.3,780.0 billion (US\$271.9 million), respectively, representing 29.8%, 39.3% and 43.7%, respectively, of our total revenue from nickel ore and ferronickel.
- *Ferronickel.* Our ferronickel products generally consist of approximately 20.0% nickel content and 80.0% iron content and are sold in the form of shots or pellets, either with high or low carbon content. Ferronickel is used as feed material in the production of stainless steel. For the years ended December 31, 2017, 2018 and 2019, our revenue from sale of ferronickel ore was Rp. 3,222.6 billion, Rp.4,662.1 billion and Rp.4,871.4 billion (US\$350.5 million), respectively, representing 70.2%, 60.7% and 56.3%, respectively, of our total revenue from nickel ore and ferronickel.

We previously sold the majority of our nickel ore and ferronickel in the international market, including India, South Korea, Taiwan, China and Ukraine. For the years ended December 31, 2017, 2018 and 2019, 96.9%, 84.7% and 88.0%, respectively, of our revenue from sale of nickel ore and ferronickel were from export sales. However, effective January 1, 2020, pursuant to MEMR 11/2019, which bans the export of nickel ore from Indonesia, we are no longer be able to sell our nickel ore in the international market, see "Management's Discussion and Analysis of Financial Condition and Results of Operations — Factors Affecting Our Business and Results of Operations — Government policies and changes in law."

Quality control

We have implemented comprehensive quality assurance and monitoring procedures to ensure that our products meet our stringent quality control standards and the expectations and requirements of our customers. Our quality assurance system encompasses stringent quality control checks at each stage of our production process, from procurement and processing of the raw materials, to the inspection of the end product. Our quality control department monitors the internal production process, storage and delivery of raw materials and products, as well as conduct on-site inspections from time to time. It closely monitors the various production process by taking samples at different checkpoints for examination at our laboratories. We keep our production records to facilitate the continued improvement of our quality control management systems. In addition, as part of our quality control policies, we require that all our contractors possess the requisite qualifications for undertaking their respective works in exploration, mining, processing or production. Our quality assurance procedures are subject to semi-annual internal quality audits by a team of trained internal quality auditors. Surveillance audits and re-certification audits are carried out annually by SAI Global and SGS S.A., internationally accredited external ISO auditors, to ensure we comply with the certified standards.

As of December 31, 2019, we have received the following quality assurance certifications and awards in respect of our nickel production processes:

No.	Certification/award	Awarding body/authority	Validity period of certificate/award	Process awarded
1.	ISO 9001:2015 (Quality Management System)	SAI Global	Until May 25, 2020	Mining processes at our Tanjung Buli and Pakal Island Nickel Mine
2.	ISO 14001:2015 (Environmental Management System)	SAI Global	Until May 25, 2020	Mining processes at our Tanjung Buli Nickel Mine and Pakal Island Nickel Mine
3.	ISO 18001:2007 (Occupational, Health and Safety Management System)	SAI Global	Until May 25, 2020	Mining processes at our Tanjung Buli Nickel Mine and Pakal Island Nickel Mine
4.	SNI/ISO 17025:2008	KAN	Until November 22, 2020	Mining processes at our Tanjung Buli Nickel Mine and Pakal Island Nickel Mine
5.	BLUE PROPER (Bronze Environment Award)	MOEF	Awarded on December 21, 2018	Mining and ferronickel production processes by the Southeast Sulawesi and North Maluku Nickel Mining Business Units
6.	UTAMA Award (Silver) in the Mining Environmental Management of Mining Business Permits Category for 2018	MEMR	Awarded on May 8, 2018	Southeast Sulawesi Nickel Mining Business Unit
7.	UTAMA Award (Silver) in the Mining Safety Management Category of Mining Business Permits and Special Mining Operation Permits for Processing and Refinery for 2018	MEMR	Awarded on May 8, 2018	Southeast Sulawesi Nickel Mining Business Unit and North Maluku Nickel Mining Business Unit

No.	Certification/award	Awarding body/authority	Validity period of certificate/award	Process awarded
8.	PRATAMA Award (Bronze) in the Mining Environmental Management Category for Holders of Mining Business Permits, Special Mining Business Permits and Special Operations Mining Business Permits for Processing for 2016	MEMR	Awarded on May 8, 2018	Southeast Sulawesi Nickel Mining Business Unit and North Maluku Nickel Mining Business Unit

Nickel development projects

As part of our expansion plans, we are currently engaged in the following key development projects which are in various stages of development.

Hydromet technology project

We are exploring opportunities for the development and implementation of hydromet technology at our nickel mining concession areas in order to produce nickel products for use in batteries. We are in discussions with potential strategic partners to collaborate with and are in the process of conducting the bankable feasibility study for the hydromet technology project.

Blast Furnace NPI project

On December 9, 2014 (as lastly amended on December 12, 2018), we entered into a joint venture agreement with Ocean Energy Nickel International Pte. Ltd. (“OENI”) to establish a joint venture, PT Antam Niterra Haltim (“ANH”), for the purpose of developing a nickel pig iron plant at our Buli Serani mining concession (the “Blast Furnace NPI”). Under the terms of the joint venture agreement, Antam and OENI own 30.0% and 70.0% interests, respectively, in ANH. In addition, OENI would be responsible for the financing and construction of the Blast Furnace NPI, while we would contribute by sharing our mining expertise and land, facilities and infrastructure development capabilities. The planned production capacity of the Blast Furnace NPI was 15,000 TNi of ferronickel per year. Construction of the Blast Furnace NPI was expected to commence in April 2020 and to be completed in the first quarter of 2021. However, as OENI has failed to commence construction of the Blast Furnace NPI within the specified time frame under the joint venture agreement, we are currently evaluating the continuation of our joint venture with OENI and the Blast Furnace NPI project. Following this evaluation, we may decide to terminate our joint venture with OENI and discontinue the development of the Blast Furnace NPI. See “Risk Factors — Risks Common to All Our Businesses — Our joint ventures and strategic cooperations may not be successful.”

Our Bauxite Business

We conduct our bauxite mining business through Antam. As a vertically integrated bauxite mining company, we undertake all stages of mining and processing bauxite. Apart from mining and processing bauxite, we also produce alumina from the bauxite ore we mine and process.

As of December 31, 2019, our aggregate bauxite ore reserves and resources was 151 million wmt and 598 million wmt, respectively, and for the year ended December 31, 2019, our aggregate bauxite production volume and sales volume was 1.7 million wmt and 1.7 million wmt, respectively, and our aggregate alumina production volume and sales volume was 104,537 tonnes and 70,517 tonnes, respectively. For the years ended December 31, 2017, 2018 and 2019, our revenue from sale of bauxite was Rp.398.1 billion, Rp.482.4 billion and Rp.758.1 billion (US\$54.5 million), representing 0.8%, 0.7% and 0.9%, respectively, of our total revenue. For the year ended December 31, 2019, our revenue from sale of alumina was Rp.547.3 billion (US\$39.4 million), representing 0.7% of our total revenue.

Tayan Bauxite Mine

We own and operate one active bauxite mine (“Tayan Bauxite Mine”), which is situated in Sanggau, West Kalimantan, Indonesia and spans a total area of approximately 34,360 hectares. Our Tayan Bauxite Mine comprises one bauxite mining concession in the form of an IUP valid from January 2015 until January 2030. Our Tayan Bauxite Mine is accessible by an approximately two-hour flight from Jakarta to Pontianak City, West Kalimantan, and an approximately three-hour journey by car from Pontianak City to the mine site.

For the years ended December 31, 2017, 2018 and 2019, we produced 648,431 wmt, 1.1 million wmt and 1.7 million wmt of bauxite, respectively, at our Tayan Bauxite Mine, representing our entire production volume of bauxite during those years.

The following table sets forth certain information on our Tayan bauxite mining concession, as of December 31, 2019.

Mining concession	Concession holder	Concession expiry	Concession area (hectares)	Reserves ⁽¹⁾		Resources ⁽¹⁾		
				Proved	Probable	Measured	Indicated	Inferred
				(wmt)			(wmt)	
Tayan	Antam	January 2030	34,360	6.8	32.3	89.4	59.3	18.1

Note:

(1) According to the 2019 Nickel, Gold, Silver and Bauxite Reserves Statement, see Appendix B.

The following table sets forth certain production and sales information on the bauxite ore produced at our Tayan Bauxite Mine, for the years indicated.

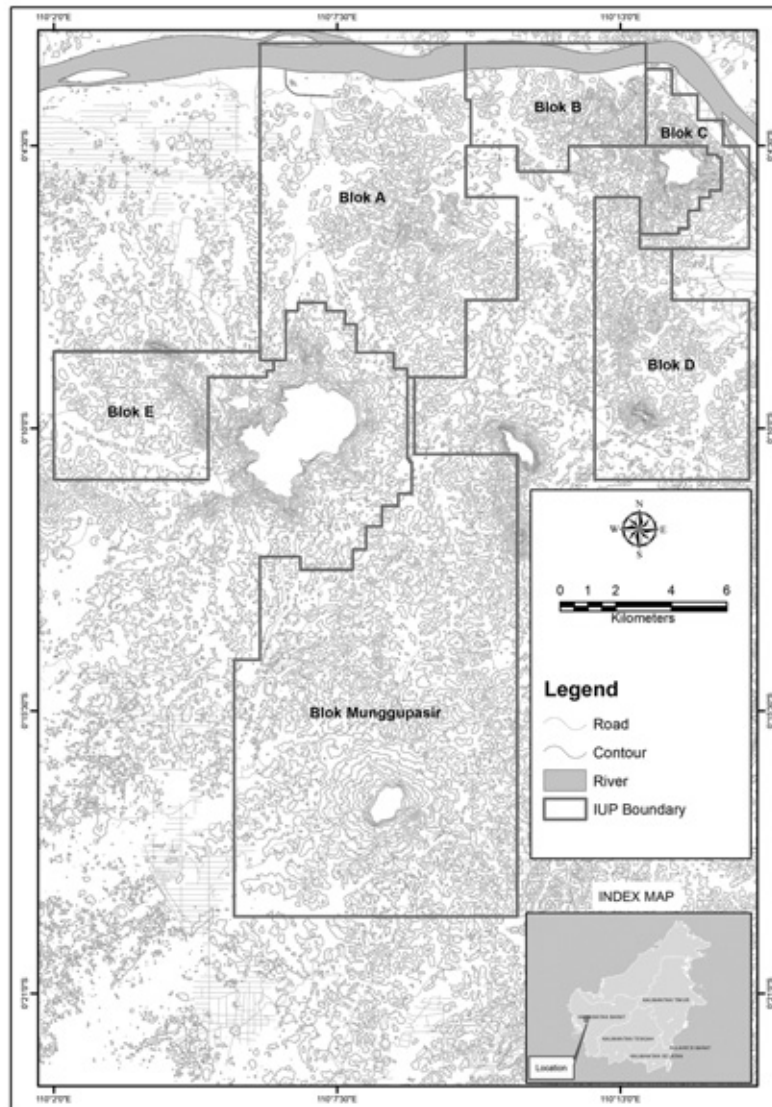
	For the year ended December 31,		
	2017	2018	2019
Sales (Rp. in billions)	398.1	482.4	758.1
Average selling price (Rp. in millions/wmt) ⁽¹⁾	0.5	0.5	0.5
Cash cost (Rp. in millions/wmt) ⁽²⁾	0.2	0.3	0.3
Bauxite grade (% of aluminum oxide content)	50.0	47.0	47.0

Notes:

(1) Average selling price per wmt is calculated by dividing sales by sales volumes for the relevant years.

(2) Cash cost per wmt is calculated as (a) the sum of mining costs, bauxite ore processing and other cash production costs, restoration costs and increases or decreases in bauxite ore inventories, divided by (b) bauxite production volumes for the relevant years. Although depreciation and amortization related to the production of bauxite ore is added to our cost of revenue, it is not included in cash costs.

The following map sets forth the location of our Tayan bauxite mining concession.



Bauxite mining concessions not in operation

The following table sets forth certain information on our bauxite mining concessions at which we do not currently have active production operations.

Mining concession	Concession holder	Concession expiry	Concession area (hectares)	Reserves ⁽¹⁾		Resources ⁽¹⁾		
				Proved	Probable	Measured	Indicated	Inferred
				(wmt)			(wmt)	
Mempawah								
Hulu	Antam	December 2034	20,710	9.7	53.8	64.9	8.7	5.0
Toho	Antam	July 2028	12,630	11.3	4.3	16.2	6.6	9.0
Menjalin BEI	PT Borneo Edo International	April 2033	18,630	6.9	25.5	13.0	12.2	25.6
Sebadu BEI	PT Borneo Edo International	September 2034	19,090	—	—	8.7	4.6	73.6
Meliau MCU	PT Mega Citra Utama	December 2028	10,000	—	—	31.8	14.3	18.3
Menjalin DEK	PT Dwimitra Enggang Khatulistiwa	September 2016 (in suspension)	4,900	—	—	1.8	—	29.5
Mempawah Hulu GK	PT Gunung Kendaik	May 2035	12,184	—	—	—	—	87.0
Total			98,144	27.9	83.6	136.4	46.4	248.0

Note:

(1) According to the 2019 Nickel, Gold, Silver and Bauxite Reserves Statement, see Appendix B.

All our bauxite mining concessions not currently in operation are situated in West Kalimantan, Indonesia. They are accessible by an approximately two-hour flight from Jakarta to Pontianak, and an approximately two-hour journey by car from the Supadio airport located in Pontianak.

We intend to commence production at our Mempawah Hulu bauxite mining concession, Toho bauxite mining concession and Menjalin BEI bauxite mining concession once we complete construction of the Mempawah Smelter Grade Alumina Refinery, see “— Alumina production plants — Mempawah Smelter Grade Alumina Refinery project,” in order to provide bauxite feed for the plant.

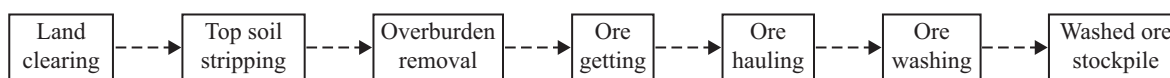
Bauxite mining and processing operations

Mine planning

With information collected through our exploration activities, we prepare mine plans in relation to further exploration and operation of each pit within our mines. We begin with a conceptual life-of-mine plan and determine the potential production profiles for a particular mine throughout its life. We also account for surface features such as topography, position of rivers and creeks, local villages and associated infrastructure, and begin planning for rehabilitation of disturbed areas. See “Risk Factors — Risks Common to All Our Mining Businesses — Our operations are subject to environmental laws and regulations which may cause us to incur significant costs, liabilities or interrupt or cease mining operations, any of which may adversely affect our results of operations.” As more exploration data is collected, the geological model is revised, which necessitates revisions to mine plans. We prepare plans for 12-month periods on an ongoing basis alongside three-month and monthly rolling mine plans which are intended to capture differences arising from equipment failures and malfunctions, changes in operating costs and weather conditions.

Bauxite ore mining and processing

Our bauxite production process starts with the land clearing process and ends with the processing of bauxite ore. The following diagram sets forth the principal stages of our bauxite mining and processing process.



Mining for bauxite is carried out under an open-cast mining method, using a combination of trucks, bulldozers and excavators. To expose the bauxite, the vegetation is cleared and the overburden is stripped. Upon exposure of the bauxite, we extract the layer of bauxite, which typically has an average thickness of six meters.

The extracted bauxite is transported via trucks, to a washing plant, where the bauxite will be crushed, washed and screened. The washed bauxite is transported to the stockpile via trucks, after which it will be blended according to the feed specification of the processing and refinery plant.

Reclamation

Reclamation is part of the ongoing mining activities and we carry out the reclamation process on the previous digging area while mining in other areas. We carry out our reclamation works in collaboration with the local community as part of our corporate and social responsibility efforts and are required to comply with the requirements set out in the respective mine's environmental documents including the environmental impact assessment (AMDAL), reclamation plan, post-mining plan and the MEMR Decree 1827/2018. See "Indonesian Regulatory Framework — Mining Regulation — Reclamation and post-mining activities."

Security

We hire a third-party security services provider, PT Persona Prima Utama, to provide surveillance services at our Tayan Bauxite Mine, washing plant facilities and jetty. In addition, our Tayan Chemical Grade Alumina Plant has been designated as a National Vital Object and as a result of which, benefits from security services provided by the local police force.

Third-party contractors

We contract certain of our bauxite mining activities to third-party contractors in order to maximize efficiency and minimize costs. We typically select our mining contractors through direct negotiations with existing contractors or by way of a competitive open tender, with potential contractors submitting their bids based on the requirements we specify. We select our mining contractors after considering various factors such as price, equipment, experience and previous track record in our mining operations. See "Risk Factors — Risks Common to All Our Businesses — We rely on third-party contractors to conduct certain of our mining operations, and such contractors may be constrained by labor disputes, face operational difficulties or perform unsatisfactory work."

Alumina production plants

Tayan Chemical Grade Alumina Plant

Through our subsidiary, ICA, we own and operate the Tayan Chemical Grade Alumina Plant located near our Tayan Bauxite Mine in West Kalimantan, Indonesia. Our Tayan Chemical Grade Alumina Plant commenced production in January 2015. ICA was initially established as a joint venture between us and our Japanese joint venture partner, Showa Denko. Under this joint venture, we previously held 80.0% of the shares of ICA while Showa Denko held the remaining 20.0%, and ICA required consent from shareholders representing at least 84.0% of the total shareholding interests for significant financial and operating decisions. Accordingly, for the years ended December 31, 2017 and 2018, our ownership in ICA was accounted for in our financials using the equity method. In December 2018, we acquired Showa Denko's entire share ownership in ICA, upon which ICA became our wholly-owned subsidiary and we began consolidating ICA's results of operations into our accounts in accordance with SFAS 22 "Business Combination." Accordingly, for the year ended December 31, 2019, we consolidated ICA's results of operations into our accounts.

Our Tayan Chemical Grade Alumina Plant consists of a bayer process plant, a fine-hydrate plant, a white hydrate plant, a calcining plant, a utility plant, and a grinding and surface treatment facility. It produces chemical grade alumina from bauxite ore supplied by our Tayan Bauxite Mine and has a production capacity of 300,000 tonnes of chemical grade alumina per year. For the year ended December 31, 2019, we produced and sold 104,537 tonnes and 70,517 tonnes of alumina, respectively, at our Tayan Chemical Grade Alumina Plant, representing our entire alumina production and sales volumes for the year.

The following table sets forth certain production and sales information on the alumina produced at our Tayan Chemical Grade Alumina Plant, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Sales (Rp. in billions)	—	—	547.3
Average selling price (Rp. in millions/tonne) ⁽¹⁾	—	—	7.7
Cash cost (Rp. in millions/tonne) ⁽²⁾	—	—	5.4

Notes:

- (1) Average selling price per tonne is calculated by dividing sales by sales volumes for the relevant years.
- (2) Cash cost per tonne is calculated as (a) production costs less (b) depreciation related to the production of alumina, divided by (c) alumina production volumes for the relevant years.

Mempawah Smelter Grade Alumina Refinery project

In June 2018, Inalum and Antam established a joint venture, PT Borneo Alumina Indonesia (“BAI”) to construct the Mempawah Smelter Grade Alumina Refinery, a production plant for the processing of bauxite ore into smelter grade alumina, in Mempawah, West Kalimantan, Indonesia. Inalum and Antam hold a 60.0% and 40.0% interest, respectively, in BAI. The planned production capacity of the Mempawah Smelter Grade Alumina Refinery is approximately 1.0 million tonnes of smelter grade alumina per year. We plan to use the bauxite ore produced by our bauxite business carried out by Antam as ore feed for the plant, and to use the majority of the alumina produced at the plant as supply for our aluminum smelting business carried out by Inalum, which owns the only aluminum refining plant in Indonesia, see “— Our Aluminum Smelting Business.” We have procured the EPC contractors for the construction of the Mempawah Smelter Grade Alumina Refinery, and expect to commence construction in the second half of 2020. We expect to complete construction of and commence operations at the Mempawah Smelter Grade Refinery by the end of 2022. However, as the EPC contractors for the Mempawah Smelter Grade Refinery are based in China and continue to be affected by the current COVID-19 pandemic, we may experience delay to our planned timeline for the Mempawah Smelter Grade Refinery, see “Risk Factors — Risks Common to All Our Businesses — Outbreak of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia, and elsewhere may adversely impact our business, financial condition and results of operations.”

Our total planned capital expenditure for the Mempawah Smelter Grade Alumina Refinery is approximately Rp.1,566.0 billion, Rp.1,464.5 billion and Rp.850.4 billion for the years ending December 31, 2020, 2021 and 2022, respectively. We expect to finance the capital expenditures using cash flow generated from operations and Inalum’s Senior Revolving Credit Facility, see “Description of Material Indebtedness — Recent Developments — Inalum’s Senior Revolving Credit Facility.”

See “Risk Factors — Risks Common to All Our Mining Businesses — The mining industry is capital intensive and we may experience limited availability of funds,” and “Management’s Discussion and Analysis of Financial Condition and Results of Operation — Capital Expenditures.”

Alumina production process

Alumina is refined from bauxite, an aluminum-bearing ore, through a chemical refining process. Most of the bauxite ore produced at our Tayan Bauxite Mine, which we use as raw material for the production of chemical grade alumina at our Tayan Chemical Grade Alumina Plant, contains gibbsite bauxite, which contains relatively

high alumina content. At our Tayan Chemical Grade Alumina Plant, alumina is extracted from bauxite using the Bayer process. The Bayer process involves the following essential stages:

- *Liquor clarification.* Liquor clarification begins with the grinding of bauxite ore in a rod mill. The material produced from the rod mill is then mixed with caustic soda solution, which has been heated to elevated temperatures, to dissolve the available alumina. The soluble alumina minerals are now in the liquid phase while the minerals in the bauxite remain predominantly in the solid phase, commonly referred to as red mud. After temperature reduction, the soluble alumina is then separated from the red mud through a settling and filtration process, yielding an alumina-rich “liquor.”
- *Precipitation.* The alumina-rich liquor is cooled and seeded, causing alumina trihydrate to crystallize. Alumina trihydrate is alumina that is chemically bound to water. The alumina trihydrate crystals are separated from the spent liquor through a filtration process prior to the calcination process.
- *Calcination.* The alumina trihydrate crystals are washed to remove impurities and then heated to approximately 1,050 degrees Celsius to 1,350 degrees Celsius to remove the chemically bound water. The final product is alumina, which is cooled in a planetary cooler and then stored in silos.

Our bauxite and alumina products

We sell processed bauxite ore which we extract from our Tayan Bauxite Mine, as well as chemical grade alumina which we produce at our Tayan Chemical Grade Alumina Plant operated by Antam’s subsidiary, ICA.

- *Bauxite.* We mine and sell bauxite ore of varying alumina content based on our customers’ requirements, although we typically sell bauxite ore with a minimum alumina content of 42.0%. Bauxite ore is used as the primary raw material in the production of alumina. For the years ended December 31, 2017, 2018 and 2019, our revenue from sale of bauxite ore accounted for 100.0%, 100.0% and 58.1%, respectively, of our total revenue from sale of bauxite and alumina.
- *Alumina.* We produce chemical grade alumina in the form of aluminum hydroxide of minimum 99.7% purity and aluminum oxide of minimum 99.2% purity. Alumina is used as the primary raw material in the refractory, ceramics and polishing industries. For the year ended December 31, 2019, our revenue from sale of alumina accounted for 41.9% of our total revenue from sale of bauxite and alumina. Prior to 2019, ICA was an unconsolidated joint venture and, as a result, our revenue from sale of alumina through ICA was accounted for in our financials using the equity method.

Prior to 2017, we sold all our bauxite ore domestically to ICA for use as ore feed at our Tayan Chemical Grade Alumina Plant. In April 2017, we obtained a mineral export license for our bauxite ore and, in June 2017, we commenced exporting our bauxite ore. Pursuant to Government regulations issued in 2017, we are allowed to export certain types of processed and/or refined mining products subject to certain processing and refining requirements, see “Indonesian Regulatory Framework — Mining Regulation — Export licensing — Mineral export license.” Accordingly, since 2017, we sell the majority of our bauxite ore in the international market, predominantly to China, see “Risk Factors — Risks Common to All Our Businesses — Outbreak of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia, and elsewhere may adversely impact our business, financial condition and results of operations.” For the years ended December 31, 2017, 2018 and 2019, our revenue from bauxite ore export sales represented 93.6%, 96.4% and 100.0%, respectively, of our total revenue from sale of bauxite ore.

We sell the majority of our alumina products in the international market, including South Korea, Japan and China. For the year ended December 31, 2019, our revenue from alumina export sales represented 73.7% of our total revenue from sale of alumina.

Quality control

We have implemented comprehensive quality assurance and monitoring procedures to ensure that our products meet our stringent quality control standards and the expectations and requirements of our customers.

Our quality assurance system encompasses stringent quality control checks at each stage of our production process, from procurement and processing of the raw materials, to the inspection of the end product. Our quality control department monitors the internal production process, storage and delivery of raw materials and products as well as conduct on-site inspections from time to time. It closely monitors the various production process by taking samples at difference checkpoints for examination at our laboratories. We keep our production records to facilitate the continued improvement of our quality control management systems. In addition, as part of our quality control policies, we require that all our contractors possess the requisite qualifications for undertaking their respective works in exploration, mining, processing or production. Our quality assurance procedures are subject to semi-annual internal quality audits by a team of trained internal quality auditors. Surveillance audits and re-certification audits are carried out annually by SAI Global and TUV Rheinland, internationally accredited external ISO auditors, to ensure we comply with the certified standards.

As of December 31, 2019, we have received the following quality assurance certifications and awards in respect of our bauxite production processes:

No.	Certification/award	Awarding body/authority	Validity period of certificate/award	Process awarded
1.	ISO 9001:2015 (Quality Management System)	SAI Global	Until September 14, 2021	Mining operations at our Tayan Bauxite Mine
2.	ISO 14001:2015 (Environmental Management System)	SAI Global	Until September 14, 2021	Mining operations at our Tayan Bauxite Mine
3.	ISO 18001:2007 (Occupational, Health and Safety Management System)	SAI Global	Until March 11, 2021	Mining operations at our Tayan Bauxite Mine
4.	GREEN PROPER (Silver Environment Award)	MOEF	Awarded on December 21, 2018	Mining operations by our Tayan Bauxite Mine
5.	PRATAMA Award (Bronze) the Mining Environmental Management Category for Holders of Mining Business Permits for 2018	MEMR	Awarded on May 8, 2018	Mining operations by our Tayan Bauxite Mine
6.	UTAMA Award (Silver) on Mining Safety Management Category of Mining Business Permits (IUP) and Special Mining Operation Permits for Processing and Refinery for 2018	MEMR	Awarded on May 8, 2018	Tayan Bauxite Mine

As of December 31, 2019, we have received the following quality assurance certifications and awards in respect of our alumina production processes:

No.	Certification/award	Awarding body/authority	Validity period of certificate/award	Process awarded
1.	ISO 9001:2008 (Quality Management System)	TUV Rheinland	Until September 14, 2018 ⁽¹⁾	Processing, quality control, warehouse and shipping of chemical grade alumina products
2.	PRATAMA Award (Bronze) on Mining Safety Management Category of Special Production Enterprises Mining Permits for 2018	MEMR	Awarded on May 8, 2018	Chemical grade alumina plant operations

Note:

(1) We are in the process of upgrading our quality management system to ISO 9001:2015 and expect to obtain certification by mid-2020.

Our Aluminum Smelting Business

We produce, smelt and sell aluminum ingots, aluminum billets and aluminum alloys. We are the second largest aluminum producer in Southeast Asia in terms of aluminum production volume in the year ended December 31, 2019, according to CRU.

For the year ended December 31, 2019, our aggregate aluminum production volume and sales volume was 249,531 tonnes and 254,083 tonnes, respectively. For the years ended December 31, 2017, 2018 and 2019, our revenue from sale of aluminum products was Rp.5,744.3 billion, Rp.7,802.3 billion and Rp.6,910.2 billion (US\$497.1 million), respectively, representing 12.2%, 12.0% and 8.6%, respectively, of our total revenue.

Aluminum production plants and supporting facilities

Our key aluminum production plants and supporting facilities are (i) our aluminum smelter, (ii) casting plant, (iii) power plants, (iv) regulating dams and (v) ports.

Aluminum smelter

Our aluminum smelter at Kuala Tanjung, North Sumatra, comprises the following:

Reduction plant. We smelt alumina into primary aluminum at our reduction plant which consists of three reduction lines, each with 170 reduction cells. The following table sets forth the annual capacity, production volume and utilization rate of our reduction plant, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Production capacity (tonnes/year)	260,000	260,000	260,000
Production volume (tonne)	218,816	242,043	249,531
Utilization rate (%)	84.2	93.1	96.3

The following table sets forth certain production and sales information on the aluminum produced at our reduction plant, for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
Average selling price (Rp. in millions/tonne) ⁽¹⁾	27.7	31.6	26.9
Cash cost (Rp. in millions/tonne) ⁽²⁾	16.6	21.2	21.3

Notes:

(1) Average selling price per tonne is calculated by dividing sales by sales volumes for the relevant years.

(2) Cash cost per tonne is calculated as (a) production costs less (b) depreciation related to the production of aluminum, divided by (c) aluminum production volume for the relevant years.

Anode plant. We produce anode assemblies used in the electrolytic reduction process of alumina, at our anode plant which consists of three main facilities: the carbon plant where green anodes are produced, the baking plant where the green anodes are converted into baked anodes and the rodding plant where the baked anodes are attached with rods to form anode assemblies.

Gas cleaning system. Our gas cleaning system consists of 27 units of dry scrubbing chambers which are used to react alumina with hydrogen fluoride.

Casting plant

We cast molten aluminum into aluminum ingots, aluminum extrusion billets and aluminum foundry alloys at our casting plant located in Kuala Tanjung, North Sumatra. Our casting plant consists of one melting furnace with a capacity of 30 tonnes and nine holding furnaces with a capacity of 40 tonnes each. In April 2016 and May 2016, we installed our first extrusion billet casting line and our first foundry alloy casting line, respectively, for the production of aluminum extrusion billets and aluminum foundry alloys, respectively. We now have five aluminum ingot casting lines with a total annual production capacity of 180,000 tonnes, one extrusion billet casting line with an annual production capacity of 30,000 tonnes and one foundry alloy casting line with an annual production capacity of 90,000 tonnes installed at our casting plant.

Hydroelectric power plants

We own and operate two hydroelectric power plants located along the Asahan River at the Southeast part of Lake Toba, our Siguragura Power Plant and Tangga Power Plant. The power generated by both power plants is transmitted to our aluminum smelter to provide power for our production process. Our Siguragura Power Plant is installed with four generators sets with a total installed capacity of 286MW and our Tangga Power Plant is installed with four generator sets with a total installed capacity of 317MW. See “Risk Factors — Risks Relating to Our Aluminum Smelting Business — Our aluminum smelting business may be adversely affected by interruptions in our supply of electricity.”

Regulating dams

We own and operate three dams, the Siruar Dam located approximately 14.5 km from Lake Toba and the Siguragura Dam located approximately 8.8 km downstream from the Siruar Dam, both of which are used to regulate the water flow to our Siguragura Power Plant, as well as, the Tangga Dam located approximately 4.9 km downstream from our Siguragura Power Plant, which is used to regulate the water flow to our Tangga Power Plant.

Port

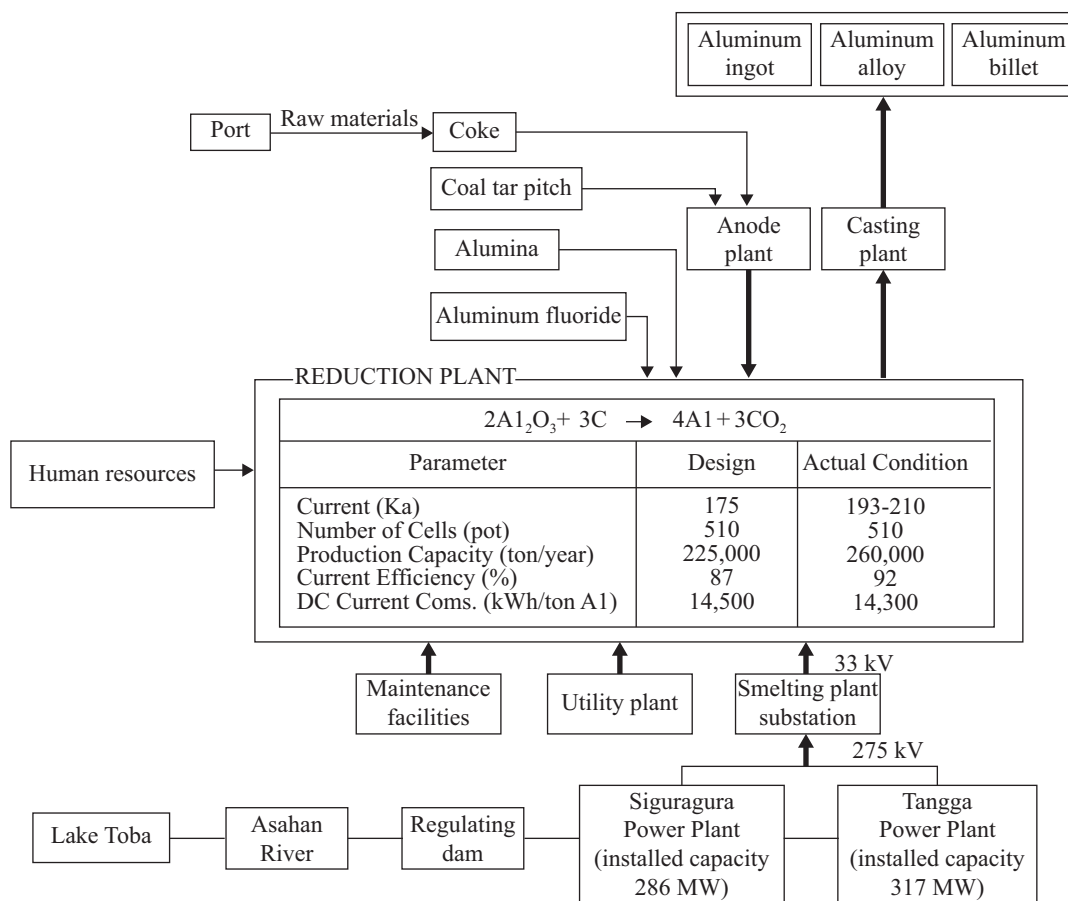
We own and operate two jetties at a port in Kuala Tanjung, North Sumatra, which is connected to our aluminum smelter by a 2.5 km long offshore trestle. We use one jetty for unloading our raw materials used in the production process of our aluminum products and the other jetty for loading our finished aluminum products for shipping to our customers.

Other supporting facilities

In addition to our main production facilities, we own a residential camp near our hydroelectric power plants (the “Paritohan Residential Camp”), which spans a total area of approximately 90 hectares and comprises 180 houses and 12 dormitories. The Paritohan Residential Camp serves as a residential area for our employees and has various facilities, including a sports center, a school, a hospital, places of worship and a post office. We also own a residential complex located within 14.0 km from our aluminum smelter (the “Tanjung Gading Residential Complex”), which spans a total area of approximately 200 hectares and comprises 1,340 houses and seven dormitories. The Tanjung Gading Residential Complex serves as a residential area for our employees and has similar facilities to the Paritohan Residential Camp.

Aluminum production process

Our aluminum products are produced through reduction of alumina at our reduction plant and casting of the primary aluminum at our casting plant. The following diagram sets forth the principal stages of our production process of our aluminum products.



We smelt alumina into primary aluminum through electrolytic reduction in our reduction plant. The electrolytic process takes place in a reduction cell lined with carbon cathodes and refractory materials. The raw materials used in the production of aluminum, such as alumina, aluminum fluoride, coke and coal tar pitch, are unloaded at our port at Kuala Tanjung, and loaded to silos with conveyor belts. The alumina in the silo is then flowed to a dry scrubber system to be reacted with hydrogen fluoride and the reacted alumina is then poured into a reduction cell.

Coke from the silo is mixed with carbon anode butt and preheated in our preheating machine which has a capacity of 25 tonnes. These materials are then mixed with pitch as binder to produce green anode paste which is then converted to green anode blocks in a vibro-compactor. These green anodes are baked in the baking furnace and the resulting baked anodes are transported to the anode rodding plant to be attached with rods to form anode assemblies. The anode assemblies are transported to the reduction plant by car to be used as electrodes in the electrolysis process. In the reduction cells, powerful electric currents are passed through to convert the alumina into molten aluminum. The molten aluminum from the reduction plant is transported to the casting plant by car to be casted into aluminum ingots, aluminum billets and aluminum alloys.

Our aluminum products

We produce the following types of aluminum ingots, aluminum extrusion billets and aluminum foundry alloys for sale in both the domestic and international markets:

- *Aluminum ingot.* We produce and sell aluminum ingots weighing 22.7kg each, with two different quality standards, namely aluminum ingots which consist of 99.9% and 99.7% aluminum content. Our aluminum ingots have been listed on the LME since September 23, 1987.
- *Aluminum extrusion billet.* We produce the 6000 series aluminum extrusion billets of various diameters, namely five inches, seven inches and eight inches and customized lengths ranging from 400mm to 5,800mm.
- *Aluminum foundry alloy.* We produce A356 aluminum foundry alloys which weigh approximately 10kg each.

Quality control

We have established and implemented strict quality control systems at various stages of our production processes for our various aluminum products, in accordance with applicable industry standards. Our aluminum quality management team conducts regular checks on each batch of aluminum products, and our laboratory where we conduct our internal quality control testing has been certified with ISO 17025:2008 by the Indonesia National Accreditation Committee. In addition, we implement an international standard quality management system, ISO 9001:2015, which is subject to semi-annual surveillance audits by and certified by SGS Indonesia, an independent quality control inspection and certification company.

Aluminum development projects

As part of our expansion plans, we are currently engaged in the following key development projects which are in various stages of development:

Reduction plant upgrading project

We are in the process of upgrading our reduction plant at our existing aluminum smelter at Kuala Tanjung to increase its production capacity from 260 ktpa to 280 ktpa. As part of the upgrading plan, we plan to implement the reduction cell technology developed by the Shenyang Aluminium & Magnesium Engineering & Research Institute (“SAMI”) at one of our three existing reduction lines. We expect to commence the upgrading works at our reduction plant by the end of 2020, and expect to complete the upgrade by the end of 2022. However, as SAMI is based in China and continues to be affected by the current COVID-19 pandemic, we may experience delay to our planned timeline for the upgrading works at our reduction plant, see “Risk Factors — Risks Common to All Our Businesses — Outbreak of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia, and elsewhere may adversely impact our business, financial condition and results of operations.” Our total planned capital expenditure for the upgrade of our reduction plant at Kuala Tanjung is approximately US\$53.8 million and US\$32.3 million for the years ending December 31, 2020 and 2022, respectively. We have no planned capital expenditure for the upgrade of our reduction plant for the year ending December 31, 2021.

Aluminum recycle project

In October 2019, we acquired an idle primary aluminum billet plant located next to our existing aluminum smelter in Kuala Tanjung, from PT Asahan Aluminium Alloys in order to convert it into a secondary aluminum billet plant. We plan to commence the remodeling of the plant in the second half of 2020 and expect the plant to be completed and commence commercial production in the fourth quarter of 2022. The planned annual production capacity of the secondary aluminum billet plant is approximately 50,000 tonnes of secondary aluminum billet. Our total planned capital expenditure for the aluminum recycle project is approximately US\$5.7 million, US\$7.9 million and US\$11.8 million for the years ending 2020, 2021 and 2022, respectively.

Calcined petroleum coke plant project

In December 2019, we entered into a joint venture development agreement with Pertamina to establish a joint venture for the construction of a calcined petroleum coke plant (the “CPC Plant”) in Kuala Tanjung, Sumatra. Under the terms of the agreement, Pertamina will own 75.0% of the CPC Plant and Inalum will own the remaining 25.0%. The CPC Plant is expected to supply calcined petroleum coke to our anode plant in Kuala Tanjung as raw material in our aluminum production process, thereby reducing our cost of raw materials and ensuring stability in supply of coke feed to our anode plant, and to have an annual production capacity of 300 ktpa. We plan to commence construction of the CPC Plant in the second half of 2020. We expect to complete construction of and begin commercial production at the CPC Plant by the end of 2022. Our total planned capital expenditure for the CPC Plant is approximately US\$3.8 million, US\$19.1 million and US\$31.7 million for the years ending December 31, 2020, 2021 and 2022, respectively.

We expect to finance the capital expenditures for the above projects using cash flow generated from operations and bank loans. See “Risk Factors — Risks Common to All Our Businesses — We require a significant amount of working capital and may be adversely affected if we fail to maintain sufficient levels of working capital,” and “Management’s Discussion and Analysis of Financial Condition and Results of Operation — Capital Expenditures.”

Other Businesses

In addition to our sale of the products we mine and process and the aluminum we smelt, we also engage in several other businesses, including:

- ***Precious metals refining and depository services.*** We provide precious metals refining services to other third-party mining companies as well as precious metals depository services, see “— Our Gold Business — Logam Mulia Precious Metals Refinery” and “— Our Gold Business — Logam Mulia gold boutiques and depository services;”
- ***Vessel maintenance, shipbuilding and other related services.*** We provide vessel maintenance, shipbuilding and other related services through our subsidiary, PT. Dok Perkapalan Air Kantung (“DAK”);
- ***Trading.*** We trade crude palm oil in domestic markets through our subsidiary, PT Bumi Sawindo Permai (“BSP”), and tin and tin ingots in international markets including the United States and Europe through our subsidiaries, Indometal (London) Limited (“Indometal”), Timah International Investment Pte. Ltd. and Great Force Trading Limited;
- ***Logistics.*** We provide sea port services at our Tarahan Port located in Tarahan, Lampung and our Kertapati Port located in Kertapati, Palembang, which are operated by our subsidiaries, PT Pelabuhan Bukit Prima and PT Penajam Internasional Terminal (“PIT”), respectively. We also provide tugboat and sea port utility services at our port in Kuala Tanjung, North Sumatra in collaboration with PT Pelabuhan Indonesia I (Persero), one of Indonesia’s state-owned port operators;
- ***Property.*** We provide real estate services through our subsidiary, PT Timah Karya Persada Properti, which currently holds land management rights in several locations including Bekasi and Bandung;
- ***Healthcare.*** We provide healthcare services at our five pharmacies, six hospitals and 16 clinics located across Indonesia through our subsidiaries, PT Rumah Sakit Bakti Timah (“RSBT”) and PT Bukit Asam Medika, as well as one clinic we manage directly;
- ***Agriculture.*** We engage in agribusiness by developing our reclaimed post-mining land into palm plantations, fisheries and animal husbandry farms, through our subsidiaries, BSP and PT Timah Agro Manunggal; and
- ***Mining-related services.*** We provide mining services such as waste removal, land clearing, slope dozing and other related works through our subsidiary, PT Satria Bahana Sarana (“SBS”), shipping services for the transshipment of coal through our subsidiary, PT Bukit Prima Bahari, and waste management services through our joint venture company, PT Nasional Hijau Lestari (“NHL”).

For the years ended December 31, 2017, 2018 and 2019, our revenue from other businesses was Rp.904.6 billion, Rp.1,114.2 billion and Rp.1,281.3 billion (US\$92.1 million), respectively, representing 1.9%, 1.7% and 1.6%, respectively, of our total revenue.

Sales and Marketing

Coal

We market coal produced from our Tanjung Enim Coal Mine under our “BUKITASAM” brand and coal from our Bantuas Coal Mine under our “IPC” brand, which we believe are considered premium brands due to their relatively low ash and sulfur content. Our principal marketing strategy for our coal products is to explore market opportunities for long-term contracts with potential customers. We implement our strategy through market research and analysis of the regions that we serve such as by tracking the product requirements for coal consumed, and the competitive prices of coal being marketed to consumers, in a specific region or country. Our coal business management team holds a routine supply chain coordination meeting every three months during which they discuss, among other things, the development of coal market conditions and factors and changes in consumer demand, in order to determine optimum production and sales strategy. We generally set our prices with reference to the global market price of thermal coal and in response to the fluctuation of coal prices in 2017, we increased our marketing efforts by enhancing our market brand and conducting and searching for new markets to enter.

Prior to commencing a business relationship with a potential customer for our coal products, we examine the potential customer and assess its creditworthiness. If the potential customer satisfactorily meets our credit criteria, a trial shipment is sent to such potential customer to ensure that our coal products comply with the customer’s product specifications, before the rest of the shipment is delivered. We generally require our customers to either make prepayments for coal sales or purchase our coal on letter-of-credit and telegraphic transfer terms.

Gold and silver

Our principal marketing strategy for our gold products is to maintain and grow our presence in both the domestic and international markets that we serve. We implement our strategy by exploring innovative ways to break through new marketing channels and reach potential customers. For example, we exported our first precious metals product into the Japanese market in 2017. We also previously collaborated with PT Pos Indonesia (Persero), Indonesia’s state-owned postal service provider, to make our gold available for purchase in 205 post offices located throughout Indonesia in 2018 and 2019. The collaboration significantly increased our network of customers by providing nationwide public access to our gold and enabled us to serve and educate more customers who were otherwise unfamiliar with the gold industry. With respect to our silver products, we implement our strategy by collaborating with the Ministry of Trade to supply silver to domestic small and medium enterprises of silver craftsmen.

Prior to commencing a business relationship with a potential customer for our gold and silver products, we review the customer’s administrative documents and conduct further background checks if necessary. We generally require our customers to purchase our gold and silver products on letter-of-credit and telegraphic transfer terms. For our precious metal refinery services, we undertake a know-your-customer (“KYC”) process prior to commencing a business relationship with a potential customer. Our KYC process includes reviewing the customer’s licenses, permits, reports and other documents and conduct site visits to assess the customer’s facilities and activities.

Tin

We market our tin products under our “BANKA,” “MENTOK” and “KUNDUR” brands, which are registered and traded on the LME. Our principal marketing strategy for our tin products is to further our brand recognition while maintaining our current customer base. We implement our strategy by engaging in government programs for the improvement of the regional economy and education system for the communities located

around our mining operation areas, involving local communities in post-mining and reclamation services and by optimizing our partnerships with micro, small and medium-scale businesses located around our mining operations. We also directly engage with our customers by holding site visits at our tin production facilities and arranging social events for our customers to attend. We communicate information about our brand through our website and distribution of our corporate video and catalog.

We also form and continue to seek potential strategic cooperations in order to facilitate our penetration into new tin markets. For example, we have partnered with Yunnan Tin Group, our primary competitor and the world's largest tin producer, to utilize its existing brand presence in the U.S. markets in relation to the sale of our downstream products such as tin chemical and tin solder. We are also collaborating with Topwide Ventures Limited, a company domiciled in Nigeria, in relation to expanding our mining activities in Nigeria. See “— Our Tin Business — Tin development projects — Nigeria tin project.”

Our tin sales are typically conducted through a combination of short-term contracts for a period of one year and deliveries made on a monthly basis, and spot contracts. For new customers, we first enter into trial agreements and, if both parties are satisfied with the transaction, will continue the business relationship on telegraphic transfer terms. We generally accept payment by telegraphic transfer and allow customers with whom we have existing relationships to make payment for tin sales between 20 and 60 days after the date of delivery or issuance of the bill of lading. In order to minimize the risk of default, we maintain credit insurance coverage.

Nickel and ferronickel

Previously, our principal marketing strategy for our nickel and ferronickel products was to focus on maintaining a competitive position in the Asian markets that we serve including South Korea, India, China, Ukraine and Taiwan. We implemented our strategy by showing our commitment to our customers through good communication and ensuring the consistent quality of our products. However, we are no longer able to export our nickel ore as a result of recent Government regulations banning the export of nickel from Indonesia effective January 1, 2020, see “Indonesian Regulatory Framework — Mining Regulation — Export licensing — Mineral export license” and “Management’s Discussion and Analysis — Factors Affecting Our Business and Results of Operations — Government policies and changes in law.” As such, our new principal marketing strategy for our nickel and ferronickel products is to focus on providing excellent quality products and services to our existing domestic customers.

Prior to commencing a business relationship with a potential customer for our nickel and ferronickel products, we review the customer’s administrative documents and conduct further background checks if necessary. Our ferronickel sales are typically conducted through short-term contracts for periods of less than one year, while our nickel sales are generally conducted by way of auction. We generally require our customers to purchase our nickel and ferronickel products on letter-of-credit and telegraphic transfer terms.

Bauxite and alumina

Our principal marketing strategy for our bauxite and alumina products involves maintaining strong relationships with our customers. We implement our strategy by pricing our products competitively as well as ensuring the consistent quality of our products and that we always honor all aspects of our delivery commitments to our customers.

Prior to commencing a business relationship with a potential customer for our bauxite and alumina products, we review the customer’s administrative documents and conduct further background checks if necessary. We generally require our customers to purchase our bauxite and alumina products on letter-of-credit and telegraphic transfer terms.

Aluminum

Our principal marketing strategy for our aluminum products involves engaging directly with existing and potential customers in Indonesia. We implement our strategy by inviting customers to visit our smelter and

power plants, allowing customers to sample our aluminum products, holding dinner gatherings with our customers and providing financial aid and sponsoring the business activities of our customers. Marketing and sales activities with respect to our end-user international customers are conducted through direct communication with the end-user or through traders. We communicate information about our products through periodic distribution of brochures to existing, prospective and potential customers in both our domestic and international markets. In addition, we conduct surveys to assess customer satisfaction with our aluminum products and how we can improve our product quality and services.

Prior to commencing a business relationship with a potential customer for our aluminum products, we review the licenses, permits and other administrative documents of the customer as well as visit the customer's plant sites to assess their facilities and activities. In order to minimize our credit risk, we generally require customers of our aluminum products to make payment by cash in advance, a letter of credit or documents against acceptance, with tenors of up to 180 days.

Customers

With the exception of our coal products, a substantial amount of which we sell to PLN (including its subsidiary, Indonesia Power), we do not depend on any particular customers for the sale of our other products. See “— Coal — Coal offtake agreements with PLN.” As of December 31, 2019, our largest customers for our other products was ICBC Standard Bank PLC for our gold and silver products, Raffemet Pte Ltd for our refined tin products, Trafigura Asia Trading Pte. Ltd. for our nickel and ferronickel products, Alakasa Company Limited for our bauxite products, Daehan Ceramics Co., Ltd. for our alumina products, and PT Tembaga Mulia Semanan Tbk for our aluminum products. Aggregate sales to these customers, including PLN, accounted for 27.9%, 23.3% and 32.6% of our total revenue for the years ended December 31, 2017, 2018 and 2019, respectively.

Coal

Our major customers for our coal products primarily consist of electricity suppliers and commodity traders. We sell a substantial amount of our coal on a long-term offtake basis to PLN, Indonesia's state-owned electricity supplier. For the years ended December 31, 2017, 2018 and 2019, revenue from aggregate sales of coal to PLN (including its subsidiary, Indonesia Power) represented 50.2%, 43.0% and 51.2%, respectively, of our total revenue from coal sales. As of December 31, 2019, we had a total of 60 customers for our coal products, primarily located in Indonesia, India, Hong Kong, Japan, South Korea, Taiwan and the Philippines. The following table sets forth the revenues from our five largest customers for our coal products for the years indicated, in absolute terms and expressed as a percentage of our revenue from sale of coal.

Customer	Length of relationship (years)	Nature of business	For the year ended December 31,							
			2017		2018		2019		(US\$ in millions)	
			(Rp. in billions)	(%)	(Rp. in billions)	(%)	(Rp. in billions)	(%)		
PLN ⁽¹⁾	26	Electricity supplier	6,331.4	33.1	6,109.2	29.4	6,941.1	32.4	499.3	
Indonesia Power ⁽¹⁾	11	Electricity supplier	3,276.2	17.1	2,828.6	13.6	3,706.3	17.3	266.6	
Trafigura Pte. Ltd.	2	Trader	—	—	1,969.2	9.5	3,263.2	15.3	234.8	
Idemitsu Kosan Co. Ltd.	23	Trader	—	—	—	—	796.4	3.7	57.3	
Galaxy Energy and Resources	3	Trader	—	—	—	—	707.5	3.3	50.9	
Noble Resources International	6	Trader	1,368.9	7.2	1,864.9	9.0	—	—	—	
Adani Global Pte. Ltd.	6	Trader	1,506.3	7.9	1,405.1	6.8	—	—	—	
Dragon Energy Corp.	6	Trader	921.1	4.8	—	—	—	—	—	
Total			13,403.9	70.1	14,177.0	68.3	15,414.5	72.0	1,108.9	

Note:

(1) Indonesia Power is a subsidiary of PLN and, unless the context otherwise requires, references to PLN in this Offering Memorandum mean PLN and its subsidiaries, including Indonesia Power.

Coal offtake agreements with PLN

We have collaborated with PLN, Indonesia's state-owned electricity supplier, our primary offtaker of the coal produced from our Tanjung Enim Coal Mine, since the inception of our coal production business. We entered into our first long-term coal supply agreement with PLN on May 21, 2004, under which we delivered an aggregate volume of 9.9 million tonnes of coal between 2004 and 2013. Pursuant to four existing coal supply agreements dated September 29, 2004, October 14, 2014, January 28, 2013 and December 28, 2012, our coal currently fuels 18 of PLN's thermal power plant units. See "Related-Party Transactions — Agreements with PLN."

We generally renew our coal agreements with PLN for 10-year periods. The volume of coal to be supplied for a given year is confirmed by PLN at the beginning of each year, taking into account the indicative volume to be supplied as set forth in the respective agreement. Aggregate volume of coal sold to PLN, was approximately 12.8 million tonnes, 12.2 million tonnes and 13.9 million tonnes for the years ended December 31, 2017, 2018 and 2019, respectively. The price to be paid for each tonne of coal supplied to PLN in a given year is determined at the end of the preceding year, with the possibility of varying rates for each quarter, taking into account the market price for coal, the total volume of coal supplied, the coal benchmark price set by the Government (*Harga Batubara Acuan* or "HBA") and other market coal price benchmarks such as the Indonesian Coal Index, the Global Coal Index, the Newcastle Export Index and Platts Benchmark Price. See "Indonesian Regulatory Framework — Mining Regulation — Sales price controls — Coal sales price controls."

Gold and silver

Our major customers for our gold and silver products primarily consist of banks, trading companies and jewelry stores. As of December 31, 2019, we had 92 institutional customers and over one thousand retail customers for our gold and silver products, primarily located in Indonesia and Singapore. The following table sets forth the revenues from our five largest customers for our gold and silver products, for the years indicated, in absolute terms and expressed as a percentage of our revenue from sale of gold and silver products.

Customer	Length of relationship (years)	Nature of business	For the year ended December 31,						
			2017		2018		2019		
			(Rp. in billions)	(%)	(Rp. in billions)	(%)	(Rp. in billions)	(%)	(US\$ in millions)
ICBC Standard Bank PLC	11	Banking	2,820.6	37.6	3,857.6	22.8	12,079.5	53.4	868.9
Jonathan Suryadi	2	Retail customer	—	—	840.5	5.0	1,020.2	4.5	73.4
Lukmantara Suryadi	2	Retail customer	—	—	869.3	5.2	945.5	4.2	68.0
Sumarlin Subandi, IR	1	Retail customer	—	—	—	—	653.1	2.9	47.0
Christine Effendi	1	Retail customer	—	—	—	—	644.7	2.8	46.4
Budi Said	1	Financial customer	—	—	3,576.3	21.3	—	—	—
Pegadaian	5	services	671.5	9.0	565.8	3.4	—	—	—
Standard Chartered Singapore ...	4	Banking	692.3	9.2	—	—	—	—	—
Samsung Gold Exchange Co., Ltd.	2	Trading	173.4	2.3	—	—	—	—	—
MKK Co., Ltd	2	Trading	2.9	0.0	—	—	—	—	—
Total			4,360.7	58.1	9,709.5	57.7	15,343.0	67.8	1,103.7

Tin

Our major customers for our tin products primarily consist of trading companies with whom we have built long-term business relationships with. As of December 31, 2019, we had 78 customers for our tin products, primarily located in Asia, the United States and Europe. The following table sets forth the revenues from our five largest customers for our tin products for the years indicated, in absolute terms and expressed as a percentage of our revenue from sale of tin products.

Customer	Length of relationship (years)	Nature of business	For the year ended December 31,						
			2017		2018		2019		
			(Rp. in billions)	(%)	(Rp. in billions)	(%)	(Rp. in billions)	(%)	(US\$ in millions)
Raffemet Pte Ltd	8	Trading	—	—	1,233.5	11.7	2,645.4	14.3	190.3
Toyota Tsusho Asia Pacific Pte. Ltd.	6	Trading	1,304.2	14.6	1,755.2	16.6	2,134.5	11.6	153.6
Mitsubishi Corporation Unimetals Ltd.	43	Trading	1,273.5	14.3	1,380.1	13.0	1,402.0	7.6	100.9
Amalgamated Metal Corp plc ...	1	Trading	—	—	—	—	1,176.9	6.4	84.7
Posco Daewoo Malaysia Sdn. Bhd.	7	Trading	—	—	—	—	888.0	4.8	63.9
Posco Daewoo Corporation	39	Trading	1,182.7	13.3	1,283.6	12.1	—	—	—
Traxys Europe S.A.	30	Trading	392.1	4.4	434.9	4.1	—	—	—
TCC Trading Co.	15	Trading	427.5	4.8	—	—	—	—	—
Total			4,580.0	51.4	6,087.3	57.5	8,246.8	44.7	593.4

Nickel and ferronickel

For the years ended December 31, 2017, 2018 and 2019, our major customers for our nickel products primarily consisted of stainless steel producers and commodity traders located in China, India, South Korea, Ukraine and Taiwan. However, we are no longer able to export our nickel ore as a result of recent Government regulations banning the export of nickel from Indonesia effective January 1, 2020, see “Indonesian Regulatory Framework — Mining Regulation — Export licensing — Mineral export license” and “Management’s Discussion and Analysis — Factors Affecting Our Business and Results of Operations — Government policies and changes in law.” Our major customers for our ferronickel products primarily consist of commodity traders located in India and Singapore. The following table sets forth the revenues from our five largest customers for our nickel and ferronickel products for the years indicated, in absolute terms and expressed as a percentage of our revenue from sale of nickel and ferronickel products.

Customer	Length of relationship (years)	Nature of business	For the year ended December 31,							
			2017		2018		2019		(US\$ in millions)	
			(Rp. in billions)	(%)	(Rp. in billions)	(%)	(Rp. in billions)	(%)		
Trafigura Asia Trading Pte. Ltd. . .	3	Trading	—	—	—	—	799.8	9.2	57.5	
Singapore Zhimei Pte Ltd.	1	Trading	—	—	—	—	787.8	9.1	56.7	
Regent Sound Limited	5	Trading	—	—	—	—	695.3	8.0	50.0	
Mitsui & Co. (Asia Pacific) Pte. Ltd.	5	Trading	—	—	—	—	689.9	8.0	49.6	
Spring Treasure Global Limited . . .	5	Trading Steel	—	—	514.9	6.7	618.6	7.2	44.5	
Jindal Stainless Limited	12	manufacturer	760.0	16.6	1,147.1	14.9	—	—	—	
Tisco Trading (HK) Ltd	3	Trading	—	—	886.3	11.6	—	—	—	
CNMC International Trading Co., Ltd.	2	Trading Steel	—	—	621.9	8.1	—	—	—	
POSCO	11	manufacturer Steel	644.8	14.0	573.3	7.5	—	—	—	
Taiyuan Iron and Steel Co. Ltd. . . .	5	manufacturer Steel	623.2	13.6	—	—	—	—	—	
Yieh United Steel Corporation	4	manufacturer Steel	470.1	10.2	—	—	—	—	—	
SeAH Changwon Integrated Special Steel Corporation	5	manufacturer	261.4	5.7	—	—	—	—	—	
Total			2,759.5	60.1	3,743.5	48.8	3,591.4	41.5	258.3	

Bauxite and alumina

Our customers for our bauxite products consist of commodity traders and alumina refineries located in China. The following table sets forth the revenues from all our customers for our bauxite products for the years indicated, in absolute terms and expressed as a percentage of our revenue from sale of bauxite products.

Customer	Length of relationship (years)	Nature of business	For the year ended December 31,							
			2017		2018		2019		(US\$ in millions)	
			(Rp. in billions)	(%)	(Rp. in billions)	(%)	(Rp. in billions)	(%)		
Alakasa Company Limited	3	Trading	76.6	19.3	128.1	26.5	231.0	30.5	16.6	
King Metore International Pte. Ltd.	1	Trading	—	—	—	—	198.5	26.2	14.3	
Zhejiang Metals and Materials Company	2	Trading	—	—	136.6	28.3	198.0	26.1	14.2	
Sojitz Corporation	3	Trading	98.4	24.7	112.7	23.4	106.1	14.0	7.6	
Combined Rich Company Limited	1	Trading	—	—	—	—	24.5	3.2	1.8	
		Alumina								
Shandong Xingzhen Trading Co. Ltd.	1	refinery	—	—	78.0	16.2	—	—	—	
Topsun International Group Co., Ltd	2	Trading	104.6	26.3	—	—	—	—	—	
		Alumina								
ICA ⁽¹⁾	5	refinery	25.6	6.4	17.2	3.6	—	—	—	
Benzhou Sheng Chao Trading Co., Ltd	1	Trading	92.9	23.3	—	—	—	—	—	
Total			398.1	100.0	472.6	98.0	758.1	100.0	54.5	

Note:

(1) In December 2018, ICA became Antam's wholly-owned subsidiary. See “— Our Bauxite Business — Alumina production plants — Tayan Chemical Grade Alumina Plant.”

Our major customers for our alumina products primarily consist of manufacturers in the refractory and chemical (water treatment) industries. As of December 31, 2019, we had 68 customers for our alumina products, primarily located in South Korea, Japan, China and Indonesia. The following table sets forth the revenues from our five largest customers for our alumina products for the years indicated, in absolute terms and expressed as a percentage of our revenue from sale of alumina products.

Customer	Length of relationship (years)	Nature of business	For the year ended December 31,							
			2017		2018		2019		(US\$ in millions)	
			(Rp. in billions)	(%)	(Rp. in billions)	(%)	(Rp. in billions)	(%)		
Daehan Ceramics Co., Ltd.	1	Refractory manufacturer	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	82.2	15.0	5.9	
Itochu Ceratech Corp.	1	Refractory manufacturer	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	50.5	9.2	3.6	
Foxsine (Xiamen) Materials Tech Co. Ltd	1	Trader	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	39.8	7.3	2.9	
		Chemicals								
PT. Liku Telaga	1	manufacturer	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	30.8	5.6	2.2	
		Chemicals								
Alumina Chemicals and Castables	1	manufacturer	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	22.3	4.1	1.6	
Total			—⁽¹⁾	—⁽¹⁾	—⁽¹⁾	—⁽¹⁾	225.6	41.2	16.2	

Note:

(1) In December 2018, ICA, through which we produce and sell alumina, became Antam's wholly-owned subsidiary. Prior to 2019, ICA was an unconsolidated joint venture and, as such, our revenue from sale of alumina through ICA was accounted for in our financials using the equity method. See “— Our Bauxite Business — Alumina production plants — Tayan Chemical Grade Alumina Plant.”

Aluminum

Our major customers for our aluminum products primarily consist of manufacturers of aluminum-based products and aluminum traders. As of December 31, 2019, we had 99 customers for our aluminum products, primarily located in Indonesia, Japan and Malaysia. The following table sets forth the revenues from our five largest customers for our aluminum products for the years indicated, in absolute terms and expressed as a percentage of our revenue from sale of aluminum products.

Customer	Length of relationship (years)	Nature of business	For the year ended December 31,						
			2017		2018		2019		
			(Rp. in billions)	(%)	(Rp. in billions)	(%)	(Rp. in billions)	(%)	(US\$ in millions)
PT Tembaga Mulia Semanan Tbk.	17	Cable manufacturer	308.7	5.4	815.6	10.5	710.9	10.3	51.1
PT Indonesia Smelting Technology	13	Molten alloy production	566.1	9.8	766.5	9.8	652.2	9.4	46.9
PT Nusantara Electric	13	Cable manufacturer	—	—	—	—	491.5	7.1	35.4
PT HP Metals Indonesia	17	Aluminum extrusion	377.0	6.6	355.0	4.5	337.5	5.0	24.3
PT Intibumi Alumindotama Industry	15	Trading	—	—	—	—	334.0	4.8	24.0
Trafigura Pte Ltd	6	Trading	291.5	5.1	940.9	12.1	—	—	—
PT Alfo Citra Abadi	15	Aluminum extrusion	324.2	5.6	378.3	4.8	—	—	—
Total			1,867.5	32.5	3,256.3	41.7	2,526.1	36.6	181.7

Suppliers

We believe securing reliable suppliers for our various business segments allows us to be cost efficient and competitive in our pricing and profit margins. We have long-standing working relationships with our main suppliers, who supply us with the following services or materials:

- mining and transportation services for our coal business, such as from Pama and KAI;
- labor and security services for our gold business, such as from PT Sapta Sarana Sejahtera and PT Nawakara Perkasa Nusantara;
- fuel and shipping services for our tin business, such as from Pertamina (Persero) UPMS II Palembang and Sindo Damai Shipping Pte Ltd;
- fuel and coal for our nickel business, such as from Pertamina, PT Kaltim Prima Coal and PT Arutmin;
- heavy equipment and transshipment services for our bauxite business, such as from PT Meta Estetika Graha and PT Pelayaran Tonicogita Ekamarindo;
- fuel and coal for our alumina business, such as from PT Energi Utama Alam Mulia and Pertamina; and
- alumina and coke for our aluminum smelting business, such as from Karinya Trading Pty Ltd, Glencore International AG and Alakasa Company Limited.

While we generally use the same suppliers, we are not obligated to do so and there are numerous alternative suppliers. As such, our business operations are not dependent on any one of our suppliers. Only Pama, our mining services provider, and KAI, our transportation services provider, for our coal business, individually accounted for approximately 5.0% or more of our total cost of revenue. In order to ensure sufficient supply of the services and materials we need, we enter into long-term supply agreements for our coal transportation and mining services, fuel, alumina, coke, coal tar pitch and aluminum fluoride.

Coal

Our major suppliers for our coal business are KAI, our coal transportation services provider, and Pama, our mining services provider. See “— Our Coal Business — Third-party contractors.” The following table sets forth the amounts incurred by us for our five largest suppliers for our coal business for the years indicated, in absolute terms and expressed as a percentage of total cost of revenue for our coal business.

Supplier	Length of relationship (years)	Services/ Raw material	For the year ended December 31,						
			2017		2018		2019		(US\$ in millions)
			(Rp. in billions)	(%)	(Rp. in billions)	(%)	(Rp. in billions)	(%)	
KAI	31	Coal transportation	4,043.5	36.9	4,453.9	35.3	4,848.5	34.2	348.8
Pama	16	Mining services	2,226.3	20.3	3,062.2	24.3	3,541.2	25.0	254.7
SBS ⁽¹⁾	5	Mining services	626.2	5.7	1,145.0	9.1	1,451.5	10.3	104.4
Pertamina	31	Fuel	368.2	3.4	378.5	3.0	511.2	3.6	36.8
PT Adhi Karya (Persero) Tbk	5	Construction services	71.1	0.6	138.8	1.1	163.5	1.2	11.8
Total			7,335.3	66.9	9,178.4	72.8	10,515.9	74.3	765.5

Note:

(1) SBS is a wholly-owned subsidiary of Bukit Asam.

Gold

Our major suppliers for our gold mining business primarily consist of Indonesian suppliers of heavy equipment, labor services and security services. The following table sets forth the amounts incurred by us for our five largest suppliers for our gold mining business for the years indicated, in absolute terms and expressed as a percentage of total cost of revenue for our gold mining business.

Supplier	Length of relationship (years)	Services/ Raw material	For the year ended December 31,						
			2017		2018		2019		(US\$ in millions)
			(Rp. in billions)	(%)	(Rp. in billions)	(%)	(Rp. in billions)	(%)	
PT Sapta Sarana Sejahtera	2	Labor services	—	—	26.8	17.4	36.3	27.7	2.6
PT Nawakara Perkasa Nusantara	3	Security services	—	—	14.5	9.4	14.3	10.9	1.0
PT Rajawali JMP	3	Heavy equipment services	—	—	10.4	6.8	9.1	7.0	0.7
PT Dahana (Persero)	5	Explosive materials	11.3	0.9	8.9	5.8	7.0	5.3	0.5
PT Jasa Prima Internusa	2	Heavy equipment	—	—	4.3	2.8	6.8	5.2	0.5
PT Sentral Sumber Daya	3	Labor	29.0	2.4	—	—	—	—	—
PT Kreasitama Unggul Mandiri ...	2	Heavy equipment	14.6	1.2	—	—	—	—	—
PT SNP Indonesia ...	3	Employee transportation	10.4	0.8	—	—	—	—	—
PT Refindo Intiselaras Indonesia	6	Spare parts	4.4	0.4	—	—	—	—	—
Total			69.7	5.7	64.9	42.4	73.5	56.1	5.3

Tin

Our major suppliers for our tin business primarily consist of Indonesian suppliers of spare parts, such as machinery for our dredger vessels, gearboxes for our drilling machines and bearings. The following table sets forth the amounts incurred by us for our five largest suppliers for our tin business for the years indicated, in absolute terms and expressed as a percentage of total cost of revenue for our tin business.

Supplier	Length of relationship (years)	Services/ Raw material	For the year ended December 31,						
			2017		2018		2019		
			(Rp. in billions)	(%)	(Rp. in billions)	(%)	(Rp. in billions)	(%)	(US\$ in millions)
DAK ⁽¹⁾	15	Ship docking services	—	—	332.1	3.5	587.4	3.3	42.3
Pertamina UPMS II Palembang	13	Diesel and fuel oil	195.1	2.5	298.8	3.2	208.8	1.2	15.0
Timah International Investment Pte. Ltd. ⁽¹⁾	4	Spare parts Stripping	17.7	0.2	200.1	2.1	145.4	0.8	10.5
PT Bangun Mineral Sejahtera ..	2	services	—	—	—	—	139.4	0.4	10.0
Sindo Damai Shipping Pte Ltd	12	Shipping services	—	—	—	—	63.9	0.2	4.6
Brantas Abipraya (Persero)	1	Construction services	—	—	105.8	1.1	—	—	—
PT Elang Cakra Securindo	1	Security services	—	—	92.2	1.0	—	—	—
Jebsen & Jessen Technology Indonesia	5	Spare parts	39.7	0.5	—	—	—	—	—
PT Trakindo Utama	5	Spare parts	15.3	0.2	—	—	—	—	—
PT Tri Tunggal Sakti Mandiri ..	5	Spare parts	45.6	0.6	—	—	—	—	—
Total			313.4	4.0	1,029.0	10.9	1,144.9	5.9	82.4

Note:

(1) A wholly-owned subsidiary of Timah.

Nickel

Our major suppliers for our nickel business primarily consist of Indonesian suppliers of spare parts and heavy equipment. The following table sets forth the amounts incurred by us for our five largest suppliers for our nickel business for the years indicated, in absolute terms and expressed as a percentage of total cost of revenue for our nickel business.

Supplier	Length of relationship (years)	Services/ Raw material	For the year ended December 31,						
			2017		2018		2019		(US\$ in millions)
			(Rp. in billions)	(%)	(Rp. in billions)	(%)	(Rp. in billions)	(%)	
Pertamina	5	Fuel	686.3	21.1	1,072.8	26.6	1,036.2	22.5	74.5
Rwood Resources	4	High calorific coal	—	—	333.7	8.3	326.1	7.1	23.5
PT Surya Megah Adiperkasa	5	Low calorific coal	180.8	5.6	165.2	4.1	106.5	2.3	7.7
Elkem Carbon, Norway	5	Carbon electrode paste	—	—	—	—	18.3	0.4	1.3
PT Alberta Makmur Utama ..	5	Refractory materials	26.8	0.8	—	—	15.7	0.3	1.1
One United Ltd	5	Refractory materials	—	—	38.4	1.0	—	—	—
PT Indonesia Coal Resources ⁽¹⁾	5	Low calorific coal	—	—	35.0	0.9	—	—	—
PT Kaltim Prima Coal	5	High calorific coal	260.6	8.0	—	—	—	—	—
PT Berkah Bumi Leluhur	4	High calorific coal	19.8	0.6	—	—	—	—	—
Total			1,174.3	36.1	1,645.1	40.9	1,502.8	32.6	108.1

Note:

(1) A wholly-owned subsidiary of Antam.

Bauxite and alumina

Our major suppliers for our bauxite business primarily consist of Indonesian suppliers of heavy equipment and vehicles. The following table sets forth the amounts incurred by us for our five largest suppliers for our bauxite business for the years indicated, in absolute terms and expressed as a percentage of total cost of revenue for our bauxite business.

Supplier	Length of relationship (years)	Services/ Raw material	For the year ended December 31,						
			2017		2018		2019		(US\$ in millions)
			(Rp. in billions)	(%)	(Rp. in billions)	(%)	(Rp. in billions)	(%)	
PT Meta Estetika Graha	7	Heavy equipment	12.2	7.2	66.5	29.8	185.6	47.4	13.4
PT Pelayaran Tonicogita Ekamarindo	6	Transshipment services	31.5	18.6	44.2	19.8	110.1	28.1	7.9
PT Angkutan Lancar Pembangunan	5	Vehicle rental	—	—	—	—	18.0	4.6	1.3
PT Mitra Multi Niti Usaha ...	3	Labor services	7.1	4.1	8.0	3.6	14.6	3.7	1.1
Pertamina	5	Fuel supplier	4.3	2.5	14.6	6.5	12.1	3.1	0.9
PT. Bhakti Sasana	3	Construction services	—	—	4.6	2.0	—	—	—
CV Karya Tangguh	3	EPC contractor	0.8	0.4	—	—	—	—	—
Total			55.9	32.8	137.9	61.7	340.4	86.8	24.6

Our major suppliers for our alumina business primarily consist of Indonesian suppliers of raw materials such as coal, fuel and caustic soda. The following table sets forth the amounts incurred by us for our five largest suppliers for our alumina business for the years indicated, in absolute terms and expressed as a percentage of total cost of revenue for our alumina refining business.

Supplier	Length of relationship (years)	Services/ Raw material	For the year ended December 31,						
			2017		2018		2019		
			(Rp. in billions)	(%)	(Rp. in billions)	(%)	(Rp. in billions)	(%)	(US\$ in millions)
PT Energi Utama Alam									
Mulia	4	Coal	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	139.3	26.2	10.0
Pertamina	6	Fuel	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	82.3	15.5	5.9
PT AKR Korporindo	6	Caustic soda	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	81.8	15.4	5.9
PT Mama Mega Mandiri	5	Heavy equipment	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	30.3	5.7	2.2
PT Samudera Kapuas		Logistics							
Logistik	2	services	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	— ⁽¹⁾	30.0	5.6	2.1
Total			—⁽¹⁾	—⁽¹⁾	—⁽¹⁾	—⁽¹⁾	363.7	68.4	26.1

Note:

- (1) In December 2018, ICA, through which we produce and sell alumina, became Antam's wholly-owned subsidiary. Prior to 2019, ICA was an unconsolidated joint venture and, as such, our revenue from sale of alumina through ICA was accounted for in our financials using the equity method. See "— Our Bauxite Business — Alumina production plants — Tayan Chemical Grade Alumina Plant."

Aluminum

Our major suppliers for our aluminum smelting business primarily consist of alumina and coke traders from Indonesia, Australia and China. The following table sets forth the amounts incurred by us for our five largest suppliers for our aluminum smelting business for the years indicated, in absolute terms and expressed as a percentage of total cost of revenue for our aluminum smelting business.

Supplier	Length of relationship (years)	Services/ Raw material	For the year ended December 31,						
			2017		2018		2019		
			(Rp. in billions)	(%)	(Rp. in billions)	(%)	(Rp. in billions)	(%)	(US\$ in millions)
Karinya Trading Pty Ltd	11	Alumina	721.8	20.0	1,039.6	19.4	1,747.4	30.4	125.6
Glencore International AG ...	11	Alumina	109.7	3.0	—	—	469.3	8.2	33.7
Heiwa Pte. Ltd.	2	Alumina and coke	—	—	—	—	252.6	4.4	18.2
PT Yosomulyo Jajag	5	Coke	260.6	7.2	354.3	6.6	249.4	4.3	17.9
Alakasa Company Limited ...	20	Alumina and coke	661.2	18.3	354.6	6.6	192.9	3.4	13.9
Vitol S.A.	3	Alumina	—	—	1,027.2	19.2	—	—	—
PT Well Harvest Winning									
Alumina Refinery	2	Alumina	—	—	296.3	5.0	—	—	—
Trafigura Pte. Ltd.	7	Alumina	136.2	3.8	—	—	—	—	—
Total			1,889.5	52.3	3,072.0	56.8	2,911.6	50.7	209.3

Competition

Coal

We compete in the domestic and international coal and fossil fuel markets with other coal producers. Competition is primarily based on coal quality, price, reliability of delivery and the ability to supply coal as and when required by customers. We compete with a significant number of large Indonesian coal producers, including PT Adaro Energy Tbk, PT Kaltim Prima Coal and PT Berau Coal, and other large coal producers from

China, India and Australia, such as Yanzhou Coal Mining, Coal India Ltd and BHP Billiton Ltd. We also face competition in all markets in which we operate from providers of alternative sources of energy to coal, most significantly natural gas.

Gold and silver

We compete with leading gold and silver producers in Southeast Asia, including gold and silver producers who also own and operate mines in Indonesia, such as Agincourt Resources, which owns the Martabe gold mine in North Sumatra, and Newcrest Mining Ltd., which owns the Gosowong gold mine in North Maluku. We also face competition from Australian companies such as Kingsgate Consolidated Limited, which owns the Chatree gold mine in Thailand, and PanAust Limited, which owns the Phu Kam and Ban Houayxai mines in Laos. Competition for our gold products is primarily based on brand value and LBMA certification. Competition for our silver products is primarily based on quality and brand value.

Tin

We compete with other leading global producers of refined tin. Competition for our tin products is primarily based on tin production capacity. We compete with various tin producers from China such as Yunnan Tin, Yunnan Chengfeng and Guangxi China Tin, as well as from other countries such as Malaysia Smelting Corporation from Malaysia, Minsur S.A. from Peru and Empresa Metalurgica Vinto S.A. from Bolivia. We also face competition for our downstream tin products such as, in the case of our tin solder products, Senju Metal Industry Co., Ltd. and Alpha Assembly Solutions and, in the case of our tin chemical products, PMC Group, Galta Chemicals and Hubei Benxing Chemical Industry Co., Ltd.

Nickel and ferronickel

Previously, as we exported most of our nickel products, we primarily competed with other large international producers of nickel. However, we are no longer able to export our nickel ore as a result of recent Government regulations banning the export of nickel from Indonesia effective January 1, 2020, see “Indonesian Regulatory Framework — Mining Regulation — Export licensing — Mineral export license” and “Management’s Discussion and Analysis — Factors Affecting Our Business and Results of Operations — Government policies and changes in law.” As such, our main competitors for our nickel products are now other domestic nickel producers, such as PT Indonesia Tsingshan Stainless Steel, PT Indonesia Guang Ching Nickel and Stainless Steel Industry, and PT Virtue Dragon Nickel Industry. As all our ferronickel products are exported, we primarily compete with other large international producers of ferronickel. Competition for our nickel and ferronickel products is primarily based on the quality of our nickel, such as the nickel content of our ore. In addition, Indonesia’s geographically strategic location provides us with a competitive advantage in terms of being able to offer more competitive freight fares to leading stainless steelmakers, which are primarily located in the Southeast Asia region.

Bauxite and alumina

We compete in the domestic and international bauxite and alumina markets. Competition for our bauxite products is primarily based on price, quality and ability to sustain adequate supply to meet customer demand. Our competitors for our bauxite business primarily include domestic bauxite producers, such as Harita Group, and producers with bauxite mining operations in Australia and Brazil, such as Rio Tinto Group. Our competitors for our alumina business primarily include other alumina producers from Australia and Asia, such as Alcoa, Rio Tinto Group, CHALCO, Hindalco and Vinacomin.

Aluminum

We compete in the domestic and international aluminum markets. Competition is primarily based on the consistency of our product quality, the competitiveness of our price and payment terms and our ability to meet delivery obligations. We compete with producers from Australia, the Middle-East, Eastern Europe and Asia, such as Rio Tinto Aluminum, Emirates Global Aluminum, United Company Rusal Limited and Press Metal Berhad, respectively.

Properties

Other than our mining concessions, we hold land rights to the land on which our production facilities, power plants and other facilities are located. We do not lease any properties that are material to our operations.

Production facilities

The following table sets forth certain information relating to the main properties on which we conduct our production operations.

No.	Type of facility	Property holder	Location	Land area (hectares)	Type of land rights	Expiry of land rights
1.	Gold mining facility	Antam	Bogor, West Java	23.5	HGB ⁽¹⁾	March 22, 2037
2.	Gold mining facility	Antam	Bogor, West Java	4.5	HGB ⁽¹⁾	March 22, 2037
3.	Logam Mulia Precious Metals Refinery	Antam	Pulo Gadung, East Jakarta	3.8	HGB ⁽¹⁾	July 24, 2023
4.	Logam Mulia Precious Metals Refinery	Antam	Pulo Gadung, East Jakarta	0.3	HGB ⁽¹⁾	July 24, 2023
5.	Nickel mining facility	Antam	Pomalaa, Southeast Sulawesi	64.4	HGB ⁽¹⁾	October 25, 2023
6.	Nickel mining facility	Antam	Pomalaa, Southeast Sulawesi	52.6	HGB ⁽¹⁾	October 25, 2023
7.	Nickel mining facility	Antam	Pomalaa, Southeast Sulawesi	30.4	HGB ⁽¹⁾	October 25, 2023
8.	Nickel mining facility	Antam	Pomalaa, Southeast Sulawesi	44.6	HGB ⁽¹⁾	October 25, 2023
9.	Nickel mining facility	Antam	Pomalaa, Southeast Sulawesi	17.7	HGB ⁽¹⁾	October 25, 2023
10.	Nickel mining facility	Antam	Pomalaa, Southeast Sulawesi	14.6	HGB ⁽¹⁾	March 21, 2022
11.	Nickel mining facility	Antam	Pomalaa, Southeast Sulawesi	3.4	HGB ⁽¹⁾	October 25, 2023
12.	Nickel mining facility	Antam	East Halmahera, North Maluku	8.6	HGB ⁽¹⁾	— ⁽³⁾
13.	Nickel mining facility	Antam	East Halmahera, North Maluku	5.1	HGB ⁽¹⁾	— ⁽³⁾
14.	Nickel mining facility	Antam	East Halmahera, North Maluku	1.2	HGB ⁽¹⁾	— ⁽³⁾
15.	Kertapati coal terminal and office	Bukit Asam	Palembang, South Sumatra	9.5	HGB ⁽¹⁾	October 16, 2025
16.	Tarahan coal terminal, office and coal-fired power plant	Bukit Asam	Tarahan, Lampung	47.7	HGB ⁽¹⁾	May 7, 2027
17.	Briquettes plant and office	Bukit Asam	Gresik, East Java	14.2	HGB ⁽¹⁾	September 24, 2024
18.	Briquettes land and building	Bukit Asam	Serang, Banten	10.1	HGB ⁽¹⁾	September 24, 2024
19.	Briquettes land and building	Bukit Asam	Semarang, Central Java	4.0	HGB ⁽¹⁾	September 24, 2026
20.	Briquettes land and building	Bukit Asam	Natar, Lampung Selatan	4.9	HGB ⁽¹⁾	September 24, 2024
21.	Tin smelting facility and office complex	Timah	Kundur, Riau	0.3	HGB ⁽¹⁾	March 11, 2024
22.	Tin smelting facility and office complex	Timah	Kundur, Riau	1.0	HGB ⁽¹⁾	March 11, 2024
23.	Tin smelting facility and office complex	Timah	Kundur, Riau	1.5	HGB ⁽¹⁾	March 11, 2024
24.	Tin smelting facility and office complex	Timah	Kundur, Riau	0.5	HGB ⁽¹⁾	March 11, 2024

No.	Type of facility	Property holder	Location	Land area (hectares)	Type of land rights	Expiry of land rights
25.	Tin smelting facility and office complex	Timah	Kundur, Riau	3.5	HGB ⁽¹⁾	March 11, 2024
26.	Tin smelting facility and office complex	Timah	Kundur, Riau	1.6	HGB ⁽¹⁾	March 11, 2024
27.	Tin smelting facility and office complex	Timah	Kundur, Riau	21.4	HGB ⁽¹⁾	March 11, 2024
28.	Tin smelting facility and office complex	Timah	Kundur, Riau	2.5	HGB ⁽¹⁾	March 11, 2024
29.	Factory	Timah	Gemuruh, Riau	4.0	HGB ⁽¹⁾	October 13, 2039
30.	Ore receiving center	Timah	Belo Laut, Bangka Belitung Islands	10.0	HGB ⁽¹⁾	June 29, 2024
31.	Metallurgy complex	Timah	Sungai Baru, Bangka Belitung Islands	121.5	HGB ⁽¹⁾	September 21, 2025
32.	Docking facility	Timah	Sungai Baru, Bangka Belitung Islands	7.0	HGB ⁽¹⁾	July 20, 2030
33.	Aluminum smelters and aluminum down-stream product plants	Inalum	Batubara, North Sumatra	255.4	HPL ⁽²⁾	— ⁽³⁾

Notes:

- (1) *Hak Guna Bangunan*, or HGB, is a right to build on state-owned land. HGB title is granted for a maximum initial term of 30 years. By application to the relevant local land office upon the expiration of this initial term, HGB title may be extended for an additional term not exceeding 20 years.
- (2) *Hak Pengelolaan*, or HPL, is a right to operate state-owned land for a specific purpose as approved by the Government and granted pursuant to a Government decision. The period of the time that the HPL is granted for is determined on a case-by-case basis.
- (3) These land rights have no expiry date.

Power plants, water facilities and other supporting facilities

The following table sets forth certain information relating to our power plants, main water facilities and other key supporting facilities and infrastructure.

No.	Type of facility	Property holder	Location	Land area (hectares)	Type of land rights	Expiry of land rights
1.	Railway bridge	Bukit Asam	Tanjung Enim, South Sumatra	2.6	HGB ⁽¹⁾	February 5, 2048
2.	Railway bridge	Bukit Asam	Tanjung Enim, South Sumatra	4.8	HGB ⁽¹⁾	February 5, 2048
3.	Land for Prajin dock	Bukit Asam	Banyuasin, South Sumatra	9.1	HGB ⁽¹⁾	November 4, 2038
4.	Land for Prajin dock	Bukit Asam	Banyuasin, South Sumatra	3.1	HGB ⁽¹⁾	January 6, 2039
5.	Land for Prajin dock	Bukit Asam	Banyuasin, South Sumatra	1.3	HGB ⁽¹⁾	August 20, 2048
6.	Water reservoir	Timah	Belo Laut, Bangka Belitung Islands	5.1	HGB ⁽¹⁾	June 29, 2024
7.	Siguragura dam	Inalum	Toba Samosir, North Sumatra	0.3	HPL ⁽²⁾	— ⁽³⁾
8.	Tangga dam	Inalum	Toba Samosir, North Sumatra	27.0	HPL ⁽²⁾	— ⁽³⁾

No.	Type of facility	Property holder	Location	Land area (hectares)	Type of land rights	Expiry of land rights
9.	Spoil bank	Inalum	Toba Samosir, North Sumatra	208.2	HPL ⁽²⁾	— ⁽³⁾
10.	Siguragura tunnel	Inalum	Toba Samosir, North Sumatra	2.0	HPL ⁽²⁾	— ⁽³⁾
11.	Siguragura power station	Inalum	Toba Samosir, North Sumatra	11.9	HPL ⁽²⁾	— ⁽³⁾
12.	Transmission line	Inalum	Toba Samosir, North Sumatra	4.8	HPL ⁽²⁾	— ⁽³⁾
13.	Housing and sport facilities	Inalum	Toba Samosir, North Sumatra	75.4	HPL ⁽²⁾	— ⁽³⁾
14.	Spare parts warehouse	Inalum	Toba Samosir, North Sumatra	3.2	HPL ⁽²⁾	— ⁽³⁾
15.	Tower training	Inalum	Toba Samosir, North Sumatra	18.0	HPL ⁽²⁾	— ⁽³⁾
16.	Tangga power station	Inalum	Asahan, North Sumatra	46.5	HPL ⁽²⁾	— ⁽³⁾
17.	Transmission line	Inalum	Asahan, North Sumatra	160.5	HPL ⁽²⁾	— ⁽³⁾
18.	Transmission line	Inalum	Batubara, North Sumatra	110.1	HPL ⁽²⁾	— ⁽³⁾
19.	Water intake facility	Inalum	Batubara, North Sumatra	2.5	HPL ⁽²⁾	— ⁽³⁾
20.	Water intake facility	Inalum	Batubara, North Sumatra	3.0	HPL ⁽²⁾	— ⁽³⁾
21.	Housing, R&D facilities and other supporting premises	Inalum	Batubara, North Sumatra	258.5	HPL ⁽²⁾	— ⁽³⁾
22.	Transmission line	Inalum	Simalungun, North Sumatra	20.9	HPL ⁽²⁾	— ⁽³⁾
23.	Housing	Inalum	Jakarta, North Sumatra	0.2	HGB ⁽¹⁾	January 5, 2029
24.	Office	Inalum	Medan, North Sumatra	0.2	HGB ⁽¹⁾	May 29, 2028
25.	Housing	Inalum	Medan, North Sumatra	0.2	HGB ⁽¹⁾	October 23, 2022
26.	Housing	Inalum	Medan, North Sumatra	0.4	HGB ⁽¹⁾	January 9, 2033

Notes:

- (1) *Hak Guna Bangunan*, or HGB, is a right to build on state-owned land. HGB title is granted for a maximum initial term of 30 years. By application to the relevant local land office upon the expiration of this initial term, HGB title may be extended for an additional term not exceeding 20 years.
- (2) *Hak Pengelolaan*, or HPL, is a right to operate state-owned land for a specific purpose as approved by the Government and granted pursuant to a Government decision. The period of the time that the HPL is granted for is determined on a case-by-case basis.
- (3) These land rights have no expiry date.

Environmental, Health and Safety Compliance

We comply with Indonesian safety and health standards as set forth in the National Management System of Safety and Health (*Sistem Manajemen Keselamatan dan Kesehatan Kerja* or “SMK3”). Our third-party contractors are also required to comply with such safety standards. We conduct regular safety inspections as well as both internal and external audits to monitor and identify areas of improvement in our safety measures. In addition, we have a safety committee that reviews and provides advice on occupational safety and health issues, and conduct regular talks on workplace safety and health.

We comply with Indonesian environmental standards. We have a comprehensive environmental impact analysis and management team that guides our Group’s activities. Our environmental management policies include measures that cover the entire mining or aluminum smelting process, impact analyses on wildlife and vegetation, mine rehabilitation, tailings disposal management and mine closure planning. We collaborate with local communities surrounding our mining areas in the reclamation process and redevelopment of the land for

other purposes, such as commercial crop plantations, fish and livestock farms and recreational areas. We implement reclamation and rehabilitation of the land in consultation with the MEMR which, in turn, consults with the local government. In addition, we attempt to keep disturbed areas to a minimum and have pollution control facilities such as a gas cleaning system, closed circuit water circulation for our inland mining, and waste water treatment plants in order to mitigate the environmental impact from our operations. We have hazardous waste storage facilities for temporary placement before sending the waste to a third-party waste processing company for reuse and treatment. We have our water quality and air quality in our concession areas and production facilities periodically monitored by independent laboratories which are certified by the National Accreditation Body of Indonesia (*Komite Akreditasi Nasional* or “KAN”). We also have dust collection systems to collect and dispose of dust from our smelting and power plants.

We are required to prepare and submit a quarterly and/or biannual report, depending on the business segment, on environmental performance to the Government. The MEMR, in conjunction with the MOEF, oversees our compliance with environmental laws and regulations in Indonesia. We have, in general, complied with relevant environmental laws and regulations and no significant environmental incident has been noted.

Corporate and Social Responsibility

We engage in corporate and social responsibility (“CSR”) activities through an established CSR program under which we focus on maintaining environmental sustainability as well as on empowering and building good relationships with the communities in and around the areas in which we operate. To achieve these goals, we engage our local community through transparent disclosure of information as well as regular and open communication channels, and generally encourage employment of individuals from the local communities surrounding our mining operations. We also construct access roads, bridges and bus stops to improve accessibility, provide electricity and construct toilets, signboards and shelters, within the area surrounding our mining concession areas and production facilities.

In addition, we donate to the schools surrounding our mining concession areas and production facilities in the form of repairs to school grounds, donations of computer equipment and furniture as well as fund scholarships for students and training for teachers. We provide assistance to improve and repair places of worship such as mosques and churches. We also provide social assistance to the underprivileged communities surrounding our operations in various ways, including funding surgeries, distributing food and medicine, and holding health seminars. We assist in disaster relief by providing monetary assistance to victims of natural disasters throughout Indonesia. We also engage in environmental sustainability programs by planting trees and building artificial reefs. We support recreational and cultural activities in the communities surrounding our operations including by sponsoring sporting activities and the celebration of religious holidays, such as Lebaran and Christmas, by locals.

Insurance

We maintain insurance coverage for our employees and board of directors, vehicles, office premises and mining sites through policies issued by Indonesian insurers, which include Asuransi Jasa Indonesia, Asuransi Wahana Tata, Asuransi Kredit Indonesia, Asuransi Adira Dinamika, Asuransi Astra Buana, Jasaraharja Putra, Asuransi Jasindo Syariah, Asuransi Ramayana and Indonesia’s Social Security Health Administrator (*Badan Penyelenggara Jaminan Sosial* or “BPJS”). Our insurance coverage includes the following insurance policies:

- industrial all risks, property all risks and earthquake insurance;
- vehicle insurance for vehicles, including motorcycles and vessels, owned by us;
- heavy equipment insurance for the machinery and other equipment, owned and operated by us;
- hull insurance for the vessels owned by us;
- marine cargo insurance;
- directors’ and officers’ liability insurance;

- life group personal accidents insurance for all of our employees and directors; and
- legal and defense representation costs.

The insurance policies arranged by us do not cover liability or damage arising from acts of war and terrorism, and other customary exclusions from coverage. Under our operating agreements with our third-party mining contractors, our contractors are responsible for their own employees and they and their employees must also be covered by appropriate insurance including insurance for property and vehicles, loss and damage and third-party claims.

Intellectual Property

We hold the following intellectual property rights, which are the most significant intellectual property to our business:

Trademarks. We hold five registered trademarks on which our tin mining business is materially dependent, namely our “BANKA,” “KUNDUR,” “MENTOK,” “BANKA 99.99” and “BANKA LL” trademarks. We hold six registered trademarks on which our gold and silver, nickel and bauxite mining businesses are materially dependent, namely our “,” “,” “ANEKA TAMBANG,” “ANTAM,” “” and “” trademarks. We hold two registered trademarks on which our aluminum smelting business is materially dependent, namely our “INAL” and “INALUM” trademarks. We are in the process of registering our “MIND ID” trademark with the Directorate General of Intellectual Property.

Registered designs. We hold five registered designs on which our gold business is materially dependent, including for our gold pendant, gold pendant frame and gold bar configurations.

Employees

We had 11,429 employees (excluding PTFI, our unconsolidated subsidiary) as of December 31, 2019. The following table sets forth a breakdown of our employees by function as of the dates indicated.

	As of December 31,		
	2017	2018	2019
Operations	8,516	8,121	8,321
Finance and accounting	291	309	297
Business development	165	561	637
Sales and marketing	85	238	248
Corporate support	688	545	549
Human resources development and general affairs	499	539	471
General services	229	454	340
Supply chain and logistics	807	384	380
General management	378	237	186
Total	11,658	11,388	11,429

Most of our employees are unionized and we consider ourselves to have good relationships with the unions and our employees, which we have sought to maintain by, among other things, having regular dialogue with the union representatives. We have not experienced a major labor strike since 1999, when some of our employees protested due to dissatisfaction with the outcome of salary negotiations between us and the union representatives. The dispute arose in the background of the 1998 financial crisis and we were eventually successful in reaching an agreement with the union involving reasonable salary increases and review of employee benefit systems. See “Risk Factors — Risks Common to All Our Businesses — We may be adversely affected by labor disputes and may not be able to renew our arrangements with trade unions on favorable terms.”

Governmental Regulations and Licenses

Our operations are subject to a variety of laws and regulations promulgated by the national and local governments of each jurisdiction in which we operate. See “Indonesian Regulatory Framework.” We believe we

are in compliance in all material respects with the applicable governmental regulations in each jurisdiction in which we operate. We are not aware of any governmental proceedings or investigations to which we might become a party and which may have a material adverse effect on our properties and operations.

Various governmental, quasi-governmental and regulatory agencies require the holding of certain licenses, concessions and permits with respect to operations in the mining industry and the aluminum production industry, including mine operation licenses, forestry permits and environmental permits. Our operations are conducted under valid licenses, concessions, permits or certificates granted by the applicable regulatory body in that jurisdiction.

We maintain regular dialogue with local governments and regulatory authorities through their management teams or representatives in each jurisdiction. Ensuring compliance with the requirements and conditions for obtaining and maintaining the aforementioned licenses, concessions, permits or certificates.

Legal Proceedings

We are and, from time to time, may be a party to various legal proceedings arising in the ordinary course of our business. As of the date of this Offering Memorandum, other than as set forth below, there were no governmental, legal or arbitration proceedings (including any such proceedings that are pending or threatened of which we are aware) that may have a material effect on our financial position or profitability.

Surface Water Tax Dispute

Since 2014, we have been in dispute with the Province of North Sumatra, Indonesia concerning our local tax liability for our usage of surface water by our hydroelectric power plants. The dispute relates to the interpretation of Governor Regulation No. 24 of 2011 on Procedures for the Calculation of the Water Procurement Value, Price of Raw Water and the Base Price of Water for the Determination of Surface Water Taxes in North Sumatra dated April 8, 2011, which sets forth the method for calculating surface water tax based on the purpose of the surface water utilization. As our own hydroelectric power plants utilize surface water to generate power for our aluminum smelting facilities, we believe that the surface water tax rate applicable to us should be Rp.75.0/Kwh of electricity generated by our hydroelectric power plants. However, according to the local revenue office of Balige, North Sumatra (*Badan Pengelolaan Pajak dan Retribusi Daerah Provinsi Sumatera Utara* or “Dispenda Balige”), the calculation of surface water tax applicable to us should instead be the industrial rate applicable to private sector entities, which is calculated based on the total volume of water used in cubic meters (m³) multiplied by progressive rates of Rp.1,234/m³ to Rp.1,444/m³.

We have filed 70 objection letters against the Dispenda Balige’s local tax assessment letters with the Governor of North Sumatra, most of which have been rejected and some of which are still being processed. With respect to the rejected objection letters, we have filed 44 appeal letters to the Tax Court of Indonesia. As of December 31, 2019, out of the 44 appeal letters that we have filed to the Tax Court of Indonesia, 11 letters were rejected, 13 letters were declared to be inadmissible due to the non-fulfillment of formality requirements by the Tax Court of Indonesia, 14 letters were granted and 6 letters were still being processed. We have filed judicial review letters objecting to 24 of the rejected and inadmissible appeal letters, 19 of which have been granted by the Supreme Court of Indonesia (the “Supreme Court”) and five of which are still being processed. In order to be eligible for submission of the aforementioned appeal letters, we have paid a total of Rp.536.1 billion to the local government.

We have paid a total of Rp.141.4 billion to the local government with respect to our alleged tax liability between November 2013 and November 2019. As a result of the 19 favorable rulings that have been granted by the Supreme Court, for the year ended December 31, 2019, we recorded a gain from regional tax disputes in connection with our surface water tax dispute of Rp.931.6 billion (US\$67.0 million), which reflects amounts we previously paid to the Province of North Sumatra with respect to our alleged tax liability plus applicable interest. As of December 31, 2019, the total amount of surface water taxes still in dispute with the Dispenda Balige was Rp.1,631.4 billion (US\$117.4 million).

Antam's litigation with PT Perusahaan Toradja ("Perto")

On February 24, 2017, Perto filed a lawsuit against Antam, the Ministry of State-Owned Enterprises, the MEMR and the Ministry of Finance alleging that Perto had not been fully compensated with respect to the loss of Perto's mining assets in Pomalaa, Southeast Sulawesi. The lawsuit relates to events occurring from 1961 to 1980, during which Perto filed two lawsuits against PT Nikkel Indonesia ("Nikkel"), a company that was merged into Antam in 1968, asserting that the Government and Nikkel had unlawfully seized certain of Perto's mining assets located in Pomalaa. The two lawsuits included (i) a lawsuit in 1967 (the "1967 Case"), as a result of which Antam had been required by the Supreme Court to pay Perto, and has satisfied payment of, Rp.41.0 million and (ii) a lawsuit in 1975 (the "1975 Case"), in which Perto sought interest payments on the damages granted in the 1967 case amounting to a total of Rp.456.0 million, and which was rejected by the Supreme Court.

Under the current lawsuit, Perto is seeking (i) payment from Antam for damages amounting to a total of Rp.107.9 trillion for material losses and Rp.12.0 billion for immaterial losses incurred, (iii) a seizure of Antam's assets including, among others, Antam's head office located in South Jakarta as well as its nickel mining concession areas located in North Maluku and Northeast Sulawesi, its gold mining concession area located in Bogor and its bauxite mining concession area located in West Kalimantan and (iv) payment by Antam in the amount of Rp.100.0 billion for litigation costs incurred by Perto.

On August 15, 2018, the South Jakarta District Court rejected Perto's lawsuit on the grounds that the case had already been filed and settled in the Supreme Court under the 1967 Case and the 1975 Case. On August 29, 2018, Perto filed an appeal to the DKI Jakarta High Court and, on March 28, 2019, the DKI Jakarta High Court rejected Perto's appeal, reaffirming the decision of the South Jakarta District Court. On May 21, 2019, Perto filed a cassation to the Supreme Court to appeal the decision of the DKI Jakarta High Court and, on June 10, 2019, Antam submitted a memorandum to the Supreme Court to counter Perto's cassation filing. The cassation is still in process at the Supreme Court.

PT FREEPORT INDONESIA

In November 2017, the Government of Indonesia (the “Government”) transferred its 9.36% equity interests in PT Freeport Indonesia (“PTFI”), a limited liability organized under the laws of the Republic of Indonesia, to us. In December 2018, we completed our acquisition of a majority beneficial stake in PTFI, and we currently own 51.24% beneficial equity interests in PTFI.

Economic Interests In and Management of PTFI

Prior to our acquisition of a majority beneficial stake in PTFI in December 2018, Freeport-McMoran Inc. (“FCX”) held 90.64% equity interests in PTFI, of which 9.36% was indirectly held through FCX’s then wholly-owned subsidiary, PT Indocopper Investama (“PTII”). FCX had been managing the mining operations of PTFI since PTFI’s original CoW, which was entered into in 1967 and renewed in 1991, through which PTFI conducted its exploration, mining and production activities in Indonesia. In addition, PTFI had an unincorporated joint venture with PT Rio Tinto Indonesia (“PTRTI”), under which it is intended that PTRTI will hold, through December 31, 2022, a 40.0% interest in certain assets and production exceeding specified annual amounts of copper, gold and silver from Block A of PTFI’s CoW, and, after December 31, 2022, a 40.0% interest in all production from Block A.

In December 2018, as part of our acquisition of a majority beneficial stake in PTFI (the “PTFI Share Acquisition”), we first acquired PTII, which we renamed PT Indonesia Papua Metal dan Mineral (“IPMM”), from FCX (the “PTII Acquisition”), thereby increasing our beneficial equity interests in PTFI to 18.72%, and subsequently subscribed for shares in PTFI (the “PTFI Share Subscription”), which further increased our beneficial equity interests in PTFI to 51.24%. In addition, PTFI acquired all of the outstanding shares in PTRTI. Following the completion of the PTII Acquisition and PTFI Share Subscription, the Government granted PTFI a special mining license (*Izin Usaha Pertambangan Khusus* or “IUPK”) to replace its contract of work (*Kontrak Karya* or “CoW”), enabling PTFI to continue its mining operations through 2041, subject to PTFI’s completing the construction of a new copper smelter in Indonesia and fulfilling certain fiscal obligations to the Government.

Although we and FCX currently respectively own 51.24% and 48.76% of beneficial equity interests in PTFI, pursuant to the agreements we entered into as part of the PTFI Share Acquisition, including a shareholders’ agreement we entered into with PTFI, FCX and IPMM (the “PTFI Shareholders Agreement”), we and FCX are entitled to the economics of revenue and are responsible for the cost sharing arrangements in relation to PTFI in the same manner as prior to the PTFI Share Subscription, calculated based on our 18.72% equity interests in PTFI, until the earlier of (i) December 31, 2022 or (ii) PTFI’s cumulative production and sales of copper and gold exceeding certain predetermined amounts (the “Initial Period”). We also entered into an agreement with the Government, the Provincial Government of Papua (the “Papua Provincial Government”) and the Regency of Mimika (the “Mimika Regency”), pursuant to which the Government has agreed to procure, and the Papua Provincial Government and the Mimika Regency have agreed to subscribe for, shares in a regional state-owned entity that would result in the Papua Provincial Government and the Mimika Regency, together, indirectly holding 10.0% of beneficial equity interests in PTFI, see “— Agreement between the Government, the Papua Provincial Government, the Mimika Regency and Inalum.” Following the Initial Period, assuming the participation of the Papua Government and the Mimika Regency in the ownership of PTFI, the economics of revenue and cost sharing arrangements in relation to PTFI will reflect the Papua Provincial Government and the Mimika Regency’s, our, and FCX’s respective beneficial equity interests in PTFI of 10.0%, 41.24% and 48.76%. Following the Initial Period, but prior to the participation of the Papua Government and the Mimika Regency in the ownership of PTFI, the economics of revenue and cost sharing arrangements in relation to PTFI will reflect our and FCX’s current respective beneficial equity interests in PTFI of 51.24% and 48.76%. In addition, FCX will continue to manage the mining operations of PTFI. Accordingly, the results of operations of PTFI are accounted for in our Audited Consolidated Financial Statements using the equity method, see Note 12 to our Audited Consolidated Financial Statements included in this Offering Memorandum.

Under the PTFI Shareholders Agreement, the governance of PTFI principally resides in four separate bodies, namely PTFI's (i) Board of Commissioners, (ii) Board of Directors, (iii) Operating Committee and (iv) Finance Committee, which are structured as follows:

- PTFI's Board of Commissioners comprises six commissioners, including three of our nominees and three FCX nominees. Each commissioner is appointed for a term of five years, and during the initial five-year period following the date of the PTFI Shareholders Agreement, the President Commissioner shall be an FCX nominee and the Vice President Commissioner shall be one of our nominees.
- PTFI's Board of Directors comprises six directors who were mutually agreed upon by us and FCX, and includes four directors who were members of PTFI's management team prior to the PTFI Share Subscription.
- PTFI's Operating Committee comprises five members, including two of our nominees and three FCX nominees. PTFI's Operating Committee has delegated authority from PTFI's Board of Directors, including making decisions, relating to, among others, (a) mining, development and planning, exploration, concentrating, technical services, power services, port-site operations, smelter activities, health and safety, security, environmental management, purchasing and logistics and jobsite-based human resources and administration, in each case with respect to PTFI and its subsidiaries; (b) developing the draft annual operating plan for the activities and operations of PTFI for approval by PTFI's Board of Directors and overseeing the implementation of the approved annual operating plan, including being responsible for ensuring that PTFI's day-to-day activities and operations are carried out in accordance with the annual operating plan; (c) managing the operations of PTFI and its subsidiaries; (d) entering into, amending, waiving, terminating and taking any other actions with respect to contracts so long as such actions are consistent with the annual operating plan and PTFI's long-term investment plan; and (e) selecting and managing the retention of key operating personnel of PTFI and its subsidiaries required to support and implement the annual operating plan and the operations of PTFI and its subsidiaries.
- PTFI's Finance Committee comprises four members, including two of our nominees and two FCX nominees. PTFI's Finance Committee has delegated authority from PTFI's Board of Directors to be responsible for developing a draft, and overseeing execution, of PTFI's annual financial plan, which must be consistent with the annual operating plan developed by PTFI's Operating Committee. In this regard, PTFI's Finance Committee is responsible for, among others, (a) reviewing finance forecasts, operating and maintenance budgets and capital expenditure requirements; (b) reviewing financial statements; and (c) reviewing and making recommendations to PTFI's Board of Directors for the declaration and distribution of interim dividends in accordance with the dividend policy set forth in the PTFI Shareholders Agreement. The responsibilities of PTFI's Finance Committee also include reviewing the proposed structure, financing and long-term sales contract for the smelter to be constructed in Indonesia pursuant to the terms of PTFI's IUPK.

PTFI's Board of Commissioners and Board of Directors have prescribed roles under applicable Indonesian law. Under the terms of the PTFI Shareholders Agreement, PTFI's Operating Committee, which comprises a majority of FCX nominees, has full control over certain operational matters of PTFI, as described above. PTFI's Finance Committee does not have authority to make decisions that would impact PTFI's operations or its funding requirements. Actions taken by each of PTFI's Board of Commissioners, Board of Directors, Operating Committee and Finance Committee must be approved by a majority vote. The PTFI Shareholders Agreement also contains certain provisions that may be initiated in the event of an unresolved deadlock in respect of the decisions of PTFI's Board of Directors, Board of Commissioners or Finance Committee.

Under the PTFI Shareholders Agreement, Inalum, FCX and IPMM may not transfer their respective shares in PTFI without the consent of the other shareholders, unless the transferee agrees to assume the transferring shareholder's rights and obligations under the PTFI Shareholders Agreement. In addition, both Inalum and FCX are entitled to a right of first refusal in respect of a transfer of the other party's shares in PTFI.

Agreement between the Government, the Papua Provincial Government, the Mimika Regency and Inalum

On January 12, 2018, Inalum, the Government, the Papua Provincial Government and the Mimika Regency entered into an agreement relating to the PTFI Share Acquisition and the equity interests in PTFI that each entity is intended to hold following the completion of the PTFI Share Acquisition (the “Government, Papua Provincial Government, Mimika Regency and Inalum Agreement”). The Government, the Papua Provincial Government and the Mimika Regency are stakeholders in the Grasberg Mine, with the Government being the holder of the mining concession for the Grasberg Mine, and the Grasberg Mine being situated in the province of Papua and in the province’s Mimika Regency.

Pursuant to the Government, Papua Provincial Government, Mimika Regency and Inalum Agreement, the Government has agreed to procure, and the Papua Provincial Government and the Mimika Regency have agreed to subscribe for shares in a regional state-owned entity, which will be jointly owned by the Papua Provincial Government and the Mimika Regency and would result in the Papua Provincial Government and the Mimika Regency, together, indirectly holding 10.0% of equity interests in PTFI, respectively. The subscription price for the aforementioned shares to be paid by the Papua Provincial Government and the Mimika Regency, respectively, will be equivalent to the value of their respective indirect stakes in PTFI, calculated on the same basis the Government, through Inalum, would have paid for its shares in PTFI in the PTFI Share Acquisition.

Under the Government, Papua Provincial Government, Mimika Regency and Inalum Agreement, Inalum would loan to the Papua Provincial Government and the Mimika Regency the funds required to subscribe for the shares in the regional state-owned entity, and such loan will be secured by the same shares. The Papua Provincial Government and the Mimika Regency have also agreed (i) not to transfer or sell these shares to any party, other than to Inalum, and (ii) to transfer an agreed portion of the dividends paid on such shares to us, until the loan that is contemplated to be provided by Inalum to the Papua Provincial Government and the Mimika Regency has been fully repaid.

The Papua Provincial Government and the Mimika Regency are in the process of negotiating the establishment of the regional state-owned entity through which they will hold their equity interests in PTFI.

PTFI’s Business

PTFI is engaged in the exploration for and mining and processing of ore containing copper, gold and silver, and in the marketing of concentrate containing such metals. PTFI’s mining assets include the Grasberg minerals district in Papua, Indonesia (the “Grasberg Mine”), one of the world’s largest copper and gold deposits. For the years ended December 31, 2017, 2018 and 2019, PTFI produced 1.0 billion pounds, 1.2 billion pounds and 0.6 billion pounds of copper, respectively. For the same years, PTFI produced 1.6 million oz, 2.4 million oz and 0.9 million oz of gold, respectively.

The following table sets forth PTFI’s aggregate reserves and resources at its Grasberg Mine, as of December 31, 2019.

	Reserves			Resources			
	Proved	Probable	Total	Measured	Indicated	Inferred	Total
Ore (tonnes in millions)⁽¹⁾	561	1,252	1,813	384	2,156	140	2,680
Copper grade (%) ⁽¹⁾	1.18	0.98	1.04	0.80	0.66	0.39	0.67
Gold grade (grams/tonne) ⁽¹⁾	0.91	0.74	0.79	0.69	0.59	0.25	0.59
Silver (grams/tonne) ⁽¹⁾	5.09	4.52	4.70	4.02	3.59	2.04	3.57

Note:

(1) According to the 2019 Grasberg Reserves Statement, see Appendix D.

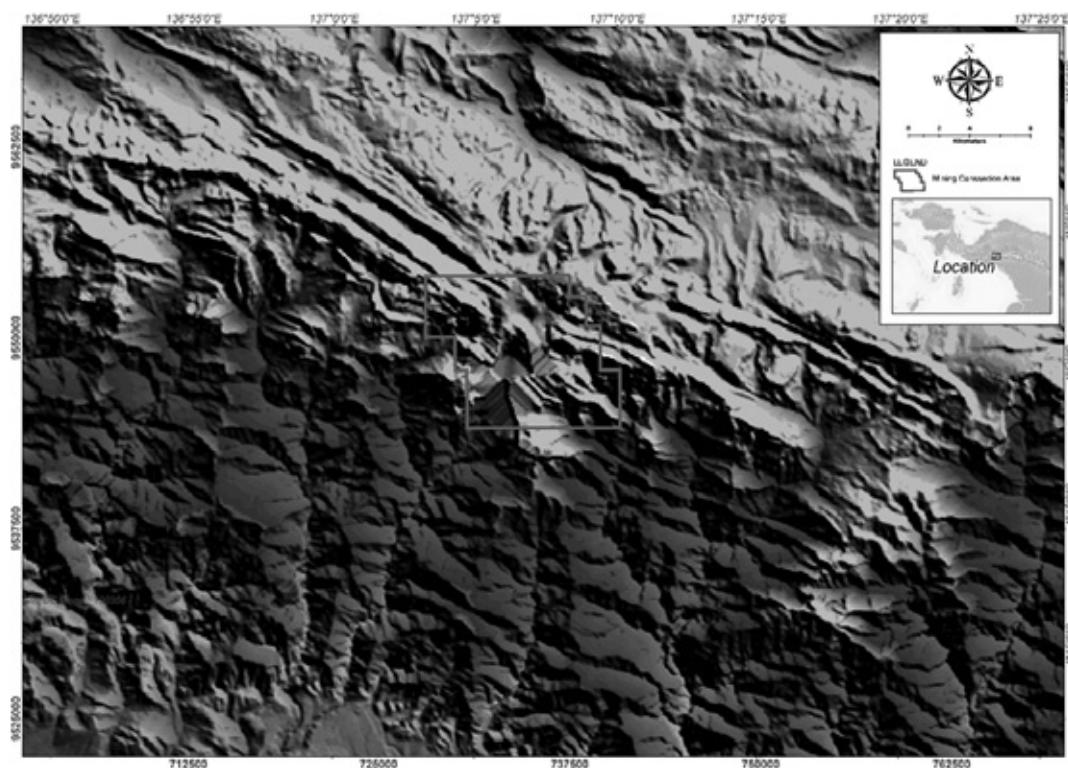
The Grasberg Mine

PTFI conducts its current exploration, mining and production activities in Indonesia under its Grasberg mining concession, which is an IUPK granted in December 2018. Under the terms of the IUPK, PTFI has been

granted mining rights through 2031 and the ability to extend such mining rights through 2041, subject to PTFI's completing the construction of a new copper smelter in Indonesia and fulfilling certain fiscal obligations to the Government. PTFI previously conducted such activities under a CoW granted in 1991 before the CoW was replaced by its existing IUPK. The Grasberg mining concession spans a total area of approximately 9,946 hectares, which is where all of PTFI's proven and probable mineral reserves and all of its current mining operations are located.

The Grasberg Mine comprises four active mines including (i) the Grasberg Block Cave underground mine, (ii) the Deep Mill Level Zone ("DMLZ") underground mine, (iii) the Big Gossan underground mine and (iv) the Deep Ore Zone ("DOZ") underground mine. In 2019, PTFI completed mining the final phase of the Grasberg open-pit mine.

The following map sets forth the location of the Grasberg Mine.



Grasberg open-pit mine

PTFI began open-pit mining of the Grasberg ore body in 1990 and completed mining the final phase of the Grasberg open-pit mine in 2019. The Grasberg open-pit mine contained high copper and gold ore grades and produced an aggregate of over 27.0 billion pounds of copper and 46.0 million oz of gold over the life of the mine, from 1990 through 2019. For the years ended December 31, 2017, 2018, 2019, ore produced from the Grasberg open-pit averaged 101,800 tonnes, 133,300 tonnes and 60,100 tonnes, respectively, per day.

Grasberg Block Cave underground mine

The ore body of the Grasberg Block Cave underground mine is the same ore body historically mined from the surface of the Grasberg open-pit mine. The Grasberg Block Cave underground mine accounted for approximately half of PTFI's recoverable proven and probable reserves as of December 31, 2019. For the years ended December 31, 2017, 2018, 2019, ore produced from the Grasberg Block Cave underground mine averaged 3,600 tonnes, 4,000 tonnes and 8,600 tonnes, respectively, per day. Development and expansion of mining activities at the Grasberg Block Cave underground mine continue to track expectations and PTFI expects

production at the Grasberg Block Cave underground mine to reach an average of 30,000 tonnes of ore per day in 2020, over 60,000 tonnes of ore per day in 2021 and 130,000 tonnes of ore per day in 2023.

The Grasberg Block Cave underground mine fleet consists of approximately 460 pieces of mobile equipment. The primary mining equipment directly associated with production and development includes an available fleet of 52 load-haul-dump (“LHD”) units and 35 haul trucks. Each production LHD unit typically carries approximately 11 tonnes of ore which is transferred onto haul tracks with capacities of 55 to 60 tonnes of ore. In addition, the Grasberg Block Cave underground mine has a rail haulage system currently operating with three locomotives and 27 ore wagons that haul the ore to the first of the three planned gyratory crushers located underground via an automated rail system. Each ore wagon typically carries 30 tonnes of ore.

DMLZ underground mine

The DMLZ underground mine lies below the DOZ underground mine at the 2,590-meter elevation and represents the downward continuation of mineralization in the Ertsberg East Skarn system and neighboring Ertsberg porphyry. For the years ended December 31, 2017, 2018 and 2019, ore produced from the DMLZ underground mine averaged 3,200 tonnes, 3,200 tonnes and 9,800 tonnes, respectively, per day. PTFI has continued its ramp-up of production at the DMLZ underground mine and expects production at the DMLZ underground mine to reach an average of 29,000 tonnes of ore per day in 2020, almost 60,000 tonnes of ore per day in 2021 and 80,000 tonnes of ore per day in 2022.

The DMLZ underground mine fleet consists of over 290 pieces of mobile equipment, which includes 22 LHD units and nine haul trucks used in production and development activities.

Big Gossan underground mine

The ore body of the Big Gossan underground mine lies underground and adjacent to the current mill site. It is a tabular, near vertical ore body with approximate dimensions of 1,200 meters along strike and 800 meters down dip, with varying thicknesses from 20 meters to 120 meters. The Big Gossan underground mine utilizes a blasthole stoping method with delayed paste backfill. Stopes of varying sizes are mined and the ore dropped down passes to a truck haulage level. Trucks are chute loaded and transport the ore to a jaw crusher. The crushed ore is then hoisted vertically via a two-skip production shaft to a level where it is loaded onto a conveyor belt. The belt carries the ore to one of the main underground conveyors where the ore is transferred and conveyed to the surface stockpiles for processing. For the years ended December 31, 2017, 2018 and 2019, ore produced from the Big Gossan underground mine averaged 600 tonnes, 3,800 tonnes and 6,100 tonnes, respectively, per day.

The Big Gossan underground mine fleet consists of over 88 pieces of mobile equipment, which includes 12 LHD units and nine haul trucks used in development and production activities.

DOZ underground mine

The ore body of the DOZ underground mine lies vertically below the now depleted Intermediate Ore Zone mine. PTFI began production from the DOZ underground mine in 1989 using open-stope mining methods, but suspended production in 1991 in favor of production from the Grasberg open-pit mine. Production resumed in 2000 using the block-cave method and is at the 3,110-meter elevation level. The DOZ underground mine is a mature block-cave mine that previously operated at 80,000 tonnes of ore per day. Current operating rates from the DOZ underground mine are driven by the value of the incremental DOZ ore grade compared to the ore from the DMLZ underground mine and Grasberg Block Cave underground mine. For the years ended December 31, 2017, 2018 and 2019, ore produced from the DOZ underground mine averaged 31,200 tonnes, 33,800 tonnes and 25,500 tonnes, respectively, per day.

The DOZ underground mine fleet consists of 186 pieces of mobile equipment. The primary mining equipment directly associated with production includes an available fleet of 40 LHD units and 19 haul trucks. The trucks dump into two gyratory crushers, and the ore is then conveyed to the surface stockpiles for processing.

Description of ore bodies of the Grasberg Mine

The ore bodies of the Grasberg Mine are located within and around two main igneous intrusions, the Grasberg monzodiorite and the Ertzberg diorite. The host rocks of these ore bodies include both carbonate and clastic rocks that form the ridge crests and upper flanks of the Sudirman Range, and the igneous rocks of monzonitic to dioritic composition that intrude them. The igneous-hosted ore bodies (the Grasberg Block Cave underground mine and portions of the DOZ underground mine) occur as vein stockworks and disseminations of copper sulfides, dominated by chalcopyrite and, to a lesser extent, bornite. The sedimentary-rock hosted ore bodies (portions of the DOZ underground mine and all of the Big Gossan underground mine) occur as “magnetite-rich, calcium/magnesian skarn” replacements, whose location and orientation are strongly influenced by major faults and by the chemistry of the carbonate rocks along the margins of the intrusions. The copper mineralization in these skarn deposits is dominated by chalcopyrite, but higher bornite concentrations are common. Moreover, gold occurs in significant concentrations in all of the district’s ore bodies, though rarely visible to the naked eye. These gold concentrations usually occur as inclusions within the copper sulfide minerals, though, in some deposits, these concentrations can also be strongly associated with pyrite.

Security

As part of its security program, PTFI maintains its own internal security department. Both employees and contractors are unarmed and perform functions such as protecting company facilities, monitoring shipments of supplies and products, assisting in traffic control and aiding in emergency response operations. The security department receives human rights training annually. As the Grasberg Mine has been designated by the Government as one of Indonesia’s vital national assets, the police, and to a lesser extent, the military, play a significant role in protecting the area of PTFI’s operations. The Government is responsible for employing police and military personnel and directing their operations.

PT Smelting

Pursuant to the renewal of PTFI’s CoW in 1991, PTFI was required to construct a smelter in Indonesia if FCX and the Government determined that such a project would be economically viable. In 1995, following the completion of a feasibility study, PTFI entered into agreements relating to the formation of PT Smelting, an Indonesian incorporated company, and the construction of a copper smelter and refinery in Gresik, Indonesia, to be owned and operated by PT Smelting. PTFI owns 25.0% of PT Smelting with the remainder owned by Mitsubishi Materials Corporation (60.5%), Mitsubishi Corporation RtM Japan Ltd. (9.5%) and JX Nippon Mining & Metals Corporation (5.0%).

PTFI has committed to supplying, on a priority basis, 100.0% of PT Smelting’s copper concentrate requirements to enable PT Smelting to produce 205,000 tonnes of copper annually. PTFI may also sell copper concentrate to PT Smelting at market rates for quantities in excess of 205,000 tonnes of copper annually. For the years ended December 31, 2017, 2018 and 2019, sales by PTFI to PT Smelting totaled US\$2.0 billion, US\$2.2 billion and US\$1.9 billion, respectively.

Operating and development projects

PTFI has several projects in the Grasberg Mine related to the development of its large-scale, long-lived, high-grade underground ore bodies. In aggregate, these underground ore bodies are expected to produce large-scale quantities of copper and gold. Estimated annual capital spending on PTFI’s underground mine development projects is expected to average US\$1.0 billion per year for the years ending 2020, 2021 and 2022.

Common infrastructure project

In 2004, PTFI commenced its common infrastructure project to provide access to its large undeveloped underground ore bodies located in the Grasberg Mine through a tunnel system located approximately 400 meters deeper than its existing underground tunnel system. In addition to providing access to the underground ore bodies, the tunnel system will enable PTFI to conduct future exploration in prospective areas associated with currently identified ore bodies. The tunnel system was connected to the Big Gossan terminal, and the Big Gossan

underground mine was brought into production in 2010. The Big Gossan underground mine was on care-and-maintenance status during most of 2017 and production resumed in the fourth quarter of 2017. Development of the Grasberg Block Cave underground mine and DMLZ underground mine is advancing using the common infrastructure project tunnels as access.

Grasberg Block Cave underground mine

Aggregate mine development capital for the Grasberg Block Cave underground mine and associated common infrastructure is expected to be approximately US\$6.7 billion (incurred between 2008 and 2024), of which US\$4.6 billion had been incurred as of December 31, 2019.

DMLZ underground mine

Aggregate mine development capital costs for the DMLZ underground mine are expected to be approximately US\$3.4 billion (incurred between 2009 and 2021), of which US\$2.8 billion had been incurred as of December 31, 2019.

Smelter project

PTFI has committed to constructing a new copper smelter in Indonesia by December 21, 2023. A site for the new smelter has been selected, and ground preparation is advancing. Engineering and front-end engineering and design for the selected process technology are advancing and expected to be completed in 2020. The preliminary capital cost estimate for the project is approximately US\$3.0 billion, pending completion of final engineering. Estimated related capital expenditures are approximately US\$0.5 billion for the year ending December 31, 2020.

However, as a result of travel restrictions and other social distancing measures that have been put in place due to the current COVID-19 pandemic, PTFI and its contractors for the copper smelter project have not been able to access the proposed project site in Gresik, Indonesia and continue work on the copper smelter project, see “Risk Factors — Risks Common to All Our Businesses — Outbreak of an infectious disease or fear of an outbreak, or any other serious public health concerns in Asia, including Indonesia, and elsewhere may adversely impact our business, financial condition and results of operations.” As a result, PTFI expects to experience delay to its planned timeline for the copper smelter project. PTFI has requested for a one-year deferral to the project completion date of December 2023 from the Government, and is currently awaiting the Government’s response.

Summary Discussion of PTFI’s Financial Condition and Results of Operations

You should read the following discussion and analysis of PTFI’s financial condition and results of operations in conjunction with the section entitled “Selected Consolidated Financial Information and Other Data” and PTFI’s Audited Consolidated Financial Statements and the related notes thereto included in this Offering Memorandum.

PTFI’s Audited Consolidated Financial Statements have been prepared in accordance with IFAS, which differ in certain material respects from U.S. GAAP. See “Summary of Certain Differences Between Indonesian Financial Accounting Standards and U.S. GAAP.”

Results of operations

PTFI sells copper concentrate, which contains significant quantities of gold and silver. Substantially all of PTFI’s copper concentrate is sold under long-term contracts.

Costs of sales totaled US\$2.3 billion, US\$2.5 billion and US\$2.4 billion for the years ended December 31, 2017, 2018 and 2019, respectively. Lower cost of sales in 2019, compared with 2018, primarily resulted from net charges totaling US\$214.2 million recorded in 2018 comprising (i) US\$69.1 million for surface water tax disputes with the local regional tax authority in Papua, Indonesia, (ii) US\$31.8 million for assessments associated with permit fees in prior periods with the MOEF, (iii) US\$61.5 million for disputed payroll withholding taxes for prior years and other tax settlements, and (iv) US\$62.3 million for the write off of certain previously capitalized project costs for the new smelter; partially offset by inventory adjustments totaling US\$10.5 million recorded in 2018. Higher cost of sales in 2018, compared with 2017, primarily resulted from the aforementioned net charges recorded in 2018.

Operating results

The following table sets forth certain production and sales information of PTFI for the years indicated.

Operating data (net of PTRTI's joint venture interest)

	For the year ended December 31,		
	2017	2018	2019
Copper (millions of recoverable pounds)			
Production	984	1,160	607
Sales	981	1,130	667
Average realized price per pound (US\$)	3.00	2.89	2.72
Gold (thousands of recoverable oz)			
Production	1,554	2,416	863
Sales	1,540	2,366	973
Average realized price per pound (US\$)	1,268	1,254	1,416
Ore milled (tonnes per day)⁽¹⁾			
Grasberg open-pit mine	101,800	133,300	60,100
DOZ underground mine	31,200	33,800	25,500
DMLZ underground mine	3,200	3,200	9,800
Grasberg Block Cave underground mine	3,600	4,000	8,600
Big Gossan underground mine	600	3,800	6,100
Total	140,400	178,100	110,100
Average ore grade			
Copper (%)	1.01	0.98	0.84
Gold (grams/tonne)	1.15	1.58	0.93
Recovery rates			
Copper (%)	91.6	91.8	88.4
Gold (%)	85.0	84.7	75.0
Production (recoverable)			
Copper (millions of pounds)	996	1,227	607
Gold (thousands of oz)	1,554	2,697	863

Note:

- (1) Amounts represent the approximate average daily throughput processed at PTFI's mill facilities from each producing mine and from development activities that result in metal production.

PTFI's sales volumes of 0.7 billion pounds of copper and 1.0 million oz of gold in 2019 were lower than sales volumes of 1.1 billion pounds of copper and 2.4 million oz of gold in 2018. The lower copper and gold sales volumes were due to lower milling rates and ore grades attributable to PTFI mining the final phase of the Grasberg open-pit mine and transitioning production operations to the Grasberg Block Cave underground mine in 2019.

The following table sets forth the breakdown of PTFI's net revenues by product for the years indicated.

	For the year ended December 31,		
	2017	2018	2019
	(US\$ in millions)		
Copper	2,558.1	2,724.2	1,508.1
Gold	1,840.4	2,780.5	1,227.8
Silver	46.5	53.8	35.3
Net revenues	4,445.0	5,558.5	2,771.2

For the years ended December 31, 2017, 2018 and 2019, net revenues totaled US\$4.4 billion, US\$5.6 billion and US\$2.8 billion, respectively. Lower net revenues in 2019, compared with 2018, primarily resulted from lower copper and gold sales volumes. Higher net revenues for 2018, compared with 2017, primarily resulted from higher copper and gold sales volumes. See “— Operating Results.”

PTFI's sales volumes of 1.1 billion pounds of copper and 2.4 million oz of gold in 2018 were higher than sales volumes of 1.0 billion pounds of copper and 1.5 million oz of gold for 2017, primarily as a result of higher milling rates and gold ore grades.

Gross profit per pound of copper and per oz of gold

The following table sets forth certain information relating to PTFI's gross profit per pound of copper and per oz of gold for the years indicated.

	For the year ended December 31,								
	2017			2018			2019		
	By-product method	Co-product method		By-product method	Co-product method		By-product method	Co-product method	
	Copper	Copper	Gold	Copper	Copper	Gold	Copper	Copper	Gold
Revenues, excluding adjustments (US\$)	3.00	3.00	1,268	2.89	2.89	1,254	2.72	2.72	1,416
Site production and delivery, before net non-cash and other costs shown below	1.57	0.94	398	1.48	0.77	335	2.91	1.63	849
Gold and silver credits	(2.05)	—	—	(2.69)	—	—	(2.13)	—	—
Treatment charges	0.27	0.16	67	0.26	0.14	59	0.26	0.14	75
Export duties	0.12	0.07	30	0.16	0.08	36	0.08	0.05	25
Royalty on metals	0.17	0.10	47	0.21	0.11	48	0.16	0.09	49
Unit net cash costs/(credits)	0.08	1.27	542	(0.58)	1.10	478	1.28	1.91	998
Depreciation and amortization	0.57	0.34	142	0.54	0.28	121	0.61	0.34	178
Metals inventory adjustments	—	—	—	—	—	—	0.01	0.01	—
Non-cash and other costs, net ⁽¹⁾	0.17 ⁽⁴⁾	0.10	42	0.21 ⁽⁵⁾	0.11	48	0.37 ⁽⁶⁾	0.20	110
Total unit costs	0.82	1.71	726	0.17	1.49	647	2.27	2.46	1,286
Revenue adjustments, primarily for pricing on prior period open sales ⁽²⁾	0.04	0.04	6	(0.03)	(0.03)	7	0.03	0.03	2
PT Smelting intercompany profit/ (loss)	(0.02)	(0.01)	(7)	0.04	0.03	12	(0.02)	(0.02)	(8)
Gross profit per pound or oz (US\$)⁽³⁾	2.20	1.32	541	2.73	1.40	626	0.46	0.27	124
Copper sales (millions of recoverable pounds)	981	981	—	1,130	1,130	—	667	667	—
Gold sales (thousands of recoverable pounds)	—	—	1,540	—	—	2,366	—	—	973

Notes:

- (1) Non-cash and other costs, which are removed from site production and delivery costs in the calculation of unit net cash costs, consist of items such as stock-based compensation costs, restructuring and/or unusual charges.
- (2) Revenue adjustments for prior year open sales are shown as a separate line item because these adjustments do not result from current year sales.
- (3) Gross profit per pound of copper employs both a “by-product” method and a “co-product” method. PTFI uses the by-product method in its presentation of gross profit per pound of copper because (i) the majority of PTFI’s revenues are copper revenues, (ii) PTFI mines ore, which contains copper, gold and silver, (iii) it is not possible to specifically assign all of costs to revenues from the copper, gold and silver that PTFI produces and (iv) it is the method used by PTFI’s management to monitor its mining operations and to compare mining operations in certain industry publications. In the co-product method presentations, shared costs are allocated to the different products based on their relative revenue values, which will vary to the extent metals sales volumes and realized prices change. Gold and silver revenues are reflected as credits against site production and delivery costs in the by-product method. Co-product amounts for silver are excluded because they are not material.
- (4) Includes US\$0.12 per pound of copper of costs charged directly to cost of sales as a result of workforce reductions.
- (5) Includes net charges of US\$0.20 per pound of copper. See “— Results of Operations” for a summary of these charges.
- (6) Includes charges in revenues totaling US\$0.25 per pound of copper primarily associated with an unfavorable Indonesia Supreme Court ruling related to certain disputed PTFI export duties, partly offset by adjustments to prior year treatment charges totaling US\$0.03 per pound of copper. Also includes charges of US\$0.04 per pound of copper associated with adjustments to the settlement of the historical surface water tax disputes with the local regional tax authority in Papua, Indonesia.

Cash costs. A significant portion of PTFI’s costs are fixed, and unit costs vary depending on production volumes and other factors. PTFI’s unit net cash costs (including gold and silver credits) of US\$1.28 per pound of copper in 2019 were higher than unit net cash credits of US\$0.58 per pound in 2018, primarily as a result of lower copper production and gold credits. In 2018, PTFI had unit net cash credits (including gold and silver credits) of US\$0.58 per pound of copper, compared with unit net cash costs of US\$0.09 per pound of copper in 2017, primarily as a result of higher gold and silver credits and an increase in copper sales volume.

Treatment charges. Treatment charges vary with the volume of metals sold and the price of copper, and royalties vary with the volume of metals sold and the prices of copper and gold.

Export duties. PTFI’s export duties totaled US\$115.2 million, US\$180.2 million and US\$221.1 million for the years ended December 31, 2017, 2018 and 2019, respectively. Export duties in 2019 included charges of US\$165.9 million in connection with an adverse tax ruling by the Supreme Court of Indonesia on export duties paid by PTFI during the period from April 2017 to December 2018.

Royalty on metals. PTFI’s royalties totaled US\$172.9 million, US\$237.7 million and US\$106.5 million for the years ended December 31, 2017, 2018 and 2019, respectively.

Depreciation and amortization. As certain assets are depreciated on a straight-line basis, PTFI’s unit depreciation rate varies with the level of copper production and sales. Higher unit depreciation and amortization in 2019, compared with 2018, primarily related to lower copper sales volumes.

Revenue adjustments. Revenue adjustments primarily result from changes in prices on provisionally priced copper sales recognized in prior years.

PT Smelting intercompany profit/(loss). PT Smelting intercompany profit/(loss) represents the change in the deferral of 25.0% of PTFI’s profit on sales to PT Smelting.

Capital resources and liquidity

Subject to future commodity prices for copper and gold, PTFI expects estimated consolidated operating cash flows for 2020, plus available cash and its availability under the revolving credit facility with FCX, to be sufficient to fund its budgeted capital expenditures and other cash requirements for the year.

Operating cash flow

PTFI’s operating cash flows vary with prices realized from copper and gold sales, sales volumes, production costs, income taxes, other working capital changes and other factors.

Operating cash flows totaled US\$2.4 billion, US\$2.9 billion and US\$0.2 billion for the years ended December 31, 2017, 2018 and 2019, respectively. Lower operating cash flows in 2019, compared with 2018, were primarily as a result of lower copper and gold sales volumes. Higher operating cash flows in 2018, compared with 2017, were primarily as a result of higher copper and gold sales volumes and prices, partially offset by tax payments.

Investing cash flow

Except as noted below, PTFI's investing cash flows primarily comprise capital expenditures associated with underground development projects, including the Grasberg Block Cave underground mine and the DMLZ underground mine.

PTFI's investing cash outflow totaled US\$0.8 billion, US\$4.6 billion and US\$1.3 billion for the years ended December 31, 2017, 2018 and 2019, respectively. In December 2018, PTFI acquired the joint venture interests held by PTRTI for US\$3.5 billion.

Financing cash flow

PTFI's principal financing cash flow activities include borrowings and repayments of loans from FCX and dividend payments. Loans from FCX are primarily to manage working capital needs and capital expenditures when operating cash flows are insufficient. The declaration of dividends is at the discretion of PTFI's Board of Directors and is dependent upon PTFI's financial results, cash requirements, future prospects and other factors deemed relevant by PTFI's Board of Directors.

PTFI had net repayments of loans from FCX of US\$88.0 million for the year ended December 31, 2017, and net proceeds from loans from FCX of US\$76.0 million and US\$896.5 million for the years ended December 31, 2018 and 2019, respectively. PTFI paid dividends totaling US\$1.4 billion and US\$1.9 billion for the years ended December 31, 2017 and 2018, respectively. PTFI did not pay any dividends for the year ended December 31, 2019.

DESCRIPTION OF MATERIAL INDEBTEDNESS

We have raised debt financing and have entered into working capital loans, term loans, syndicated loans, revolving loans and letters of credit. The following summary of the principal terms of our material indebtedness may not contain all of the information that may be important to you. You should read the notes to our consolidated financial statements for additional information about our indebtedness and the indebtedness of our subsidiaries.

Overview

As of December 31, 2019, we had consolidated indebtedness totaling 76,673.4 billion (US\$5,515.7 million). The following table sets forth certain details on our material indebtedness, as of December 31, 2019. In addition to the description below, see also Notes 23, 24, 25 and 26 to our Audited Consolidated Financial Statements included in this Offering Memorandum.

No.	Description of indebtedness	Borrower	Lender	Original principal amount	Maturity	Amount outstanding as of December 31, 2019
1.	U.S. dollar denominated bonds	Inalum	Various bondholders	US\$1,000.0 million	November 15, 2021	US\$1,000.0 million ⁽¹⁾
2.	U.S. dollar denominated bonds	Inalum	Various bondholders	US\$1,250.0 million	November 15, 2023	US\$1,250.0 million ⁽¹⁾
3.	U.S. dollar denominated bonds	Inalum	Various bondholders	US\$1,000.0 million	November 15, 2028	US\$1,000.0 million
4.	U.S. dollar denominated bonds	Inalum	Various bondholders	US\$750.0 million	November 15, 2048	US\$750.0 million
5.	Term loan facility	Inalum	Bank Mandiri	US\$167.0 million	June 30, 2026	US\$132.3 million
6.	Investment credit facility	NHL	BNI	Rp.5.8 billion	September 29, 2022	Rp.5.8 billion
7.	Finance lease facility	NHL	PT Adira Dinamika Multi Finance Tbk (“Adira”)	Rp.1.0 billion	April 7, 2022	Rp.0.6 billion
8.	Finance lease facility	NHL	Adira	Rp.0.7 billion	November 27, 2022	Rp.0.7 billion
9.	Finance lease facility	NHL	Adira	Rp.0.8 billion	December 13, 2022	Rp.0.8 billion
10.	Working capital expenditure facility	Antam	Maybank Indonesia	US\$100.0 million	June 11, 2025	US\$76.5 million
11.	Syndicated non-revolving loan facility	Antam	BCA and PT Bank ICBC Indonesia (“ICBC”)	US\$65.0 million	February 9, 2021	US\$51.2 million
12.	Term loan facility	Antam	BTPN (formerly known as PT Bank Sumitomo Mitsui Indonesia)	US\$34.2 million	June 17, 2021	US\$7.3 million
13.	Term loan facility	Antam	BNI	US\$82.0 million	December 2, 2025	US\$73.8 million
14.	Term loan facility	Antam	Bank Mandiri	US\$129.7 million	June 23, 2024	US\$122.3 million
15.	Revolving loan facility	Antam	BRI	US\$200.0 million	July 15, 2020	— ⁽²⁾
16.	Revolving loan facility	Antam	Bank Mandiri	US\$200.0 million	May 30, 2020	US\$100.0 million
17.	Rupiah bonds	Antam	Various bondholders	Rp.3,000.0 billion	December 14, 2021	Rp.2,100.0 billion
18.	Term loan facility and foreign exchange line	Antam	BCA	US\$150.0 million	May 9, 2020	— ⁽²⁾
19.	Credit facility	Antam	MUFG Bank	US\$100.0 million	June 30, 2020	— ⁽²⁾
20.	Term loan facility	Antam	BTPN	US\$75.0 million	December 2020	— ⁽³⁾
21.	Revolving loan facility and bank guarantee	PT Antam Resourcindo (“ARI”)	PT Bank Pan Indonesia Tbk (“Panin”)	Rp.45.0 billion	January 28, 2021	— ⁽³⁾
22.	Term loan facility	ARI	Panin	Rp.20.0 billion	January 15, 2020	— ⁽²⁾

No.	Description of indebtedness	Borrower	Lender	Original principal amount	Maturity	Amount outstanding as of December 31, 2019
23.	Term loan facility	ICA	Japan Bank for International Cooperation (“JBIC”)	¥15.8 billion	December 15, 2020	¥2.1 billion
24.	Syndicated term loan facility	ICA	Mizuho Corporate Bank, Ltd. (“Mizuho”) and The Sumitomo Trust & Banking Co., Ltd. (“Sumitomo”)	¥10.5 billion	December 15, 2020	¥1.4 billion
25.	Revolving credit facility	PT Sumberdaya Arindo (“SDA”)	Panin	Rp.20.0 billion	October 31, 2020	Rp.18.0 billion
26.	Bill purchasing line	Bukit Asam	Bank Mandiri	US\$50.0 million	May 27, 2020	— ⁽²⁾
27.	Non-cash loan facility	Bukit Asam	Bank Mandiri	US\$100.0 million	May 27, 2020	— ⁽²⁾
28.	Foreign exchange and derivative line facility	Bukit Asam	BNI	US\$750,000	January 19, 2020	— ⁽³⁾
29.	Non-cash loan facility	Bukit Asam	BNI	US\$ 75.0 million	January 19, 2020	US\$153,666
30.	Foreign exchange credit line	Bukit Asam	BRI	US\$35.0 million	December 8, 2020	— ⁽³⁾
31.	Non-cash credit line	Bukit Asam	BRI	Rp.500.0 billion	December 8, 2020	Rp.127.1 billion
32.	Import guarantee	Bukit Asam	BRI	Rp.300.0 billion	December 8, 2020	— ⁽³⁾
33.	Commercial line	Bukit Asam	BRI	US\$40.0 million	December 8, 2020	— ⁽³⁾
34.	Packing credit facility	SBS	PT Bank UOB Indonesia (“UOB”)	Rp.212.6 billion	November 24, 2020	Rp.148.5 billion
35.	Finance lease facility	SBS	PT Mitsubishi UFJ Lease & Finance Indonesia (“MULI”)	Rp.22.5 billion	April 20, 2023	Rp.8.3 billion
36.	Finance lease facility	SBS	MULI	Rp.17.1 billion	April 20, 2023	Rp.12.7 billion
37.	Finance lease facility	SBS	MULI	Rp.13.1 billion	April 20, 2023	Rp.9.7 billion
38.	Finance lease facility	SBS	MULI	Rp.13.1 billion	April 20, 2023	Rp.9.7 billion
39.	Finance lease facility	SBS	MULI	Rp.11.2 billion	June 8, 2023	Rp.8.6 billion
40.	Finance lease facility	SBS	MULI	Rp.69.9 billion	August 30, 2024	Rp.68.2 billion
41.	Packing credit facility	SBS	Chandra Sakti Utama Leasing (“CSUL”)	Rp.25.2 billion	March 25, 2023	Rp.21.2 billion
42.	Packing credit facility	SBS	CSUL	Rp.4.7 billion	April 1, 2023	Rp.4.0 billion
43.	Packing credit facility	SBS	PT Mandiri Tunas Finance (“Mandiri Tunas Finance”)	Rp.74.8 billion	November 15, 2022	Rp.61.6 billion
44.	Packing credit facility	SBS	Komatsu Astra Finance	US\$20.5 million	February 25, 2021	US\$4.9 million
45.	Packing credit facility	SBS	Komatsu Astra Finance	US\$33.3 million	September 25, 2021	US\$12.9 million
46.	Packing credit facility	SBS	Komatsu Astra Finance	US\$1.8 million	November 30, 2021	US\$771,457
47.	Packing credit facility	SBS	Komatsu Astra Finance	Rp.8.5 billion	July 30, 2020	Rp.1.8 billion
48.	Credit collateral Credit facility	PIT	BRI	Rp.2.0 billion	January 14, 2022	Rp.1.4 billion
49.	Credit collateral Credit facility	BSP	BRI	Rp.16.8 billion	July 17, 2023	Rp.12.6 billion
50.	Revolving facility	Timah	Bank Mandiri	US\$25.0 million	June 28, 2020	— ⁽³⁾
51.	Revolving facility	Timah	Bank Mandiri	Rp.500.0 billion	June 28, 2020	— ⁽³⁾
52.	Term loan facility	Timah	Bank Mandiri	US\$60.0 million	June 28, 2020	US\$17.0 million and Rp.600.0 billion

No.	Description of indebtedness	Borrower	Lender	Original principal amount	Maturity	Amount outstanding as of December 31, 2019
53.	Term loan facility	Timah	Bank Mandiri	Rp.1,000.0 billion	June 28, 2020	Rp.994.0 billion
54.	Foreign exchange agreement	Timah	Bank Mandiri	US\$30.0 million	June 28, 2020	— ⁽³⁾
55.	Supplier financing agreement	Timah	Bank Mandiri	Rp.300.0 billion	June 28, 2020	Rp.161.0 billion
56.	Non-cash loan facility	Timah	Bank Mandiri	US\$108.0 million	June 28, 2020	US\$95.1 million and Rp.48.6 billion
57.	Facility package	Timah	DBS Indonesia	US\$40.0 million	May 15, 2020	US\$10.0 million
58.	Facility package	Timah	MUFG Bank	Rp.1,800.0 billion	September 30, 2020 and August 31, 2020	Rp.800.0 billion and US\$63.0 million
59.	Supply chain finance facility	Timah	MUFG Bank	Rp.300.0 billion	August 31, 2020	Rp.286.2 billion
60.	Revolving credit facility and term loan facility ⁽⁴⁾	Timah	BRI	Rp.500.0 billion	November 15, 2020	Rp.250.0 billion
61.	Revolving facility	Timah	PT Bank CIMB Niaga Tbk (“CIMB Niaga”)	Rp.1,400.0 billion	July 11, 2020	Rp.1,000.0 billion and US\$28.5 million
62.	Term loan revolving facility	Timah	BCA	Rp.1,500.0 billion	July 28, 2020	Rp.1,500.0 billion
63.	Foreign exchange facility	Timah	BCA	US\$20.0 million	July 28, 2020	— ⁽³⁾
64.	Musyarakah line facility	Timah	BSM	Rp.500.0 billion	May 10, 2020	— ⁽³⁾
65.	Money market facility	Timah	Bank Permata	Rp.500.0 billion	June 27, 2020	Rp.500.0 billion
66.	Omnibus revolving loan and trade facilities	Timah	BTPN (formerly known as PT Bank Sumitomo Mitsui Indonesia)	Rp.1,000.0 billion	November 30, 2020	US\$40.0 million
67.	Rupiah bonds I phase I	Timah	Various bondholders	Rp.1,200.0 billion	September 28, 2020 —September 28, 2022	Rp.1,200.0 billion
68.	Rupiah sukuk ijarah bonds I phase I	Timah	Various sukukholders	Rp.300.0 billion	September 28, 2020 —September 28, 2022	Rp.300.0 billion
69.	Rupiah bonds I phase II	Timah	Various bondholders	Rp.880.0 billion	August 15, 2022 —August 15, 2024	Rp.880.0 billion
70.	Rupiah sukuk ijarah bonds I phase II	Timah	Various sukukholders	Rp.313.0 billion	August 15, 2024	Rp.313.0 billion
71.	Revolving facility	Indometal	Bank Mandiri Europe Limited (“Bank Mandiri Europe”)	US\$12.0 million	February 2, 2021	US\$12.0 million
72.	Receivable purchase facility	Indometal	Bank Mandiri, Hongkong Branch (“Bank Mandiri Hongkong”)	US\$35.0 million	May 17, 2020	US\$19.1 million
73.	Facility package	DAK	BNI	Rp.60.0 billion	December 20, 2020	Rp.50.0 billion
74.	Investment facility	RSBT	PT Sarana Multi Infrastruktur (Persero) (“SMI”)	Rp.118.0 billion	November 24, 2025	Rp.65.7 billion
75.	Murabahah investment	RSBT	PT Bank BNI Syariah (“BNI Syariah”)	Rp. 10.0 billion	October 16, 2024	Rp.8.1 billion
76.	Musyarakah mutanaqishah line facility	RSBT	BSM	Rp.3.2 billion	April 20, 2024	Rp.2.9 billion
78.	Invoice financing facility	RSBT	Bank Mandiri	Rp.40.0 billion	October 21, 2020	Rp.14.6 billion

Notes:

- (1) To be redeemed with a portion of the net proceeds of the offering of the Notes. See “— Indebtedness of Inalum — Inalum’s Bonds.”
- (2) No amount outstanding as of December 31, 2019.
- (3) Unutilized as of December 31, 2019.
- (4) Timah’s revolving credit facility and term loan facility from BRI are interchangeable. See “— Material Indebtedness of Timah — Timah’s BRI Facility I” and “— Material Indebtedness of Timah — Timah’s BRI Facility II.”

Indebtedness of Inalum

Inalum’s Bonds

On November 15, 2018, Inalum issued US\$4.0 billion in aggregate principal amount of unsecured bonds, of which:

- US\$1,000.0 million in aggregate principal amount of bonds will mature in 2021 and bear interest at the rate of 5.230% per annum, payable semi-annually (the “2021 Notes”);
- US\$1,250.0 million in aggregate principal amount of bonds will mature in 2023 and bear interest at the rate of 5.710% per annum, payable semi-annually (the “2023 Notes”);
- US\$1,000.0 million in aggregate principal amount of bonds will mature in 2028 and bear interest at the rate of 6.530% per annum, payable semi-annually (the “2028 Notes”); and
- US\$750.0 million in aggregate principal amount of bonds will mature in 2048 and bear interest at the rate of 6.757% per annum, payable semi-annually (the “2048 Notes”).

Concurrently with the offering of the Notes, we are also making Tender Offers to purchase for cash any and all of our 2021 Notes and 2023 Notes. We intend to retain an amount equal to at least US\$500.0 million of the net proceeds of the offering of the Notes to acquire shares in other mining companies and to refinance our other outstanding indebtedness, and use the remaining net proceeds to repurchase our 2021 Notes and 2023 Notes pursuant to, and subject to the satisfaction or waiver of the conditions of, the Tender Offers that we are concurrently conducting with the offering of the Notes. See “Summary — Recent Developments — Concurrent Tender Offers” and “Use of Proceeds.”

Inalum’s Term Loan Facility

On July 25, 2019, Inalum obtained a non-revolving special transaction loan facility from Bank Mandiri as the initial lender, escrow agent and facility agent for a maximum amount of US\$167.0 million (the “Term Loan Facility”) for the purpose of funding PTFI’s capital expenditures, including IPMM’s respective contribution to such capital expenditures. Although Bank Mandiri is currently the only lender under the Term Loan Facility, the terms of the Term Loan Facility allow for participation by additional lenders. The Term Loan Facility bears interest at a rate of three-month LIBOR plus 1.92% per annum and is unsecured. The Term Loan Facility is available for drawdown until December 31, 2022 and has a final maturity date of June 30, 2026.

Under the terms of the Term Loan Facility, the prior written consent of Bank Mandiri is required for Inalum to, among other things, (i) obtain a credit facility from any third party if doing so would result in a breach of any of its financial covenants under the Term Loan Facility; (ii) transfer or assign any of its rights and/or obligations under the Term Loan Facility; (iii) act as guarantor for any third party; (iv) provide a loan to any third party, save for loans to (a) the Government, (b) IPMM, if related to the acquisition of shares in PTFI or for the purpose of funding the capital expenditures of PTFI, (c) the regional government of Papua if related to the acquisition of shares in PTFI, or (d) subsidiaries of Inalum in which Inalum holds at least 51.0% share ownership in; and (v) sell, assign or transfer in any way, except in its ordinary course of business, its material assets in part or in whole in connection with the re-investment or transfer of shares in IPMM to the regional government of Papua. In addition, Inalum is required to comply with certain financial covenants including maintaining (i) a minimum consolidated or standalone debt service coverage ratio of 1.0; (ii) a maximum consolidated debt to equity ratio of 3.0; (iii) a minimum consolidated current ratio of 1.0; and (iv) a maximum consolidated net debt to EBITDA ratio of 5.0.

NHL's BNI Facility

On September 30, 2019 (as lastly amended on January 17, 2020), NHL obtained an investment credit facility from BNI for a maximum amount of Rp.5.8 billion (the “NHL BNI Facility”) for the purpose of purchasing equipment. The NHL BNI Facility bears interest at a rate of 12.5% per annum and is secured by a fiduciary assignment of the equipment financed by the NHL BNI Facility. The NHL BNI Facility will mature on September 29, 2022.

Under the terms of the NHL BNI Facility, the prior written consent of BNI is required for NHL to, among other things, (i) conduct liquidation or dissolution or any actions that relate to insolvency; (ii) conduct any mergers, acquisitions or reorganization or investment in other companies; (iii) amend its articles of association; (iv) change its business activities; (v) transfer its business to third parties; or (vi) incur new indebtedness. In addition, NHL is required to comply with certain financial covenants, including maintaining (i) a minimum current ratio of 1.0, (ii) a maximum debt to equity ratio of 2.0, and (iii) a minimum debt service coverage of 1.0.

NHL's Adira Finance Lease Facilities

On May 7, 2019, NHL obtained a finance lease facility from Adira for a maximum amount of Rp.1.0 billion and on October 14, 2019, NHL obtained two finance lease facilities from Adira for a maximum amount of Rp.0.7 billion and Rp.0.8 billion, respectively (collectively, the “Adira Finance Lease Facilities”). All the Adira Finance Lease Facilities bear interest at a rate of 8.0% per annum, are unsecured and have maturity dates ranging from April 7, 2022 to December 13, 2022. The purpose of the Adira Finance Lease Facilities is to purchase trucks for NHL's operations.

Material Indebtedness of Antam

Antam's Maybank Indonesia Facility

On December 10, 2015, Antam obtained a working capital expenditure facility in the form of a *Musharaka* contract from Maybank Indonesia for a maximum amount of US\$100.0 million (the “Maybank Indonesia Facility”) for the purpose of financing Antam's general capital expenditure including the expansion of its Pomalaa Ferronickel Facilities. See “Business — Our Nickel Business — Ferronickel production facilities — Pomalaa Ferronickel Facilities.” A *Musharaka* contract is a form of financing under Islamic law that is structured as a partnership or joint venture under which the financier, in this case Maybank Indonesia, contributes to the capital of the client, in this case Antam, for a share in the profits (and loss) of the client through its ownership in the partnership or joint venture. The Maybank Indonesia Facility bears interest at the rate of three-month LIBOR plus 2.0% per annum and is unsecured. The Maybank Indonesia Facility will mature on June 11, 2025.

Under the terms of the Maybank Indonesia Facility, the prior written consent of Maybank Indonesia is required for Antam to (i) conduct any merger or consolidation, except if required by prevailing laws and regulations or a legally binding court decision; (ii) sell, transfer or dispose rights over all or part of its assets with a value of 50.0% or more than Antam's equity, except if required by prevailing regulations or provisions, including government policies; (iii) provide security or encumber its assets, including current income and future income rights (this provision does not apply to security or encumbrances (a) existing prior to the date of the Maybank Indonesia Facility, (b) relating to new facilities entered into for refinancing purposes and secured by the same assets as the refinanced loan, and (c) required for Antam's daily business activities); (iv) provide loans or financing to any third parties (this provision does not apply to certain loans or financing, including those (a) existing prior to the date of the Maybank Indonesia Facility, (b) to employees, employee cooperatives, its employee foundations for welfare programs or small business and cooperative operations in accordance with Government programs relating to CSR, partnership programs and environmental development, (c) related to the obligations of its subsidiaries, whether consolidated or not, or (d) that are ordinary trade payables and given in connection with its ordinary business activities); (v) change its main business activities to an activity that is not listed in its articles of association; (vi) expand or narrow its business activities in a way that may result in its failure to repay the Maybank Indonesia Facility; or (vii) use the Maybank Indonesia Facility for any purpose other than those specified under the Maybank Indonesia Facility. Antam is not permitted to use the Maybank

Indonesia Facility for any business activities that are prohibited under sharia principles such as activities involving gambling, alcohol and tobacco. In addition, Antam is required to comply with certain financial covenants, including maintaining (i) a maximum debt to equity ratio of 3.0, (ii) a minimum debt to beginning cash balance (defined as cash balance at the beginning of the relevant financial reporting period) plus EBITDA ratio of 1.25, and (iii) a minimum net worth of Rp.7,000.0 billion.

Antam's BCA-ICBC Facility

On December 27, 2017, Antam obtained a syndicated non-revolving facility from BCA and ICBC for a maximum amount of US\$65.0 million (the "BCA-ICBC Facility") for the purpose of financing Antam's capital expenditure including the expansion of our Pomalaa Ferronickel Facilities. See "Business — Our Nickel Business — Ferronickel production facilities — Pomalaa Ferronickel Facilities." The BCA-ICBC Facility bears interest at the rate of three-month LIBOR plus 1.79% per annum and is unsecured. The BCA-ICBC Facility will mature on February 9, 2021.

Under the terms of the BCA-ICBC Facility, the prior written consent of BCA and ICBC is required for Antam to (i) change the nature of its main business activities; (ii) transfer or provide security over all or part of its assets or income; (iii) provide loans or financing to any third parties (this provision does not apply to loans, financing or corporate guarantees (a) existing prior to the date of the BCA-ICBC Facility, (b) extended to employees, employee cooperatives, its employee foundations for welfare programs or to small business and cooperative operations in accordance with Government programs relating to CSR, partnership programs and environmental development or (c) related to the obligations of its subsidiaries, whether consolidated or not); (iv) make any transactions with any person or party including but not limited to affiliated parties, which are not in the ordinary course of business; (v) sell or dispose its rights over all or part of its assets with a value of 50.0% or more than its equity, unless required by prevailing regulations or provisions, including government policies; (vi) dissolve its business; (vii) file for bankruptcy; or (viii) make any investment or subscription, or engage, in a new business other than a business sector listed in its articles of association. In addition, Antam is required to comply with certain financial covenants, including maintaining (i) a maximum debt to equity ratio of 2.5, (ii) a minimum debt to beginning cash balance (defined as cash balance at the beginning of the relevant financial reporting period) plus EBITDA ratio of 1.25, and (iii) a minimum tangible net worth of Rp.7,000.0 billion.

Antam's BTPN Facility

On June 21, 2013, Antam obtained a term loan credit facility from BTPN (formerly known as PT Bank Sumitomo Mitsui Indonesia) for a maximum amount of US\$34.2 million (the "BTPN Facility") for the purpose of financing the procurement of equipment and services for its diesel power plant in Pomalaa. See "Business — Our Nickel Business — Ferronickel production facilities — Pomalaa Ferronickel Facilities." The BTPN Facility bears interest at the rate of 4.56% per annum and is unsecured. The BTPN Facility will mature on June 17, 2021.

Under the terms of the BTPN Facility, the prior written consent of BTPN is required for Antam to (i) take any steps towards dissolution, liquidation or winding-up of its business or to lease, assign, transfer or otherwise dispose of, whether by a single or a series of transactions, all or any substantial parts of its assets, whether currently owned or acquired in the future; (ii) reorganize, consolidate or merge with any other company that would materially affect the nature of its business as defined in its articles of association; (iii) create, incur, assume or allow to exist any security right over or otherwise encumber its immovable assets or sell, lease or otherwise dispose of its assets by one or more transactions or a series of independent or interrelated transactions other than on an arm's length basis for full consideration in the ordinary course of business (this provision does not apply to security provided for certain purposes such as to refinance existing facilities or to refinance Antam's operational business activities); (iv) issue any corporate guarantee for any third party or for any subsidiary or affiliate where the amount of the corporate guarantee would exceed the value of Antam's share interest in that subsidiary or affiliate and the period of the corporate guarantee is longer than the loan term, unless such corporate guarantee is already existing at the date of the BTPN Facility; or (v) materially affect the nature of its business as defined in its articles of association. In addition, Antam is required to comply with certain financial covenants, including maintaining (i) a minimum debt to beginning cash balance (defined as cash balance at the

beginning of the relevant financial reporting period) plus EBITDA ratio of 1.25 and (ii) a minimum net worth of Rp.7,000.0 billion.

Antam's BNI Facility

On December 3, 2018, Antam obtained a term loan facility from BNI for a maximum amount of US\$82.0 million (the "BNI Facility") for the purposes of refinancing Antam's Bonds, see "— Antam's Bonds," and financing Antam's capital expenditure. The BNI Facility bears interest at the rate of three-month LIBOR plus a margin of 2.0% per annum and is unsecured. The BNI Facility will mature on December 2, 2025.

Under the terms of the BNI Facility, the prior written consent of BNI is required for Antam to (i) change the nature of its business; (ii) change its corporate status, except for capital increase and amendment of its articles of association, which requires Antam to notify BNI at least 30 days as of the amendment; (iii) conduct any corporate action which may result in the Government no longer being a majority shareholder of Antam; (iv) obtain or provide a loan from or to banks or financial entities, including issuing bonds, except for (a) a subordinated loan from shareholders, (b) loans to shareholders or affiliated parties which have existed prior to the BNI Facility, or (c) accounts payable in relation to day to day activities; (v) bind itself as a guarantor; (vi) grant any security over any of its assets for any third parties; (vii) propose liquidation or file for bankruptcy; (viii) use its corporate funds for any other business than Antam's current business; (ix) pledge Antam's shares to any party which may cause Antam to become unable to carry out its liability under the BNI Facility; (x) transfer its obligation under the BNI Facility to other parties; or (xi) enter into any contracts or agreements with its affiliated parties not in the ordinary course of business.

Antam's Bank Mandiri Facility

On September 18, 2019, Antam obtained a term loan facility from Bank Mandiri for a maximum amount of US\$129.7 million (the "Bank Mandiri Facility") for the general corporate purposes of Antam. The Bank Mandiri Facility bears interest at the rate of three-month LIBOR plus margin of 1.73% per annum and is unsecured. The Bank Mandiri Facility will mature on June 23, 2024.

Under the terms of the Bank Mandiri Facility, the prior written consent of Bank Mandiri is required for Antam to (i) conduct any merger or consolidation, unless such merger or consolidation is required by prevailing laws and regulations or a legally binding court decision; (ii) sell, transfer or otherwise dispose in partial or all of its assets; (iii) provide security or encumber its assets, including rights over its current or future income (this provision does not apply to security or encumbrances (a) existing prior to the date of the Bank Mandiri Facility, (b) relating to new facilities entered into for refinancing purposes and secured by the same assets as the refinanced loan, (c) provided prior to the merger or consolidation as mentioned in (i), (d) required for Antam's daily business activities, (e) secure or encumber on rights over the current or future income in relation to export credit facility provided by Antam, (f) pledge or encumber its shares, in relation to the project finance, or (g) secure or encumber for acquisition financing); (iv) provide loans or financing to any third parties (this provision does not apply to certain loans or financing, including those (a) existing prior to the date of the Bank Mandiri Facility, (b) to employees, employee cooperatives, its employee foundations for welfare programs or small business and cooperative operations in accordance with Government programs relating to CSR, partnership programs and environmental development, (c) related to the obligations of its non-consolidated subsidiaries, or (d) provide advances, loans or security that are ordinary trade payables and given in connection with its ordinary business activities); (v) change the nature of its business; (vi) obtain a loan which may result in a breach of the financial covenants under Bank Mandiri Facility, which include maintaining a debt to equity ratio of less than or equal to 3.0, beginning cash balance (defined as cash balance at the beginning of the relevant financial reporting period) plus EBITDA ratio of more than 1.25 and tangible net worth of not less than Rp.7.0 trillion; or (vii) propose liquidation or file for bankruptcy.

Antam's BRI Facility

On July 15, 2013 (as amended on October 7, 2019), Antam obtained a revolving loan facility from BRI for a maximum amount of US\$200.0 million (the "BRI Facility") for the purpose of financing Antam's working

capital. The BRI Facility bears interest at the rate of 2.5% per annum and is unsecured. The BRI Facility will mature on July 15, 2020.

Under the terms of the BRI Facility, the prior written consent of BRI is required for Antam to (i) file for bankruptcy or (ii) assign or transfer Antam's rights and obligations under the BRI Facility.

Antam's Bank Mandiri Revolving Loan Facility

On November 25, 2015 (as lastly amended on May 29, 2019), Antam obtained a revolving loan facility from Bank Mandiri for a maximum amount of US\$200.0 million (the "Bank Mandiri Revolving Loan Facility") for the purpose of financing Antam's working capital. The Bank Mandiri Revolving Loan Facility bears interest at the rate of 2.57% per annum and is unsecured. The Bank Mandiri Revolving Loan Facility will mature on May 30, 2020.

Under the terms of the Bank Mandiri Revolving Loan Facility, the prior written consent of Bank Mandiri is required for Antam to (i) obtain a new loan from Bank Mandiri or a third party that may result in a breach of Antam's financial covenants under the Bank Mandiri Revolving Loan Facility; (ii) provide loans or financing to any third parties (this provision does not apply to certain loans or financing, including those (a) existing prior to the date of the Bank Mandiri Revolving Loan Facility, (b) to employees, employee cooperatives, its employee foundations for welfare programs or small business and cooperative operations in accordance with Government programs relating to CSR, partnership programs and environmental development, (c) related to the obligations of its non-consolidated subsidiaries, or (d) that are ordinary trade payables and given in connection with its ordinary business activities); (iii) file for bankruptcy to the Commercial Court; (iv) conduct any merger or consolidation, unless such merger or consolidation does not exceed the value of material transactions under Bapepam-LK Rule No. IX.E.2 regarding Material Transactions and Changes in Core Business ("Bapepam Rule IX.E.2") or is required by prevailing laws and regulations or a legally binding court decision; (v) reduce or conduct capital reduction of Antam's paid up capital, unless it is conducted according to applicable regulations or provisions, including government policies; (vi) provide security or encumber its assets, including current income and future income rights (this provision does not apply to security or encumbrances (a) existing prior to the date of the Bank Mandiri Revolving Loan Facility, (b) relating to new facilities entered into for refinancing purposes and secured by the same assets as the refinanced loan, (c) provided prior to the merger or consolidation as mentioned in (iv), (d) required for Antam's daily business activities); (vii) provide security or encumber its new assets and/or rights on Antam's income in the future; (viii) provide security or encumber its shares for project financing; and/or (ix) provide security or encumbrances for acquisition financing. In addition, Antam is required to comply with certain financial covenants including maintaining (i) a maximum debt to equity ratio of 3.0, (ii) a minimum debt to beginning cash balance (defined as cash balance at the beginning of the relevant financial reporting period) plus EBITDA ratio of 1.25, and (iii) minimum tangible net worth of Rp.7,000.0 billion.

Antam's Bonds

On December 28, 2011, Antam issued Rupiah-denominated shelf-registered bonds with fixed interest for an aggregate principal amount of Rp.3,000.0 billion (the "Antam Bonds"). The Antam Bonds comprises (i) Series A bonds in an aggregate principal amount of Rp.900.0 billion, which matured and were repaid on December 14, 2018; and (ii) Series B bonds in an aggregate principal amount of Rp.2,100.0 billion, which bear interest at a fixed rate of 9.05% per annum and will mature on December 14, 2021.

The Antam Bonds are listed on the IDX with Bank Permata as the trustee. The net proceeds of the Antam Bonds were used to finance Antam's business units, renovation and modernization of its ferronickel plant in Pomalaa, as well as the opening of its nickel mines in North Maluku, Southeast Sulawesi, and a bauxite mine in West Kalimantan.

Under the terms of the Antam Bonds, the prior written consent of Bank Permata is required for Antam to (i) conduct any merger or consolidation which would result in the dissolution of Antam, unless such merger or consolidation is required by prevailing laws and regulations or a legally binding court decision; (ii) acquire any other party that does not comply with Antam's articles of association, unless such merger or consolidation is

required by prevailing laws and regulations or a legally binding court decision; (iii) reduce its authorized, issued and paid-up capital; (iv) provide security or encumber its assets, including current income and future income rights, except (a) security or encumbrance existing prior to the date of the Antam Bonds, (b) relating to new facilities entered into for refinancing purposes and secured by the same assets as the refinanced loan, (c) provided prior to the merger or consolidation as mentioned in (i) and (ii), (d) required for Antam's daily business activities, (e) secure or encumber the right of Antam's future income in respect of export credit facilities; (f) secure or encumber shares of Antam for the purposes of existing or future project financing, (g) secure or encumber shares of Antam for acquisition financing; (v) provide loan or corporate guarantee to any third parties, except (a) existing loans or corporate guarantees prior to the Antam Bonds; (b) loans to employees, employee cooperatives and/or Antam's employee foundations for welfare programs; (c) loans or corporate guarantees related to the obligations of subsidiaries; and/or (d) advances, loans or guarantees which are ordinary trade payables and given in connection with Antam's daily business activities; (vi) changing Antam's main business activities which are not listed in its articles of association; (vii) issue any bonds, syndicated loan and other debt securities, where Antam has to provide security over its assets; (viii) submit an application for bankruptcy or suspension of payment obligation (*penundaan kewajiban pembayaran utang*); or (ix) transfer Antam's assets amounting to 50.0% or more of Antam's equity.

In addition, Antam is required to comply with certain financial covenants including maintaining (i) a maximum total interest-bearing debts (excluding trade payables but including sharia funding) to total equity ratio of 3.0, (ii) a minimum total EBITDA plus cash on hand and cash in banks to total matured debt and interest ratio of 1.25 and (iii) equity of more than Rp.7,000.0 billion.

Antam's BCA Facility

On June 13, 2013, Antam obtained a loan facility from BCA for a maximum amount of US\$110.0 million ("Antam's BCA Facility") for the purpose of financing Antam's working capital. Antam's BCA Facility comprises (i) an uncommitted term loan facility for a maximum amount of US\$100.0 million and (ii) an uncommitted foreign exchange line for a maximum amount of US\$50.0 million. Antam's BCA Facility bears interest at a rate to be determined by Antam and BCA upon each drawdown. Antam's BCA Facility is unsecured and will mature on May 9, 2020.

Under the terms of Antam's BCA Facility, the prior written consent of BCA is required for Antam to (i) provide loans to any party, including but not limited to its affiliated companies, except for the purpose of carrying out the ordinary business activities of Antam and/or its affiliates; (ii) enter into any transaction with any party including, but not limited to, its affiliated companies, which is not in its ordinary course of business; (iii) make any investment or subscribe to, or engage in, a business that is not listed in its articles of association; or (iv) sell or dispose any of its immovable or main assets, except in its ordinary course of business.

Antam's MUFG Bank Facility

On July 25, 2012 (as lastly amended on June 22, 2018), Antam obtained a credit facility from MUFG Bank for a maximum amount of US\$100.0 million ("Antam's MUFG Bank Facility") for the purpose of financing Antam's working capital. Antam's MUFG Bank Facility bears interest at a rate to be determined by Antam and MUFG Bank upon each drawdown and is unsecured. Antam's MUFG Bank Facility will mature on June 30, 2020.

Under the terms of Antam's MUFG Bank Facility, the prior written consent of MUFG Bank is required for Antam to (i) sell, lease, transfer or otherwise dispose of, except in its ordinary course of business, or grant any security interest over, any of Antam's asset which might result in a material adverse change in Antam's ability to meet its obligations under the facility; (ii) merge or consolidate with any party whereby the value or cost of the merger or consolidation is equivalent to 20.0% or more of Antam's equity; (iii) acquire any other party whether or not such acquisition would constitute a material transaction under Bapepam Rule IX.E.2; (iv) obtain a loan from any other party, except in its ordinary course of business; (v) prepay any other indebtedness other than indebtedness under Antam's MUFG Bank Facility; (vi) act as a guarantor or perform any act with similar effect,

against any third party's obligations; (vii) acquire by purchase, lease or other means any assets, except in its ordinary course of business; or (viii) merge or consolidate with any party whereby the value or cost of the merger or consolidation is below the threshold of 20.0% of Antam's equity. In addition, Antam is required to comply with certain financial covenants, including maintaining (i) a maximum total interest bearing debt to total equity ratio of 3.0, (ii) a minimum EBITDA plus beginning cash balance to debt service ratio of 1.25 and (iii) minimum tangible net worth of Rp.7,000.0 billion.

Antam's BTPN Facility II

On July 6, 2012 (as lastly amended on December 27, 2018), Antam obtained a term loan facility from BTPN for a maximum amount of US\$75.0 million (the "BTPN Facility II") for the purposes of financing Antam's general capital expenditure, investments and working capital. The BTPN Facility II bears interest at the rate equal to BTPN's cost of fund plus a margin to be determined by Antam and BTPN upon each drawdown. Each drawdown matures in three months from the date of drawdown. The BTPN Facility II is unsecured and is available until December 2020.

Under the terms of the BTPN Facility II, prior written consent of BTPN is required for Antam to sell, lease, transfer, or otherwise dispose of its assets, except in its ordinary course of business. Further, under the terms of the BTPN Facility, Antam is prohibited from, among other things, (i) granting its assets to creditors to be secured by mortgage, fiduciary, hypothec, pledge; (ii) securing or otherwise encumbering its assets including rights over current and future revenue, except securities and encumbrances (a) which were in effect or notified to BTPN prior to the signing of the BTPN Facility II, (b) for refinancing purposes which are secured by the same assets as the refinanced loan, (c) necessary in respect of its ordinary course of business and (d) for the purpose of obtaining project or acquisition financing; (iii) granting any security interest over any of its assets except in its ordinary course of business (including providing any security over any of Antam's assets to its affiliated party) which would result in a material adverse change in Antam's ability to fulfill its obligations under the BTPN Facility II; (iv) merging or consolidating with any party whereby the value or cost of the merger or consolidation is equivalent to 20.0% or more of Antam's equity; or (v) acquiring any other party that would amount to a material transaction under Bapepam Rule No. IX.E.2. In addition, Antam is required to comply with certain financial covenants including maintaining (i) a maximum total interest bearing debt to total equity ratio of 3.1, (ii) a minimum EBITDA plus beginning cash balance to debt service ratio of 1.25 and (iii) minimum equity of Rp.7,000.0 billion.

ARI's Panin facilities

On February 28, 2018 (as lastly amended on April 9, 2020), ARI obtained a loan facility from Panin for a maximum amount of Rp.45.0 billion ("ARI's Panin Facility I") for the purpose of financing ARI's working capital. ARI's Panin Facility I comprises (i) a revolving loan facility from Panin for a maximum amount of Rp.20.0 billion and bearing interest at the rate of 10.0% per annum and (ii) a bank guarantee for a maximum amount of Rp.25.0 billion and bearing a commission fee of 1.0% per annum. ARI's Panin Facility I is unsecured and will mature on February 28, 2021.

On January 15, 2019, ARI obtained a term loan facility from Panin for a maximum amount of Rp.20.0 billion ("ARI's Panin Facility II") for working capital purposes. ARI's Panin Facility II bore interest at the rate of 10.0% per annum. ARI's Panin Facility II was unsecured and matured on January 15, 2020.

ICA's Syndicated Facility

On June 13, 2011 (as lastly amended on October 19, 2018), Antam's subsidiary, ICA, obtained a term loan facility from JBIC for a maximum amount of ¥15.8 billion (the "JBIC Facility") and a syndicated term loan facility from Mizuho and Sumitomo for a maximum amount of ¥10.5 billion (the "Mizuho-Sumitomo Facility") and, together with the JBIC Facility, the "Syndicated Facility") for the purpose of financing the construction and development of our Tayan Chemical Grade Alumina Plant, see "Business — Our Bauxite Business — Alumina production plants — Tayan Chemical Grade Alumina Plant." The JBIC Facility bears interest at the rate of an applicable base rate to be determined by JBIC with reference to the yield of Japanese government bonds, treasury

bills or financing bills plus 1.35% per annum and the Mizuho-Sumitomo Facility bears interest at the rate of LIBOR plus 1.1% per annum. The Syndicated Facility is guaranteed by Antam and is secured by, among other things, (i) a pledge on the onshore accounts of ICA with Mizuho; (ii) a charge over the offshore accounts of ICA with Mizuho; (iii) conditional novations in relation to the sale and purchase agreement for washed bauxite of ICA; (iv) a pledge of Showa Denko's and Antam's shares in ICA to Mizuho pursuant to pledge agreements entered into among ICA, Antam, Showa Denko and Mizuho, as applicable; (v) a fiduciary assignment over receivables of ICA; (vi) a guarantee by Antam, Showa Denko and Japan Oil, Gas and Metal National Corporation ("JOGMEC") for 80.0% of the loans under ICA's Syndicated Facility; (vii) an assignment of ICA's rights under a manufacturing, technology and technical and operational assistance agreement dated December 1, 2010 between ICA and Showa Denko in relation to the provision of technical and operation services for the Tayan Chemical Grade Alumina Plant; (viii) an assignment of ICA's rights under the offtake agreement dated December 1, 2010 among ICA, Showa Denko and Antam relating to the purchase by Showa Denko and Antam of the product under the agreement; and (ix) a guarantee by JOGMEC. The Syndicated Facility will mature on December 15, 2020.

Under the terms of the Syndicated Facility, ICA is prohibited from, among other things, (i) disposing of all or any part of its assets either in a single transaction or in a series of transactions whether related or not, except disposals (a) made in the ordinary course of business, (b) of assets in exchange for other assets comparable or superior as to type, value and quality, or (c) of the product or other similar products in accordance with the terms of its offtake agreements; (ii) entering into any amalgamation, demerger, merger or reconstruction; (iii) incurring or permitting to subsist any financial indebtedness; or (iv) becoming a creditor in respect of any financial indebtedness. In addition, ICA is required to comply with certain financial covenants including maintaining a minimum debt service coverage ratio of 1.1.

SDA's Panin Facility

On October 19, 2017 (as amended on October 7, 2019), SDA obtained a revolving credit facility from Panin for a maximum amount of Rp.20.0 billion (the "Panin Facility") for the purpose of financing Antam's working capital. The Panin Facility bears interest at the benchmark interest rate of the Indonesia Deposit Insurance Corporation (*Lembaga Penjamin Simpanan*) plus 3.0% per annum and is secured by the fiduciary receivables of SDA and a pledge of SDA's escrow account with Panin. The Panin Facility will mature on October 31, 2020.

Material Indebtedness of Bukit Asam

Bukit Asam's Bank Mandiri Bill Purchasing Line

On December 28, 2017 (as lastly amended on May 20, 2019), Bukit Asam obtained a revolving bill purchasing line from Bank Mandiri for a maximum amount of US\$50.0 million (the "Bank Mandiri Bill Purchasing Line") for the purpose of accelerating income from export coal sales receivables. The Bank Mandiri Bill Purchasing Line bears a transaction interest at the rate of 2.85% per annum (for letters of credit that are payable immediately) and in accordance with fees applicable at Bank Mandiri for deferred payment letters of credit, and is unsecured. The Bank Mandiri Bill Purchasing Line will mature on May 27, 2020.

Bukit Asam's Bank Mandiri Non-Cash Loan Facility

On January 28, 2013 (as lastly amended on July 12, 2019), Bukit Asam obtained a non-cash loan facility from Bank Mandiri for a maximum amount of US\$100.0 million ("Bukit Asam's Bank Mandiri Non-Cash Loan Facility") for the purposes of guaranteeing the ongoing projects of Bukit Asam and purchasing machinery or spare parts. Bukit Asam's Bank Mandiri Non-Cash Loan Facility comprises (i) an import letter of credit for a maximum amount of US\$70.0 million and bearing interest at the rate of 0.005% per annum; (ii) a domestic letter of credit for a maximum amount of Rp.500.0 billion at a transaction fee of Rp.250,000; (iii) trust receipt as a sub-limit from import letter of credit and domestic letter of credit for a maximum amount of US\$15.0 million or its equivalent in other currencies and bearing interest at the rate of 0.005% per annum; and (iv) bank guarantee for a maximum amount of Rp.420.0 billion and bearing interest at the rate of 0.5% per annum. Bukit Asam's Bank Mandiri Non-Cash Loan Facility is unsecured and will mature on May 27, 2020.

Under the terms of Bukit Asam's Bank Mandiri Non-Cash Loan Facility, Bukit Asam is required to comply with certain financial covenants including maintaining (i) a maximum net debt to EBITDA ratio of 2.5, (ii) a minimum EBITDA to interest ratio of 5.0 and (iii) minimum debt service coverage ratio of 1.0.

Bukit Asam's BNI Foreign Exchange and Derivative Line

On April 11, 2016 (as lastly amended on April 11, 2019), Bukit Asam obtained a foreign exchange and derivative line from BNI for a maximum amount of US\$750,000 (the "BNI Foreign Exchange and Derivative Line") for the purpose of foreign exchange and derivative transactions. The BNI Foreign Exchange and Derivative Line is unsecured and will mature on January 19, 2020.

Under the terms of the BNI Foreign Exchange and Derivative Line, Bukit Asam is required to comply with certain financial covenants including maintaining (i) a minimum current ratio of 1.0, (ii) a maximum debt to equity ratio of 2.0 and (iii) a minimum debt service coverage of 1.0.

Bukit Asam's BNI Non-Cash Loan Facility

On March 24, 2014 (as lastly amended on April 11, 2019), Bukit Asam obtained a non-cash loan facility from BNI for a maximum amount of US\$75.0 million (the "BNI Non-Cash Loan Facility") for the purposes of guaranteeing ongoing projects of Bukit Asam and guaranteeing its purchase of machinery or spare parts. The BNI Non-Cash Loan Facility comprises (i) a domestic letter of credit bearing interest at the rate of 0.1% and (ii) a standby letter of credit bearing interest at the rate of 0.8% per annum. The BNI Non-Cash Loan Facility is unsecured and will mature on January 19, 2020.

Under the terms of the BNI Non-Cash Loan Facility, Bukit Asam is required to comply with certain financial covenants including maintaining (i) a minimum current ratio of 1.0, (ii) a maximum debt to equity ratio of 2.0 and (iii) a minimum debt service coverage of 1.0.

Bukit Asam's BRI Foreign Exchange Credit Line

On December 8, 2016 (as lastly amended on March 6, 2020), Bukit Asam obtained a foreign exchange credit line from BRI for a maximum amount of US\$35.0 million (the "BRI Foreign Exchange Credit Line") for the purpose of financing Bukit Asam's foreign exchange transactions in relation to same-day payments, next working day-payments, and spot, forward and swap transactions. The BRI Foreign Exchange Credit Line is unsecured and will mature on December 8, 2020.

Under the terms of the BRI Foreign Exchange Credit Line, BRI's prior written consent is required for Bukit Asam to (i) assign or transfer the BRI Foreign Exchange Credit Line, or (ii) incur indebtedness that may result in Bukit Asam's debt to equity ratio to exceed 3.0.

Bukit Asam's BRI Non-Cash Credit Line

On December 8, 2016 (as lastly amended on March 6, 2020), Bukit Asam obtained a non-cash credit line from BRI for a maximum amount of Rp.500.0 billion (the "BRI Non-Cash Credit Line") for the purpose of guaranteeing the operational activities of Bukit Asam and its subsidiaries. The BRI Non-Cash Credit Line comprises (i) a bank guarantee and (ii) a standby letter of credit. Both the bank guarantee and the standby letter of credit bear interest at the rate of 0.35% per annum. The BRI Non-Cash Credit Line is unsecured and will mature on December 8, 2020.

Under the terms of the BRI Non-Cash Credit Line, BRI's prior written consent is required for Bukit Asam to (i) assign or transfer the BRI Non-Cash Credit Line, or (ii) incur indebtedness that may result in Bukit Asam's debt to equity ratio exceeding 3.0.

Bukit Asam's BRI Import Guarantee

On December 8, 2016 (as lastly amended on March 6, 2020), Bukit Asam obtained an import guarantee from BRI for a maximum amount of Rp.300.0 billion (the "BRI Import Guarantee") for the purpose of

guaranteeing Bukit Asam's purchase of operational goods. The BRI Import Guarantee comprises (i) a domestic letter of credit bearing interest at a rate of three-month LIBOR plus 3.0% per annum and (ii) a letter of credit at sight bearing interest at the rate of 8.5% per annum. The BRI Import Guarantee is unsecured and will mature on December 8, 2020.

Under the terms of the BRI Import Guarantee, BRI's prior written consent is required for Bukit Asam to (i) assign or transfer the BRI Import Guarantee, or (ii) incur indebtedness that may result in Bukit Asam's debt to equity ratio exceeding 3.0.

Bukit Asam's BRI Commercial Line

On April 24, 2019 (as lastly amended on March 6, 2020), Bukit Asam obtained a commercial line facility from BRI for a maximum amount of US\$40.0 million (the "BRI Commercial Line Facility") for the purpose of accelerating the receipt of income from export coal sales. The BRI Commercial Line Facility bears interest at a rate (i) of 8.0% per annum for Rupiah letters of credit and (ii) between 2.85% to 3.0% per annum for foreign exchange letters of credit. The BRI Commercial Line Facility is unsecured and will mature on December 8, 2020.

Under the terms of the BRI Commercial Line Facility, BRI's prior written consent is required for Bukit Asam to (i) assign or transfer the BRI Commercial Line Facility or (ii) incur indebtedness that may result in Bukit Asam's debt to equity ratio to exceed 3.0.

SBS' UOB Packing Credit Facility

On May 24, 2018 (as lastly amended on November 16, 2018), Bukit Asam's subsidiary, SBS, obtained a packing credit facility from UOB (the "UOB Packing Credit Facility") for a maximum amount of Rp.212.6 billion for the purpose of monetizing contracts between SBS and Bukit Asam. The UOB Packing Credit Facility bears interest at a rate equal to UOB's cost of fund plus 3.0% per annum. The final maturity date of the UOB Packing Credit Facility is 30 months from the date of the agreement or until the final payment date of the contracts funded by UOB, whichever is earlier. The Packing Credit Facility is secured by fiduciary security over receivables from SBS' mining services contract with Bukit Asam and certain machineries, a pledge of sales proceeds account and a pledge of debt service reserve account maintained by SBS, and an assignment of rights over SBS' mining services contract with Bukit Asam.

Under the terms of the UOB Packing Credit Facility, the prior written consent from UOB is required for SBS to, among other things, (i) conduct a merger, liquidation, acquisition, consolidation or spin-off, or file for bankruptcy or suspension of debt payment; (ii) sell, assign, lease or secure its secured assets in favor of any third parties; (iii) provide lending to any parties, except as conducted in its ordinary course of business; (iv) establish a new subsidiary or acquire shares in another company; (v) change its articles of association, management and composition of its board of directors, board of commissioners and shareholders; (vi) act as a guarantor for another party; (vii) obtain a loan in any form from another party; or (viii) pay dividends to its shareholders. In addition, SBS is required to comply with certain financial covenants, including maintaining (i) a maximum debt to equity ratio of 2.5 and (ii) a minimum debt service coverage ratio of 1.25. SBS is also required to ensure that (i) there is no cross-default with another loan or credit facility where SBS is the debtor; (ii) Bukit Asam shall, at all times, directly hold at least 95.0% of the shareholding of PT Bukit Multi Investama ("BMI"); (iii) BMI shall, at all times, directly hold at least 95.0% of the shareholding of SBS; and (iv) BMI shall, at all times, control SBS' management.

SBS' MULI Finance Lease Facilities

On April 13, 2018, SBS obtained six finance lease facilities from MULI for a maximum amount of Rp.22.5 billion, Rp.17.1 billion, Rp.13.1 billion, Rp.13.1 billion, Rp.11.2 billion and Rp.69.9 billion, respectively (collectively, the "MULI Finance Lease Facilities"). All the MULI Finance Lease Facilities bear interest at rates ranging from 11.0% to 11.25% per annum, are unsecured and have maturity dates ranging from April 20, 2023 to August 30, 2024. The purpose of the MULI Finance Lease Facilities is to purchase machinery for mining.

SBS' CSUL Packing Credit Facilities

On February 6, 2019 and April 24, 2019, SBS obtained two non-cash loan facilities from CSUL (collectively, the "CSUL Packing Credit Facilities") for a maximum amount of Rp.25.2 billion and Rp.4.7 billion, respectively. The CSUL Packing Credit Facilities bear interest at the rate of 12.0% per annum, are unsecured and have maturity dates on March 25, 2023 and April 2, 2023, respectively. The purpose of the CSUL Packing Credit Facilities is to purchase machinery for mining.

SBS' Mandiri Tunas Finance Packing Credit Facility

On November 15, 2019, SBS obtained a non-cash loan facility from Mandiri Tunas Finance (the "Mandiri Tunas Finance Packing Credit Facility") for a maximum amount of Rp.74.8 billion for the purpose of leasing mining machinery. The Mandiri Tunas Finance Packing Credit Facility bears interest at the rate of 11.4% per annum and is unsecured. The Mandiri Tunas Finance Packing Credit Facility will mature on November 15, 2022.

Under the terms of the Mandiri Tunas Finance Packing Credit Facility, the objects of the lease must be insured by Mandiri Tunas Finance as the lessor. Furthermore, Mandiri Tunas Finance as lessor may unilaterally terminate the Mandiri Tunas Finance Packing Credit Facility in the event of revocation of SBS' business licenses, unless the revocation is remedied within 30 days.

SBS' Komatsu Astra Finance Packing Credit Facilities

On February 15, 2016, September 9, 2016, November 29, 2016 and July 14, 2017, SBS obtained four non-cash loan facilities from Komatsu Astra Finance (the "Komatsu Astra Finance Packing Credit Facilities") for a maximum amount of US\$20.5 million, US\$33.3 million, US\$1.8 million and Rp.8.5 billion, respectively. All the Komatsu Astra Finance Packing Credit Facilities bear interest at a rate ranging from LIBOR plus 3.5% to 11.5% per annum, are unsecured and have maturity dates ranging from July 30, 2020 to November 30, 2021. The purpose of the Komatsu Astra Finance Packing Credit Facilities is to purchase machinery for mining.

Under the terms of the Komatsu Astra Finance Packing Credit Facilities, (i) Bukit Asam shall, at all times, be the majority shareholder of and control BMI; and (ii) BMI shall, at all times, be the majority shareholder of and control SBS.

PIT's BRI Cash Collateral Credit Facility

On January 14, 2019, Bukit Asam's subsidiary, PIT, obtained a cash collateral facility from BRI for a maximum amount of Rp.2.0 billion ("PIT's BRI Cash Collateral Credit Facility") for the purpose of financing PIT's working capital requirements for port services at the Kertapati Port. PIT's BRI Cash Collateral Credit Facility bears interest at the rate of 12.5% per annum and is secured by a cessie of receivables and guaranteed by loan insurance. PIT's BRI Cash Collateral Credit Facility will mature on January 14, 2022.

BSP's BRI Cash Collateral Credit Facility

On July 17, 2018, Bukit Asam's subsidiary, BSP, obtained a cash collateral credit facility from BRI for a maximum amount of Rp.16.8 billion ("BSP's BRI Cash Collateral Credit Facility") for the purpose of financing the land, buildings and facilities of BSP's palm factory. BSP's BRI Cash Collateral Credit Facility bears interest at the rate of 9.95% per annum and is secured by BSP's receivables, inventory and a plot of land owned by BSP. BSP's BRI Cash Collateral Credit Facility will mature on July 17, 2023.

Under the terms of the BSP's BRI Cash Collateral Credit Facility, the prior consent of BRI is required for BSP to, among other things, (i) act as a guarantor for another party; (ii) conduct a merger, acquisition or initial public offering; (iii) obtain a loan from another bank or financial institution, save for ordinary trade transactions and existing loan facilities; (iv) sell, assign, lease or transfer its assets that are currently secured in favor of BRI; or (v) acquire shares in another company.

Material Indebtedness of Timah

Timah's Bank Mandiri Revolving Facility Package

On June 27, 2008, Timah entered into two facility agreements with Bank Mandiri, both of which were lastly amended on June 27, 2019 (the "Bank Mandiri Revolving Facility Package") for the purpose of financing its working capital requirements including its smelting operations and trading activities. The Bank Mandiri Revolving Facility Package comprises (i) a revolving credit facility for a maximum amount of US\$25.0 million and bearing interest at the rate of 3.5% per annum to be paid monthly, adjustable in accordance with the applicable interest rate at Bank Mandiri, and (ii) a revolving credit facility for a maximum amount of Rp.500.0 billion and bearing interest at the rate of 8.5% per annum to be paid monthly, adjustable in accordance with the applicable interest rate at Bank Mandiri. The Bank Mandiri Revolving Facility Package is unsecured. The final maturity date of the Bank Mandiri Revolving Facility Package is June 28, 2020.

Under the terms of the Bank Mandiri Revolving Facility Package, the prior written consent of Bank Mandiri is required for Timah to (i) obtain a credit facility from any third party unless negotiated on an arm's length basis or Timah is able to maintain its financial ratios as required under the Bank Mandiri Revolving Facility Package, in which case Bank Mandiri must be notified within one month of the transaction; (ii) bind itself as a guarantor or secure its assets to any third party unless Timah is able to maintain its financial ratios as required under the Bank Mandiri Revolving Facility Package, in which case Bank Mandiri must be notified within one month of the transaction; or (iii) assign or transfer the whole or any part of its rights or obligations under the Bank Mandiri Revolving Facility Package. In addition, Timah is required to comply with certain financial covenants, including maintaining (i) a minimum current ratio of 1, (ii) a maximum debt to equity ratio of 2.5, (iii) a minimum EBITDA to interest ratio of 3.0, (iv) a minimum debt service coverage ratio of 1.0 and (v) a minimum fixed asset and inventory to total debt and other financial instruments ratio of 1.0.

Timah's Bank Mandiri Term Loan Facilities

On December 8, 2014 (as lastly amended on June 27, 2019) and January 29, 2019 (as lastly amended on June 27, 2019), Timah obtained two term loan facilities from Bank Mandiri for a maximum amount of US\$60.0 million and Rp.1,000.0 billion, respectively (the "Bank Mandiri Term Loan Facilities") for the purpose of financing its working capital requirements including its tin smelting and refining operations. The Bank Mandiri Term Loan Facilities are subject to an interest rate to be determined upon each drawdown and are unsecured. The final maturity date of the Bank Mandiri Term Loan Facilities is June 28, 2020.

Under the terms of the Bank Mandiri Term Loan Facilities, the prior written consent of Bank Mandiri is required for Timah to (i) obtain a credit facility from any third party unless negotiated on an arm's length basis or Timah is able to maintain its financial ratios as required under the Bank Mandiri Term Loan Facilities, in which case Bank Mandiri must be notified within one month of the transaction; (ii) bind itself as a guarantor or secure its assets to any third party unless Timah is able to maintain its financial ratios as required under the Bank Mandiri Term Loan Facilities, in which case Bank Mandiri must be notified within one month of the transaction; or (iii) assign or transfer the whole or any part of its rights or obligations under the Bank Mandiri Term Loan Facilities. In addition, Timah is required to comply with certain financial covenants, including maintaining (i) a minimum current ratio of 1, (ii) a maximum debt to equity ratio of 2.5, (iii) a minimum EBITDA to interest ratio of 3.0, (iv) a minimum debt service coverage ratio of 1.0 and (v) a minimum fixed asset and inventory to total debt and other financial instruments ratio of 1.0.

Timah's Bank Mandiri Foreign Exchange Agreement

On June 28, 2010 (as lastly amended on June 27, 2019, Timah entered into a foreign exchange agreement with Bank Mandiri for a maximum amount of US\$30.0 million (the "Bank Mandiri Foreign Exchange Agreement") for the purpose of financing Timah's acquisition of raw materials, export sales and cross currency swaps. Pursuant to the Bank Mandiri Foreign Exchange Agreement, Timah can sell U.S. dollars to Bank Mandiri on a spot, forward, today, tom or swap basis, in exchange for Rupiah. The Bank Mandiri Foreign Exchange Agreement is unsecured. The final maturity date of the Bank Mandiri Foreign Exchange Agreement is June 28, 2020.

Timah's Bank Mandiri Supplier Financing Agreement

On February 6, 2017 (as lastly amended on June 27, 2019), Timah entered into a supplier financing agreement with Bank Mandiri for a maximum amount of Rp.300.0 billion (the "Bank Mandiri Supplier Financing Agreement") for the purpose of financing the procurement of goods and/or services from Timah's local business partners. The Bank Mandiri Supplier Financing Agreement bears interest at the rate of 8.0% per annum and is unsecured. The final maturity date of the Bank Mandiri Supplier Financing Agreement is June 28, 2020.

Timah's Bank Mandiri Non-Cash Loan Facility

On May 2, 1997 (as lastly amended on June 27, 2019), Timah obtained a non-cash loan facility from Bank Mandiri for a maximum amount of US\$108.0 million ("Timah's Bank Mandiri Non-Cash Loan Facility") for the purposes of purchasing spare parts and equipment and bank guarantees. Timah's Bank Mandiri Non-Cash Loan Facility comprises (i) an import or domestic letter of credit for a maximum amount of US\$10.0 million and bearing interest at the rate of 0.005% per annum and (ii) a bank guarantee for a maximum amount of US\$98.0 million and bearing interest at the rate of 0.25% per annum. Timah's Bank Mandiri Non-Cash Loan Facility is unsecured and the final maturity date is June 28, 2020.

Timah's DBS Indonesia Facility Package

On March 24, 2017 (as lastly amended on May 24, 2019), Timah obtained a facility package from DBS Indonesia for a maximum amount of US\$40.0 million (the "DBS Indonesia Facility Package") for the purpose of financing Timah's working capital requirements. The DBS Indonesia Facility Package comprises (i) an uncommitted revolving credit facility for a maximum amount of US\$10.0 million and bearing interest at the rate of DBS Indonesia's cost of fund plus 1.0% per annum and (ii) an uncommitted account receivables facility for up to a maximum amount of US\$30.0 million and bearing interest at the rate of JIBOR plus a margin of 2.0% per annum, if denominated in Rupiah, and of LIBOR plus a margin of 2.0% per annum, if denominated in U.S. dollars. The DBS Indonesia Facility Package matures on May 15, 2020 and is unsecured.

Under the terms of the DBS Indonesia Facility Package, the prior written consent of DBS Indonesia is required for Timah to (i) change the nature of its business; (ii) transfer major assets or material assets or companies in any form under any name whatsoever and for any purpose whatsoever to any third party, where the most important assets or assets are for a value of more than 20.0% of the total assets of Timah; (iii) file for bankruptcy or propose a postponement of debt repayment; (iv) bind itself as a guarantor for third parties; (v) pay any loans to existing or future shareholders, directors, commissioners and/or subsidiaries in any form whatsoever; (vi) execute or sign any material agreements which provide benefits to, or any parties related to, the board of directors, board of commissioners or shareholders; (vii) increase, or approve an increase, in its capital expenditure; or (viii) procure or grant permission to procure a fiduciary transfer of rights, acknowledgment of debt, mortgage rights, charging fees (either fixed or floating), pledges, or other guarantees, agreements or arrangements that would have led to the same outcome as any of the foregoing. In addition, Timah is required to comply with certain financial covenants including maintaining (i) a maximum quarterly gross debt to equity ratio of 3.0, (ii) a minimum quarterly current ratio of 1.0 and (iii) a minimum quarterly interest service coverage ratio of 2.0.

Timah's MUFG Bank Facility Package

On August 31, 2012 (as lastly amended on August 31, 2019), Timah obtained a facility package from MUFG Bank for an aggregate maximum amount of Rp.1,800.0 billion or the equivalent in U.S. dollars (the "MUFG Bank Facility Package") for the purpose of financing Timah's working capital requirements. The MUFG Bank Facility Package comprises (i) a term loan facility bearing interest at the rate of JIBOR plus a margin of 1.0% per annum, if denominated in Rupiah, and of MUFG Bank's cost of fund plus a margin of 1.0% per annum, if denominated in U.S. dollars, and will mature on September 30, 2020, and (ii) an overdraft facility for up to a maximum amount of Rp.300.0 billion and bearing interest at the rate of MUFG Bank's cost of fund plus a margin of 1.5% per annum and will mature on August 31, 2020. The MUFG Bank Facility Package is unsecured.

Under the terms of the MUFG Bank Facility Package, the prior written consent of MUFG Bank is required for Timah to (i) grant any security over any of its assets with a value of more than Rp.300.0 billion, or (ii) obtain a loan or credit from any third party, unless to carry out activities within the ordinary course of business. In addition, Timah is required to comply with certain financial covenants, including maintaining (i) a minimum current ratio of 1.0, (ii) a maximum debt to equity ratio of 2.5, (iii) a minimum EBITDA to interest ratio of 3.0, (iv) a minimum debt service coverage ratio of 1.0 and (v) a minimum fixed asset and inventory to total debt and other financial instruments ratio of 1.0.

Timah's MUFG Bank Supply Chain Finance Facility

On November 7, 2017 (as lastly amended on September 5, 2019), Timah obtained a supply chain financing facility from MUFG Bank for a maximum amount of Rp.300.0 billion (the "MUFG Bank Supply Chain Finance Facility"). The MUFG Bank Supply Chain Finance Facility bears a discount rate equal to MUFG Bank's cost of fund plus 0.75% per annum and is unsecured. The final maturity date of the MUFG Bank Supply Chain Finance Facility is August 31, 2020.

Under the terms of the MUFG Bank Supply Chain Finance Facility, the prior written consent of MUFG Bank is required for Timah to grant any security over any of its assets with a value of more than Rp.300.0 billion, either in a single transaction or a series of transactions within a fiscal year. In addition, Timah is required to comply with certain financial covenants, including maintaining (i) a minimum current ratio of 1.0, (ii) a maximum debt to equity ratio of 2.5, (iii) a minimum EBITDA to interest ratio of 3.0, (iv) a minimum debt service coverage ratio of 1.0 and (v) a minimum fixed asset and inventory to total debt and other financial instruments ratio of 1.0.

Timah's BRI Facility I

On November 15, 2011 (as lastly amended on February 21, 2020), Timah obtained a revolving credit facility from BRI for a maximum amount of Rp.500.0 billion (the "BRI Facility I") for the purpose of financing its working capital requirements. The BRI Facility I bears interest at the rate of 9.0% per annum, adjustable in accordance with the applicable interest rate at BRI, and is unsecured. The final maturity date of the BRI Facility I is November 15, 2020.

Under the terms of the BRI Facility I, the prior written consent of BRI is required for Timah to file or request for a bankruptcy, or secure or encumber its assets to any third party. In addition, Timah is required to maintain a maximum debt to equity ratio of 2.5.

Timah's BRI Facility II

On January 29, 2018 (as lastly amended on February 21, 2020), Timah obtained a short-term uncommitted loan facility with BRI for a maximum amount of Rp.250.0 billion (the "BRI Facility II"). Under the terms of the BRI Facility II, any amount drawn down under the BRI Facility II will be considered a drawdown from, and will result in a decrease of, the total amount available under the BRI Facility I. The BRI Facility II bears interest at a rate to be determined by Timah and BRI upon each drawdown and is unsecured. The BRI Facility II will mature on November 15, 2020.

Under the terms of the BRI Facility II, the prior written consent of BRI is required for Timah to file or request for bankruptcy. In addition, Timah is required to maintain a maximum debt to equity ratio of 2.5.

Timah's CIMB Niaga Facility

On April 12, 2018 (as lastly amended on April 25, 2019), Timah obtained a multi-currency revolving facility from CIMB Niaga on an uncommitted basis for a maximum amount of Rp.1,400.0 billion (or the equivalent in an available currency at CIMB Niaga) (the "CIMB Niaga Facility") for the purpose of financing Timah's working capital requirements. The CIMB Niaga Facility bears interest at a rate to be determined upon each drawdown and is unsecured. The CIMB Niaga Facility will mature on July 11, 2020.

Under the terms of the CIMB Niaga Facility, the prior written consent of CIMB Niaga is required for Timah to (i) lease or transfer all or any part of its immovable or movable assets; (ii) encumber its asset for another party; (iii) enter into an agreement that requires Timah to make any payment to another party; (iv) grant a loan to another party, unless within the ordinary course of business or Timah is able to remain in compliance with certain financial covenants under the CIMB Niaga Facility, in which case CIMB Niaga must be notified of the loan; (v) change its purpose, objectives and business activities; (vi) change its shareholders composition; or (vii) pay or repay any existing or future invoices or receivables of its shareholders or any related-party. In addition, Timah is required to comply with certain financial covenants, including maintaining (i) a minimum current ratio of 1.0 and (ii) a maximum debt to equity ratio of 3.0.

Timah's BCA Time Loan Revolving Facility

On October 15, 2018 (as lastly amended on May 23, 2019), Timah obtained a time loan revolving facility from BCA on an uncommitted basis for a maximum amount of Rp.1,500.0 billion (the "BCA Time Loan Revolving Facility") for the purpose of financing its working capital requirements. The BCA Time Loan Revolving Facility bears interest at a rate to be mutually determined by Timah and BCA upon each drawdown and is unsecured. The BCA Time Loan Revolving Facility will mature on July 28, 2020.

Under the terms of the BCA Time Loan Revolving Facility, the prior written consent of BCA is required for Timah to, among other things, (i) obtain a credit facility from any third party, unless Timah is able to remain in compliance with certain financial covenants under the BCA Time Loan Revolving Facility; (ii) bind itself as a guarantor or pledge its assets to any third party; (iii) grant a loan to another party, including its affiliates, unless within the ordinary course of business; (iv) conduct a transaction with a third party outside the ordinary course of business; (v) undertake a merger or an acquisition, unless Timah remains as a surviving company; or (vi) carry out dissolution, file for bankruptcy or request a postponement for repayment of its debt. In addition, Timah is required to comply with certain financial covenants, including maintaining (i) a minimum current ratio of 1.0, (ii) a maximum liabilities to equity ratio of 2.5 and (iii) a minimum EBITDA to interest ratio of 3.0.

Timah's BCA Foreign Exchange Facility

On July 16, 2019, Timah obtained a foreign exchange facility from BCA for a maximum amount of US\$20.0 million (the "BCA Foreign Exchange Facility") for the purpose of foreign currency hedging to support Timah's operations. Under the terms of the BCA Foreign Exchange Facility, Timah may sell U.S. dollars to BCA on a forward or swap basis in exchange for Rupiah. The BCA Foreign Exchange Facility is unsecured. The final maturity date of the BCA Foreign Exchange Facility is July 28, 2020.

Under the terms of the BCA Foreign Exchange Facility, the prior written consent of BCA is required for Timah to, among other things, (i) obtain a credit facility from any third party unless Timah is able to remain in compliance with certain financial covenants under the BCA Foreign Exchange Facility; (ii) bind itself as a guarantor or pledge its assets to any third party; (iii) grant a loan to another party, including its affiliates, within the ordinary course of business; (iv) conduct a transaction with a third party outside the ordinary course of business; (v) conduct a merger or an acquisition, unless Timah remains a surviving company; or (vi) carry out dissolution, file for bankruptcy or request a postponement for repayment of its debt. In addition, Timah is required to comply with certain financial covenants, including maintaining (i) a minimum current ratio of 1.0, (ii) a maximum liabilities to equity ratio of 2.5 and (iii) a minimum EBITDA to interest ratio of 3.0.

Timah's BSM Musyarakah Facility

On May 10, 2019, Timah obtained a *musyarakah* facility from BSM for a maximum amount of Rp.500.0 billion (the "BSM Musyarakah Facility") for the purpose of financing its working capital requirements. The BSM Facility bears a fee which shall be determined by BSM in accordance with its profit sharing ratio and is unsecured. The BSM Musyarakah Facility will mature on May 10, 2020.

Under the terms of the BSM Musyarakah Facility, the prior written consent of BSM is required for Timah to, among other things, (i) obtain a credit facility or a leasing facility from any third party or bind itself as a

guarantor, unless Timah is able to remain in compliance with certain financial covenants under the BSM Musyarakah Facility; (ii) conduct a business activity outside its ordinary course of business which could impact its ability to repay its debt to BSM; or (iii) propose liquidation, file for bankruptcy or request a postponement for repayment of its debt. In addition, Timah is required to comply with certain financial covenants, including maintaining (i) a positive equity, (ii) a minimum current ratio of 1.0, (iii) a minimum debt service coverage ratio of 1.0 and (iv) a maximum debt to equity ratio of 2.5.

Timah's Bank Permata Money Market Facility

On June 27, 2019, Timah obtained a money market facility from Bank Permata for a maximum amount of Rp.500.0 billion (the "Bank Permata Money Market Facility") to serve as a standby facility. The Bank Permata Facility bears interest at the rate of 8.2% per annum and is unsecured. The Bank Permata Money Market Facility will mature on June 27, 2020.

Under the terms of the Bank Permata Money Market Facility, the prior written consent of Bank Permata is required for Timah to, among other things, (i) obtain a credit facility from any third party, unless Timah is able to remain in compliance with certain financial covenants under the Bank Permata Money Market Facility, in which case Bank Permata must be notified within 30 calendar days of the transaction; (ii) bind itself as a guarantor unless within the ordinary course of business; (iii) guarantee its assets to any third party; or (iv) grant a loan to another party, unless for a short-term loan facility and within the ordinary course of business. In addition, Timah is required to comply with certain financial covenants, including maintaining (i) a minimum current ratio of 1.0, (ii) a maximum interest bearing debt to equity ratio of 2.5 and (iii) a minimum interest coverage ratio of 1.25.

Timah's BTPN Facilities

On December 18, 2019, Timah obtained an omnibus revolving loan and trade facilities from BTPN (formerly known as PT Bank Sumitomo Mitsui Indonesia) for a maximum aggregate amount of Rp.1,000.0 billion (the "BTPN Facilities") for the purpose of financing its working capital requirements and trading activities. The BTPN Facilities comprise (i) a loan note facility bearing interest at the rate of 8.08% per month; (ii) a trust receipt facility bearing interest at the rate of 7.98% per month; (iii) an account receivable financing facility bearing interest at the rate of 7.98% per month; (iv) an account payable financing facility bearing interest at the rate of 7.98% per month; and (v) a guarantee facility bearing interest at the rate of 7.98% per month. The BTPN Facilities are unsecured. The BTPN Facilities are available until November 30, 2020.

Under the terms of the BTPN Facilities, the prior written consent of BTPN is required for Timah to, among other things, (i) relinquish its assets in a single transaction or a series of transactions, unless within the ordinary course of business and in exchange for other assets that are comparable or better in terms of type, value and quality; (ii) conduct a merger, demerger or corporate reconstruction; or (iii) obtain a credit facility from any third party unless Timah is able to maintain its financial ratios as required under the BTPN Facilities, in which case BTPN must be notified within one month from the date of the transaction. In addition, Timah is required to comply with certain financial covenants, including maintaining (i) a minimum current ratio of 1.0, (ii) a maximum gearing ratio of 3.0 and (iii) a minimum interest coverage ratio of 2.0.

Timah's Bonds

Rupiah Bonds I Phase I

On September 28, 2017, Timah issued Rp.1,200.0 billion in aggregate principal amount of unsecured notes under its Rp.2,100.0 billion bond program (the "Rupiah Bonds I Phase I"). The Rupiah Bonds I Phase I comprises (i) Rp.480.0 billion in aggregate principal amount of notes bearing interest at a fixed rate of 8.5% per annum and maturing on September 28, 2020 and (ii) Rp.720.0 billion in aggregate principal amount of notes bearing interest at a fixed rate of 8.75% per annum and maturing on September 28, 2022.

The Rupiah Bonds I Phase I are listed on the IDX with BNI as the trustee. The net proceeds of the Rupiah Bonds I Phase I were used to finance Timah's capital expenditures and to repay Rp.360.0 billion of the

Rp.500.0 billion revolving credit facility under the Bank Mandiri Revolving Facility Package. See “— Timah’s Bank Mandiri Revolving Facility Package.”

Rupiah Sukuk Ijarah Bonds I Phase I

On September 28, 2017, Timah issued Rp.300.0 billion in aggregate principal amount of unsecured notes under its Rp.700.0 billion Islamic bond program (the “Rupiah Sukuk Ijarah Bonds I Phase I”). The Rupiah Sukuk Ijarah Bonds I Phase I comprises (i) Rp.120.0 billion in aggregate principal amount of notes bearing interest in the form of annual *ijarah* installments amounting to Rp.10.2 billion per annum and maturing on September 28, 2020 and (ii) Rp.180.0 billion in aggregate principal amount of notes bearing interest in the form of annual *ijarah* installments amounting to Rp.15.8 billion per annum and maturing on September 28, 2022.

The Rupiah Sukuk Ijarah Bonds I Phase I are listed on the IDX with BNI as the trustee. The net proceeds of the Rupiah Sukuk Ijarah Bonds I Phase I were used to finance Timah’s capital expenditures.

Rupiah Bonds I Phase II

On August 15, 2019, Timah issued Rp.880.0 billion in aggregate principal amount of unsecured notes under its Rp.2,100.0 billion bond program (the “Rupiah Bonds I Phase II”). The Rupiah Bonds I Phase II comprises (i) Rp.387.0 billion in aggregate principal amount of notes bearing interest at a fixed rate of 8.5% per annum and maturing on August 15, 2022 and (ii) Rp.493.0 billion in aggregate principal amount of notes bearing interest at a fixed rate of 8.75% per annum and maturing on August 15, 2024.

The Rupiah Bonds I Phase II are listed on the IDX with BNI as the trustee. The net proceeds of the Rupiah Bonds I Phase II were used to finance Timah’s capital expenditures and to repay (i) Rp.250.0 billion of the Rp.250.0 billion revolving credit facility under the BRI Facility I and BRI Facility II and (ii) Rp.176.0 billion of the Rp.500.0 billion revolving credit facility under the Bank Mandiri Facility Package. See “— Timah’s BRI Facility I,” “— Timah’s BRI Facility II” and “— Timah’s Bank Mandiri Revolving Facility Package.”

Rupiah Sukuk Ijarah Bonds I Phase II

On August 15, 2019, Timah issued Rp.313.0 billion in aggregate principal amount of unsecured notes under its Rp.700.0 billion Islamic bond program (the “Rupiah Sukuk Ijarah Bonds I Phase II”). The Rupiah Sukuk Ijarah Bonds I Phase II bears interest in the form of annual *ijarah* installments amounting to Rp.27.4 billion per annum and will mature on August 15, 2024.

The Rupiah Sukuk Ijarah Bonds I Phase II are listed on the IDX with BNI as the trustee. The net proceeds of the Rupiah Sukuk Ijarah Bonds I Phase II were used to finance the maintenance and replacement of Timah’s production equipment as well as increasing Timah’s production capacity.

Restrictions under Timah’s Bonds

Under the terms of the Rupiah Bonds I Phase I, the Rupiah Sukuk Ijarah Bonds I Phase I, the Rupiah Bonds I Phase II and the Rupiah Sukuk Ijarah Bonds I Phase II (together, the “Timah Bonds”), the prior written consent of BNI is required for Timah to:

- provide a corporate guarantee to other parties if the aggregate amount of the guarantee exceeds 50.0% of the total equity of the Timah, except for corporate guarantees provided prior to the date Timah Phase I Bonds were issued or given in relation to the main or supporting business activities of Timah and/or its subsidiaries;
- change its main business activities, unless pursuant to a decision by the Government as a shareholder of Timah;
- reduce its authorized and paid-up capital, unless pursuant to a decision by the Government as a shareholder of Timah;
- merge with other companies which may result in the dissolution of, or have a negative effect on the business of, Timah. This provision does not apply if (i) the merger is conducted at the request of the

Government and/or the holder of the Series A Dwiwarna share, or (ii) all terms and conditions of Timah Phase I Bonds remain in force and are fully binding on the surviving company and, if Timah is not the surviving company, then all obligations under Timah Phase I Bonds have been legally transferred to the surviving company, which has assets and sufficient ability to guarantee repayment of Timah Phase I Bonds;

- sell or transfer assets to other parties in part or in whole exceeding 50.0% of the total assets of Timah based on the latest audited financial statements, in one transaction or a combination of transactions in one year. This provision does not apply to (i) a sale or transfer done as part of the main business activity of Timah or its subsidiaries, in accordance with the articles of association of Timah or its subsidiaries, (ii) a sale or transfer carried out in accordance with the framework of restructuring and/or privatization stipulated or approved by the Government, or (iii) replacement or renewal of assets that are obsolete due to usage;
- conduct transactions with affiliates (not including Government-owned companies). This provision does not apply to transactions that are (i) carried out on terms that are favorable (and/or not detrimental) to Timah or at least on the same terms that would be obtained by Timah from third parties who are not affiliates in a common transaction, or (ii) the transaction is carried out by Timah to support its business activities in accordance with its articles of association;
- provide loans to or make investments in the form of equity participation to other parties. This provision does not apply to (i) pre-existing loans or investments, (ii) loans or investments to its subsidiaries, affiliated companies or carried out in connection with activities that are in line with its business or in connection with the construction of its business facilities, or (iii) loans to members of the Timah's Board of Commissioners, Board of Directors, employees, cooperatives and employee foundations; or
- make payment for other obligations in Timah's fiscal year if Timah has failed to pay the interest or ijarah installments and/or the principal amounts due under Timah Phase I Bonds in accordance with the terms of Timah Phase I Bonds. This provision does not apply to payments made in the context of daily operational activities and capital expenditure.

Indometal's Bank Mandiri Europe Facility

On December 16, 2016 (as lastly amended on January 31, 2020), Timah's subsidiary, Indometal, obtained an uncommitted revolving loan facility from Bank Mandiri Europe for a maximum amount of US\$12.0 million (the "Bank Mandiri Europe Facility") for the purpose of financing Indometal's invoice and account receivables from its tin trading activities. The Bank Mandiri Europe Facility bears interest at the rate of 2.75% per annum, adjustable according to Bank Mandiri Europe's cost of fund, and is secured by a charge over Indometal's account with Bank Mandiri Europe. The Bank Mandiri Europe Facility has a tenor per invoice of up to 60 days and is available until February 2, 2021.

Under the terms of the Bank Mandiri Europe Facility, Bank Mandiri Europe shall be promptly notified in writing (i) before Indometal carries out any merger and acquisition; (ii) at least 14 days before the change of any of Indometal's directors or shareholders or the amendment of its memorandum or articles of association; and (iii) of the details of any litigation, arbitration or other legal proceeding before any court, agency or body pending or threatened against Indometal that, if adversely determined might materially impair the financial condition of Indometal or its ability to perform its obligation under the Bank Mandiri Europe Facility.

Indometal's Bank Mandiri Hongkong Facility

On May 17, 2019, Indometal, obtained an uncommitted revolving loan facility from Bank Mandiri Hongkong for a maximum amount of US\$35.0 million (the "Bank Mandiri Hongkong Facility") for the purpose of financing Indometal's invoice and account receivables from its tin trading activities. The Bank Mandiri Hongkong Facility bears interest at the rate of LIBOR plus 0.85% per annum and is subject to a commission of 0.125% per invoice. The Bank Mandiri Hongkong Facility is secured by an assignment of the receivables from

purchasers of Indometal's products to Bank Mandiri Hongkong. The Bank Mandiri Hongkong Facility has a tenor per invoice of up to 60 days and is available until May 17, 2020, unless extended by Bank Mandiri in its sole discretion.

Under the terms of the Bank Mandiri Hongkong Facility, Indometal is prohibited from, among other things, (i) create or permit to subsist any security or trust over any receivable which has been purchased by Bank Mandiri Hongkong pursuant to the relevant finance documents and which has not been repurchased by Indometal (a "Purchased Receivable") other than in favor of Bank Mandiri Hongkong; or (ii) sell, assign, transfer or otherwise dispose of any Purchased Receivable to any person other than Bank Mandiri Hongkong. In addition, Indometal is required to comply with certain financial covenants, including maintaining (i) a minimum total current assets to total current liabilities ratio of 1.0, (ii) a minimum debt service coverage ratio of 1.0 and (iii) a maximum total debt to total equity ratio of 3.0.

DAK's BNI Facility Package

On December 21, 2012 (as lastly amended on December 20, 2019), Timah's subsidiary, DAK, entered into two facility agreements with BNI (the "DAK-BNI Facility Package") for the purpose of financing DAK's working capital requirements in relation to operational services and shipbuilding. The DAK-BNI Facility Package comprises (i) Rp.30.0 billion which consists of a pre-existing credit facility for a maximum amount of Rp.10.0 billion and an additional working capital credit facility for a maximum amount of Rp.20.0 billion, and (ii) a credit facility for a maximum amount of Rp.30.0 billion, both bearing interest at the rate of 10.0% per annum. The DAK-BNI Facility Package is secured by vessels, DAK's inventory, DAK's trade receivables and invoices in relation to the shipbuilding that is financed by the DAK-BNI Facility Package, and will mature on December 20, 2020.

Under the terms of the DAK-BNI Facility Package, the prior written consent from BNI is required for DAK to, among other things, (i) change its legal form or status or change its articles of association, except in relation to increasing the company's capital or the transfer of shares between shareholders or to third parties resulting in changes to the ultimate shareholder; (ii) sell or guarantee its assets to any third parties; (iii) incur further indebtedness from a bank or other financial institution; (iv) bind itself as a guarantor or secure its assets to any third parties; (v) propose liquidation or file for bankruptcy; (vi) conduct a merger, liquidation, acquisition, reorganization or investment in other companies; or (vii) change the nature of its business. In addition, DAK is required to comply with certain financial covenants, including maintaining (i) a minimum current ratio of 1.0, (ii) a maximum debt to equity ratio of 2.5 and (iii) a minimum debt service coverage ratio of 1.0.

RSBT's SMI Investment Facility

On November 24, 2017, Timah's subsidiary, RSBT, obtained an investment facility from SMI (the "SMI Investment Facility") for a maximum amount of Rp.118.0 billion or an amount equal to 70.0% of the total construction cost of Rumah Sakit Bakti Timah Pangkalpinang, whichever is smaller, for the purpose of financing the construction of RSBT's hospital, Rumah Sakit Bakti Timah Pangkalpinang. The SMI Investment Facility bears interest at the rate of one month JIBOR plus a margin of 3.978% per annum and is secured by (i) the land and building of Rumah Sakit Bakti Timah Pangkalpinang, (ii) a letter of undertaking by Timah, and (iii) a pledge of debt service reserve account maintained by RSBT. The SMI Investment Facility will mature on November 24, 2025.

Under the terms of the SMI Investment Facility, the prior written consent from SMI is required for RSBT to, among other things, (i) obtain a credit facility from any third party; (ii) bind itself as a guarantor or secure its assets for any third party; (iii) sell and/or otherwise transfer property rights or lease or surrender the use of, all or part of, its assets in the form of movable or immovable property, unless within the ordinary course of business; or (iv) change its purpose, objectives and business activities. In addition, RSBT is required to comply with certain financial covenants, including maintaining (i) a minimum current ratio of 1.0, (ii) a maximum debt to EBITDA ratio of 5.0, (iii) a maximum debt to equity ratio of 3.0, and (iv) a minimum debt service coverage ratio of 1.0.

Other loan facilities to RSBT

On October 16, 2017, RSBT obtained two *murabahah* financing facilities from BNI Syariah for an aggregate maximum amount of Rp.10.0 billion (the “BNI Syariah Murabahah Financing Facilities”) for the purposes of financing the construction of new building floors and supplementary facilities as well as the purchase of medical equipment at Bakti Timah-Karimun Hospital. The BNI Syariah Murabahah Financing Facilities bear a total fee of Rp.5.2 billion in accordance with BNI Syariah’s profit sharing ratio which shall be paid in a series of payments and is secured by a deposit with BNI Syariah, the medical equipment which is financed by the BNI Syariah Murabahah Financing Facilities, an insurance policy and a letter of undertaking from Timah. The BNI Syariah Murabahah Financing Facilities will mature on October 16, 2024. Under the terms of the BNI Syariah Murabahah Financing Facilities, the prior written consent of BNI Syariah is required for RSBT to, among other things, (i) conduct any merger or consolidation; (ii) make any investment in, subscription to, or acquire another company; or (iii) bind itself as a guarantor or grant any security over any of its assets to any third party.

On April 12, 2019, RSBT obtained a *musyarakah mutanaqishah* line facility from BSM for a maximum amount of Rp.3.2 billion (the “BSM Musyarakah Mutanaqishah Facility”) for the purpose of financing the maintenance or replacement of its medical devices. The BSM Musyarakah Mutanaqishah Facility is secured by several medical devices owned by RSBT located at Muntok, Bangka Barat and Sungai Liat, Bangka, and will mature on April 20, 2024. The BSM Musyarakah Mutanaqishah Facility bears a total fee of Rp.1.1 billion in accordance with BSM’s profit sharing ratio. Under the terms of the BSM Musyarakah Mutanaqishah Facility, the prior written consent of BSM is required for RSBT to, among other things, (i) sell, transfer, pledge, mortgage, or charge the medical devices serving as security under the BSM Musyarakah Mutanaqishah Facility for the benefit of any third party, or (ii) carry out any action that could reasonably be considered to have a material adverse effect on its values and interests or BSM’s right to the medical devices serving as security under the BSM Musyarakah Mutanaqishah Facility.

On August 28, 2018 (as lastly amended on October 21, 2019), RSBT obtained an invoice financing facility from Bank Mandiri for a maximum amount of Rp.40.0 billion (“Bank Mandiri Invoice Financing Facility”) for the purpose of accelerating the receipt of health facility claims. The Bank Mandiri Invoice Financing Facility bears interest at the rate of 8.5% per annum and is secured by a sum of Rp.40.0 billion payable by the Healthcare and Social Security Agency of Indonesia to RSBT in relation to health facility claims. The Bank Mandiri Invoice Financing Facility will mature on October 21, 2020. Under the terms of the Bank Mandiri Invoice Financing Facility, the prior written consent of Bank Mandiri is required for RSBT to, among other things, (i) change its corporate status or amend its articles of association, change its shareholders, directors and/or commissioners, alter its capital structure or the nominal value of its shares, merge with or acquire another company, or sell its assets; (ii) transfer any collateral or bind itself as a guarantor or grant security over its assets to third parties except in relation to facilities that RSBT has already entered in; or (iii) pay dividends to its shareholders or use its capital for purposes outside of its business.

Recent Developments

Inalum’s Senior Revolving Credit Facility

On April 20, 2020, Inalum obtained a senior revolving credit facility from BTPN, DBS Indonesia, HSBC Indonesia, Bank Mandiri, Maybank Indonesia, Mizuho Indonesia and MUFG Bank as joint mandated lead arrangers (collectively, the “Lenders”), and DBS Indonesia as facility agent, for a maximum amount of US\$700.0 million (the “Senior Revolving Credit Facility”). The purpose of the Senior Revolving Credit Facility is to fund investments, including acquisitions, and other general corporate purposes. The Senior Revolving Credit Facility bears interest at the rate of three or six months LIBOR (the applicable LIBOR rate shall be determined by Inalum upon each drawdown) plus 0.975% per annum and is unsecured. The Senior Revolving Credit Facility will mature on October 20, 2021.

Under the terms of the Senior Revolving Credit Facility, the prior written consent of the Lenders is required for Inalum to, among other things, (i) create or permit to subsist any security over any of its assets; (ii) enter into a single transaction or a series of transactions to sell, lease, transfer or otherwise dispose of any asset (save for,

among other things, (a) the divestment of up to 40.0% of Inalum's shares in IPMM to the Papua Provincial Government and the Mimika Regency, and (b) the disposal of assets in Inalum's ordinary course of business); (iii) conduct amalgamation, demerger, merger or corporate reconstruction (save for, among other things, corporate reconstruction involving the disposal of Inalum's direct or indirect subsidiaries to other subsidiaries of Inalum); (iv) substantially change the general nature of its business; or (v) acquire any company, business, asset or undertaking, or make any investment (save for (a) the acquisition of shares in PTVI, (b) the acquisition of direct or indirect shares in Inalum's existing subsidiaries (other than Inalum's Material Subsidiaries, as defined below) by Inalum's other existing subsidiaries, and (c) the acquisition of shares in Inalum's Material Subsidiaries by Inalum). Inalum shall also ensure that its Material Subsidiaries will not do (i) or (ii). As defined in the Senior Revolving Credit Facility, Inalum's "Material Subsidiaries" include Antam, Bukit Asam, Timah, PTFI and any other subsidiary with total consolidated gross revenue or assets that constitutes at least 5.0% of Inalum's total consolidated gross revenue or assets, and will include PTVI (upon completion of Inalum's planned acquisition of shares in PTVI, see "Business — Strategies — Transform into a first-class holding company that oversees Indonesia's mining reserves and resources").

On May 5, 2020, we drew down US\$350.0 million from Inalum's Senior Revolving Credit Facility. We may use a portion of the net proceeds of the offering of the Notes to repay the outstanding amount under the Senior Revolving Credit Facility.

Timah's Indonesia Eximbank-Covered MUFG Bank Facility

On February 5, 2020, Timah obtained a facility from MUFG Bank for US\$41.5 million ("Timah's Indonesia Eximbank-Covered MUFG Bank Facility") for the purpose of financing the capital expenditures in relation to the implementation of the Ausmelt TSL tin smelting technology, see "Business — Our Tin Business — Tin development projects — Ausmelt TSL tin smelting technology." Timah's Indonesia Eximbank-Covered MUFG Bank Facility bears interest at the rate of LIBOR plus 1.25% per annum and is guaranteed by Indonesia Eximbank. Timah's Indonesia Eximbank-Covered MUFG Bank Facility will mature on February 5, 2028.

Under the terms of Timah's Indonesia Eximbank-Covered MUFG Bank Facility, the prior written consent of MUFG Bank and Indonesia Eximbank is required for Timah to, among other things, materially assign or novate any right or obligation under, or amend, vary, supplement, supersede, waive, suspend or terminate the agreements with the contractors in relation to the implementation of the Ausmelt TSL technology. In addition, Timah may not, among other things, (i) create or permit any security to subsist over any of its or its subsidiaries' assets; (ii) sell, lease, transfer or dispose of any asset; (iii) enter into any amalgamation, demerger, merger or corporate reconstruction which will have an adverse effect on its ability to continue the general nature of its business and to perform its obligations under the facility; (iv) substantially change the general nature of its business; or (v) acquire a company or any shares or securities or a business or undertaking, or establish a company, which do not have the same general nature of business as Timah. Timah is required to comply with certain financial covenants, including maintaining (i) a maximum total debt to total equity ratio of 2.5; and (ii) a maximum net debt to EBITDA ratio of 6.0 in respect of the six-month period ending on or about June 30, 2020 and December 31, 2020, 5.75 in respect of the six-month period ending on or about June 30, 2021 and December 31, 2021, and 5.5 in respect of the six-month period ending after December 31, 2021.

Timah's Finnvera-Covered MUFG Bank Facility

On February 5, 2020, Timah obtained a facility from MUFG Bank for US\$32.0 million ("Timah's Finnvera-Covered MUFG Bank Facility") for the purpose of financing the capital expenditures in relation to the implementation of the Ausmelt TSL technology. See "Business — Our Tin Business — Tin development projects — Ausmelt TSL tin smelting technology." Timah's Finnvera-Covered MUFG Bank Facility bears interest at the rate of LIBOR plus 1.20% per annum and is guaranteed by Finnvera plc ("Finnvera") with MUFG Bank, Ltd., London Branch acting ("MUFG London") as agent of Finnvera. Timah's Indonesia Eximbank-Covered MUFG Bank Facility will mature on February 5, 2030.

Under the terms of Timah's Finnvera-Covered MUFG Bank Facility, the prior written consent of MUFG Bank and MUFG London, on behalf of Finnvera, is required for Timah to, among other things, materially assign

or novate any right or obligation under, or amend, vary, supplement, supersede, waive, suspend or terminate the agreements with the contractors in relation to the implementation of the Ausmelt TSL technology. In addition, Timah may not, among other things, (i) create or permit any security to subsist over any of its or its subsidiaries' assets; (ii) sell, lease, transfer or dispose of any asset; (iii) enter into any amalgamation, demerger, merger or corporate reconstruction which will have an adverse effect on its ability to continue the general nature of its business and to perform its obligations under the facility; (iv) substantially change the general nature of its business; or (v) acquire a company or any shares or securities or a business or undertaking, or establish a company, which do not have the same general nature of business as Timah. Timah is required to comply with certain financial covenants, including maintaining (i) a maximum total debt to total equity ratio of 2.5; and (ii) a maximum net debt to EBITDA ratio of 6.0 in respect of the six-month period ending on or about June 30, 2020 and December 31, 2020, 5.75 in respect of the six-month period ending on or about June 30, 2021 and December 31, 2021, and 5.5 in respect of the six-month period ending after December 31, 2021.

Timah's BRI Facility III

On February 21, 2020, Timah obtained a supply chain finance facility with BRI for a maximum amount of Rp.300.0 billion (the "BRI Facility III"). Under the terms of the BRI Facility III, any amount drawn down under the BRI Facility III will be considered a drawdown from, and will result in a decrease of, the total amount available under the BRI Facility I, see "— Material Indebtedness of Timah — Timah's BRI Facility I" and "— Material Indebtedness of Timah — Timah's BRI Facility II." The BRI Facility III bears interest at the rate of 7.90% per annum, adjustable in accordance with the applicable interest rate at BRI, and is secured by supplier and vendor bills to Timah. The BRI Facility III will mature on November 15, 2020.

Timah's Panin Money Market Facility

On March 2, 2020, Timah and Panin entered into an offering letter to obtain a money market facility with Panin for a maximum amount of Rp.500.0 billion ("Timah's Panin Money Market Facility") for the purpose of financing Timah's working capital. Timah's Panin Money Market Facility will bear interest at a rate which will be determined by Panin at the time of each drawdown in accordance with applicable money market conditions and is unsecured. The Panin Money Market Facility is subject to the parties entering into a definitive agreement and will mature a year after the definitive facility agreement is entered into.

Under the terms of the offering letter for Timah's Panin Money Market Facility, Timah would be required to comply with certain financial covenants, including maintaining (i) a minimum total current assets to total current liabilities ratio of 1.0, (ii) a maximum interest bearing debt minus cash and bank positions to equity ratio of 2.5 and (iii) a minimum EBITDA to interest ratio of 1.0.

MANAGEMENT

In accordance with Indonesian law, our Company has both a Board of Commissioners and a Board of Directors. The two boards are separate and no individual may serve as a member on both boards.

The rights and obligations of each member of our Board of Commissioners and Board of Directors are regulated by our articles of association and by the decisions of our shareholders in a general meeting. Under our articles of association, our Board of Directors is composed of such number of directors as our shareholder considers necessary. If our Board of Directors consists of more than one member, we are required to appoint a President Director. Any of the President Director, or one of the Directors (in the event the President Director is unavailable, and as appointed in writing by the President Director) is entitled to act for and on behalf of our Company, provided that their actions have been approved in the meeting of Board of Directors. If there is no such written approval, the Director who has had the longest term of office may act on our behalf. The Board of Commissioners must consist of one or more Commissioners, one of which will be appointed as the President Commissioner.

Board of Commissioners

The principal function of our Board of Commissioners is to supervise the policy of our Board of Directors in connection with our business activities and to give advice to our Board of Directors in accordance with our articles of association, shareholder resolutions and prevailing rules and regulations.

Members of our Board of Commissioners are appointed and removed at our general meeting of shareholders and generally serve five-year terms. Our Board of Commissioners comprises six members.

The following table sets forth certain information concerning the members of our Board of Commissioners.

<u>Name</u>	<u>Position</u>	<u>Age</u>	<u>Appointed since</u>
Agus Tjahana Wirakusumah	President Commissioner	65	December 23, 2019
Bambang Gatot Ariyono	Commissioner	60	August 6, 2018
Purbaya Yudhi Sadewa	Commissioner	55	January 10, 2017
Ilyas Asaad	Commissioner	60	June 19, 2019
Arya Mahendra Sinulingga	Commissioner	49	November 22, 2019
Muhammad Munir	Independent Commissioner	61	August 6, 2018

Agus Tjahana Wirakusumah was appointed to our Board of Commissioners in March 2014 and as our President Commissioner in December 2019. Mr. Wirakusumah served as Vice Chairman of the Batam Industrial Development Authority from 2016 to 2017 and as Director General of the International Industrial Cooperation at the Ministry of Industry from 2010 to 2015. He obtained a Bachelor's degree in Mechanical Engineering from the Bandung Institute of Technology in 1979, a Bachelor's degree in Economics from the University of Indonesia in 1988 and a Master's degree in Industrial System Engineering from the University of Florida in 1991.

Bambang Gatot Ariyono was appointed to our Board of Commissioners in August 2018. He has served as the Director General of Mineral and Coal since 2015 and as an economic expert from 2014 to 2015 at the MEMR. He obtained a Bachelor's degree in Geology Techniques from University of Pembangunan Nasional in 1987, a Master's degree in Management from STIE IPWI Jakarta in 1997 and a Doctoral degree in Mining Public Administration from École nationale supérieure des Mines de Paris in 2002.

Purbaya Yudhi Sadewa was appointed to our Board of Commissioners in January 2017. Mr. Sadewa has served at the Ministry for Maritime Affairs as the Deputy Minister for coordinating maritime sovereignty since May 2018 and as Special Staff at the Coordinating Ministry of Maritime Affairs from 2015 to 2018. He obtained a Bachelor's degree in Electrical Engineering from the Bandung Institute of Technology in 1989, a Master's degree in Economics from Purdue University in 1997 and a Doctoral degree in Economics from Purdue University in 2000.

Ilyas Asaad was appointed to our Board of Commissioners in June 2019. Mr. Asaad has served as the Minister of Environment and Forestry (legislation) since 2019 and previously served as the Deputy Minister for

Environmental Compliance and Deputy for Environmental Communication and Community Empowerment at the MOEF from 2008 to 2012 and 2012 to 2015, respectively, as an Expert Staff for the Minister of Environment and Forestry in relation to institutional relations between central and regional affairs from 2015 to 2017 and as Inspector General of the MOEF from 2017 to 2019. He has obtained a Bachelor's degree in Fisheries Science from Hasanuddin University in 1983, a Master's degree in Law from Trisakti University in 2010 and a Doctoral degree in Law from Trisakti University in 2015.

Arya Mahendra Sinulingga was appointed to our Board of Commissioners in November 2019. Mr. Sinulingga has served as Special Staff at the Ministry of State-Owned Enterprises since November 2019. He has held management positions at various Indonesian companies operating in the television and news media industry including, among others, News Director and Corporate Secretary at PT Media Nusantara Citra Tbk. President Commissioner of PT MNC Infotainment Indonesia, President Director of PT Hikmat Makna Aksara (Sindo Weekly), Corporate Secretary of PT Global Mediacom Tbk, Corporate Secretary of PT Media Nusantara Citra Tbk, Editor-in-Chief of PT Global Informasi Bermutu (GTV), Corporate Secretary of PT MNC Sky Vision Tbk, Editor-in-Chief of PT Rajawali Citra Televisi Indonesia (RCTI) and President Director of PT Tivi Bursa Indonesia (IDX Channel). He obtained a Bachelor's degree in Civil Engineering from the Bandung Institute of Technology in 1995.

Muhammad Munir was appointed to our Board of Commissioners in April 2018 and as an Independent Commissioner in August 2018. Mr. Munir served as the Secretary General of the National Resilience Institute of Indonesia from 2015 to 2016 and as the Vice Chief of Staff of the Indonesian Army from 2013 to 2015. He graduated from the Indonesian Military Academy, Infantry branch, in 1983.

Board of Directors

Members of our Board of Directors are elected for five-year terms at a shareholder's general meeting. Our Board of Directors comprises four members, including a President Director, responsible for the management of our business.

The following table sets forth certain information concerning the members of our Board of Directors.

Name	Position	Age	Appointed since
Orias Petrus Moedak	President Director, Chief Executive Officer and acting Chief Financial Officer	52	November 22, 2019 and January 9, 2020
Ogi Prastomiyono	Director of Strategic Services	58	April 11, 2018
Suryo Eko Hadianto	Director of Business Transformation	54	December 26, 2019
Oggy Achmad Kosasih . . .	Director and Chief Operating Officer	53	May 29, 2019

Orias Petrus Moedak was appointed to our Board of Directors in April 2018, as our President Director and Chief Executive Officer in November 2019, and as our acting Chief Financial Officer in January 2020. Mr. Moedak served as our Director of Finance and as Vice President Director of PTFI from 2018 to 2019, as Chief Financial Officer of Bukit Asam from 2017 to 2018 and as Chief Executive Officer of PT Pelabuhan Indonesia III (Persero) from 2016 to 2017. He obtained a Bachelor's degree in Economics from Padjadjaran University in 1990.

Ogi Prastomiyono was appointed as our Director of Strategic Services in April 2018. Mr. Prastomiyono served as Director of Bank Mandiri from 2008 until April 2018 and as Director of BSM from 2003 to 2005. He obtained a Bachelor's degree in Industry Technology from Bogor Agricultural Institute in 1984, graduated from a pre-Master's in Business Administration course from the Institute of Economics, Boulder, Colorado, U.S. in 1992 and obtained a Master's degree in Business Administration from the University of Notre Dame in 1994.

Suryo Eko Hadianto was appointed as our Director of Business Transformation in December 2019. Mr. Hadianto previously served as a Commissioner of BPI from 2018 to 2019, as Bukit Asam's Director of Operations from 2017 to 2019, Director of Business Development in 2017 and Director of Human Resources and General Affairs from 2016 to 2017 and as President Director of Bukit Asam's subsidiary, IPC, from 2013 to 2016. He obtained a Bachelor's degree in Mathematics from Gadjah Mada University in 1990 and a Master's degree in Management, with a major in Production Management, from Mercu Buana University in 2014.

Oggy Achmad Kosasih was appointed to our Board of Directors in April 2014 and as Director and Chief Operating Officer of Inalum's aluminum smelting business in May 2019. Mr. Kosasih served as our Director of Business Development and Chief Operating Officer from 2018 to 2019 and as our Director of Finance from 2014 to 2018. Prior to joining our Company, he served as Vice President of Investment Banking at PT Bahana Securities from 2004 to 2014. He obtained a Bachelor's degree in Management from Krisnadwipayana University in 1990 and a Master's degree in Management from IPMI International Business School in 2003.

Senior Management

The following table sets forth certain information concerning our senior management that oversees Inalum's function as a holding company.

No.	Name	Position	Age	Appointed since
1.	Rendi Akhmad Witular	Head of Corporate Secretary Division	42	April 5, 2019
2.	Arianto Sabtonugroho			
	Rudjito	Head of Corporate Finance Division	42	November 1, 2019
3.	Normansyah Duliar	Head of Corporate Development Division	41	February 6, 2019
4.	Syafrizal	Head of Corporate Strategy Division	46	September 1, 2018
5.	Elizabeth Serenia Silalahi . . .	Head of Corporate Legal Division	45	July 9, 2018
6.	Wahyu Sunyoto	Head of Exploration Division	61	March 18, 2019
7.	Dwi Fatan Lilyana	Head of Human Capital Policy Division	44	August 15, 2018
8.	Dewi Sukmawati	Head of Internal Audit Division	50	January 20, 2020
9.	Zayarwan Zain	Head of Enterprise Risk Management Division	61	December 2, 2019
10.	Ratih Dewihandajani L.	Head of Mining & Minerals Industry Institute Division	48	November 28, 2018

The following table sets forth certain information concerning our senior management that oversees Inalum's aluminum smelting business.

No.	Name	Position	Age	Appointed since
1.	Dante Sinaga	Senior Executive VP of Business Development	58	September 1, 2018
2.	Rainaldy Harahap	Senior Executive VP of Operation & Production	49	May 31, 2019
3.	Ismadi Ys Jenal	Senior Executive VP of Human Resource	46	May 31, 2019
4.	Mahyaruddin AR	Deputy Corporate Secretary Department	38	April 5, 2019
5.	Yohanes Sigit			
	Subandriawan	Head of Finance Department	55	July 20, 2017
6.	Dedi Arianto	Head of Accounting Department	43	May 23, 2018
7.	Darwin Saleh Siregar	Head of Business Planning Department	44	October 1, 2018
8.	Ivan Ermisyam	Head of Strategic Performances Department	48	June 18, 2019
9.	Muhammad Ridwan	Head of PMO Alloy Department	48	July 1, 2019
10.	Ricky Gunawan	Head of PMO INVINDO Department	46	June 18, 2019
11.	Joko Suliso Mulyono	Head of Marketing & Sales Department	47	June 18, 2019
12.	Firman Ashad	Head of Reduction & Casting Department	48	June 18, 2019
13.	Agus Wibowo	Head of Carbon Department	42	June 18, 2019
14.	Edi Mugiono	Head of Engineering & Quality Assurance Department	43	June 18, 2019
15.	Indah Pandia	Head of Safety & Environment Department	43	June 18, 2019
16.	Susyam Widodo	Head of Logistic Department	43	June 18, 2019
17.	Benny Iskandar	Head of General Maintenance Department	52	February 15, 2018
18.	Antoni O. Galingging	Head of Power Operation & Civil Department	55	April 1, 2015
19.	Kusdarjanto BP	Head of Power Maintenance & Engineering Department	48	February 15, 2018
20.	Indra Welly Arifin	Head of Power Administration Department	54	May 19, 2017

No.	Name	Position	Age	Appointed since
21.	Abd Syukur Dalimunthe	Head of Human Capital Services Department	54	June 18, 2019
22.	Ade Buandra	Head of Procurement Department	42	June 18, 2019
23.	Ivan Eko Yudho	Head of Operational Risk Management Department	40	June 18, 2019
24.	M. Syafri Sunardi	Head of Internal Control & Compliance Department	47	June 18, 2019
25.	Daniel Jimmy P. Hutauruk . .	Head of Corporate Social Responsibility Department	44	June 18, 2019
26.	Dwi Yantho Soetimin	Head of General Affairs Department	50	June 18, 2019
27.	Faisal Hidayat	Head of IT & MIS Department	41	June 18, 2019
28.	Satiyawardman Tarigan	Assistant to Director	49	June 3, 2019
29.	Kusnandar D. Sartono	Assistant to Director	48	June 18, 2019
30.	Lamhot P. Purba	Assistant to Director	43	February 1, 2020

Good Corporate Governance and Risk Management Committee

Our Good Corporate Governance (“GCG”) and Risk Management Committee, which was formed in January 2018, is headed by a member of our Board of Commissioners and must include at least two other persons. The current head of our GCG and Risk Management Committee is Purbaya Yudhi Sadewa. The other members are Bambang Gatot Ariyano, Ida Arini and Rizka Zamzani Ibrahim. Our GCG and Risk Management Committee generally meets monthly and its primary role is to propose corporate governance and risk management guidelines to our Board of Commissioners and advise our Board of Commissioners on matters concerning corporate governance and risk management.

As part of the corporate governance process of our Group, business decisions made by Antam, Bukit Asam and Timah relating to certain matters must be approved by (i) the respective company’s Board of Commissioners, (ii) both the respective company’s Board of Commissioners and the Government, by virtue of the Series A Dwiwarna share it holds in each of Antam, Bukit Asam and Timah, or (iii) us, as their majority shareholder, as the case may be, depending on the nature and commercial significance for our Group. The Government, as the holder of the Series A Dwiwarna share in each of Antam, Bukit Asam and Timah, has, through a special power of attorney in favor of us, provided us with the right to vote on its behalf with respect to certain actions set forth in the articles of association of each of those companies. See “Relationship with the Government — Government as Shareholder.”

For example, matters that must be approved by the respective company’s Board of Commissioners include conducting any action that does not fall within the respective company’s Company Work Plan and Budget (*Rencana Kerja dan Anggaran Perusahaan* or “RKAP”) and relinquishing rights under any production-operation IUP or IUPK. Matters that must be approved by the respective company’s Board of Commissioners and the Government include, among others; (i) provision of security over company assets that have a value exceeding a threshold amount specified by the Government; (ii) engaging in a business cooperation or other cooperation agreements of a similar nature, which are for a period of time or value exceeding a maximum period or amount specified by the Government; (iii) establishing or conducting a merger, amalgamation, segregation or dissolution of a subsidiary or joint venture, where the value of the transaction exceeds a threshold amount specified by the Government; (iv) providing loans or guarantees for a value exceeding a threshold amount specified by the Government; (v) writing off non-performing receivables or inventory, which exceed a maximum amount specified by the Government; and (vi) entering into transactions considered material under the Indonesian Capital Markets Law. Matters that must be approved by us include the transfer of any of our subsidiaries’ assets to third-parties and the provision of security over any of our subsidiaries’ assets that exceed 50.0% of the subsidiary’s equity value.

Audit Committee

Our Audit Committee is headed by a member of our Board of Commissioners, who must be an independent commissioner, and must include at least two other persons, who do not have to be members of our Board of

Commissioners. The current Head of our Audit Committee is Muhammad Munir. The other members of our Audit Committee are Ilyas Asaad, Arya Mahendra Sinulingga, Widodo Setiadharmaji, and Eko Wisnu Warsitosunu. Our Audit Committee supports our Board of Commissioners as a consulting, controlling and initiating body which functions include, among other things, overseeing our financial reporting system and processes, supervising the external audit process, reviewing and assessing the independence of external auditors, assessing the adequacy and effectiveness of internal control systems, supervising the independence and objectivity of the internal audit function and supervising the effectiveness of technical and operational reviews of performance.

Our Audit Committee normally meets at least once a month for the time necessary to fulfill its purpose, which is estimated to be no less than one-hour, or more frequently as circumstances dictate. In 2019, our committee held 12 meetings, lasting approximately two or more hours each.

Key Management of our Group Members

Antam

Antam's Board of Commissioners

The following table sets forth certain information concerning the members of Antam's Board of Commissioners.

<u>Name</u>	<u>Position</u>	<u>Age</u>	<u>Appointed since</u>
Agus Surya Bakti	President Commissioner	58	December 19, 2019
Buyung Zaelani	Commissioner	60	May 31, 2012
Dadan Kusdiana	Commissioner	51	April 24, 2019
Arif Baharudin	Commissioner	52	April 24, 2019
Gumilar Rusliwa Somantri	Independent Commissioner	56	May 2, 2017
Anang Sri Kusuwardono	Independent Commissioner	56	May 2, 2017

Agus Surya Bakti was appointed as Antam's President Commissioner in December 2019. Mr. Bakti served as Secretary of the Coordinating Ministry for Political, Legal and Security Affairs from 2018 to 2019 and held various key positions in the Indonesian Armed Forces until 2018, such as Commander Intelligence Assistant in 2018, Military Commander XIV/Hasanuddin in 2017, Military Commander VII/Wirabuana in 2015, First Deputy for Prevention, Protection and Deradicalization at the National Agency for Combating Terrorism in 2012 and Deputy Assistant to the Chief of Staff (Army) in 2010. Mr. Bakti graduated from the Indonesian Armed Forces Academy in 1984, the National Resilience Institute of Indonesia (LEMHANAS) in 2011 and obtained a Master's in Communication from Hasanuddin University in 2017.

Buyung Zaelani was appointed as a Commissioner of Antam in May 2012 and was re-appointed in May 2017. Mr. Zaelani has served as the Main Secretary of Indonesia's State Intelligence Agency since 2014, where he previously served as a Deputy IV in Economics from 2010 to 2014. He obtained a Bachelor's degree in Economics from Airlangga University in Surabaya in 1984. He is also an alumnus of the National Resilience Institute of Indonesia (LEMHANAS).

Dadan Kusdiana was appointed as a Commissioner of Antam in April 2019. Mr. Kusdiana has held various key positions at MEMR, such as Head of Research and Development since 2019, Expert Staff on Natural Resources from 2017 to 2019, Head of Communication, Public Information Service and Cooperation in 2017 and Secretary of the Director General of New Energy, Renewable Energy and Conservation Energy from 2016 to 2017. He obtained a Bachelor's degree in Agricultural Engineering from Bogor Agricultural University in 1992 and a Master's degree in Energy Science from Kyoto University, Japan in 2004.

Arif Baharudin was appointed as Commissioner of Antam in April 2019. Mr. Baharudin has served as commissioner of PT Waskita Karya (Persero) Tbk. since 2011, as Expert Staff on Financial Services and Capital Market Policy and Regulation at the Ministry of Finance since 2017, as Secretary of Fiscal Policy at the Ministry of Finance from 2015 to 2017 and as Head of the Policy Analysis and Harmonization Center at the Ministry of

Finance from 2013 to 2015. He obtained a Bachelor's degree in Accounting from Brawijaya University in 1991 and a Master's degree in Business Administration from the University of Denver in 1998.

Gumilar Rusliwa Somantri was appointed as an Independent Commissioner of Antam in May 2017. Mr. Somantri has been a Professor at the Faculty of Social and Political Science of the University of Indonesia since 2006 and previously served as Rector of the University of Indonesia from 2007 to 2012. He obtained a Bachelor's degree in Social and Political Sciences from the University of Indonesia in 1989 and a Doctoral degree in Sociology from Bielefeld University, Germany in 1995. He also graduated from the National Resilience Institute of Indonesia (LEMHANAS) RI PPSA XXI in 2017.

Anang Sri Kusuwardono was appointed as an Independent Commissioner of Antam in May 2017. Mr. Kusuwardono has served as President Commissioner of PT Prama Energi Nusantara since 2011. Between 1992 and 2011, he was a database and groundwater modeler and geologist at various mining companies including Newcrest Mining Limited, Newmont Mining Corporation and PTFI. Prior to that, he was a mining exploration data processing consultant from 1990 to 1992. He obtained a Bachelor's degree in Geological Mining from the Bandung Institute of Technology in 1990.

Antam's Board of Directors

The following table sets forth certain information concerning the members of Antam's Board of Directors.

<u>Name</u>	<u>Position</u>	<u>Age</u>	<u>Appointed since</u>
Dana Amin	President Director	48	December 19, 2019
Hartono	Director of Operations and Production	47	April 24, 2019
Aprilandi Hidayat Setia	Director of Commerce	44	April 24, 2019
Luki Setiawan Suardi	Director of Human Resources	52	April 24, 2019
Anton Herdianto	Director of Finance	50	December 19, 2019
Risono	Director of Business Development	44	December 19, 2019

Dana Amin was appointed as Antam's President Director in December 2019. Mr. Amin previously served as the Director of Project Management for the establishment of Indonesia's state-owned holding entity for the maritime sector in 2017, as Director of Operations at PT Pelabuhan Indonesia II (Persero) from 2012 to 2016 and as a director of PT Multigroup Logistics Company from 2009 to 2010. He obtained a Bachelor's degree in Civil Engineering from the Bandung Institute of Technology in 1990 and a Master's degree in Civil Engineering (Port Development) from the University of Le Havre in 1998.

Hartono was appointed as Antam's Director of Operations and Production in April 2019. Mr. Hartono previously held several key positions in Antam, such as Senior Engineer II (Geology) from 2012 to 2013, Vice President of the Exploration Geomin Unit from 2013 to 2017, Vice President of General Management at PT Gag Nikel from 2017 to 2018 and General Manager of the Southeast Sulawesi Nickel Mining Business Unit from 2018 to 2019. He obtained a Bachelor's degree in Geological Engineering from the Indonesian State College of Nuclear Technology (*Sekolah Tinggi Teknologi Nuklir* or "STTI") in 1996 and a Master's degree in Mining and Mineral Resources from Padjajaran University in 2008.

Aprilandi Hidayat Setia was appointed as Antam's Director of Commerce in April 2019. Mr. Setia previously held several key positions in Antam, such as a Manager for Trading from 2008 to 2011, Manager for Nickel Marketing from 2011 to 2012, Head of Nickel Marketing from 2012 to 2013, Marketing Manager for ferronickel products from 2013 to 2015, Vice President of Sales and Marketing from 2015 to 2017 and Senior Vice President of Corporate Secretarial function from 2017 to 2019. He obtained a Bachelor's degree in Mining from the Bandung Institute of Technology in 1998, a Master's degree in Management from the IPMI International Business School in Jakarta, Indonesia in 2004 and a Master's degree in Business Administration from Monash University in 2005.

Luki Setiawan Suardi was appointed as Antam's Director of Human Resources in April 2019. Mr. Suardi previously held several key positions in various industries such as Chief Administration Officer at PT Trakindo

Utama from 2018 to 2019, the Chief Human Resource Officer at Astra Aviva Life from 2014 to 2018, the Head of Human Resources at Bank Permata from 2008 to 2014, Principle Consultant at Mercer from 2004 to 2008, Principle Consultant at IBM Business Consulting from 2002 to 2004, Principle Consultant at PwC Indonesia from 1996 to 2002 and Compensation and Benefits Analyst at Astra International from 1991 to 1993. He obtained a Bachelor's degree in Agricultural Technology from Bogor Agricultural University in 1991.

Anton Herdianto was appointed as Antam's Director of Finance in December 2019. Mr. Herdianto previously served as our Senior Executive Vice President of Operational Finance from 2018 to 2019, as Senior Vice President of Small and Medium Enterprise Banking Group at Bank Mandiri from 2017 to 2018, as a member of the Supervisory Board at the pension fund of Bank Mandiri from 2015 to 2016, as Senior Vice President of Strategy and Performance Management at Bank Mandiri from 2014 to 2016, as Finance Director of Mandiri Tunas Finance from 2010 to 2014 and as Vice President of the Change Management Office at Bank Mandiri from 2005 to 2010. He obtained a Bachelor's degree in Accounting from Padjajaran University in 1993 and a Master's degree in Financial Accounting from the University of Indonesia in 2001.

Risono was appointed as Antam's Director of Business Development in December 2019. He previously held several key positions in Antam, such as President Director of PT Gag Nikel from 2018 to 2019, President Director of PT Antam Resourcindo from 2017 to 2018, Director of Operations and Planning at PT Antam Resourcindo from 2016 to 2017 and Vice President of Operations (Bauxite Mining) from 2013 to 2016. He obtained a Bachelor's degree in Mining Engineering from the Bandung Institute of Technology in 2000.

Bukit Asam

Bukit Asam's Board of Commissioners

The following table sets forth certain information concerning the members of Bukit Asam's Board of Commissioners.

<u>Name</u>	<u>Position</u>	<u>Age</u>	<u>Appointed since</u>
Agus Suhartono	President Commissioner and Independent Commissioner	64	October 10, 2013
Robert Heri	Commissioner	54	May 3, 2012
Taufik Madjid	Commissioner	49	December 28, 2018
Jhoni Ginting	Commissioner	58	December 28, 2018
Heru Setyobudi Suprayogo	Commissioner	61	April 20, 2017
Soenggoel Pardamean Sitorus	Independent Commissioner	75	December 28, 2018

Agus Suhartono was appointed as Bukit Asam's President Commissioner and Independent Commissioner in October 2013. Mr. Suhartono previously served as the Chief of the Indonesian Naval Staff from 2009 to 2010, the Inspector General of the Department of Defense from 2006 to 2007, and as an Indonesian Army Commander from 2010 to 2013. He obtained a Bachelor's degree in Economics, with a major in Management, from University of Merdeka Surabaya in 1998.

Robert Heri was appointed as a Commissioner of Bukit Asam in May 2012. Mr. Heri has been the Head of the Energy and Mining Office of South Sumatra since 2010. He previously served as the Head of the Mining and Energy Office of Musi Banyu Asin Region in 2008, as the President Director of PT Petro Muba in 2008 and as Head of the Governance Division of the South Sumatra Regional Office from 2010 to 2016. He obtained a Bachelor's degree in Engineering, with a major in Geology Engineering, from University of Pakuan Bogor in 1991 and a Master's degree in Management from Universitas Bina Darma Palembang in 2008.

Taufik Madjid was appointed as a Commissioner of Bukit Asam in December 2018. Mr. Madjid has served as Director General of the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration since 2017 and previously served as the Director of Community Empowerment at the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration from 2016 to 2017. He obtained a Bachelor's degree in Government Studies from Sam Ratulangi University in 1995 and a Master's degree in Social Development Management at the University of Indonesia in 2005.

Jhoni Ginting was appointed as a Commissioner of Bukit Asam in April 2016. Mr. Ginting has served as Inspector General at the Ministry of Law and Human Rights since 2018 and previously served as Third Deputy for Law and Human Rights at the Coordinating Ministry for Law and Human Rights from 2015 to 2018, as Director of Economic and Monetary Affairs at the Deputy Attorney-General's Office from 2013 to 2014 and as the Head of High Attorney's Office in South Sumatra from 2013 to 2014. He obtained a Bachelor's and Master's degree in Law from Airlangga University in 1987 and 1994, respectively.

Heru Setyobudi Suprayogo was appointed as a Commissioner of Bukit Asam in April 2017. Mr. Suprayogo served as Special Staff at Indonesia's State Intelligence Agency, where he previously served as Expert Staff in 2016 and as a Deputy from 2016 to 2017. He obtained a Bachelor's degree in Economics, with a major in Management, from Airlangga University in Surabaya in 1984 and a Master's degree in Law from Tanjungpura University, Pontianak in 2002.

Soenggoel Pardamean Sitorus was appointed as an Independent Commissioner of Bukit Asam in December 2018. Mr. Sitorus was a Commissioner of PT Adimitra Baratama Nusantara. He obtained a Bachelor's degree in Social Politics from Universitas Terbuka in 1996, and previously held the position of TNI Brigadier General for the Indonesian National Armed Forces.

Bukit Asam's Board of Directors

The following table sets forth certain information concerning the members of Bukit Asam's Board of Directors.

<u>Name</u>	<u>Position</u>	<u>Age</u>	<u>Appointed since</u>
Arviyan Arifin	President Director	55	April 14, 2016
Mega Satria	Director of Finance	42	April 11, 2018
Fuad Iskandar Zulkarnain Fachroeddin ...	Director of Business Development	54	April 20, 2017
Adib Ubaidillah	Director of Commerce	51	November 29, 2017
Joko Pramono	Director of Human Resources	50	April 14, 2016

Arviyan Arifin was appointed as Bukit Asam's President Director in April 2016. Mr. Arifin was previously with PT Bank Muamalat Tbk for 23 years where he held various key positions including Head of the Asset Restructuring Team in 1991 and Business Director from 1999 to 2009, and then served as Chief Executive Officer from 2009 until 2014. He obtained a Bachelor's degree in Industrial Engineering from the Bandung Institute of Technology in 1988.

Mega Satria was appointed as Bukit Asam's Director of Finance in April 2018. Mr. Satria previously served as the Director of Finance and Human Capital at PT Pengembang Pelabuhan Indonesia from 2017 to April 2018, as Chief Financial Officer of PT Citilink Indonesia from 2015 to 2017, as a commissioner at Abacus Distribution System Indonesia, a subsidiary of PT Garuda Indonesia (Persero) Tbk ("Garuda"), from 2013 to 2015 and as Corporate Treasurer at Garuda from 2012 to 2015. He obtained a Bachelor's degree in Business Administration from Wichita State University in 1998 and a Master's degree in Business Administration from Loyola University Chicago in 1999. Mr. Satria is also a Certified Management Accountant.

Fuad Iskandar Zulkarnain Fachroeddin was appointed as Bukit Asam's Director of Business Development in April 2017. Mr. Fachroeddin has held key roles at various companies including Head of Business Development of PT Mass Rapid Transit Jakarta and Chief Executive Officer of Indosat Singapore Pte Ltd. He also served as a director of ASEAN Cables Pte Ltd, a joint venture among Indosat Indonesia, SingTel Singapore, CAT Thailand, TelBru Brunei, Telekom Malaysia and ETPI Philippines. He obtained a Bachelor's degree in Industrial Engineering from the National Institute of Technology, Bandung, in 1990 and a Master's degree in Business Administration from the Bandung Institute of Technology in 2008.

Adib Ubaidillah was appointed as Bukit Asam's Director of Commerce in November 2017. Mr. Ubaidillah has been with Bukit Asam for over 25 years, during part of which he was with Bukit Asam's subsidiary, PT Bukit Asam Prima, where he served as President Director in 2016, as Corporate Secretary from 2016 to 2017 and

as Commercial General Manager in 2017. He obtained a Bachelor's Degree in Economics from Sjakhyakirti University in 2006 and a Master's Degree in Management from Sriwijaya University in 2011.

Joko Pramono was appointed as Bukit Asam's Director of Human Resources in April 2017. Mr. Pramono has been with Bukit Asam for over 20 years and previously served as Bukit Asam's Corporate Secretary from 2011 to March 2016 and as Bukit Asam's Director of Operation and Production from April 2016 to April 2017. He obtained a Bachelor's degree in Mining Engineering from the University of Pembangunan Nasional Veteran Yogyakarta in 1995.

Timah

Timah's Board of Commissioners

The following table sets forth certain information concerning the members of Timah's Board of Commissioners.

<u>Name</u>	<u>Position</u>	<u>Age</u>	<u>Appointed since</u>
M. Alfian Baharudin	President Commissioner and Independent Commissioner	62	February 10, 2020
Rustam Effendi	Commissioner	63	February 10, 2020
Rudy Suhendar	Commissioner	59	April 16, 2018
Bambang Sunarwibowo	Commissioner	53	April 23, 2019
Satriya Hari Prasetya	Independent Commissioner	61	February 10, 2020

M. Alfian Baharudin was appointed as Timah's President Commissioner and Independent Commissioner in February 2020. Mr. Baharuddin previously served as the Head of the National Search and Rescue Agency from 2012 to 2014 and the Commandant of the Marine Corps from 2009 to 2012. He graduated from the Indonesian Naval Academy in 1981.

Rustam Effendi was appointed as a Commissioner of Timah in February 2020. Mr. Effendi previously served as the Governor and Deputy Governor of the Bangka Belitung Islands Province from 2013 to 2017 and 2012 to 2013, respectively, and a member of the Regional Representative Council of the Bangka Belitung Islands from 2009 to 2012. He obtained a Bachelor's degree in Economics in 2015 and a Master's degree in Human Resource Management in 2018 from Mercu Buana University.

Rudy Suhendar was appointed as a Commissioner of Timah in April 2018. Mr. Suhendar was previously with the MEMR for 18 years, where he served as Head of Geology from 2017 to 2018 and as Secretary of General Inspectorate in 2017. He obtained a Bachelor's degree in Geology Technique from Padjadjaran University in 1986 and a Master's degree from the International Institute for Geo-Information Science and Earth Observation in 1995.

Bambang Sunarwibowo was appointed as a Commissioner of Timah in April 2019. Mr. Sunarwibowo has served as Deputy of Economy at the Indonesian State Intelligence Agency since 2018 and previously served as the Chief of Police of Sahlisosek in 2018. He obtained a Bachelor's degree in law from Cokroaminoto University of Yogyakarta in 1998 and a Master's degree in law from Gadjah Mada University in 2009.

Satriya Hari Prasetya was appointed as an Independent Commissioner of Timah in February 2020. Mr. Prasetya previously served as Deputy of the Economic Intelligence department of the Indonesian State Intelligence Agency from 2015 to 2017, as Karokema KL Corps of the National Police Force from 2014 to 2015 and as Chief of the Jambi Regional Police from 2013 to 2014. He graduated from the Police Academy in 1982.

Timah's Board of Directors

The following table sets forth certain information concerning the members of Timah's Board of Directors.

Name	Position	Age	Appointed since
Mochtar Riza Pahlevi Tabrani	President Director	51	April 7, 2016
Alwin Albar	Director of Business Development	51	February 10, 2020
Muhammad Rizki	Director of Human Resources	48	April 28, 2017
Wibisono	Director of Finance	47	February 10, 2020
Agung Pratama	Director of Operations and Production	41	February 10, 2020
Purwoko	Director of Commerce	47	April 23, 2019

Mochtar Riza Pahlevi Tabrani was appointed as Timah's President Director in April 2016. Mr. Tabrani previously served as Director of Finance and Head of Corporate Finance and Investor Relations at PT Perusahaan Gas Negara Tbk ("PGN") from 2008 to 2016, and as Commissioner of PT Gas Energi Indonesia from 2014 to 2016. He obtained a Bachelor's degree in Geology from Trisakti University and a Master's degree from Cleveland State University in 1995.

Alwin Albar was appointed as Timah's Director of Business Development since February 2020 and was previously Timah's Director of Operations from 2017 to 2020. Mr. Albar has been with Timah for over 19 years, serving as a director of Timah International Investment Pte. Ltd. from 2014 to 2017, as Timah's Head of Engineering and Facilities from 2015 to 2017, as Timah's Head of Corporate Planning from 2012 to 2013 and Timah's Head of Business Development from 2008 to 2012. He obtained a Bachelor's degree in Mechanical Engineering from the Bandung Institute of Technology in 1992, a Master's degree in Mechanical Engineering from the University of Wisconsin in 1995 and a Doctoral degree from Texas A&M University in 2001.

Muhammad Rizki was appointed to Timah's Board of Directors in April 2016 and as Timah's Director of Human Resources in April 2017. Mr. Rizki had been with Timah for over 20 years, serving as Head of Offshore Operations from 2013 to 2015, as Head of Logistics from 2013 to 2013 and as Head of Metallurgy from 2009 to 2012. He obtained a Bachelor's degree of Engineering in Metallurgy from the University of Indonesia in 1995 and a Master's degree in Management from IPMI International Business School in 2003.

Wibisono was appointed as Timah's Director of Finance in February 2020. Mr. Wibisono previously served as the Director of Finance and Administration at PT Transportasi Gas Indonesia from 2019 to 2020, as Director of Finance and Administration at PT PGAS Telekomunikasi Nusantara from 2018 to 2019, as President Director of PT Karya Prima Usahatama from 2016 to 2018 and as Director of Finance and Administration at PT Gas Energi Indonesia from 2014 to 2016. He obtained a Bachelor's degree in Finance from Gajah Mada University in 2010.

Agung Pratama was appointed as Timah's Director of Operations and Production in February 2020. Mr. Pratama has been with Timah for over 12 years, previously serving as Vice President Head of Production at our Kundur Tin Mines from 2018 to 2020, as Vice President Head of Production at our Bangka Tin Mines from 2017 to 2018 and as Vice President Deputy Head of Production at our Bangka Tin Mines from 2015 to 2017. He was also Chief Mine Officer of our Kundur Tin Mines from 2018 to 2020 and of Bangka from 2015 to 2018. He graduated with a Bachelor's degree in Mining Engineering from Sriwijaya University in 2003.

Purwoko was appointed as Timah's Director of Commerce in April 2019. Mr. Purwoko previously served as Director of Operation and Marketing and General Manager at PT Timah Industri from 2013 to 2015 and in 2013 respectively. He obtained a Bachelor's degree in Engineering in Metallurgy from the Bandung Institute of Technology in 1996 and a Master's degree in Business Administration from the Bandung Institute of Technology in 2013.

Compensation

Payment of compensation to the commissioners and directors is determined at the annual general meeting of shareholders. For the years ended December 31, 2017, 2018 and 2019, total compensation paid to our commissioners, as a group was Rp.29.2 billion, Rp.71.5 billion and Rp.118.2 billion (US\$8.5 million), respectively, and total compensation paid to our directors, as a group, was Rp.88.8 billion, Rp.159.7 billion and Rp.233.6 billion (US\$16.8 million), respectively.

RELATIONSHIP WITH THE GOVERNMENT

History

We are a profit-based, state-owned limited liability company, established in Indonesia under the Deed of Limited Liability Company of PT Indonesia Asahan Aluminium No. 2, dated January 6, 1976, made before Juliaan Nimrod Siregar, S.H., Notary in Jakarta. We were initially formed as a joint venture company between the Government and Nippon Asahan for the purpose of constructing two hydroelectric power plants and an aluminum smelting plant at the Asahan River located in North Sumatra. At the time of our establishment, the Government and Nippon Asahan respectively held equity interests of 10.0% and 90.0% in our Company.

In 2014, the Government acquired all of Nippon Asahan's shares in our Company. Pursuant to Government Regulation No. 26 of 2014 concerning the Change of Status of PT Indonesia Asahan Aluminium into a State-Owned Entity (Persero), we were converted into a state-owned enterprise wholly owned by the Government and our name was changed to PT Indonesia Asahan Aluminium (Persero).

In 2016, the Government announced its plan to create synergies among Indonesia's state-owned entities through the establishment of a designated holding company for each of the country's key sectors including, among others, mining, oil and gas, and infrastructure. In 2017, we were appointed as the holding company for the state's mining operators and, in November 2017, the Government transferred its 65.0% equity interests in each of Antam, Bukit Asam and Timah to us. Concurrent with this handover, the Government also transferred its 9.36% equity interests in PTFI to us, and, in December 2018, we increased our beneficial equity interests in PTFI to 51.24%. See also "Business — Strategies — Transform into a first-class holding company that oversees Indonesia's mining reserves and resources."

Government as Shareholder

The Government currently owns 100.0% of our issued share capital, which was Rp.54,177.9 billion (US\$3,897.4 million) as of December 31, 2019. As our sole shareholder, the Government is entitled to receive dividend payments from us on an interim or annual basis and plays a key role in our budget planning. The Government is also entitled, in its capacity as our sole shareholder, to approve changes to our capital structure or to our articles of association, as well as certain corporate actions which we may propose in line with our business strategy such as, among others, mergers or acquisitions, separation or dissolution, certain transfer of assets, and certain non-operational long-term investments and financing. The Government, as the holder of the Series A Dwiwarna share in each of Antam, Bukit Asam and Timah, has, through a special power of attorney in favor of us, provided us with the right to vote on its behalf with respect to certain actions set forth in the articles of association of each of those companies. However, save for requiring or accessing information from each of those companies, we would consult with the Government prior to exercising any rights under such power of attorney. See "Management — Good Corporate Governance and Risk Management Committee." Our commissioners and directors are appointed by the Government, through the Ministry of State-Owned Enterprises, based on merit.

As our sole shareholder, the Government has the ability to instruct us to take certain corporate actions to deliver on its mandate for our Company to be the ultimate parent company for Indonesia's mining sector, and productively and sustainably manage Indonesia's mining reserves and resources as well as develop value-added downstream coal and mineral products. Such corporate actions include, among others, acquiring other mining companies and managing and/or contributing resources to the management of mining assets in the Government's possession, see "Risk Factors — Risks Common to All Our Businesses — We are subject to the control of the Government, whose interests may differ from the interests of our Group and our creditors."

Government as Regulator

Under the Indonesian constitution, all natural resources in the Republic of Indonesia are deemed to be national assets and must be used for the maximum benefit of the Indonesian people. To ensure the fulfillment of this objective, the mining of natural resources is controlled by the Government through the MEMR, who acts as both the regulatory and licensing authority of the mining sector, the Ministry of Industry, who acts as the licensing authority for certain mineral processing and refining activities, and other relevant ministries, including

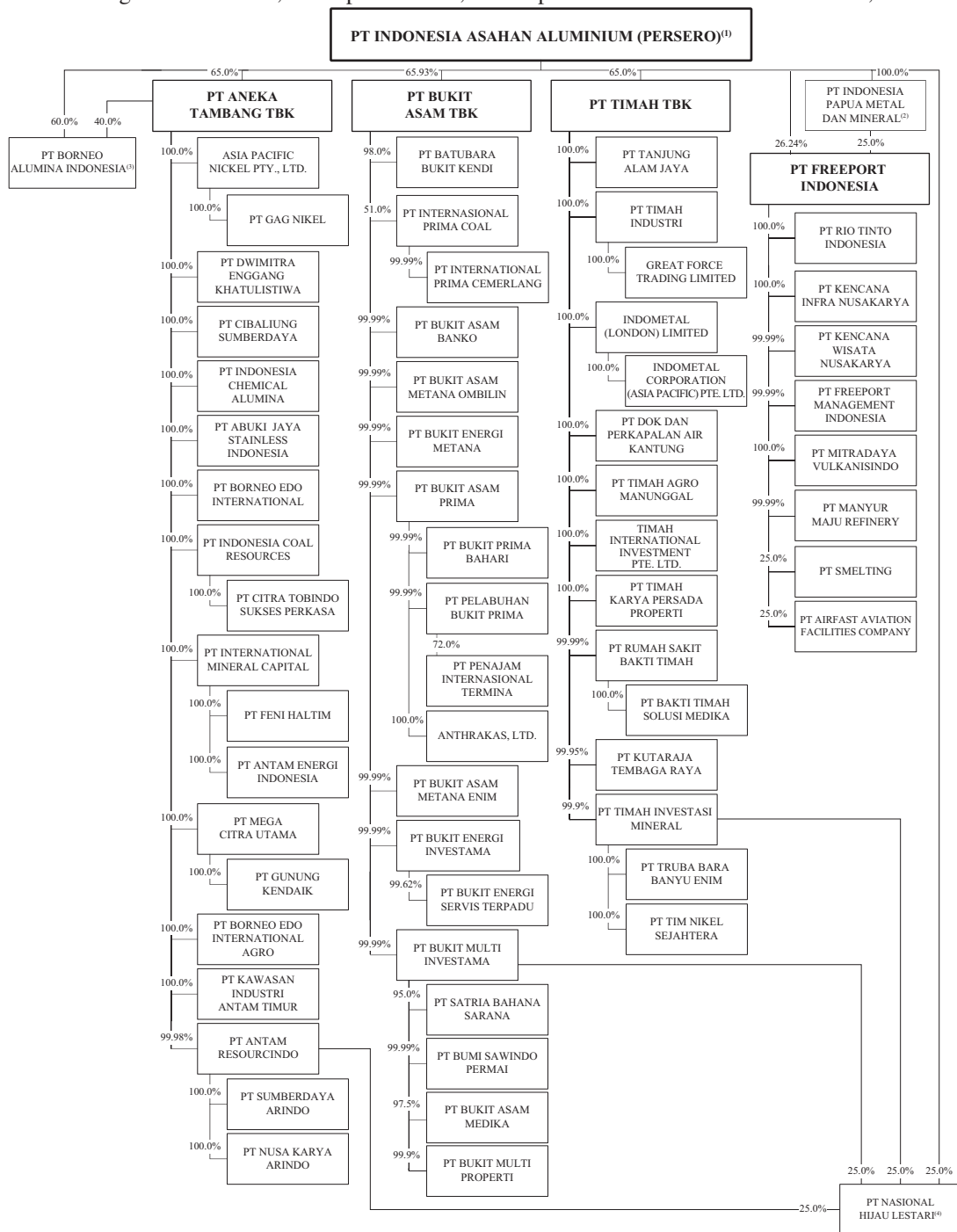
the OSS Body, who acts as the licensing authority for foreign trading of tin and coal. See “Indonesian Regulatory Framework.”

A mining license must be obtained from the MEMR in order to engage in mining activities including exploration, production and processing activities. In addition, ownership of any mined coal or minerals will only be transferred to the mining entity after payment of the necessary royalties to the Government, which includes payment of 10.0% of net profits from the mining activity. The Government, through the MEMR and pursuant to MEMR Regulation 7/2020, conducts a priority bidding process for mining concessions among state-owned entities and regional government-owned entities, before opening the opportunity to bid for such mining concessions to the public. The MEMR makes such priority bidding offers to regional government-owned entities through the governor or regent/mayor, as applicable. State-owned entities and regional government-owned entities also have the opportunity to invite local private entities to participate as their partner in the bidding process. The Government, through the MEMR, also sets the minimum price that coal and minerals may be sold at through the coal benchmark price and metal mineral benchmark price that is determined by the MEMR. The export of mineral and coals is also subject to the approval of the MEMR. Certain types of processed or refined mining products are further subject to verification procedures or technical investigations by the Directorate General of Offshore Trade, on behalf of the Minister of Trade.

In conducting our mining, aluminum smelting and other related business activities, we are also subject to the supervision of the MOEF or the OSS Body, as applicable, to ensure that our operations are in line with the prevailing environmental laws and regulations.

CORPORATE STRUCTURE

The following chart sets forth, in simplified form, our corporate structure as of December 31, 2019.



Notes:

- (1) The Issuer.
- (2) Formerly known as PT Indocopper Investama.
- (3) PT Borneo Alumina Indonesia is a joint venture between Inalum and Antam.
- (4) PT Nasional Hijau Lestari is a joint venture among Inalum, PT Antam Resourcindo (a subsidiary of Antam), PT Bukit Multi Investama (a subsidiary of Bukit Asam) and PT Timah Investasi Mineral (a subsidiary of Timah).

RELATED-PARTY TRANSACTIONS

We have entered into various transactions with certain of our related parties, which primarily comprise other state-owned entities, in the ordinary course of business. We believe each of these transactions as described below have been entered into on an arm's length basis or on terms that are as favorable to us as similar transactions with non-related-parties.

We also have existing financing agreements with state-owned, and therefore related, banks such as Bank Mandiri, BRI, and BNI. See "Description of Material Indebtedness."

Agreements with Pertamina

Fuel sales agreements

On June 7, 2017, Antam entered into a three-year fuel sales agreement with Pertamina for the purchase of marine fuel oil, biodiesel and fuel oil from Pertamina for Antam's operations in Pomalaa, Pongkor, Tayan, and Cibaliung. Under the terms of the agreement, Pertamina will supply 12,040,000 liters of fuel per month to Antam. The amount of fuel to be supplied may be adjusted based on Antam's needs by written agreement between the parties. The price to be paid by Antam under the agreement may be adjusted based on the fuel prices published periodically by Pertamina. Disputes arising out of the agreement are to be settled by arbitration at the Indonesia National Board of Arbitration. The agreement is valid until June 7, 2020.

On March 14, 2019, Inalum, Antam, Bukit Asam, and Timah entered into a strategic cooperation agreement with Pertamina for the purchase of fuel from Pertamina for their mining and aluminum smelting operations. The price to be paid by Inalum, Antam, Bukit Asam, and Timah under the agreement will be determined in accordance with a fuel price formula to be agreed upon by the parties. The volume and delivery of the fuel will be further agreed in a separate agreement between us and Pertamina. Disputes arising out of the agreement are to be settled by arbitration at the Indonesia National Board of Arbitration. The agreement is valid from December 1, 2018 until October 31, 2023.

On July 1, 2019, Timah entered into a fuel sales agreement with Pertamina for the purchase of bio diesel and fuel oil from Pertamina for Timah's tin processing operations in Bangka, Kundur, and Belitung, see "Business — Our Tin Business — Tin smelting and refining plants." The agreement sets forth the estimated amount of fuel to be supplied by Pertamina to Timah, which may be adjusted based on Timah's needs by written agreement between the parties. The price to be paid by Timah under the agreement is determined by Pertamina upon delivery of the fuel. Disputes arising out of the agreement are to be settled by arbitration at the Indonesia National Board of Arbitration. The agreement is valid from December 1, 2018 until October 31, 2023.

Coal gasification plant project

On January 16, 2019 (as supplemented on October 7, 2019), Bukit Asam entered into a principle agreement with Pertamina and Air Products to establish, subject to further evaluation and studies, a joint venture company or joint venture companies that will engage in the business of using coal gasification technology to convert coal into synthesis gas for use as a raw material for further processing into DME fuel and/or other end products, see "Business — Our Coal Business — Downstream coal businesses — Coal gasification plant project." Pursuant to the agreement, Bukit Asam, Pertamina and Air Products have agreed that, if the technical and commercial evaluation indicates that the project is feasible, they will enter into the relevant transaction documents for the project, such as joint venture agreements and coal supply agreements, and obtain their respective corporate approvals by December 31, 2021. Under the proposed project structure, Bukit Asam will supply coal to the joint venture, Pertamina will be the primary offtaker of the products produced by the joint venture, and Air Products will provide the technology to be used by the joint venture. Disputes arising out of the agreement are to be settled by arbitration at the Singapore International Arbitration Center. The agreement is valid until December 31, 2021.

Calcined petroleum coke plant project

On December 3, 2019, Inalum entered into a joint venture development agreement with Pertamina to establish a joint venture for the construction, development and operation of the CPC Plant, see "Business — Our

Aluminum Smelting Business — Aluminum development projects — Calcined petroleum coke plant project.” Under the terms of the agreement, Pertamina will own 75.0% of the joint venture and Inalum will own the remaining 25.0%. Pursuant to the agreement, Pertamina and Inalum have agreed to fund the construction of the CPC Plant through shareholder loans, subscription of new shares in the joint venture or other means. Under the proposed joint venture structure, upon the commencement of operations of the CPC Plant, Pertamina will supply green petroleum coke to the CPC Plant for conversion into calcined petroleum coke, which will in turn be purchased by Inalum. Disputes arising out of the agreement are to be settled by arbitration at the Indonesia National Board of Arbitration. The agreement is valid from December 3, 2019 until the parties enter into a definitive joint venture agreement, unless the parties mutually agree to terminate the agreement.

Agreements with PLN

Coal offtake agreements

On September 29, 2004, Bukit Asam entered into a 25-year agreement with PLN for Bukit Asam to supply PLN’s Tarahan coal-fired power plant 700,000 tonnes of coal per year, with an option for PLN to increase or decrease the supply by 15.0% per year. The price is determined by negotiation between Bukit Asam and PLN every year, except prices for deliveries during the first year will be equal to the initial price specified under the agreement. Disputes arising out of the agreement are to be settled by arbitration at the Indonesia National Board of Arbitration. The agreement is valid until September 29, 2029.

On December 28, 2012 (as lastly amended on December 2, 2019), Bukit Asam entered into a 20-year agreement with PLN for Bukit Asam to supply PLN an aggregate total of 265.7 million tonnes of coal within the period of the agreement, with an option for PLN to increase or decrease the supply by 10.0% per year. The price to be paid by PLN under the agreement is determined annually by reference to the published FOB coal benchmark prices for the last three months of the previous year in accordance with the regulations of the MEMR. Disputes arising out of the agreement are to be settled by arbitration at the Indonesia National Board of Arbitration. The agreement is valid until December 28, 2032.

On January 28, 2013 (as lastly amended on December 2, 2019), Bukit Asam entered into a 10-year agreement with PLN’s subsidiary, Indonesia Power, for Bukit Asam to supply Indonesia Power a total of 44.2 million tonnes of coal within the period of the agreement. Pursuant to the terms of the agreement, Bukit Asam must deliver to the Tarahan Port a daily dedicated stock of 30,000 tonnes of coal for Indonesia Power. The price to be paid by PLN under the agreement is determined annually by negotiations between Bukit Asam and Indonesia Power. Disputes arising out of the agreement are to be settled by arbitration at the Indonesia National Board of Arbitration. The agreement is valid until January 28, 2023.

On October 14, 2014 (as lastly amended on December 2, 2019), Bukit Asam entered into a 10-year agreement with PLN for Bukit Asam to supply PLN’s Bukit Asam coal-fired power plant 1.0 million tonnes of coal per year. The price to be paid by PLN under the agreement is determined annually by reference to the published coal FOB barge benchmark prices for the last three months of the previous year in accordance with the regulations of the MEMR, with certain adjustments for the transportation and survey of the coal. Disputes arising out of the agreement are to be settled by arbitration at the Indonesia National Board of Arbitration. The agreement is valid until October 14, 2024.

See “Business — Customers — Coal — Coal offtake agreements with PLN.”

Power purchase agreements

On March 16, 2018, Timah entered into a power purchase agreement with PLN for PLN to supply electricity for Timah’s housing complex in Riau Islands and Riau Province at a total voltage of 220 Volts. The electricity tariff to be paid by Timah under the agreement is in accordance with MEMR Regulation No. 31 Year 2014 on the Electricity Tariff Provided by PLN dated November 5, 2014, as amended from time to time. The parties to the agreement have submitted to the exclusive jurisdiction of the Tanjung Pinang District Court. The agreement is valid for an unlimited period of time and may be terminated in writing at any time by the parties.

On March 16, 2018, Timah entered into a power purchase agreement with PLN for PLN to supply electricity for Timah's workshop in Riau Islands and Riau Province at a total voltage of 20 kV. The electricity tariff to be paid by Timah under the agreement depends on a specific formula determined under the agreement. The parties to the agreement have submitted to the exclusive jurisdiction of the Tanjung Pinang District Court. The agreement is valid for an unlimited period of time and may be terminated in writing at any time by the parties.

Coal Supply Agreements

Coal supply agreement with HBAP

On September 12, 2012 (as lastly amended on March 21, 2018), Bukit Asam entered into an agreement with HBAP for HBAP to supply Bukit Asam's Sumsel 8 CFPP up to 5.8 million tonnes of coal per year, with an option for HBAP to increase or decrease the supply as may be mutually agreed by Bukit Asam and HBAP. Under the terms of the agreement, the price to be paid by HBAP for the first year of the agreement is Rp.269,607.80 per tonne, which shall be adjusted annually by reference to an agreed formula. Further, the parties may also amend the coal price in the event of any changes in government policy relating to coal prices. Disputes arising out of the agreement shall be settled by arbitration at the Singapore International Arbitration Centre. The agreement is valid for 25 years from the date that commercial operations at the Sumsel 8 CFPP commences. See "Business — Our Coal Business — Downstream coal businesses — Sumsel 8 CFPP project."

Coal supply agreements with Baturaja

On May 31, 2017, Bukit Asam entered into two agreements with Baturaja, each for a period of three years, for Bukit Asam to supply Baturaja a total of approximately 1.1 million tonnes of coal and 603,000 tonnes of coal, respectively, within the period of the agreements. Under the terms of the agreements, the price to be paid by Baturaja is determined on a quarterly basis by reference to the published coal FOB barge benchmark prices by the MEMR for the preceding three months, with certain adjustments for the transportation and survey of the coal. Disputes arising out of the agreements shall be settled by arbitration at the Indonesia National Board of Arbitration. The agreements are valid until May 31, 2020.

Coal supply agreement with BPI

On December 7, 2011 (as lastly amended on June 28, 2019), Bukit Asam entered into a 30-year agreement with its joint venture, BPI, for Bukit Asam to supply BPI's Banjarsari coal-fired power plant with an aggregate total of 30.0 million tonnes of coal over the period of the agreement, with an option for BPI to increase or decrease the supply by 10.0%. Under the terms of the agreement, the price to be paid by BPI under the agreement is negotiated annually between Bukit Asam and BPI. Disputes arising out of the agreement shall be settled by arbitration at the Indonesia National Board of Arbitration. The agreement is valid until December 7, 2041.

Coal supply agreement with PT Pupuk Sriwidjaja Palembang ("Pupuk")

On January 17, 2018, Bukit Asam entered into a three-year agreement with Pupuk for Bukit Asam to supply Pupuk's coal-fired power plant with 500,000 tonnes of coal per year. Under the terms of the agreement, the price to be paid by Pupuk is determined on a quarterly basis by reference to the Indonesian Coal Index price, with certain adjustments for the transportation and quality of the coal. Disputes arising out of the agreement shall be settled by arbitration at the Indonesia National Board of Arbitration. The agreement is valid until December 30, 2020.

Sampling and Analysis Services Agreements with Sucofindo

On November 14, 2019, Inalum entered into a service agreement with Sucofindo for Sucofindo to perform sampling and analysis of sea water at Inalum's jetty at Kuala Tanjung, North Sumatra. Under the terms of the agreement, the total price to be paid by Inalum for Sucofindo's services is Rp.42.1 million. The parties to the agreement have submitted to the exclusive jurisdiction of the Kisaran District Court. The agreement is valid until June 30, 2020.

On May 9, 2019, Inalum entered into a service agreement with Sucofindo for Sucofindo to perform sampling and analysis of the liquid waste output at Inalum's facilities at Kuala Tanjung, North Sumatra. Under

the terms of the agreement, the total price to be paid by Inalum for Sucofindo's services is Rp.69.0 million. The parties to the agreement have submitted to the exclusive jurisdiction of the Kisaran District Court. The agreement is valid until June 30, 2020.

Sale of Gold

In 2018 and 2019, Antam agreed to sell gold to other state-owned entities as follows:

- pursuant to an offer letter dated November 15, 2018, Antam agreed to sell 5,500 grams (equivalent 194.0 oz) of gold to Pegadaian for a total contract price of Rp.3.3 billion;
- pursuant to an offer letter dated February 12, 2019, Antam agreed to sell 88 grams (equivalent to 3.1 oz) of gold to PGN for a total contract price of Rp.0.5 million;
- pursuant to an offer letter dated May 14, 2019, Antam agreed to sell 3,864 grams (equivalent to 136.3 oz) of gold to Pupuk for a total contract price of Rp.2.4 billion;
- pursuant to an offer letter dated June 10, 2019, Antam agreed to sell 260 grams (equivalent to 9.2 oz) of gold to PT Biro Klasifikasi Indonesia (Persero) for a total contract price of Rp.165.5 million;
- pursuant to an offer letter dated July 5, 2019, Antam agreed to sell 125 grams (equivalent to 4.4 oz) of gold to PT Semen Indonesia (Persero) Tbk for a total contract price of Rp.68.8 million;
- pursuant to an offer letter dated November 5, 2019, Antam agreed to sell 2,611 grams (equivalent to 92.1 oz) of gold to PT Krakatau Steel (Persero) Tbk for a total contract price of Rp.1.9 billion; and
- pursuant to an offer letter dated December 27, 2019, Antam agreed to sell 9,209 grams (equivalent to 324.8 oz) of gold to PT Jasa Marga (Persero) Tbk for a total contract price of Rp.6.7 billion.

Agreements with KAI

Mining services agreement

On June 9, 2017, Bukit Asam entered into a five-year transportation agreement with KAI, see "Business — Our Coal Business — Coal hauling, processing and delivery — Coal transportation agreement with KAI." Under the terms of the agreement, KAI committed to transporting up to a minimum of 30.0 million tonnes of coal per year, from January 1, 2017 until December 31, 2021, from our Tanjung Enim Coal Mine to our Tarahan Port and Kertapati Port. Under the terms of the agreement with KAI, in the event that KAI transports less than the minimum limit stipulated in the agreement of coal in a given year, KAI's fees may be reviewed and adjusted by both parties. In addition, if the fuel price incurred by KAI is 10.0% more than Rp.5,649/liter, we are required to bear the difference in cost; whereas if the fuel price incurred by KAI is less than 10.0% more than Rp.5,649/liter, our fees paid to KAI will be lowered by the difference in cost. Further, under the terms of the agreement, KAI is required to maintain insurance coverage for any train accident occurring during the transportation of the coal. The parties to the agreement have submitted to the exclusive jurisdiction of the Palembang District Court. The agreement is valid until December 31, 2021 and may be terminated by either party in the event of, among other things, default or bankruptcy of either party or if the parties are unable to agree on the transportation cost.

Cooperation framework agreement

On September 28, 2018, we entered into a cooperation framework agreement with KAI to develop train coal transportation capacity from our Tanjung Enim Coal Mine to Tarahan and Prajin. The scope of the agreement is to increase the capacity of the existing routes from Tanjung Enim to Prajin and Tanjung Enim to Tarahan and to conduct feasibility studies on the development of the Prajin Line and Tarahan Line II. Under the terms of the agreement, the costs for the feasibility studies for the Prajin Line will be borne by us and the costs for the feasibility studies for the Tarahan Line II will be borne equally by the parties. The agreement is valid until September 28, 2023 and can be extended by mutual consent of the parties. Disputes arising out of the agreement are to be settled by arbitration at the Indonesia National Board of Arbitration. See "Business — Our Coal Business — Infrastructure development projects."

Transportation Agreement with BUMD Perdana Cipta Mandiri (“PCM”)

On November 1, 2017, Antam entered into a three-year transportation agreement with PCM for PCM to transport Antam’s nickel ore at Antam’s Buli Serani nickel mining concession. Under the terms of the agreement, the total price to be paid by Antam for the services is Rp.690.0 billion. Disputes arising out of the agreement shall be settled by arbitration at the Indonesian National Board of Arbitration. The agreement is valid until November 30, 2020.

Lease Agreement with Bank Mandiri

On September 5, 2018, Bank Mandiri entered into a lease agreement with Bukit Asam for Bank Mandiri to lease a piece of land and a building owned by Bukit Asam located in Muara Enim, South Sumatra. Under the terms of the agreement, the lease is for a term of five years, until October 12, 2023, and Bank Mandiri will pay a total amount of Rp.1.6 billion for the term of the lease. Bank Mandiri can extend the lease by written notice to Bukit Asam at least three months prior to the expiry of the lease. Bank Mandiri is prohibited from lending, leasing, securing, or transferring the land or building to any other party. The parties to the agreement have submitted to the exclusive jurisdiction of the Muara Enim District Court.

Agreement with PT Bukit Asam Kreatif (“BAK”)

On March 5, 2019, Bukit Asam entered into an outsourcing agreement with BAK for BAK to provide qualified personnel to operate and provide maintenance services for Bukit Asam’s mining equipment for a total contract price of Rp.161.0 billion. The parties to the agreement have submitted to the exclusive jurisdiction of the Muara Enim District Court. The agreement is valid from March 1, 2019 until February 28, 2024.

Settlement Agreement with PT PAL Indonesia (Persero) (“PAL”)

On December 13, 2013 (as amended on August 21, 2018), Timah entered into a settlement agreement with PAL with respect to the cancellation by PAL of the purchase of a chemical tanker from Timah’s subsidiary, DAK. Under the terms of the settlement agreement, PAL will pay Timah an aggregate total of US\$8.2 million in quarterly payments from March 2014 until December 2023. Disputes arising out of the agreement shall be settled by arbitration at the Indonesia National Board of Arbitration.

Cooperation Agreement with PT Industri Nuklir Indonesia (Persero) (“INUKI”)

On November 4, 2015 (as lastly amended and restated on October 17, 2019), Timah entered into a cooperation agreement with INUKI to revitalize the production of radioisotopes and radiopharmaceuticals owned by INUKI in South Tangerang, Indonesia. Under the terms of the cooperation agreement, Timah will bear the cost of the revitalization of the production facility, working capital of production and/or the procurement of radioisotopes and radiopharmaceuticals up to a total amount of Rp.34.6 billion and is entitled to 60.0% of the profit sharing. Disputes arising out of the agreement shall be settled by arbitration at the Indonesia National Board of Arbitration. The agreement is valid for an indefinite period of time and may be terminated at will.

Agreement with PT Bhanda Gara Rekso (Persero) (“Bhanda”)

On January 1, 2019, Timah entered into an agreement with Bhanda pursuant to which (i) Timah agreed to lease to Bhanda two of Timah’s warehouses in Muntok and Kundur, respectively, and a forklift for the transportation of tin metal to Bhanda, and provide Bhanda with goods handling services including warehouse storage and the loading of tin onto ships for a fee of US\$30.0/tonne; and (ii) Bhanda agreed to manage Timah’s tin metal commodity warehouse for a fee of US\$12.5/tonne, provided that such fees may be adjusted based on values determined by the Indonesia Commodity and Derivatives Exchange. The parties to the agreement have submitted to the exclusive jurisdiction of the Pangkalpinang District Court. The agreement is valid until December 31, 2020.

EPC Agreements with PT Wijaya Karya (Persero) Tbk (“Wijaya Karya”)

On January 20, 2020, Timah entered into an EPC agreement with Wijaya Karya. Under the terms of the EPC agreement, Wijaya Karya will perform the engineering, procurement, construction and commissioning works in relation to the installation and implementation of the Ausmelt TSL tin smelting technology at one of our Bangka smelting and refinery plants for a total contract price of Rp.796 billion. The agreement is valid until the fulfillment of all obligations by each party under the agreement. Disputes arising out of the agreement are to be settled by arbitration at the Indonesia National Board of Arbitration.

On August 12, 2019, Bukit Asam entered into an EPC agreement with Wijaya Karya. Under the terms of the EPC agreement, Wijaya Karya will perform the construction works in relation to Bukit Asam’s coal handling facility and rail loop at the Tanjung Enim Coal Mine for a total contract price of Rp.570.2 billion. Disputes arising out of the agreement shall be settled by arbitration at the Indonesian National Board of Arbitration. The agreement is valid until April 3, 2021.

Construction agreement with PT PP (Persero) Tbk (“PP”)

On August 10, 2018, Inalum entered into a construction agreement with PP. Under the terms of the construction agreement, PP will perform the construction works in relation to Inalum’s building in Kuala Tanjung, North Sumatra for a total contract price of Rp.366.3 billion. Pursuant to the agreement, PP will complete the construction of the building within 540 days of receipt of instructions from Inalum to commence construction and PP will continue to be responsible for damages or defects arising from the construction or materials used in the construction in relation to the building for 360 days after the completed building is handed over to Inalum. Disputes arising out of the agreement shall be settled by arbitration at the Indonesian National Board of Arbitration. The agreement expired on February 1, 2020 and Inalum is currently in the process of extending the agreement.

Construction agreement with PT Adhi Karya (Persero) Tbk (“Adhi”)

On November 6, 2017 (as lastly amended on December 12, 2019), Bukit Asam entered into a construction agreement with Adhi. Under the terms of the agreement, Adhi will perform the construction works in relation to Bukit Asam’s residential area in Tanah Putih, South Sumatra for a total contract price of Rp.537.3 billion. The parties to the agreement have submitted to the exclusive jurisdiction of the Muara Enim District Court. The agreement is valid until May 31, 2020.

Water Resources Management Agreement with Perusahaan Umum Jasa Tirta I (“PJT”)

On August 19, 2019, Inalum entered into a water resources management agreement with PJT. Under the terms of the agreement, PJT will conduct the maintenance, planning and construction of water facilities and provide any necessary supporting facilities at the Asahan River. The management fees will be determined in accordance with the fees published by the Ministry of Public Works and Public Housing and PJT will invoice Inalum monthly for the works completed for that month. Disputes arising out of the agreement shall be settled by arbitration at the Indonesia National Board of Arbitration. The agreement is valid until December 31, 2021.

Explosives Supply Agreement with PT Dahana (Persero) (“Dahana”)

On September 10, 2019, Bukit Asam entered into an explosives supply agreement with Dahana for Dahana to supply Bukit Asam with ammonium nitrate, detonators and dynamites to be used for Bukit Asam’s mining operations. Under the terms of the explosives supply agreement, the price to be paid by Bukit Asam for 2 years supply of explosives is Rp.128.1 billion. The parties to the agreement have submitted to the exclusive jurisdiction of the Muara Enim District Court. The agreement is valid until February 28, 2021.

Aluminum Fluoride Sale and Purchase Agreement with PT Petrokimia Gresik (“Petrokimia”)

On February 28, 2018, Inalum entered into a sale and purchase agreement with Petrokimia for Petrokimia to supply 4,000 tonnes of aluminum fluoride per year to Inalum. The price to be paid by Inalum is US\$1,090 per

tonne of aluminum fluoride and may be adjusted every year by mutual agreement of both parties. Disputes arising out of the agreement shall be settled by arbitration at the Indonesia National Board of Arbitration. The agreement is valid until December 31, 2020.

Intercompany Loans

Intercompany loan to IPMM

On December 21, 2018, Inalum provided a US\$818.4 million intercompany loan to IPMM for the purpose of subscribing to new shares issued by PTFI. The intercompany loan bears interest at a rate of 7.622% per annum, payable upon the repayment of the intercompany loan. The intercompany loan shall be repaid by IPMM upon (i) the Papua Government and/or the Mimika Regency becoming a shareholder of IPMM through their participation in the ownership of PTFI, see “PT Freeport Indonesia — Economic Interests In and Management of PTFI — Agreement between the Government, the Papua Government, the Mimika Regency and Inalum,” or (ii) IPMM receiving any income (including dividend income from PTFI), whichever is earlier. Under the terms of the intercompany loan, the prior consent of Inalum is required for IPMM to, among other things, (i) assign or transfer its obligations under the intercompany loan; (ii) sell, transfer, secure or otherwise dispose its assets to third parties; (iii) change the nature of its business; (iv) change its board of directors and board of commissioners; and (v) conduct any merger, consolidation, acquisition, or liquidation. Disputes arising out of the intercompany loan shall be settled by arbitration at the Indonesia National Board of Arbitration.

Intercompany loans to NHL

On March 4, 2019, Inalum provided a Rp.10.0 billion intercompany loan to NHL for the purpose of meeting NHL’s recurring and non-recurring expenses. The intercompany loan bears interest at a rate of 6.41% per annum, payable upon the maturity of the intercompany loan on March 4, 2020. Under the terms of the intercompany loan, NHL may not assign or transfer its obligations under the intercompany loan without prior written consent from Inalum. Disputes arising out of the intercompany loan shall be settled by arbitration at the Indonesia National Board of Arbitration. Inalum and NHL are currently in the process of extending the maturity date of the intercompany loan.

On November 6, 2019, Inalum provided a Rp.2.5 billion intercompany loan to NHL for the purposes of civil construction works, purchase of assets and project preparation. The intercompany loan bears interest at a rate of 8.05% per annum, payable upon the maturity of the intercompany loan on November 6, 2020. Under the terms of the intercompany loan, NHL may not assign or transfer its obligations under the intercompany loan without prior written consent from Inalum. Disputes arising out of the intercompany loan shall be settled by arbitration at the Indonesia National Board of Arbitration.

Intercompany loan to BAI

On September 9, 2019, Inalum provided a Rp.200.0 billion intercompany loan to BAI for the purposes of BAI’s land acquisition and other operational activities. The intercompany loan bears interest at a rate of 6.41% per annum, payable upon the maturity of the intercompany loan on September 9, 2020. Under the terms of the intercompany loan, BAI may not assign or transfer its obligations under the intercompany loan without prior written consent from Inalum. Disputes arising out of the intercompany loan shall be settled by arbitration at the Indonesia National Board of Arbitration.

Intercompany loan to SBS

On March 16, 2020, Bukit Asam provided a Rp.230.0 billion intercompany loan to SBS for the purposes of SBS’ operations. The intercompany loan bears interest at a rate of 7.25% per annum, payable upon maturity of the intercompany loan which is 12 months after the date of drawdown. Under the terms of the intercompany loan, SBS may not assign or transfer its obligations under the intercompany loan without prior written consent from Bukit Asam. Disputes arising out of the intercompany loan shall be settled by arbitration at the Indonesia National Board of Arbitration.

DESCRIPTION OF THE 2025 NOTES

For purposes of this “Description of the 2025 Notes,” the term “Company” refers only to PT Indonesia Asahan Aluminium (Persero), a state-owned enterprise established and existing with limited liability under the laws of the Republic of Indonesia, and any successor obligor on the Notes (including the Surviving Person (as defined below, under the caption “— Consolidation, Merger and Sale of Assets”)), and not to any of its Subsidiaries. Any reference to the “Notes” in this “Description of the 2025 Notes” is solely to the 2025 Notes. The Notes are to be issued under an indenture (the “Indenture”) to be dated as of the Original Issue Date, between the Company and The Bank of New York Mellon, as trustee (the “Trustee”).

The following is a summary of certain provisions of the Indenture and the Notes. This summary does not purport to be complete and is qualified in its entirety by reference to all of the provisions of the Indenture and the Notes. It does not restate the provisions of the Indenture or the Notes in their entirety. Whenever particular sections or defined terms of the Indenture not otherwise defined herein are referred to, such sections or defined terms are incorporated herein by reference. A copy of the Indenture will be available for inspection on or after the Original Issue Date during normal office hours at the corporate trust office of the Trustee at 240 Greenwich Street, New York, NY 10286, United States of America.

The proceeds from the offering of the Notes will be used to redeem certain of the Company’s existing bonds, acquire shares in other mining companies, and refinance outstanding indebtedness of the Group as set forth in this Offering Memorandum under the caption “Use of Proceeds.”

Brief Description of the Notes

The Notes will:

- (a) be direct, unsecured and unsubordinated obligations of the Company;
- (b) be senior in right of payment to any existing and future obligations of the Company expressly subordinated in right of payment to the Notes;
- (c) rank at least *pari passu* in right of payment with all other unsecured and unsubordinated Debt of the Company (subject to any priority rights of such unsubordinated Debt pursuant to applicable law); and
- (d) be effectively subordinated to secured obligations of the Company and the obligations of its subsidiaries.

The Company will initially issue US\$1,000,000,000 in aggregate principal amount of the Notes, which will mature on May 15, 2025 unless earlier redeemed pursuant to the terms thereof and the Indenture. The Indenture allows the Company to issue additional Notes from time to time (the “Additional Notes”), subject to certain limitations described under “— Further Issues” and applicable law. The Notes offered hereby and any Additional Notes may be treated as a single class for all purposes under the Indenture.

Interest

The Notes will bear interest at 4.750% per annum from the Original Issue Date or from the most recent interest payment date on which interest has been paid or duly provided for, payable semi-annually in arrears on May 15 and November 15 of each year (each, an “Interest Payment Date”) commencing on November 15, 2020. Interest on the Notes will be paid to Holders of record at the close of business on each April 30 or October 31, immediately preceding an Interest Payment Date (each, a “Record Date”), notwithstanding any transfer, exchange or cancellation thereof after a Record Date and prior to the immediately following Interest Payment Date. Interest on the Notes will be calculated on the basis of a 360-day year comprised of twelve 30-day months.

Payment of Notes

In any case in which the date of the payment of principal of, premium, if any, or interest on the Notes (including any payment to be made on any date fixed for redemption or purchase of any Note) is not a Business

Day in the relevant place of payment, then payment of principal, premium, if any, or interest need not be made in such place on such date but may be made on the next succeeding Business Day in such place. Any payment made on such Business Day will have the same force and effect as if made on the date on which such payment is due. Interest on overdue principal and interest and Additional Amounts, if any, will accrue at a rate that is 1% higher than the then applicable interest rate on the Notes.

The Notes will be issued only in fully registered form, without coupons, in minimum denominations of US\$200,000 and integral multiples of US\$1,000 in excess thereof. See “— Book-Entry; Delivery and Form.” No service charge will be made for any registration of transfer or exchange of Notes, but the Company may require payment of a sum sufficient to cover any transfer tax or other similar governmental charge payable in connection therewith.

All payments on the Notes will be made in U.S. dollars in immediately available funds by the Company at the office or agency of the Company maintained for that purpose in the Borough of Manhattan, the City of New York (which initially will be the specified office of The Bank of New York Mellon (the “Paying Agent”), currently located at 240 Greenwich Street, New York, NY 10286, United States of America), and the Notes may be presented for registration of transfer or exchange at such office or agency. However, at the option of the Company, payment of interest may be made by wire transfer. Interest payable on the Notes held through DTC will be available to DTC participants (as defined herein) on the Business Day following payment thereof.

Further Issues

Subject to the covenants described below and in accordance with the terms of the Indenture, the Company may, from time to time, without notice to or the consent of the Holders, issue Additional Notes having the same terms and conditions as the Notes in all respects (or in all respects except for the issue date, issue price and the date of first payment of interest on them and, to the extent necessary, certain temporary securities law transfer restrictions) so that such Additional Notes may be consolidated and form a single class with the previously outstanding Notes and vote together as one class on all matters with respect to the Notes; *provided that*, in order for Additional Notes to have the same CUSIP, ISIN, or other identifying number as the outstanding Notes, the Additional Notes must be fungible with the outstanding Notes for U.S. federal income tax purposes.

In addition, the issuance of any Additional Notes by the Company will be subject to the following conditions:

- (a) the Company shall have delivered to the Trustee an Officer’s Certificate, in form and substance satisfactory to the Trustee, confirming that the issuance of the Additional Notes complies with the Indenture; and
- (b) the Company shall have delivered to the Trustee one or more Opinions of Counsel, in form and substance satisfactory to the Trustee, confirming, among other things, (i) that the issuance of the Additional Notes does not conflict with applicable law and (ii) that such Additional Notes will constitute legally valid and binding obligations of the Company, enforceable in accordance with their terms, subject to customary exceptions.

Repurchase of Notes Upon a Change of Control Triggering Event

Not later than 30 days following a Change of Control Triggering Event, the Company will make an Offer to Purchase all outstanding Notes (a “Change of Control Offer”) at a purchase price equal to 101.0% of the principal amount thereof plus accrued and unpaid interest, if any, to the Offer to Purchase Payment Date.

The Company will agree in the Indenture that it will timely repay all Debt or obtain consents as necessary under, or terminate, agreements or instruments that would otherwise prohibit a Change of Control Offer required to be made pursuant to the Indenture. Notwithstanding these agreements, it is important to note that if the Company is unable to repay (or cause to be repaid) all of the Debt, if any, that would prohibit the repurchase of the Notes or is unable to obtain the requisite consents of the holders of such Debt, or terminate any agreements or instruments that would otherwise prohibit a Change of Control Offer, the Company would continue to be

prohibited from purchasing the Notes. In that case, the failure of the Company to purchase tendered Notes would constitute an Event of Default (as defined below) under the Indenture.

Future Debt of the Company or its Subsidiaries may also (a) prohibit the Company from purchasing the Notes in the event of a Change of Control Triggering Event; (b) provide that a Change of Control Triggering Event is a default; or (c) require the repayment or repurchase of such Debt upon a Change of Control Triggering Event. Moreover, the exercise by the Holders of their right to require the Company to purchase the Notes could cause a default under other Debt, even if the Change of Control Triggering Event itself does not, due to the financial effect of the purchase on the Company or its Subsidiaries. The ability of the Company to pay cash to Holders of the Notes following the occurrence of a Change of Control Triggering Event may be limited by the financial resources then available to the Company. There can be no assurance that sufficient funds will be available when necessary to make the required purchase of the Notes. See “Risk Factors — Risks Relating to the Notes — We may not have the ability to raise the funds necessary to finance an offer to repurchase the Notes upon the occurrence of certain events constituting a change of control triggering event or otherwise as required by the Indenture governing the Notes.”

Notwithstanding the above, the Company will not be required to make a Change of Control Offer following a Change of Control Triggering Event if a third party makes the Change of Control Offer in the manner, at the times and otherwise in compliance with the requirements set forth in the Indenture applicable to a Change of Control Offer to be made by the Company and such third party purchases all Notes validly tendered and not withdrawn under such Change of Control Offer.

A Holder will have no right to require the Company to repurchase portions of Notes if it would result in the issuance of new Notes, representing the portion not purchased, in an amount of less than US\$200,000.

The Company will comply with the requirements of Rule 14e-1 under the Exchange Act and any other securities laws and regulations thereunder to the extent those laws and regulations are applicable in connection with each repurchase of Notes pursuant to a Change of Control Offer. To the extent that the provisions of any securities laws or regulations conflict with the provisions of the covenant described hereunder, the Company will comply with the applicable securities laws and regulations and will not be deemed to have breached its obligations described hereunder by virtue of its compliance with such laws and regulations.

Except as described above with respect to a Change of Control Offer, the Indenture does not contain provisions that permit the Holders to require that the Company purchase or redeem the Notes in the event of a takeover, recapitalization or similar transaction.

The Trustee shall not be required to take any steps to ascertain whether a Change of Control Triggering Event or any event which could lead to the occurrence of a Change of Control Triggering Event has occurred and shall not be liable to any person for any failure to do so.

Sinking Fund

There will be no sinking fund payments for the Notes.

Additional Amounts

All payments of principal of, and premium, if any, and interest on the Notes will be made without withholding or deduction for, or on account of, any present or future taxes, duties, assessments or other governmental charges of whatever nature imposed or levied by or within any jurisdiction in which the Company or the Surviving Person is organized or resident for tax purposes (or any political subdivision or taxing authority thereof or therein) or through which payment is made on behalf of the Company or the Surviving Person (each, as applicable, a “Relevant Taxing Jurisdiction”), unless such withholding or deduction is required by law or by regulation or governmental policy having the force of law.

In such event, the Company or the Surviving Person, as the case may be, will make or cause to be made such deduction or withholding, make payment of the amount so deducted or withheld to the appropriate

governmental authority and will pay such additional amounts (“Additional Amounts”) as will result in receipt by the Holder of such amounts as would have been received by such Holder had no such withholding or deduction been required. However, no Additional Amounts will be payable:

- (a) for or on account of:
 - (i) any tax, duty, assessment or other governmental charge that would not have been imposed but for:
 - (A) the existence of any present or former connection between the Holder or beneficial owner of such Note and the Relevant Taxing Jurisdiction including, without limitation, such Holder’s or beneficial owner’s being or having been a citizen or resident of such Relevant Taxing Jurisdiction or treated as a resident thereof or being or having been physically present or engaged in a trade or business therein or having or having had a permanent establishment therein, other than merely holding such Note or the receipt of payments thereunder or enforcing payment under the Note;
 - (B) the presentation of such Note (where presentation is required) more than 30 days after the later of the date on which the payment of the principal of, premium, if any, or interest on, such Note became due and payable pursuant to the terms thereof or was made or duly provided for, except to the extent that the Holder thereof would have been entitled to such Additional Amounts if it had presented such Note for payment on any date within such 30-day period;
 - (C) the failure of the Holder or beneficial owner to comply with a timely request of the Company or the Surviving Person, as the case may be, addressed to the Holder, to provide information to the Company or the Surviving Person on an applicable Form DGT or any other document, information or form concerning such Holder’s or beneficial owner’s nationality, residence, identity or connection with any Relevant Taxing Jurisdiction, if and to the extent that due and timely compliance with such request is required under the laws of a Relevant Taxing Jurisdiction in order to reduce or eliminate any withholding or deduction as to which Additional Amounts would have otherwise been payable to such Holder; or
 - (D) the presentation of such Note (where presentation is required) for payment in the Relevant Taxing Jurisdiction, unless such withholding or deduction could not have been avoided by presenting the Note for payment elsewhere;
 - (ii) any estate, inheritance, gift, sale, transfer or similar tax, assessment or other governmental charge;
 - (iii) any tax, duty, assessment or other governmental charge which is payable other than by deduction or withholding from payments of principal of or interest or any premium on the Note;
 - (iv) any tax required to be withheld or deducted under Sections 1471 to 1474 of the U.S. Internal Revenue Code of 1986, as amended (the “Code”) (or any amended or successor versions of such Sections), any agreements described under section 1471(b) of the Code, any regulations or other official guidance thereunder, any intergovernmental agreement relating thereto, or any law, regulation or other official guidance enacted in any jurisdiction implementing any of the foregoing; or
 - (v) any combination of taxes, duties, assessments or other governmental charges referred to in the preceding paragraphs (i), (ii), (iii) and (iv); or
- (b) with respect to any payment of the principal of, or premium, if any, or interest on, such Note to such Holder, if the Holder is a fiduciary, corporation, limited liability company, partnership or person other than the sole beneficial owner of any payment to the extent that, under the laws of a Relevant Taxing Jurisdiction, such payment would be required to be included in income, for tax purposes, of a beneficiary or settlor with respect to the fiduciary, a shareholder of that corporation, a member of that partnership or limited liability company or a beneficial owner who would not have been entitled to

such Additional Amounts had that beneficiary, settlor, shareholder, partner, or beneficial owner been the Holder thereof; or

- (c) any combination of paragraphs (a) and (b).

As a result of these provisions, there are circumstances in which taxes could be withheld or deducted but Additional Amounts would not be payable to some or all beneficial owners of Notes.

Whenever there is mentioned in any context the payment of principal, premium or interest in respect of any Note, such mention will be deemed to include payments of Additional Amounts provided for in the Indenture to the extent that, in such context, Additional Amounts are, were or would be payable in respect thereof.

The Paying Agent and the Trustee will make payments free of withholdings or deductions on account of taxes unless required by applicable law. If such a deduction or withholding is required, the Paying Agent or the Trustee will not be obligated to pay any Additional Amount to the recipient unless such an Additional Amount is received by the Paying Agent or the Trustee from the Company or the Surviving Person.

In addition to the foregoing, the Company or the Surviving Person, as the case may be, will also pay and indemnify the Holder or beneficial owner, as applicable, for any present or future stamp, issue, registration, court or documentary taxes, or any other excise or property taxes, charges or similar levies (including penalties and interest) which are levied by any jurisdiction on the execution, delivery, issuance, registration, redemption or retirement of any of the Notes or the Indenture or any other document referred to therein (other than a transfer of the Notes after this offering) or any such taxes, charges or similar levies imposed by the United States, Indonesia, or any political subdivision thereof as a result of, or in connection with, the enforcement of any of the Notes.

Redemption for Taxation Reasons

The Notes may be redeemed at the option of the Company or the Surviving Person, as the case may be, as a whole but not in part, by giving not less than 30 days' nor more than 60 days' notice to the Holders (which notice will be irrevocable) and the Trustee, at a redemption price equal to 100% of the principal amount thereof, together with accrued and unpaid interest (including any Additional Amounts), if any, to (but not including) the date fixed by the Company or the Surviving Person, as the case may be, for redemption (the "Tax Redemption Date"), if the Company or the Surviving Person, as the case may be, is, or on the next Interest Payment Date would be, required to pay Additional Amounts, and such requirement cannot be avoided by taking reasonable measures (including an appointment of a new paying agent) by the Company or the Surviving Person, as the case may be, as a result of:

- (a) any change in, or amendment to, the laws or any regulations or rulings promulgated thereunder of a Relevant Taxing Jurisdiction affecting taxation; or
- (b) any change in, or amendment to, an official position regarding the application, administration or interpretation of such laws, regulations or rulings (including a holding, judgment or order by a court of competent jurisdiction or a change in published practice),

which change or amendment is announced and becomes effective on or after the Original Issue Date with respect to any payment due or to become due under the Notes or the Indenture (or, if the Relevant Taxing Jurisdiction was not a Relevant Taxing Jurisdiction on the Original Issue Date, the date on which such jurisdiction became a Relevant Taxing Jurisdiction under the Indenture).

Notwithstanding the above, (i) no such notice of redemption will be given earlier than 90 days prior to the earliest date on which the Company or the Surviving Person, as the case may be, would be obligated to pay such Additional Amounts if a payment in respect of the Notes were then due, and (ii) if such requirement to pay Additional Amounts is due to taxes of the Republic of Indonesia (or any political subdivision or taxing authority thereof or therein), the Company or the Surviving Person shall only be permitted to redeem the Notes in accordance with the provisions above if the rate of withholding or deduction in respect of which Additional Amounts are required is in excess of 20%.

Prior to the mailing of any notice of redemption of the Notes pursuant to the foregoing, the Company will deliver to the Trustee:

- (a) an Officer's Certificate stating that such change or amendment referred to in the prior paragraph has occurred, and describing the facts related thereto and stating that such requirement cannot be avoided by the Company, taking reasonable measures available to it; and
- (b) an Opinion of Counsel of recognized standing with respect to tax matters of the Relevant Taxing Jurisdiction stating that the requirement to pay such Additional Amounts, and withhold or deduct such taxes, duties, assessments or other government charges results from such change or amendment referred to in the prior paragraph.

The Trustee shall be entitled to accept and rely upon such certificate and opinion as sufficient evidence of the satisfaction of the conditions precedent described above without further verification, and it will be conclusive and binding on the Holders. The Trustee will not investigate or verify such certificate and opinion.

Any Notes that are redeemed will be canceled.

Optional Redemption

At any time on or after April 15, 2025, the Notes may be redeemed at the option of the Company or the Surviving Person, as the case may be, in whole or in part, by giving not less than 30 days' nor more than 60 days' notice to the Holders (which notice will be irrevocable) and the Trustee, at a redemption price equal to 100% of the principal amount thereof, together with accrued and unpaid interest (including any Additional Amounts), if any, to (but not including) the date fixed by the Company or the Surviving Person, as the case may be, for redemption (the "Optional Redemption Date").

Any Notes that are redeemed will be canceled.

Certain Covenants

Set forth below are summaries of certain covenants contained in the Indenture.

Negative pledge

So long as any of the Notes remain outstanding, the Company will not create or permit to exist, and the Company will ensure that none of its Material Subsidiaries will create or permit to exist, any Lien for the benefit of the holders of any Securities on the whole or any part of its property or assets, present or future, to secure: (a) payment of any sum due in respect of any Securities; (b) any payment under any guarantee in respect of any Securities; or (c) any indemnity or other like obligation in respect of any Securities, without in any such case, at the same time or prior thereto, making effective provision whereby the Notes are accorded (i) the same Liens equally and ratably as are created or subsisting to secure any such Securities, guarantee or indemnity or like obligation, or (ii) such other Liens as may be consented to by the holders of a majority in aggregate principal amount of the outstanding Notes.

However, the foregoing restriction shall not apply to (a) any Lien existing on any property or assets at the time of acquisition of such property or assets by the Company; *provided that* such Lien was not created, and the principal, capital or nominal amount of the Securities secured by such Lien outstanding at the time of such acquisition was not increased, in contemplation of such acquisition or in connection therewith, and (b) any Lien arising out of the refinancing, extension, renewal or refunding of any Securities secured by any such Lien; *provided that* the principal, capital or nominal amount of such Securities is not increased and such Securities are not secured by any additional property or assets.

Use of proceeds

The Company will use the proceeds received from the Notes as set forth in this Offering Memorandum under the caption "Use of Proceeds."

Provision of financial statements and reports

For so long as any of the Notes remain outstanding, the Company will file with the Trustee and furnish to the Holders upon request:

- (a) as soon as they are available, but in any event within 120 calendar days after the end of its fiscal year, copies of its financial statements (on a consolidated basis) in respect of such financial year (including a statement of income, balance sheet and cash flow statement) audited by a member firm of an internationally recognized firm of independent accountants; and
- (b) as soon as they are available, but in any event within 90 calendar days, after the end of each of its first, second and third fiscal quarters, copies of its financial statements (on a consolidated basis) in respect of such period (including a statement of income, balance sheet and cash flow statement) prepared on a basis consistent with its audited financial statements, together with a certificate signed by the Person then authorized to sign financial statements on behalf of it, to the effect that such financial statements are true in all material respects and present fairly its financial position as at the end of, and the results of its operations for, the relevant quarterly period;

provided that, in each case, the financial statements shall be in the English language, or if such statements shall be in any other language, accompanied with an English translation of the same and translated by (i) an internationally recognized firm of independent accountants or (ii) a professional translation service provider and checked by an internationally recognized firm of independent accountants, together with a certificate in English signed by the Person then authorized to sign financial statements of the Company, certifying that such translation is complete and accurate (on each of which the Trustee may conclusively rely without liability to any Holder or any other person).

If the Company makes any financial or other report (or any English translation of any financial or other report in any other language) described above available on its corporate website, the Company will be deemed to have satisfied the foregoing obligation to furnish such report (or such translation) to the Holders upon request.

In addition, so long as any of the Notes remain outstanding, the Company will provide to the Trustee promptly and in any event within seven days after it obtains actual knowledge of the occurrence thereof, written notice of the occurrence of any event or condition which constitutes an Event of Default and an Officer's Certificate setting forth the details thereof and the action it is taking or proposes to take with respect thereto, and the Trustee shall be entitled to accept such certificate as sufficient evidence thereof, in which event it shall be conclusive and binding on the Holders.

Further, the Company has agreed that, for so long as there are Notes which are "restricted securities" within the meaning of Rule 144(a)(3) under the U.S. Securities Act of 1933, as amended (the "Securities Act"), during any period in which the Company is neither subject to Section 13 or 15(d) of the U.S. Securities Exchange Act of 1934, as amended (the "Exchange Act"), nor exempt from reporting pursuant to Rule 12g3-2(b) thereunder, the Company will supply to (i) any Holder or beneficial owner of a Note or (ii) a prospective purchaser of a Note or a beneficial interest therein designated by such Holder or beneficial owner, the information specified in, and meeting the requirements of, Rule 144A(d)(4) under the Securities Act upon the request of any Holder or beneficial owner of a Note.

Events of Default

The following events will be defined as "Events of Default" in the Indenture:

- (a) default in the payment of principal of (or premium, if any, on) the Notes when the same becomes due and payable at maturity, upon acceleration, redemption or otherwise;
- (b) default in the payment of interest on any Note when the same becomes due and payable, and such default continues for a period of 30 consecutive days;
- (c) default in the performance of or breach of any provisions of the covenants described under "— Consolidation, Merger and Sale of Assets" or failure to make or consummate a Change of Control

Offer in the manner described under the caption “— Repurchase of Notes Upon a Change of Control Triggering Event;”

- (d) default in the performance of or breach of any other covenant or agreement in the Indenture or under the Notes (other than a default specified in paragraph (a), (b) or (c) above) and such default or breach continues for a period of 60 consecutive days after written notice by the Trustee or the Holders of 25% or more in aggregate principal amount of the outstanding Notes;
- (e) (i) the Company ceasing to own and control, directly or indirectly, at least 51.0% of the issued and paid-up shares of any of its Subsidiaries that are Material Subsidiaries as of the Original Issue Date or PTFI or (ii) in the event of a Qualifying PTFI IPO, the Company ceasing to own and control, directly or indirectly, at least 40.0% of the issued and paid-up shares of PTFI or ceasing to be the single largest beneficial shareholder of PTFI;
- (f) there occurs with respect to any Debt of the Company or any of its Material Subsidiaries or PTFI having an outstanding principal amount of US\$50.0 million (or the Dollar Equivalent thereof) or more in the aggregate for all such Debt of all such Persons, whether such Debt now exists or will hereafter be created, (A) an event of default that has caused the holder thereof to declare such Debt to be due and payable prior to its Stated Maturity or (B) the failure to make a payment of principal (subject to the applicable grace period in the relevant documents) of such Debt when the same becomes due;
- (g) one or more final judgments or orders for the payment of money are rendered against the Company or any of its Subsidiaries or PTFI and are not paid or discharged, and there is a period of 60 consecutive days following entry of the final judgment or order that causes the aggregate amount for all such final judgments or orders outstanding and not paid or discharged against all such Persons to exceed US\$50.0 million (or the Dollar Equivalent thereof) during which a stay of enforcement, by reason of a pending appeal or otherwise, is not in effect;
- (h) an involuntary case or other proceeding is commenced against the Company or any Material Subsidiary or PTFI with respect to it or its Debts under any applicable bankruptcy, insolvency or other similar law now or hereafter in effect seeking the appointment of a receiver, liquidator, assignee, custodian, trustee, sequestrator or similar official of the Company or any Material Subsidiary or PTFI or for any substantial part of the property and assets of the Company or any Material Subsidiary or PTFI and such involuntary case or other proceeding remains undismissed and unstayed for a period of 60 consecutive days; or an order for relief is entered against the Company or any Material Subsidiary or PTFI under any applicable bankruptcy, insolvency or other similar law as now or hereafter in effect; or
- (i) the Company or any Material Subsidiary or PTFI (i) commences a voluntary case under any applicable bankruptcy, insolvency or other similar law now or hereafter in effect, or consents to the entry of an order for relief in an involuntary case under any such law, (ii) consents to the appointment of or taking possession by a receiver, liquidator, assignee, custodian, trustee, sequestrator or similar official of the Company or any Material Subsidiary or PTFI or for all or substantially all of the property and assets of the Company or any Material Subsidiary or PTFI or (iii) effects any general assignment for the benefit of creditors.

If an Event of Default (other than an Event of Default specified in paragraph (h) or (i) above) occurs and is continuing under the Indenture, the Trustee (in its sole discretion and without further notice) or the Holders of at least 25% in aggregate principal amount of the Notes, then outstanding, by written notice to the Company (and to the Trustee if such notice is given by the Holders), may, and the Trustee at the written request of such Holders will (subject to being indemnified and/or secured and/or prefunded to its satisfaction), declare the principal of, premium, if any, and accrued and unpaid interest on the Notes to be immediately due and payable. Upon a declaration of acceleration, such principal of, premium, if any, and accrued and unpaid interest will be immediately due and payable. If an Event of Default specified in paragraph (h) or (i) above occurs, the principal of, premium, if any, and accrued and unpaid interest on the Notes then outstanding will automatically become and be immediately due and payable without any declaration or other act on the part of the Trustee or any Holder.

The Holders of at least a majority in principal amount of the outstanding Notes by written notice to the Company and the Trustee, may on behalf of all of the Holders waive all past defaults and rescind and annul a declaration of acceleration and its consequences with respect to the Notes if:

- (a) the Company pays or deposits with the Trustee a sum sufficient to pay all monies then due with respect to the Notes (other than amounts due solely because of such declaration of acceleration) and all other existing Events of Default have been cured or waived, and
- (b) the rescission would not conflict with any judgment or decree of a court of competent jurisdiction.

Upon such waiver, the Default will cease to exist, and any Event of Default arising therefrom will be deemed to have been cured, but no such waiver will extend to any subsequent or other Default or impair any right consequent thereon.

The Holders of at least a majority in aggregate principal amount of the outstanding Notes may direct the time, method and place of conducting any proceeding for any remedy available to the Trustee or exercising any trust or power conferred on the Trustee, subject to the Trustee being indemnified and/or secured and/or prefunded to its satisfaction in advance of the proceedings. However, the Trustee may refuse to follow any direction that is unclear, conflicting or equivocal, that conflicts with law or the Indenture, that may involve the Trustee in personal liability, or that may be unduly prejudicial to the rights of Holders not joining in the giving of such direction and may take any other action it deems proper that is not inconsistent with any such direction received from Holders. In addition, the Trustee will not be required to expend its own funds in following such direction if it does not believe that reimbursement or satisfactory indemnification and/or security and/or prefunding is assured to it.

A Holder may not pursue or institute any proceeding, judicial or otherwise, with respect to the Indenture or the Notes, or for the appointment of a receiver or trustee, or for any other remedy under the Indenture or the Notes, unless:

- (a) the Holder has previously given the Trustee written notice of a continuing Event of Default;
- (b) the Holders of at least 25% in aggregate principal amount of outstanding Notes make a written request to the Trustee to pursue the remedy;
- (c) such Holder or Holders offer the Trustee indemnity and/or security and/or pre-funding satisfactory to the Trustee against any costs, liability or expense to be incurred in compliance with such request;
- (d) the Trustee does not comply with the request within 60 days after receipt of the request and the offer of indemnity and/or security and/or pre-funding; and
- (e) during such 60-day period, the Holders of a majority in aggregate principal amount of the outstanding Notes do not give the Trustee a direction that is inconsistent with the request.

However, such limitations do not apply to the right of any Holder of a Note to receive payment of the principal of, premium, if any, or interest, and Additional Amounts, if any, on, such Note or to bring suit for the enforcement of any such payment, on or after the due date expressed in the Notes, which right will not be impaired or affected without the consent of the Holder.

Officers of the Company must certify to the Trustee in writing, on or before a date not more than 120 calendar days after the end of each fiscal year, that a review has been conducted of the activities of the Company and its Subsidiaries and PTFI and the Company's performance under the Indenture and the Notes and that the Company has fulfilled all obligations thereunder, or, if there has been a default in the fulfillment of any such obligation, specifying each such default and the nature and status thereof. The Company will also be obligated to notify the Trustee in writing of any default or defaults in the performance of any covenants or agreements under the Indenture. See "— Provision of Financial Statements and Reports."

The Trustee and the Agents need not do anything to ascertain whether any Event of Default has occurred or is continuing and will not be responsible to Holders or any other person for any loss arising from any failure by it

to do so, and the Trustee or the Agents may assume that no such event has occurred and that the Company is performing all its obligations under the Indenture and the Notes unless the Trustee has received written notice of the occurrence of such event or facts establishing that an Event of Default has occurred or the Company is not performing all of its obligations under the Indenture and the Notes. The Trustee is entitled to rely on any Opinion of Counsel or Officer's Certificate regarding whether an Event of Default has occurred.

Consolidation, Merger and Sale of Assets

The Company will not consolidate with, or merge with or into, another Person, permit any Person to merge with or into it, or sell, convey, transfer, lease or otherwise dispose of all or substantially all of its properties and assets, computed on a consolidated basis with its Subsidiaries (as an entirety or substantially an entirety in one transaction or a series of related transactions), unless:

- (a) the Company will be the continuing Person, or the Person (if other than the Company) formed by such consolidation or merger or that acquired or leased such property and assets (the "Surviving Person") will be a corporation organized and validly existing under the laws of the jurisdiction in which the Company is organized and will expressly assume, by a supplemental indenture to the Indenture, executed and delivered to the Trustee, all the obligations of the Company under the Indenture and the Notes, including the obligation to pay Additional Amounts, and the Indenture and the Notes will remain in full force and effect;
- (b) immediately after giving effect to such transaction, no Default or Event of Default will have occurred and be continuing; and
- (c) the Company delivers to the Trustee an Officer's Certificate and an Opinion of Counsel, in each case stating that such consolidation, merger or transfer and the relevant supplemental indenture complies with this provision and that all conditions precedent provided for in the Indenture relating to such transaction have been complied with and that the relevant supplemental indenture is enforceable.

For purposes of this covenant, the conveyance, transfer or lease of all or substantially all of the property or assets of one or more Subsidiaries of the Company, which constitutes all or substantially all of the property or assets of the Company and its Subsidiaries on a consolidated basis, shall be deemed to be the transfer of all or substantially all of the property or assets of the Company.

Although there is a limited body of case law interpreting the phrase "substantially all," there is no precise established definition of the phrase under applicable law. Accordingly, in certain circumstances there may be a degree of uncertainty as to whether a particular transaction would involve "all or substantially all" of the property or assets of a Person.

The foregoing provisions would not necessarily afford Holders protection in the event of highly-leveraged or other transactions involving the Company that may adversely affect Holders.

No Payments for Consents

The Company will not, and will not permit any of its Subsidiaries or PTFI to, directly or indirectly, pay or cause to be paid any consideration, whether by way of interest, fee or otherwise, to any Holder for or as an inducement to any consent, waiver or amendment of any of the terms or provisions of the Indenture or the Notes, unless such consideration is offered to be paid or is paid to all Holders that consent, waive or agree to amend such term or provision within the time period set forth in the solicitation documents relating to such consent, waiver or amendment. Notwithstanding the foregoing, in any offer or payment of consideration for, or as an inducement to, any consent, waiver or amendment of any of the terms or provisions of the Indenture or the Notes, the Company and any of its Subsidiaries and PTFI may exclude (a) in connection with an exchange offer, holders or beneficial owners of the Notes that are not qualified institutional buyers as defined in Rule 144A under the Securities Act, and (b) in connection with any consent, waiver or amendment, holders or beneficial owners of the Notes in any jurisdiction where the inclusion of such holders or beneficial owners would require the Company or any of its Subsidiaries or PTFI to comply with the registration requirements or other similar requirements under

any securities laws of such jurisdiction, or the solicitation of such consent, waiver or amendment from, or the granting of such consent or waiver, or the approval of such amendment by, holders or beneficial owners in such jurisdiction would be unlawful, in each case as determined by the Company in its sole discretion.

Defeasance

Defeasance and discharge

The Indenture will provide that the Company will be deemed to have paid and will be discharged from any and all obligations in respect of the Notes on the 183rd day after the deposit referred to below and payments of all amounts due to the Trustee were made, and the provisions of the Indenture will no longer be in effect with respect to the Notes (except for, among other matters, certain obligations to register the transfer or exchange of the Notes, to replace stolen, lost or mutilated Notes, to maintain paying agencies and to hold monies for payment in trust and to pay Additional Amounts) if, among other things:

- (a) the Company has (i) deposited with the Trustee, in trust, cash in U.S. dollars, U.S. Government Obligations or a combination thereof that through the payment of interest, premium, if any, and principal in respect thereof in accordance with their terms will provide money in an amount sufficient to pay the principal of, premium, if any, and accrued interest on the Notes on the Stated Maturity of such payments in accordance with the terms of the Indenture and the Notes and (ii) delivered to the Trustee (x) a certificate of an internationally recognized firm of independent accountants to the effect that the amount deposited by the Company is sufficient to provide payment for the principal of, premium, if any, and accrued interest on, the Notes on the Stated Maturity of such payment in accordance with the terms of the Indenture and the Notes and (y) an Opinion of Counsel to the effect that the Holders have a valid, perfected, exclusive security in such trust;
- (b) the Company has delivered to the Trustee either (x) an Opinion of Counsel of recognized standing with respect to U.S. federal income tax matters which is based on a change in applicable U.S. federal income tax law occurring after the Original Issue Date to the effect that beneficial owners will not recognize income, gain or loss for U.S. federal income tax purposes as a result of the Company's exercise of its option under this "— Defeasance and Discharge" provision and will be subject to U.S. federal income tax on the same amount and in the same manner and at the same time as would have been the case if such deposit, defeasance and discharge had not occurred or (y) a ruling directed to the Company or the Trustee received from the U.S. Internal Revenue Service to the same effect as the aforementioned Opinion of Counsel;
- (c) the Company has delivered to the Trustee an Officer's Certificate stating that the deposit was not made by it with the intent of preferring the Holders over any other of its creditors or with the intent of defeating, hindering, delaying or defrauding any other of its creditors or others; and
- (d) immediately after giving effect to such deposit on a pro forma basis, no Event of Default, or event that after the giving of notice or lapse of time or both would become an Event of Default, will have occurred and be continuing on the date of such deposit or during the period ending on the 183rd day after the date of such deposit, and such defeasance will not result in a breach or violation of, or constitute a default under, any other agreement or instrument to which the Company or any Material Subsidiary or PTFI is a party or by which the Company or any Material Subsidiary or PTFI is bound.

Amendments and Waivers

Amendments without consent of Holders

The Indenture may be amended or supplemented, without the consent of any Holder of Notes, to:

- (a) cure any ambiguity, defect or inconsistency in the Indenture or the Notes, provided that any such amendment may not adversely affect the interests of the Holder;
- (b) comply with the provisions described under "Certain Covenants — Consolidation, Merger and Sale of Assets;"

- (c) evidence and provide for the acceptance of appointment by a successor Trustee;
- (d) add any guarantor or guarantee with respect to the Notes;
- (e) provide for the issuance of Additional Notes in accordance with the limitations set forth in the Indenture;
- (f) effect any change in any other case where a supplemental indenture to the Indenture is required or permitted to be entered into pursuant to the provisions of the Indenture without the consent of any Holder;
- (g) effect any changes to the Indenture in a manner necessary to comply with the procedures of DTC;
- (h) provide collateral to secure the Notes;
- (i) make any other change that does not materially and adversely affect the rights of any Holder of Notes;
- (j) comply with the rules of any applicable securities depository; or
- (k) conform the text of the Indenture or the Notes to any provision of this “Description of the 2025 Notes” to the extent that such provision in this “Description of the 2025 Notes” was intended to be a verbatim recitation of a provision of the Indenture or the Notes.

Amendments with consent of Holders

Amendments of the Indenture may be made by the Company and the Trustee with the consent of the Holders of not less than a majority in aggregate principal amount of the outstanding Notes, and the holders of a majority in aggregate principal amount of the outstanding Notes may waive future compliance by the Company with any provision of the Indenture or the Notes, *provided that* no such modification, amendment or waiver may, without the consent of each Holder:

- (a) change the Stated Maturity of the principal of, or any installment of interest on, any Note;
- (b) reduce the principal amount of, or premium, if any, or interest on, any Note;
- (c) change the currency, time or place of payment of principal of, or premium, if any, or interest on, any Note;
- (d) impair the right to institute suit for the enforcement of any payment on or after the Stated Maturity (or, in the case of a redemption, on or after the redemption date) of any Note;
- (e) reduce the above stated percentage of outstanding Notes the consent of whose Holders is necessary to modify or amend the Indenture, to waive compliance with certain provisions of the Indenture or to waive certain defaults;
- (f) waive a default in the payment of principal of, premium, if any, or interest on the Notes;
- (g) amend, change or modify (i) the obligation of the Company in respect of the due and punctual payment of the principal of, premium, if any, or interest on, any Note; (ii) the obligation of the Company to pay Additional Amounts, or (iii) the ranking of the Notes, in each case, in a manner that adversely affects the Holders; or
- (h) reduce the premium payable upon the redemption or repurchase of any Note, or change the time and manner in which any Note may be redeemed or repurchased as described above under the captions “— Repurchase of Notes Upon a Change of Control Triggering Event” or “— Redemption for Taxation Reasons,” except that the 75.0% threshold in the definition of the term “Change of Control” in the Indenture may, prior to the occurrence of a Change of Control, be waived modified or amended with the consent of the holders of not less than a majority in aggregate principal amount of the Notes.

No Personal Liability of Incorporators, Shareholders, Directors, Commissioners, Officers or Employees

No recourse for the payment of the principal of, premium, if any, or interest on any of the Notes or for any claim based thereon or otherwise in respect thereof, and no recourse under or upon any obligation, covenant or

agreement of the Company in the Indenture, or in any of the Notes or because of the creation of any Debt represented thereby, will be had against any incorporator, shareholder, director, commissioner, officer, employee or controlling person of the Company or of any successor Person thereof. Each Holder, by accepting the Notes, waives and releases all such liability. The waiver and release are part of the consideration for the issuance of the Notes. Such waiver may not be effective to waive liabilities under the applicable securities laws.

Concerning the Trustee and the Agents

Except during the continuance of an Event of Default, the Trustee will not be liable, except for the performance of such duties as are specifically set forth in the Indenture. If an Event of Default has occurred and is continuing, the Trustee will use the same degree of care and skill in its exercise of the rights and powers vested in it under the Indenture as a prudent person would exercise under the circumstances in the conduct of such person's own affairs.

The Trustee and the Agents assume no responsibility for the accuracy or completeness of the information concerning the Company or its Affiliates or any other party referenced in this Offering Memorandum or for any failure of the Company or any other party to disclose events that may have occurred or may affect the completeness or accuracy of such information.

The Trustee is permitted to engage in other transactions with the Company and its Affiliates and shall not be obligated to account for any profits therefrom, and no Trustee and no director or officer of any corporation being a Trustee hereof shall by reason of the fiduciary position of such Trustee be in any way precluded from making any contracts or entering into any transactions in the ordinary course of business with the Company, or any person or body corporate directly or indirectly associated with the Company, or from accepting the trusteeship of any other debenture stock, debentures or securities of the Company or any person or body corporate directly or indirectly associated with the Company, and neither the Trustee nor any such director or officer shall be accountable to the Holders or the Company, or any person or body corporate directly or indirectly associated with the Company, for any profit, fees, commissions, interest, discounts or share of brokerage earned, arising or resulting from any such contracts or transactions and the Trustee and any such director or officer shall also be at liberty to retain the same for its or his own benefit, *provided that* if such Trustee or any such director or officer acquires any conflicting interest that may have a materially prejudicial effect upon the Holders, it must eliminate such conflict or resign.

The Trustee shall not be responsible for the performance by any other person appointed by the Company in relation to the Notes and, unless notified in writing to the contrary, shall assume that the same are being duly performed. The Trustee shall not be liable to any Holders or any other person for any action taken by the Holders or the Trustee in accordance with the instructions of the Holders. The Trustee shall be entitled to rely on any written direction of the Holders which has been duly given by the Holders of the requisite principal amount of the Notes outstanding.

Neither the Trustee nor the Agents will be responsible for making calculations or for verifying calculations performed by the Company or any other persons unless otherwise specified in the Indenture.

The Trustee will be under no obligation to exercise any rights or powers conferred under the Indenture for the benefit of the Holders, unless such Holders have offered to the Trustee and, if the Trustee accepts such offer, the Trustee has received, indemnity and/or security and/or pre-funding satisfactory to the Trustee against any loss, liability or expense. In the exercise of its duties, the Trustee shall not be responsible for the verification of the accuracy or completeness of any certification submitted to it by the Company and is entitled to rely exclusively on the certification contained therein. Notwithstanding anything described herein, the Trustee has no duty to monitor the performance or compliance of the Company in the fulfillment of its obligations under the Indenture and the Notes.

For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, in the event that a Global Note is exchanged for definitive Notes, the Company shall appoint and maintain a paying agent in Singapore, where the definitive Notes may be presented or surrendered for payment or redemption. In addition,

in the event that a Global Note is exchanged for definitive Notes, an announcement of such exchange shall be made by or on behalf of the Company through the SGX-ST and such announcement will include all material information with respect to the delivery of the definitive Notes, including details of the paying agent in Singapore.

Book-Entry; Delivery and Form

The certificates representing the Notes will be issued in fully registered form without interest coupons. Notes sold in offshore transactions in reliance on Regulation S under the Securities Act will initially be represented by one or more permanent global notes in definitive, fully registered form without interest coupons (each, a “Regulation S Global Note”) and will be deposited with The Bank of New York Mellon as custodian for, and registered in the name of a nominee of, DTC for the accounts of Euroclear and Clearstream. Notes sold in reliance on Rule 144A will be represented by one or more permanent global notes in definitive, fully registered form without interest coupons (each, a “Restricted Global Note;” and together with the Regulation S Global Notes, the “Global Notes”) and will be deposited with The Bank of New York Mellon as custodian for, and registered in the name of a nominee of, DTC.

Each Global Note (and any Notes issued for exchange therefor) will be subject to certain restrictions on transfer set forth therein as described under “Transfer Restrictions.”

Notes transferred to institutional “accredited investors” (as defined in Rule 501(a) (1), (2), (3) or (7) of Regulation D under the Securities Act (an “Institutional Accredited Investor”)) who are not qualified institutional buyers (“Non-Global Purchasers”) will be in registered form without interest coupons (“Certificated Notes”). Upon the transfer of Certificated Notes initially issued to a Non-Global Purchaser to a qualified institutional buyer or in accordance with Regulation S, such Certificated Notes will, unless the relevant Global Note has previously been exchanged in whole for Certificated Notes, be exchanged for an interest in a Global Note. For a description of the restrictions on the transfer of Certificated Notes, see “Transfer Restrictions.”

Ownership of beneficial interests in a Global Note will be limited to persons who have accounts with DTC (“participants”) or persons who hold interests through participants. Ownership of beneficial interests in a Global Note will be shown on, and the transfer of that ownership will be effected only through, records maintained by DTC or its nominee (with respect to interests of participants) and the records of participants (with respect to interests of persons other than participants). Beneficial owners may hold their interests in a Global Note directly through DTC if they are participants in such system, or indirectly through organizations which are participants in such system.

Euroclear and Clearstream will hold interests in the Global Notes on behalf of their participants through DTC.

So long as DTC, or its nominee, is the registered owner or holder of a Global Note, DTC or such nominee, as the case may be, will be considered the sole owner or holder of the Notes represented by such Global Note for all purposes under the Indenture and the Notes. No beneficial owner of an interest in a Global Note will be able to transfer that interest except in accordance with DTC’s applicable procedures, in addition to those provided for under the Indenture and, if applicable, those of Euroclear and Clearstream.

Payments of the principal of, premium, if any, and interest on, a Global Note, will be made to DTC or its nominee, as the case may be, as the registered owner thereof. Neither the Company, the Trustee nor the Paying Agent will have any responsibility or liability for any aspect of the records relating to or payments made on account of beneficial ownership interests in a Global Note or for maintaining, supervising or reviewing any records relating to such beneficial ownership interests.

The Company expects that DTC or its nominee, upon receipt of any payment of principal of, premium, if any, or interest in respect of a Global Note, will credit participants’ accounts with payments in amounts proportionate to their respective beneficial interests in the principal amount of such Global Note as shown on the records of DTC or its nominee. The Company also expects that payments by participants to owners of beneficial interests in such Global Note held through such participants will be governed by standing instructions and

customary practices, as is now the case with securities held for the accounts of customers registered in the names of nominees for such customers. Such payments will be the responsibility of such participants.

The Company expects that DTC will take any action permitted to be taken by a holder of Notes (including the presentation of Notes for exchange as described below) only at the direction of one or more participants to whose account the DTC interests in a Global Note is credited and only in respect of such portion of the aggregate principal amount of Notes as to which such participant or participants has or have given such direction. However, if there is an Event of Default under the Notes, DTC will exchange the applicable Global Note for Certificated Notes, which it will distribute to its participants and which may be legended as set forth under the heading “Transfer Restrictions.”

Although DTC, Euroclear and Clearstream are expected to follow the foregoing procedures in order to facilitate transfers of interests in a Global Note among participants of DTC, Euroclear and Clearstream, they are under no obligation to perform or continue to perform such procedures, and such procedures may be discontinued at any time. None of the Company, the Trustee or the Paying Agent will have any responsibility for the performance by DTC, Euroclear or Clearstream or their respective participants or indirect participants of their respective obligations under the rules and procedures governing their operations.

If DTC is at any time unwilling or unable to continue as a depository for the Global Notes and a successor depository is not appointed by the Company within 90 days, the Company will issue Certificated Notes in registered form, which may bear the legend referred to under “Transfer Restrictions,” in exchange for the Global Notes. Holders of an interest in a Global Note may receive Certificated Notes, which may bear the legend referred to under “Transfer Restrictions,” in accordance with the DTC’s rules and procedures in addition to those provided for under the Indenture.

The Clearing Systems

General

DTC, Euroclear and Clearstream have advised the Company as follows:

DTC: DTC is a limited-purpose trust company organized under the laws of the State of New York, a “banking organization” within the meaning of New York Banking Law, a member of the Federal Reserve System, a “clearing corporation” within the meaning of the New York Uniform Commercial Code, and a “clearing agency” registered pursuant to the provisions of Section 17A of the Exchange Act. DTC was created to hold securities of its participants and to facilitate the clearance and settlement of securities transactions among its participants in such securities through electronic book-entry changes in accounts of its participants, thereby eliminating the need for physical movement of securities certificates. DTC’s participants include securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations, some of whom own DTC, and may include the initial purchaser. Indirect access to the DTC system is also available to others that clear through or maintain a custodial relationship with a DTC participant, either directly or indirectly (“indirect participants”). Transfers of ownership or other interests in Notes in DTC may be made only through DTC participants. In addition, beneficial owners of Notes in DTC will receive all distributions of principal of, premium, if any, and interest on the Notes from the Trustee through such DTC participant.

Euroclear and Clearstream: Euroclear and Clearstream hold securities for participating organizations and facilitate the clearance and settlement of securities transactions between their respective participants through electronic book-entry changes in accounts of such participants. Euroclear and Clearstream provide to their participants, among other things, services for safekeeping, administration, clearance and settlement of internationally-traded securities and securities lending and borrowing. Euroclear and Clearstream interface with domestic securities markets. Euroclear and Clearstream participants are financial institutions such as underwriters, securities brokers and dealers, banks, trust companies and certain other organizations. Indirect access to Euroclear or Clearstream is also available to others such as banks, brokers, dealers and trust companies that clear through or maintain a custodial relationship with a Euroclear or Clearstream participant, either directly or indirectly.

Initial Settlement

Investors' interests in Notes held in book-entry form by DTC will be represented through financial institutions acting on their behalf as direct and indirect participants in DTC. As a result, Euroclear and Clearstream will hold positions on behalf of their participants through DTC.

Investors electing to hold their Notes through DTC (other than through accounts at Euroclear or Clearstream) must follow the settlement practices applicable to United States corporate debt obligations. The securities custody accounts of investors will be credited with their holdings against payment in same day funds on the settlement date.

Investors electing to hold their Notes through Euroclear or Clearstream accounts will follow the settlement procedures applicable to conventional Eurobonds in registered form. Notes will be credited to the securities custody accounts of Euroclear Holders and of Clearstream Holders on the Business Day following the settlement date against payment for value on the settlement date.

Secondary Market Trading

Secondary market trading between DTC participants will occur in the ordinary way in accordance with DTC rules. Secondary market trading between Clearstream participants and/or Euroclear participants will occur in the ordinary way in accordance with the applicable rules and operating procedures of Clearstream and Euroclear and will be settled using the procedures applicable to conventional eurobonds.

Cross-market transfers between persons holding directly or indirectly through DTC, on the one hand, and directly or indirectly through Clearstream participants or Euroclear participants, on the other, will be effected in DTC in accordance with DTC rules on behalf of the relevant European international clearing system by its U.S. depository; however, such cross-market transactions will require delivery of instructions to the relevant European international clearing system by the counterparty in such system in accordance with its rules and procedures and within its established deadlines (European time). The relevant European international clearing system will, if a transaction meets its settlement requirements, deliver instructions to its U.S. depository to take action to effect final settlement on its behalf by delivering or receiving Notes in DTC, and making or receiving payment in accordance with normal procedures for same-day funds settlement applicable to DTC. Clearstream participants and Euroclear participants may not deliver instructions directly to the U.S. depositories.

Because of time zone differences, credits of Notes received in Clearstream or Euroclear as a result of a transaction with a DTC participant will be made during subsequent securities settlement processing and dated the Business Day following the DTC settlement date. Such credits or any transactions in such Notes settled during such processing will be reported to the relevant Clearstream participants or Euroclear participants on such Business Day. Cash received in Clearstream or Euroclear as a result of sales of Notes by or through a Clearstream participant or a Euroclear participant to a DTC participant will be received with value on the DTC settlement date but will be available in the relevant Clearstream or Euroclear cash account only as of the Business Day following settlement in DTC.

For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, the Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of S\$200,000 (or its equivalent in foreign currencies). Accordingly, the Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of US\$200,000.

Notices

All notices or demands required or permitted by the terms of the Notes or the Indenture to be given to or by the Holders are required to be in writing and may be given or served by being sent by prepaid courier or by being deposited, first-class postage prepaid, in the United States mails (if intended for the Company) addressed to the Company (if intended for the Trustee), at the corporate trust office of the Trustee; and (if intended for any Holder) addressed to such Holder at such Holder's last address as it appears in the Note register (the "Register").

Any such notice or demand will be deemed to have been sufficiently given or served when so sent or deposited and, if to the Holders, when delivered in accordance with the applicable rules and procedures of DTC. Any such notice will be deemed to have been delivered on the day such notice is delivered to DTC or if by mail, when so sent or deposited.

Language

The Notes and the Indenture will be executed in both English and Bahasa Indonesia to comply with Law 24 of 2009 regarding Flag, Language, National Emblem and National Anthem enacted July 9, 2009, and in the event of any inconsistency between the English and Bahasa Indonesia versions of these documents, the English version shall prevail. See “Risk Factors — Risks Relating to the Notes — Indonesian law requires agreements involving Indonesian parties to be written in Bahasa Indonesia and allows parties thereto to elect a foreign language version of such agreement as the governing language; however, in the event of proceedings in an Indonesian court there can be no assurance that the judges will render their decision based on the foreign language version.”

Consent to Jurisdiction; Service of Process

The Company will irrevocably (i) submit to the non-exclusive jurisdiction of any U.S. federal or New York state court located in the Borough of Manhattan, The City of New York in connection with any suit, action or proceeding arising out of, or relating to, the Notes or the Indenture or any transaction contemplated thereby and (ii) designate and appoint Cogency Global Inc., for receipt of service of process in any such suit, action or proceeding.

Governing Law

Each of the Notes and the Indenture provides that such instrument will be governed by, and construed in accordance with, the laws of the State of New York.

Definitions

Set forth below are defined terms used in the covenants and other provisions of the Indenture. Reference is made to the Indenture for other capitalized terms used in this “Description of the 2025 Notes” for which no definition is provided.

“Affiliate” means, with respect to any Person, any other Person (a) directly or indirectly controlling, controlled by, or under direct or indirect common control with, such Person or (b) who is a commissioner, director or officer of such Person or any subsidiary of such Person or of any Person referred to in clause (a) of this definition. For purposes of this definition, “control” (including, with correlative meanings, the terms “controlling,” “controlled by” and “under common control with”), as applied to any Person, means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such Person, whether through the ownership of voting securities, by contract or otherwise.

“Business Day” means any day which is not a Saturday, Sunday, legal holiday or other day on which banking institutions in The City of New York, Singapore or Indonesia or the city where the corporate trust office of the Trustee is then located are authorized by law or governmental regulation to close; *provided that*, solely for purposes of determining the date of any payment to be made on any Note, “Business Day” means any day which is not a Saturday, Sunday, legal holiday or other day on which banking institutions in The City of New York, Singapore, Indonesia or the place in which payments on the Notes are to be made are authorized by law or governmental regulation to close.

“Change of Control” means the occurrence of any event resulting in the government of the Republic of Indonesia ceasing to directly or indirectly own and control at least 75.0% of the issued and paid-up shares of the Company.

“Change of Control Triggering Event” means a Change of Control, *provided that*, in the event that the Notes are, on the Rating Date, rated Investment Grade by two or more Rating Agencies, a Change of Control

Triggering Event shall mean the occurrence of both a Change of Control and a Rating Decline. No Change of Control Triggering Event will be deemed to have occurred in connection with any particular Change of Control unless and until such Change of Control has actually been consummated.

“Clearstream” means Clearstream Banking S.A. or any successor thereof.

“Commission” means the U.S. Securities and Exchange Commission, as from time to time constituted under the Exchange Act, or if at any time after the execution of this instrument such Commission is not existing, then the body performing such duties on such date.

“Debt” means, with respect to any Person as of any date of determination, without duplication, (a) all obligations, contingent or otherwise, of such Person for borrowed money, (b) all obligations of such Person evidenced by bonds, notes or other similar instruments, (c) all obligations of such Person in respect of letters of credit or other similar instruments, (d) all obligations of such Person to pay the unpaid purchase price of any property or service, (e) all obligations secured by a Lien on any property or asset of such Person, whether or not such obligations are assumed by such Person and (f) all obligations of others guaranteed by such Person to the extent of such guarantees and, for clauses (a), (b), (c) and (e), which has a final maturity of one year or more. The amount of Debt of any Person as of any date of determination shall be the outstanding balance at such date of all unconditional obligations as described above, the maximum liability of such Person for any such contingent obligations at such date and, in the case of clause (d), the lesser of the fair market value (as determined in good faith by the board of directors of such Person) at such date of the property or asset of such Person subject to a Lien securing the obligations of others and the amount of such obligations secured.

“Default” means any event that is, or after notice or passage of time or both would be, an Event of Default.

“Dollar Equivalent” means, with respect to any monetary amount in a currency other than U.S. dollars, at any time for the determination thereof, the amount of U.S. dollars obtained by converting such foreign currency involved in such computation into U.S. dollars at the base rate for the purchase of U.S. dollars with the applicable foreign currency as quoted by the Federal Reserve Bank of New York on the date of determination.

“DTC” means The Depository Trust Company and its successors.

“Euroclear” means Euroclear Bank SA/NV or any successor thereof.

“Fitch” means Fitch Ratings Ltd. and its successors.

“GAAP” means generally accepted accounting principles in Indonesia as in effect from time to time.

“guarantee” means any obligation, contingent or otherwise, of any Person directly or indirectly guaranteeing any Debt or other obligation of any other Person and, without limiting the generality of the foregoing, any obligation, direct or indirect, contingent or otherwise, of such Person (a) to purchase or pay (or advance or supply funds for the purchase or payment of) such Debt or other obligation of such other Person (whether arising by virtue of partnership arrangements, or by agreements to keep-well, to purchase assets, goods, securities or services, to take-or-pay, or to maintain financial statement conditions or otherwise) or (b) entered into for purposes of assuring in any other manner the obligee of such Debt or other obligation of the payment thereof or to protect such obligee against loss in respect thereof (in whole or in part); *provided that* the term “guarantee” will not include endorsements for collection or deposit in the ordinary course of business. The term “guarantee” used as a verb has a corresponding meaning.

“Holder” means the Person in whose name a Note is registered in the Register.

“Investment Grade” means a rating of “AAA,” “AA,” “A” or “BBB,” as modified by a “+” or “-” indication, or an equivalent rating representing one of the four highest rating categories, by S&P or any of its successors or assigns or a rating of “Aaa,” “Aa,” “A” or “Baa,” as modified by a “1,” “2” or “3” indication, or an equivalent rating representing one of the four highest rating categories, by Moody’s or any of its successors or assigns or a rating of “AAA,” “AA,” “A,” or “BBB,” as modified by a “+” or “-” indication, or an equivalent rating representing one of the four highest rating categories, by Fitch or any of its successors or assigns, or the equivalent ratings of any internationally recognized rating agency or agencies, as the case may be, which shall

have been designated by the Company as having been substituted for S&P, Moody's or Fitch or two or three of them, as the case may be.

"Lien" means any mortgage, pledge, fiducia security, security interest, encumbrance, lien or charge of any kind (including, without limitation, any conditional sale or other title retention agreement or lease in the nature thereof or any agreement to create any mortgage, pledge, security interest, lien, charge, easement or encumbrance of any kind but excluding liens arising by operation of law).

"Material Subsidiary" means at any time a Subsidiary of the Company:

- (a) whose total revenues (consolidated in the case of a Subsidiary which itself has Subsidiaries) or whose total assets (consolidated in the case of a Subsidiary which itself has Subsidiaries) represent in each case (or, in the case of a Subsidiary acquired after the end of the financial period to which the then latest audited consolidated accounts of the Company and its Subsidiaries relate, are equal to) not less than 5.0% of the consolidated total revenues, or, as the case may be, consolidated total assets, of the Company and its Subsidiaries taken as a whole, all as calculated respectively by reference to the then latest audited accounts (consolidated or, as the case may be, unconsolidated) of such Subsidiary and the then latest audited consolidated accounts of the Company and its Subsidiaries, *provided that*, in the case of a Subsidiary of the Company acquired after the end of the financial period to which the then latest audited consolidated accounts of the Company and its Subsidiaries relate, the reference to the then latest audited consolidated accounts of the Company and its Subsidiaries for the purposes of the calculation above shall, until consolidated accounts for the financial period in which the acquisition is made have been prepared and audited as aforesaid, be deemed to be a reference to such first-mentioned accounts as if such Subsidiary had been shown in such accounts by reference to its then latest relevant audited accounts, adjusted as deemed appropriate by the Company; or
- (b) to which is transferred the whole or substantially the whole of the undertaking and assets of a Subsidiary of the Company which immediately prior to such transfer is a Material Subsidiary, *provided that* the transferor Subsidiary shall upon such transfer forthwith cease to be a Material Subsidiary and the transferee Subsidiary shall cease to be a Material Subsidiary pursuant to this subparagraph (b) on the date on which the consolidated accounts of the Company and its Subsidiaries for the financial period current at the date of such transfer have been prepared and audited as aforesaid but so that such transferor Subsidiary or such transferee Subsidiary may be a Material Subsidiary on or at any time after the date on which such consolidated accounts have been prepared and audited as aforesaid by virtue of the provisions of subparagraph (a) above or, prior to or after such date, by virtue of any other applicable provision of this definition; or
- (c) to which is transferred an undertaking or assets which, taken together with the undertaking or assets of the transferee Subsidiary, generated (or, in the case of the transferee Subsidiary being acquired after the end of the financial period to which the then latest audited consolidated accounts of the Company and its Subsidiaries relate, generate total revenues equal to) not less than 5.0% of the consolidated total revenues of the Company, or represent (or, in the case aforesaid, are equal to) not less than 5.0% of the consolidated total assets of the Company and its Subsidiaries taken as a whole, all as calculated as referred to in subparagraph (a) above, *provided that* the transferor Subsidiary (if a Material Subsidiary) shall upon such transfer forthwith cease to be a Material Subsidiary unless immediately following such transfer its undertaking and assets generate (or, in the case aforesaid, generate total revenues equal to) not less than 5.0% of the consolidated total revenues of the Company, or its assets represent (or, in the case aforesaid, are equal to) not less than 5.0% of the consolidated total assets of the Company and its Subsidiaries taken as a whole, all as calculated as referred to in subparagraph (a) above, and the transferee Subsidiary shall cease to be a Material Subsidiary pursuant to this subparagraph (c) on the date on which the consolidated accounts of the Company and its Subsidiaries for the financial period current at the date of such transfer have been prepared and audited but so that such transferor Subsidiary or such transferee Subsidiary may be a Material Subsidiary on or at any time after the date on which such consolidated accounts have been prepared and audited as aforesaid by virtue of the

provisions of subparagraph (a) above or, prior to or after such date, by virtue of any other applicable provision of this definition.

“Moody’s” means Moody’s Investors Service, Inc. and its successors.

“Offer to Purchase” means an offer to purchase the Notes by the Company from the Holders commenced by the Company mailing a notice by prepaid courier or first class mail, postage prepaid, to the Trustee and each Holder at its last address appearing in the Register stating:

- (a) that the offer is being made pursuant to the provisions of the Indenture described under the caption “Repurchase of Notes Upon a Change of Control Triggering Event” and that all Notes validly tendered will be accepted for payment on a pro rata basis;
- (b) the purchase price and the date of purchase (which will be a Business Day no earlier than 30 days nor later than 60 days from the date such notice is mailed) (the “Offer to Purchase Payment Date”);
- (c) that any Note not tendered will continue to accrue interest pursuant to its terms;
- (d) that, unless the Company defaults in the payment of the purchase price, any Note accepted for payment pursuant to the Offer to Purchase will cease to accrue interest on and after the Offer to Purchase Payment Date;
- (e) that Holders electing to have a Note purchased pursuant to the Offer to Purchase will be required to surrender the Note, together with the form entitled “Option of the Holder to Elect Purchase” on the reverse side of the Note completed, to the Paying Agent at the address specified in the notice prior to the close of business on the Business Day immediately preceding the Offer to Purchase Payment Date;
- (f) that Holders will be entitled to withdraw their election if the Paying Agent receives, not later than the close of business on the third Business Day immediately preceding the Offer to Purchase Payment Date, a facsimile transmission or letter setting forth the name of such Holder, the principal amount of Notes delivered for purchase and a statement that such Holder is withdrawing his election to have such Notes purchased;
- (g) that Holders whose Notes are being purchased only in part will be issued new Notes equal in principal amount to the unpurchased portion of the Notes surrendered; *provided that* each Note purchased and each new Note issued will be in a principal amount of US\$200,000 or integral multiples of US\$1,000 in excess thereof; and
- (h) the CUSIP number(s) of the Notes.

One (1) Business Day prior to the Offer to Purchase Payment Date, the Company will deposit with the Paying Agent money sufficient to pay the purchase price of all Notes or portions thereof to be accepted by the Company for payment on the Offer to Purchase Payment Date. On the Offer to Purchase Payment Date, the Company will (a) accept for payment on a pro rata basis Notes or portions thereof tendered pursuant to an Offer to Purchase; and (b) deliver, or cause to be delivered, to the Trustee all Notes or portions thereof so accepted together with an Officer’s Certificate specifying the Notes or portions thereof accepted for payment by the Company.

The Paying Agent will promptly mail to the Holders the accepted payment in an amount equal to the purchase price, and the Trustee will promptly authenticate and mail to such Holders a new Note equal in principal amount to any unpurchased portion of the Note surrendered; *provided that* each Note purchased and each new Note issued will be in a principal amount of US\$200,000 or integral multiples of US\$1,000 in excess thereof. The Company will publicly announce the results of an Offer to Purchase as soon as practicable after the Offer to Purchase Payment Date.

The offer is required to contain or incorporate by reference information concerning the business of the Company and its Subsidiaries and PTFI which the Company in good faith believes will assist such Holders to make an informed decision with respect to the Offer to Purchase, including a brief description of the events

requiring the Company to make the Offer to Purchase, and any other information required by applicable law to be included therein. The offer is required to contain all instructions and materials necessary to enable such Holders to tender Notes pursuant to the Offer to Purchase.

“Officer” means one of the executive officers or directors of the Company.

“Officer’s Certificate” means a certificate signed by at least one Officer.

“Opinion of Counsel” means a written opinion from legal counsel which opinion is reasonably acceptable to the Trustee that meets the requirements of the Indenture; *provided that* legal counsel shall be entitled to rely on a certificate of the Company as to matters of fact.

“Original Issue Date” means the date on which the Notes are originally issued under the Indenture.

“Person” means any individual, corporation, partnership, limited liability company, joint venture, trust, unincorporated organization or government or any agency or political subdivision thereof.

“PTFI” means PT Freeport Indonesia.

“Qualifying PTFI IPO” means the first offering or listing of shares of PTFI, which complies with (A) the rules and regulations of a Stock Exchange; and (B) the following conditions: (i) it is an offer of shares of PTFI that consists wholly or in part of primary shares and that is made to the public for subscription or sale exclusively for cash, accompanied (or preceded) by the grant of listing of, and permission to deal in, the PTFI shares or depository shares or securities representing the PTFI shares by such Stock Exchange; and (ii) the Company shall have delivered an Officer’s Certificate to the Trustee stating that the offer satisfies the conditions in this paragraph and that, immediately after giving effect to such public offering, no Event of Default and no event which, with the giving of notice or the passage of time, or both, would constitute an Event of Default, shall have occurred and be continuing.

“Rating Agencies” means (a) S&P, (b) Moody’s and (c) Fitch; provided that, if one or more of S&P, Moody’s or Fitch shall not make a rating of the Notes publicly available, an internationally recognized securities rating agency or agencies, as the case may be, selected by the Company, which shall be substituted for S&P, Moody’s or Fitch, or any combination thereof, as the case may be.

“Rating Date” means, in connection with a Change of Control Triggering Event, that date which is 90 days prior to the earlier of (i) a Change of Control and (ii) a public notice of the occurrence of a Change of Control.

“Rating Decline” means, in connection with a Change of Control Triggering Event, the occurrence on, or within 90 days after, the date, or public notice of the occurrence of, a Change of Control (which period shall be extended (by no more than an additional three months after the consummation of the Change of Control) so long as the rating of the Notes is under publicly announced consideration for possible downgrade by any of the Rating Agencies) any of the events listed below:

- (1) in the event the Notes are rated by all three Rating Agencies on the Rating Date as Investment Grade, the rating of the Notes by any two of the three or all three Rating Agencies shall be below Investment Grade; or
- (2) in the event the Notes are rated by any two, but not three, of the three Rating Agencies on the Rating Date as Investment Grade, the rating of the Notes by either of such two Rating Agencies shall be below Investment Grade.

“S&P” means S&P Global Ratings, a business unit of S&P Financial Services LLC, and its successors.

“Securities” means bonds, debentures, notes or other similar securities having an original maturity of more than one (1) year from its date of issue which (a) are, or are issued with the intention on the part of the issuer thereof that they should be quoted, listed or ordinarily dealt in or traded on any stock exchange, over-the-counter or other securities market, and (b) either (i) are by their terms payable, or confer a right to receive payment, in any currency other than Rupiah or (ii) are denominated in Rupiah and more than 50% of the aggregate principal

amount of the offering of such securities is initially distributed outside Indonesia by or with the Company's consent.

"Stated Maturity" means, (a) with respect to any Debt, the date specified in such debt security as the fixed date on which the final installment of principal of such Debt is due and payable as set forth in the documentation governing such Debt and (b) with respect to any scheduled installment of principal of or interest on any Debt, the date specified as the fixed date on which such installment is due and payable as set forth in the documentation governing such Debt.

"Stock Exchange" means The Indonesia Stock Exchange or such other internationally recognized stock exchange approved by the shareholders of PTFI and notified in writing to the Trustee.

"Subsidiary" means (a) any corporation or other entity of which securities or other ownership interests having ordinary voting power to elect a majority of the board of directors or other persons performing similar functions are at the time directly or indirectly owned by the Company or (b) any subsidiary subject to consolidation with the Company's financial statements under GAAP.

"U.S. Government Obligations" means securities that are (a) direct obligations of the United States of America for the payment of which its full faith and credit is pledged or (b) obligations of a Person controlled or supervised by and acting as an agency or instrumentality of the United States of America the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States of America, which, in either case, are not callable or redeemable at the option of the issuer thereof at any time prior to the Stated Maturity of the Notes, and will also include a depository receipt issued by a bank or trust company as custodian with respect to any such U.S. Government Obligation or a specific payment of interest on or principal of any such U.S. Government Obligation held by such custodian for the account of the holder of a depository receipt; *provided that* (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the holder of such depository receipt from any amount received by the custodian in respect of the U.S. Government Obligation or the specific payment of interest on or principal of the U.S. Government Obligation evidenced by such depository receipt.

DESCRIPTION OF THE 2030 NOTES

For purposes of this “Description of the 2030 Notes,” the term “Company” refers only to PT Indonesia Asahan Aluminium (Persero), a state-owned enterprise established and existing with limited liability under the laws of the Republic of Indonesia, and any successor obligor on the Notes (including the Surviving Person (as defined below, under the caption “— Consolidation, Merger and Sale of Assets”)), and not to any of its Subsidiaries. Any reference to the “Notes” in this “Description of the 2030 Notes” is solely to the 2030 Notes. The Notes are to be issued under an indenture (the “Indenture”) to be dated as of the Original Issue Date, between the Company and The Bank of New York Mellon, as trustee (the “Trustee”).

The following is a summary of certain provisions of the Indenture and the Notes. This summary does not purport to be complete and is qualified in its entirety by reference to all of the provisions of the Indenture and the Notes. It does not restate the provisions of the Indenture or the Notes in their entirety. Whenever particular sections or defined terms of the Indenture not otherwise defined herein are referred to, such sections or defined terms are incorporated herein by reference. A copy of the Indenture will be available for inspection on or after the Original Issue Date during normal office hours at the corporate trust office of the Trustee at 240 Greenwich Street, New York, NY 10286, United States of America.

The proceeds from the offering of the Notes will be used to redeem certain of the Company’s existing bonds, acquire shares in other mining companies, and refinance outstanding indebtedness of the Group as set forth in this Offering Memorandum under the caption “Use of Proceeds.”

Brief Description of the Notes

The Notes will:

- (a) be direct, unsecured and unsubordinated obligations of the Company;
- (b) be senior in right of payment to any existing and future obligations of the Company expressly subordinated in right of payment to the Notes;
- (c) rank at least *pari passu* in right of payment with all other unsecured and unsubordinated Debt of the Company (subject to any priority rights of such unsubordinated Debt pursuant to applicable law); and
- (d) be effectively subordinated to secured obligations of the Company and the obligations of its subsidiaries.

The Company will initially issue US\$1,000,000,000 in aggregate principal amount of the Notes, which will mature on May 15, 2030 unless earlier redeemed pursuant to the terms thereof and the Indenture. The Indenture allows the Company to issue additional Notes from time to time (the “Additional Notes”), subject to certain limitations described under “— Further Issues” and applicable law. The Notes offered hereby and any Additional Notes may be treated as a single class for all purposes under the Indenture.

Interest

The Notes will bear interest at 5.450% per annum from the Original Issue Date or from the most recent interest payment date on which interest has been paid or duly provided for, payable semi-annually in arrears on May 15 and November 15 of each year (each, an “Interest Payment Date”) commencing on November 15, 2020. Interest on the Notes will be paid to Holders of record at the close of business on each April 30 or October 31, immediately preceding an Interest Payment Date (each, a “Record Date”), notwithstanding any transfer, exchange or cancellation thereof after a Record Date and prior to the immediately following Interest Payment Date. Interest on the Notes will be calculated on the basis of a 360-day year comprised of twelve 30-day months.

Payment of Notes

In any case in which the date of the payment of principal of, premium, if any, or interest on the Notes (including any payment to be made on any date fixed for redemption or purchase of any Note) is not a Business

Day in the relevant place of payment, then payment of principal, premium, if any, or interest need not be made in such place on such date but may be made on the next succeeding Business Day in such place. Any payment made on such Business Day will have the same force and effect as if made on the date on which such payment is due. Interest on overdue principal and interest and Additional Amounts, if any, will accrue at a rate that is 1% higher than the then applicable interest rate on the Notes.

The Notes will be issued only in fully registered form, without coupons, in minimum denominations of US\$200,000 and integral multiples of US\$1,000 in excess thereof. See “— Book-Entry; Delivery and Form.” No service charge will be made for any registration of transfer or exchange of Notes, but the Company may require payment of a sum sufficient to cover any transfer tax or other similar governmental charge payable in connection therewith.

All payments on the Notes will be made in U.S. dollars in immediately available funds by the Company at the office or agency of the Company maintained for that purpose in the Borough of Manhattan, the City of New York (which initially will be the specified office of The Bank of New York Mellon (the “Paying Agent”), currently located at 240 Greenwich Street, New York, NY 10286, United States of America), and the Notes may be presented for registration of transfer or exchange at such office or agency. However, at the option of the Company, payment of interest may be made by wire transfer. Interest payable on the Notes held through DTC will be available to DTC participants (as defined herein) on the Business Day following payment thereof.

Further Issues

Subject to the covenants described below and in accordance with the terms of the Indenture, the Company may, from time to time, without notice to or the consent of the Holders, issue Additional Notes having the same terms and conditions as the Notes in all respects (or in all respects except for the issue date, issue price and the date of first payment of interest on them and, to the extent necessary, certain temporary securities law transfer restrictions) so that such Additional Notes may be consolidated and form a single class with the previously outstanding Notes and vote together as one class on all matters with respect to the Notes; *provided that*, in order for Additional Notes to have the same CUSIP, ISIN, or other identifying number as the outstanding Notes, the Additional Notes must be fungible with the outstanding Notes for U.S. federal income tax purposes.

In addition, the issuance of any Additional Notes by the Company will be subject to the following conditions:

- (a) the Company shall have delivered to the Trustee an Officer’s Certificate, in form and substance satisfactory to the Trustee, confirming that the issuance of the Additional Notes complies with the Indenture; and
- (b) the Company shall have delivered to the Trustee one or more Opinions of Counsel, in form and substance satisfactory to the Trustee, confirming, among other things, (i) that the issuance of the Additional Notes does not conflict with applicable law and (ii) that such Additional Notes will constitute legally valid and binding obligations of the Company, enforceable in accordance with their terms, subject to customary exceptions.

Repurchase of Notes Upon a Change of Control Triggering Event

Not later than 30 days following a Change of Control Triggering Event, the Company will make an Offer to Purchase all outstanding Notes (a “Change of Control Offer”) at a purchase price equal to 101.0% of the principal amount thereof plus accrued and unpaid interest, if any, to the Offer to Purchase Payment Date.

The Company will agree in the Indenture that it will timely repay all Debt or obtain consents as necessary under, or terminate, agreements or instruments that would otherwise prohibit a Change of Control Offer required to be made pursuant to the Indenture. Notwithstanding these agreements, it is important to note that if the Company is unable to repay (or cause to be repaid) all of the Debt, if any, that would prohibit the repurchase of the Notes or is unable to obtain the requisite consents of the holders of such Debt, or terminate any agreements or instruments that would otherwise prohibit a Change of Control Offer, the Company would continue to be

prohibited from purchasing the Notes. In that case, the failure of the Company to purchase tendered Notes would constitute an Event of Default (as defined below) under the Indenture.

Future Debt of the Company or its Subsidiaries may also (a) prohibit the Company from purchasing the Notes in the event of a Change of Control Triggering Event; (b) provide that a Change of Control Triggering Event is a default; or (c) require the repayment or repurchase of such Debt upon a Change of Control Triggering Event. Moreover, the exercise by the Holders of their right to require the Company to purchase the Notes could cause a default under other Debt, even if the Change of Control Triggering Event itself does not, due to the financial effect of the purchase on the Company or its Subsidiaries. The ability of the Company to pay cash to Holders of the Notes following the occurrence of a Change of Control Triggering Event may be limited by the financial resources then available to the Company. There can be no assurance that sufficient funds will be available when necessary to make the required purchase of the Notes. See “Risk Factors — Risks Relating to the Notes — We may not have the ability to raise the funds necessary to finance an offer to repurchase the Notes upon the occurrence of certain events constituting a change of control triggering event or otherwise as required by the Indenture governing the Notes.”

Notwithstanding the above, the Company will not be required to make a Change of Control Offer following a Change of Control Triggering Event if a third party makes the Change of Control Offer in the manner, at the times and otherwise in compliance with the requirements set forth in the Indenture applicable to a Change of Control Offer to be made by the Company and such third party purchases all Notes validly tendered and not withdrawn under such Change of Control Offer.

A Holder will have no right to require the Company to repurchase portions of Notes if it would result in the issuance of new Notes, representing the portion not purchased, in an amount of less than US\$200,000.

The Company will comply with the requirements of Rule 14e-1 under the Exchange Act and any other securities laws and regulations thereunder to the extent those laws and regulations are applicable in connection with each repurchase of Notes pursuant to a Change of Control Offer. To the extent that the provisions of any securities laws or regulations conflict with the provisions of the covenant described hereunder, the Company will comply with the applicable securities laws and regulations and will not be deemed to have breached its obligations described hereunder by virtue of its compliance with such laws and regulations.

Except as described above with respect to a Change of Control Offer, the Indenture does not contain provisions that permit the Holders to require that the Company purchase or redeem the Notes in the event of a takeover, recapitalization or similar transaction.

The Trustee shall not be required to take any steps to ascertain whether a Change of Control Triggering Event or any event which could lead to the occurrence of a Change of Control Triggering Event has occurred and shall not be liable to any person for any failure to do so.

Sinking Fund

There will be no sinking fund payments for the Notes.

Additional Amounts

All payments of principal of, and premium, if any, and interest on the Notes will be made without withholding or deduction for, or on account of, any present or future taxes, duties, assessments or other governmental charges of whatever nature imposed or levied by or within any jurisdiction in which the Company or the Surviving Person is organized or resident for tax purposes (or any political subdivision or taxing authority thereof or therein) or through which payment is made on behalf of the Company or the Surviving Person (each, as applicable, a “Relevant Taxing Jurisdiction”), unless such withholding or deduction is required by law or by regulation or governmental policy having the force of law.

In such event, the Company or the Surviving Person, as the case may be, will make or cause to be made such deduction or withholding, make payment of the amount so deducted or withheld to the appropriate

governmental authority and will pay such additional amounts (“Additional Amounts”) as will result in receipt by the Holder of such amounts as would have been received by such Holder had no such withholding or deduction been required. However, no Additional Amounts will be payable:

- (a) for or on account of:
 - (i) any tax, duty, assessment or other governmental charge that would not have been imposed but for:
 - (A) the existence of any present or former connection between the Holder or beneficial owner of such Note and the Relevant Taxing Jurisdiction including, without limitation, such Holder’s or beneficial owner’s being or having been a citizen or resident of such Relevant Taxing Jurisdiction or treated as a resident thereof or being or having been physically present or engaged in a trade or business therein or having or having had a permanent establishment therein, other than merely holding such Note or the receipt of payments thereunder or enforcing payment under the Note;
 - (B) the presentation of such Note (where presentation is required) more than 30 days after the later of the date on which the payment of the principal of, premium, if any, or interest on, such Note became due and payable pursuant to the terms thereof or was made or duly provided for, except to the extent that the Holder thereof would have been entitled to such Additional Amounts if it had presented such Note for payment on any date within such 30-day period;
 - (C) the failure of the Holder or beneficial owner to comply with a timely request of the Company or the Surviving Person, as the case may be, addressed to the Holder, to provide information to the Company or the Surviving Person on an applicable Form DGT or any other document, information or form concerning such Holder’s or beneficial owner’s nationality, residence, identity or connection with any Relevant Taxing Jurisdiction, if and to the extent that due and timely compliance with such request is required under the laws of a Relevant Taxing Jurisdiction in order to reduce or eliminate any withholding or deduction as to which Additional Amounts would have otherwise been payable to such Holder; or
 - (D) the presentation of such Note (where presentation is required) for payment in the Relevant Taxing Jurisdiction, unless such withholding or deduction could not have been avoided by presenting the Note for payment elsewhere;
 - (ii) any estate, inheritance, gift, sale, transfer or similar tax, assessment or other governmental charge;
 - (iii) any tax, duty, assessment or other governmental charge which is payable other than by deduction or withholding from payments of principal of or interest or any premium on the Note;
 - (iv) any tax required to be withheld or deducted under Sections 1471 to 1474 of the U.S. Internal Revenue Code of 1986, as amended (the “Code”) (or any amended or successor versions of such Sections), any agreements described under section 1471(b) of the Code, any regulations or other official guidance thereunder, any intergovernmental agreement relating thereto, or any law, regulation or other official guidance enacted in any jurisdiction implementing any of the foregoing; or
 - (v) any combination of taxes, duties, assessments or other governmental charges referred to in the preceding paragraphs (i), (ii), (iii) and (iv); or
- (b) with respect to any payment of the principal of, or premium, if any, or interest on, such Note to such Holder, if the Holder is a fiduciary, corporation, limited liability company, partnership or person other than the sole beneficial owner of any payment to the extent that, under the laws of a Relevant Taxing Jurisdiction, such payment would be required to be included in income, for tax purposes, of a beneficiary or settlor with respect to the fiduciary, a shareholder of that corporation, a member of that partnership or limited liability company or a beneficial owner who would not have been entitled to

such Additional Amounts had that beneficiary, settlor, shareholder, partner, or beneficial owner been the Holder thereof; or

- (c) any combination of paragraphs (a) and (b).

As a result of these provisions, there are circumstances in which taxes could be withheld or deducted but Additional Amounts would not be payable to some or all beneficial owners of Notes.

Whenever there is mentioned in any context the payment of principal, premium or interest in respect of any Note, such mention will be deemed to include payments of Additional Amounts provided for in the Indenture to the extent that, in such context, Additional Amounts are, were or would be payable in respect thereof.

The Paying Agent and the Trustee will make payments free of withholdings or deductions on account of taxes unless required by applicable law. If such a deduction or withholding is required, the Paying Agent or the Trustee will not be obligated to pay any Additional Amount to the recipient unless such an Additional Amount is received by the Paying Agent or the Trustee from the Company or the Surviving Person.

In addition to the foregoing, the Company or the Surviving Person, as the case may be, will also pay and indemnify the Holder or beneficial owner, as applicable, for any present or future stamp, issue, registration, court or documentary taxes, or any other excise or property taxes, charges or similar levies (including penalties and interest) which are levied by any jurisdiction on the execution, delivery, issuance, registration, redemption or retirement of any of the Notes or the Indenture or any other document referred to therein (other than a transfer of the Notes after this offering) or any such taxes, charges or similar levies imposed by the United States, Indonesia, or any political subdivision thereof as a result of, or in connection with, the enforcement of any of the Notes.

Redemption for Taxation Reasons

The Notes may be redeemed at the option of the Company or the Surviving Person, as the case may be, as a whole but not in part, by giving not less than 30 days' nor more than 60 days' notice to the Holders (which notice will be irrevocable) and the Trustee, at a redemption price equal to 100% of the principal amount thereof, together with accrued and unpaid interest (including any Additional Amounts), if any, to (but not including) the date fixed by the Company or the Surviving Person, as the case may be, for redemption (the "Tax Redemption Date"), if the Company or the Surviving Person, as the case may be, is, or on the next Interest Payment Date would be, required to pay Additional Amounts, and such requirement cannot be avoided by taking reasonable measures (including an appointment of a new paying agent) by the Company or the Surviving Person, as the case may be, as a result of:

- (a) any change in, or amendment to, the laws or any regulations or rulings promulgated thereunder of a Relevant Taxing Jurisdiction affecting taxation; or
- (b) any change in, or amendment to, an official position regarding the application, administration or interpretation of such laws, regulations or rulings (including a holding, judgment or order by a court of competent jurisdiction or a change in published practice),

which change or amendment is announced and becomes effective on or after the Original Issue Date with respect to any payment due or to become due under the Notes or the Indenture (or, if the Relevant Taxing Jurisdiction was not a Relevant Taxing Jurisdiction on the Original Issue Date, the date on which such jurisdiction became a Relevant Taxing Jurisdiction under the Indenture).

Notwithstanding the above, (i) no such notice of redemption will be given earlier than 90 days prior to the earliest date on which the Company or the Surviving Person, as the case may be, would be obligated to pay such Additional Amounts if a payment in respect of the Notes were then due, and (ii) if such requirement to pay Additional Amounts is due to taxes of the Republic of Indonesia (or any political subdivision or taxing authority thereof or therein), the Company or the Surviving Person shall only be permitted to redeem the Notes in accordance with the provisions above if the rate of withholding or deduction in respect of which Additional Amounts are required is in excess of 20%.

Prior to the mailing of any notice of redemption of the Notes pursuant to the foregoing, the Company will deliver to the Trustee:

- (a) an Officer's Certificate stating that such change or amendment referred to in the prior paragraph has occurred, and describing the facts related thereto and stating that such requirement cannot be avoided by the Company, taking reasonable measures available to it; and
- (b) an Opinion of Counsel of recognized standing with respect to tax matters of the Relevant Taxing Jurisdiction stating that the requirement to pay such Additional Amounts, and withhold or deduct such taxes, duties, assessments or other government charges results from such change or amendment referred to in the prior paragraph.

The Trustee shall be entitled to accept and rely upon such certificate and opinion as sufficient evidence of the satisfaction of the conditions precedent described above without further verification, and it will be conclusive and binding on the Holders. The Trustee will not investigate or verify such certificate and opinion.

Any Notes that are redeemed will be canceled.

Optional Redemption

At any time on or after February 15, 2030, the Notes may be redeemed at the option of the Company or the Surviving Person, as the case may be, in whole or in part, by giving not less than 30 days' nor more than 60 days' notice to the Holders (which notice will be irrevocable) and the Trustee, at a redemption price equal to 100% of the principal amount thereof, together with accrued and unpaid interest (including any Additional Amounts), if any, to (but not including) the date fixed by the Company or the Surviving Person, as the case may be, for redemption (the "Optional Redemption Date").

Any Notes that are redeemed will be canceled.

Certain Covenants

Set forth below are summaries of certain covenants contained in the Indenture.

Negative pledge

So long as any of the Notes remain outstanding, the Company will not create or permit to exist, and the Company will ensure that none of its Material Subsidiaries will create or permit to exist, any Lien for the benefit of the holders of any Securities on the whole or any part of its property or assets, present or future, to secure: (a) payment of any sum due in respect of any Securities; (b) any payment under any guarantee in respect of any Securities; or (c) any indemnity or other like obligation in respect of any Securities, without in any such case, at the same time or prior thereto, making effective provision whereby the Notes are accorded (i) the same Liens equally and ratably as are created or subsisting to secure any such Securities, guarantee or indemnity or like obligation, or (ii) such other Liens as may be consented to by the holders of a majority in aggregate principal amount of the outstanding Notes.

However, the foregoing restriction shall not apply to (a) any Lien existing on any property or assets at the time of acquisition of such property or assets by the Company; *provided that* such Lien was not created, and the principal, capital or nominal amount of the Securities secured by such Lien outstanding at the time of such acquisition was not increased, in contemplation of such acquisition or in connection therewith, and (b) any Lien arising out of the refinancing, extension, renewal or refunding of any Securities secured by any such Lien; *provided that* the principal, capital or nominal amount of such Securities is not increased and such Securities are not secured by any additional property or assets.

Use of proceeds

The Company will use the proceeds received from the Notes as set forth in this Offering Memorandum under the caption "Use of Proceeds."

Provision of financial statements and reports

For so long as any of the Notes remain outstanding, the Company will file with the Trustee and furnish to the Holders upon request:

- (a) as soon as they are available, but in any event within 120 calendar days after the end of its fiscal year, copies of its financial statements (on a consolidated basis) in respect of such financial year (including a statement of income, balance sheet and cash flow statement) audited by a member firm of an internationally recognized firm of independent accountants; and
- (b) as soon as they are available, but in any event within 90 calendar days, after the end of each of its first, second and third fiscal quarters, copies of its financial statements (on a consolidated basis) in respect of such period (including a statement of income, balance sheet and cash flow statement) prepared on a basis consistent with its audited financial statements, together with a certificate signed by the Person then authorized to sign financial statements on behalf of it, to the effect that such financial statements are true in all material respects and present fairly its financial position as at the end of, and the results of its operations for, the relevant quarterly period;

provided that, in each case, the financial statements shall be in the English language, or if such statements shall be in any other language, accompanied with an English translation of the same and translated by (i) an internationally recognized firm of independent accountants or (ii) a professional translation service provider and checked by an internationally recognized firm of independent accountants, together with a certificate in English signed by the Person then authorized to sign financial statements of the Company, certifying that such translation is complete and accurate (on each of which the Trustee may conclusively rely without liability to any Holder or any other person).

If the Company makes any financial or other report (or any English translation of any financial or other report in any other language) described above available on its corporate website, the Company will be deemed to have satisfied the foregoing obligation to furnish such report (or such translation) to the Holders upon request.

In addition, so long as any of the Notes remain outstanding, the Company will provide to the Trustee promptly and in any event within seven days after it obtains actual knowledge of the occurrence thereof, written notice of the occurrence of any event or condition which constitutes an Event of Default and an Officer's Certificate setting forth the details thereof and the action it is taking or proposes to take with respect thereto, and the Trustee shall be entitled to accept such certificate as sufficient evidence thereof, in which event it shall be conclusive and binding on the Holders.

Further, the Company has agreed that, for so long as there are Notes which are "restricted securities" within the meaning of Rule 144(a)(3) under the U.S. Securities Act of 1933, as amended (the "Securities Act"), during any period in which the Company is neither subject to Section 13 or 15(d) of the U.S. Securities Exchange Act of 1934, as amended (the "Exchange Act"), nor exempt from reporting pursuant to Rule 12g3-2(b) thereunder, the Company will supply to (i) any Holder or beneficial owner of a Note or (ii) a prospective purchaser of a Note or a beneficial interest therein designated by such Holder or beneficial owner, the information specified in, and meeting the requirements of, Rule 144A(d)(4) under the Securities Act upon the request of any Holder or beneficial owner of a Note.

Events of Default

The following events will be defined as "Events of Default" in the Indenture:

- (a) default in the payment of principal of (or premium, if any, on) the Notes when the same becomes due and payable at maturity, upon acceleration, redemption or otherwise;
- (b) default in the payment of interest on any Note when the same becomes due and payable, and such default continues for a period of 30 consecutive days;
- (c) default in the performance of or breach of any provisions of the covenants described under "— Consolidation, Merger and Sale of Assets" or failure to make or consummate a Change of Control

Offer in the manner described under the caption “— Repurchase of Notes Upon a Change of Control Triggering Event;”

- (d) default in the performance of or breach of any other covenant or agreement in the Indenture or under the Notes (other than a default specified in paragraph (a), (b) or (c) above) and such default or breach continues for a period of 60 consecutive days after written notice by the Trustee or the Holders of 25% or more in aggregate principal amount of the outstanding Notes;
- (e) (i) the Company ceasing to own and control, directly or indirectly, at least 51.0% of the issued and paid-up shares of any of its Subsidiaries that are Material Subsidiaries as of the Original Issue Date or PTFI or (ii) in the event of a Qualifying PTFI IPO, the Company ceasing to own and control, directly or indirectly, at least 40.0% of the issued and paid-up shares of PTFI or ceasing to be the single largest beneficial shareholder of PTFI;
- (f) there occurs with respect to any Debt of the Company or any of its Material Subsidiaries or PTFI having an outstanding principal amount of US\$50.0 million (or the Dollar Equivalent thereof) or more in the aggregate for all such Debt of all such Persons, whether such Debt now exists or will hereafter be created, (A) an event of default that has caused the holder thereof to declare such Debt to be due and payable prior to its Stated Maturity or (B) the failure to make a payment of principal (subject to the applicable grace period in the relevant documents) of such Debt when the same becomes due;
- (g) one or more final judgments or orders for the payment of money are rendered against the Company or any of its Subsidiaries or PTFI and are not paid or discharged, and there is a period of 60 consecutive days following entry of the final judgment or order that causes the aggregate amount for all such final judgments or orders outstanding and not paid or discharged against all such Persons to exceed US\$50.0 million (or the Dollar Equivalent thereof) during which a stay of enforcement, by reason of a pending appeal or otherwise, is not in effect;
- (h) an involuntary case or other proceeding is commenced against the Company or any Material Subsidiary or PTFI with respect to it or its Debts under any applicable bankruptcy, insolvency or other similar law now or hereafter in effect seeking the appointment of a receiver, liquidator, assignee, custodian, trustee, sequestrator or similar official of the Company or any Material Subsidiary or PTFI or for any substantial part of the property and assets of the Company or any Material Subsidiary or PTFI and such involuntary case or other proceeding remains undismissed and unstayed for a period of 60 consecutive days; or an order for relief is entered against the Company or any Material Subsidiary or PTFI under any applicable bankruptcy, insolvency or other similar law as now or hereafter in effect; or
- (i) the Company or any Material Subsidiary or PTFI (i) commences a voluntary case under any applicable bankruptcy, insolvency or other similar law now or hereafter in effect, or consents to the entry of an order for relief in an involuntary case under any such law, (ii) consents to the appointment of or taking possession by a receiver, liquidator, assignee, custodian, trustee, sequestrator or similar official of the Company or any Material Subsidiary or PTFI or for all or substantially all of the property and assets of the Company or any Material Subsidiary or PTFI or (iii) effects any general assignment for the benefit of creditors.

If an Event of Default (other than an Event of Default specified in paragraph (h) or (i) above) occurs and is continuing under the Indenture, the Trustee (in its sole discretion and without further notice) or the Holders of at least 25% in aggregate principal amount of the Notes, then outstanding, by written notice to the Company (and to the Trustee if such notice is given by the Holders), may, and the Trustee at the written request of such Holders will (subject to being indemnified and/or secured and/or prefunded to its satisfaction), declare the principal of, premium, if any, and accrued and unpaid interest on the Notes to be immediately due and payable. Upon a declaration of acceleration, such principal of, premium, if any, and accrued and unpaid interest will be immediately due and payable. If an Event of Default specified in paragraph (h) or (i) above occurs, the principal of, premium, if any, and accrued and unpaid interest on the Notes then outstanding will automatically become and be immediately due and payable without any declaration or other act on the part of the Trustee or any Holder.

The Holders of at least a majority in principal amount of the outstanding Notes by written notice to the Company and the Trustee, may on behalf of all of the Holders waive all past defaults and rescind and annul a declaration of acceleration and its consequences with respect to the Notes if:

- (a) the Company pays or deposits with the Trustee a sum sufficient to pay all monies then due with respect to the Notes (other than amounts due solely because of such declaration of acceleration) and all other existing Events of Default have been cured or waived, and
- (b) the rescission would not conflict with any judgment or decree of a court of competent jurisdiction.

Upon such waiver, the Default will cease to exist, and any Event of Default arising therefrom will be deemed to have been cured, but no such waiver will extend to any subsequent or other Default or impair any right consequent thereon.

The Holders of at least a majority in aggregate principal amount of the outstanding Notes may direct the time, method and place of conducting any proceeding for any remedy available to the Trustee or exercising any trust or power conferred on the Trustee, subject to the Trustee being indemnified and/or secured and/or prefunded to its satisfaction in advance of the proceedings. However, the Trustee may refuse to follow any direction that is unclear, conflicting or equivocal, that conflicts with law or the Indenture, that may involve the Trustee in personal liability, or that may be unduly prejudicial to the rights of Holders not joining in the giving of such direction and may take any other action it deems proper that is not inconsistent with any such direction received from Holders. In addition, the Trustee will not be required to expend its own funds in following such direction if it does not believe that reimbursement or satisfactory indemnification and/or security and/or prefunding is assured to it.

A Holder may not pursue or institute any proceeding, judicial or otherwise, with respect to the Indenture or the Notes, or for the appointment of a receiver or trustee, or for any other remedy under the Indenture or the Notes, unless:

- (a) the Holder has previously given the Trustee written notice of a continuing Event of Default;
- (b) the Holders of at least 25% in aggregate principal amount of outstanding Notes make a written request to the Trustee to pursue the remedy;
- (c) such Holder or Holders offer the Trustee indemnity and/or security and/or pre-funding satisfactory to the Trustee against any costs, liability or expense to be incurred in compliance with such request;
- (d) the Trustee does not comply with the request within 60 days after receipt of the request and the offer of indemnity and/or security and/or pre-funding; and
- (e) during such 60-day period, the Holders of a majority in aggregate principal amount of the outstanding Notes do not give the Trustee a direction that is inconsistent with the request.

However, such limitations do not apply to the right of any Holder of a Note to receive payment of the principal of, premium, if any, or interest, and Additional Amounts, if any, on, such Note or to bring suit for the enforcement of any such payment, on or after the due date expressed in the Notes, which right will not be impaired or affected without the consent of the Holder.

Officers of the Company must certify to the Trustee in writing, on or before a date not more than 120 calendar days after the end of each fiscal year, that a review has been conducted of the activities of the Company and its Subsidiaries and PTFI and the Company's performance under the Indenture and the Notes and that the Company has fulfilled all obligations thereunder, or, if there has been a default in the fulfillment of any such obligation, specifying each such default and the nature and status thereof. The Company will also be obligated to notify the Trustee in writing of any default or defaults in the performance of any covenants or agreements under the Indenture. See "— Provision of Financial Statements and Reports."

The Trustee and the Agents need not do anything to ascertain whether any Event of Default has occurred or is continuing and will not be responsible to Holders or any other person for any loss arising from any failure by it

to do so, and the Trustee or the Agents may assume that no such event has occurred and that the Company is performing all its obligations under the Indenture and the Notes unless the Trustee has received written notice of the occurrence of such event or facts establishing that an Event of Default has occurred or the Company is not performing all of its obligations under the Indenture and the Notes. The Trustee is entitled to rely on any Opinion of Counsel or Officer's Certificate regarding whether an Event of Default has occurred.

Consolidation, Merger and Sale of Assets

The Company will not consolidate with, or merge with or into, another Person, permit any Person to merge with or into it, or sell, convey, transfer, lease or otherwise dispose of all or substantially all of its properties and assets, computed on a consolidated basis with its Subsidiaries (as an entirety or substantially an entirety in one transaction or a series of related transactions), unless:

- (a) the Company will be the continuing Person, or the Person (if other than the Company) formed by such consolidation or merger or that acquired or leased such property and assets (the "Surviving Person") will be a corporation organized and validly existing under the laws of the jurisdiction in which the Company is organized and will expressly assume, by a supplemental indenture to the Indenture, executed and delivered to the Trustee, all the obligations of the Company under the Indenture and the Notes, including the obligation to pay Additional Amounts, and the Indenture and the Notes will remain in full force and effect;
- (b) immediately after giving effect to such transaction, no Default or Event of Default will have occurred and be continuing; and
- (c) the Company delivers to the Trustee an Officer's Certificate and an Opinion of Counsel, in each case stating that such consolidation, merger or transfer and the relevant supplemental indenture complies with this provision and that all conditions precedent provided for in the Indenture relating to such transaction have been complied with and that the relevant supplemental indenture is enforceable.

For purposes of this covenant, the conveyance, transfer or lease of all or substantially all of the property or assets of one or more Subsidiaries of the Company, which constitutes all or substantially all of the property or assets of the Company and its Subsidiaries on a consolidated basis, shall be deemed to be the transfer of all or substantially all of the property or assets of the Company.

Although there is a limited body of case law interpreting the phrase "substantially all," there is no precise established definition of the phrase under applicable law. Accordingly, in certain circumstances there may be a degree of uncertainty as to whether a particular transaction would involve "all or substantially all" of the property or assets of a Person.

The foregoing provisions would not necessarily afford Holders protection in the event of highly-leveraged or other transactions involving the Company that may adversely affect Holders.

No Payments for Consents

The Company will not, and will not permit any of its Subsidiaries or PTFI to, directly or indirectly, pay or cause to be paid any consideration, whether by way of interest, fee or otherwise, to any Holder for or as an inducement to any consent, waiver or amendment of any of the terms or provisions of the Indenture or the Notes, unless such consideration is offered to be paid or is paid to all Holders that consent, waive or agree to amend such term or provision within the time period set forth in the solicitation documents relating to such consent, waiver or amendment. Notwithstanding the foregoing, in any offer or payment of consideration for, or as an inducement to, any consent, waiver or amendment of any of the terms or provisions of the Indenture or the Notes, the Company and any of its Subsidiaries and PTFI may exclude (a) in connection with an exchange offer, holders or beneficial owners of the Notes that are not qualified institutional buyers as defined in Rule 144A under the Securities Act, and (b) in connection with any consent, waiver or amendment, holders or beneficial owners of the Notes in any jurisdiction where the inclusion of such holders or beneficial owners would require the Company or any of its Subsidiaries or PTFI to comply with the registration requirements or other similar requirements under

any securities laws of such jurisdiction, or the solicitation of such consent, waiver or amendment from, or the granting of such consent or waiver, or the approval of such amendment by, holders or beneficial owners in such jurisdiction would be unlawful, in each case as determined by the Company in its sole discretion.

Defeasance

Defeasance and discharge

The Indenture will provide that the Company will be deemed to have paid and will be discharged from any and all obligations in respect of the Notes on the 183rd day after the deposit referred to below and payments of all amounts due to the Trustee were made, and the provisions of the Indenture will no longer be in effect with respect to the Notes (except for, among other matters, certain obligations to register the transfer or exchange of the Notes, to replace stolen, lost or mutilated Notes, to maintain paying agencies and to hold monies for payment in trust and to pay Additional Amounts) if, among other things:

- (a) the Company has (i) deposited with the Trustee, in trust, cash in U.S. dollars, U.S. Government Obligations or a combination thereof that through the payment of interest, premium, if any, and principal in respect thereof in accordance with their terms will provide money in an amount sufficient to pay the principal of, premium, if any, and accrued interest on the Notes on the Stated Maturity of such payments in accordance with the terms of the Indenture and the Notes and (ii) delivered to the Trustee (x) a certificate of an internationally recognized firm of independent accountants to the effect that the amount deposited by the Company is sufficient to provide payment for the principal of, premium, if any, and accrued interest on, the Notes on the Stated Maturity of such payment in accordance with the terms of the Indenture and the Notes and (y) an Opinion of Counsel to the effect that the Holders have a valid, perfected, exclusive security in such trust;
- (b) the Company has delivered to the Trustee either (x) an Opinion of Counsel of recognized standing with respect to U.S. federal income tax matters which is based on a change in applicable U.S. federal income tax law occurring after the Original Issue Date to the effect that beneficial owners will not recognize income, gain or loss for U.S. federal income tax purposes as a result of the Company's exercise of its option under this "— Defeasance and Discharge" provision and will be subject to U.S. federal income tax on the same amount and in the same manner and at the same time as would have been the case if such deposit, defeasance and discharge had not occurred or (y) a ruling directed to the Company or the Trustee received from the U.S. Internal Revenue Service to the same effect as the aforementioned Opinion of Counsel;
- (c) the Company has delivered to the Trustee an Officer's Certificate stating that the deposit was not made by it with the intent of preferring the Holders over any other of its creditors or with the intent of defeating, hindering, delaying or defrauding any other of its creditors or others; and
- (d) immediately after giving effect to such deposit on a pro forma basis, no Event of Default, or event that after the giving of notice or lapse of time or both would become an Event of Default, will have occurred and be continuing on the date of such deposit or during the period ending on the 183rd day after the date of such deposit, and such defeasance will not result in a breach or violation of, or constitute a default under, any other agreement or instrument to which the Company or any Material Subsidiary or PTFI is a party or by which the Company or any Material Subsidiary or PTFI is bound.

Amendments and Waivers

Amendments without consent of Holders

The Indenture may be amended or supplemented, without the consent of any Holder of Notes, to:

- (a) cure any ambiguity, defect or inconsistency in the Indenture or the Notes, provided that any such amendment may not adversely affect the interests of the Holder;
- (b) comply with the provisions described under "Certain Covenants — Consolidation, Merger and Sale of Assets;"

- (c) evidence and provide for the acceptance of appointment by a successor Trustee;
- (d) add any guarantor or guarantee with respect to the Notes;
- (e) provide for the issuance of Additional Notes in accordance with the limitations set forth in the Indenture;
- (f) effect any change in any other case where a supplemental indenture to the Indenture is required or permitted to be entered into pursuant to the provisions of the Indenture without the consent of any Holder;
- (g) effect any changes to the Indenture in a manner necessary to comply with the procedures of DTC;
- (h) provide collateral to secure the Notes;
- (i) make any other change that does not materially and adversely affect the rights of any Holder of Notes;
- (j) comply with the rules of any applicable securities depository; or
- (k) conform the text of the Indenture or the Notes to any provision of this “Description of the 2030 Notes” to the extent that such provision in this “Description of the 2030 Notes” was intended to be a verbatim recitation of a provision of the Indenture or the Notes.

Amendments with consent of Holders

Amendments of the Indenture may be made by the Company and the Trustee with the consent of the Holders of not less than a majority in aggregate principal amount of the outstanding Notes, and the holders of a majority in aggregate principal amount of the outstanding Notes may waive future compliance by the Company with any provision of the Indenture or the Notes, *provided that* no such modification, amendment or waiver may, without the consent of each Holder:

- (a) change the Stated Maturity of the principal of, or any installment of interest on, any Note;
- (b) reduce the principal amount of, or premium, if any, or interest on, any Note;
- (c) change the currency, time or place of payment of principal of, or premium, if any, or interest on, any Note;
- (d) impair the right to institute suit for the enforcement of any payment on or after the Stated Maturity (or, in the case of a redemption, on or after the redemption date) of any Note;
- (e) reduce the above stated percentage of outstanding Notes the consent of whose Holders is necessary to modify or amend the Indenture, to waive compliance with certain provisions of the Indenture or to waive certain defaults;
- (f) waive a default in the payment of principal of, premium, if any, or interest on the Notes;
- (g) amend, change or modify (i) the obligation of the Company in respect of the due and punctual payment of the principal of, premium, if any, or interest on, any Note; (ii) the obligation of the Company to pay Additional Amounts, or (iii) the ranking of the Notes, in each case, in a manner that adversely affects the Holders; or
- (h) reduce the premium payable upon the redemption or repurchase of any Note, or change the time and manner in which any Note may be redeemed or repurchased as described above under the captions “— Repurchase of Notes Upon a Change of Control Triggering Event” or “— Redemption for Taxation Reasons,” except that the 75.0% threshold in the definition of the term “Change of Control” in the Indenture may, prior to the occurrence of a Change of Control, be waived modified or amended with the consent of the holders of not less than a majority in aggregate principal amount of the Notes.

No Personal Liability of Incorporators, Shareholders, Directors, Commissioners, Officers or Employees

No recourse for the payment of the principal of, premium, if any, or interest on any of the Notes or for any claim based thereon or otherwise in respect thereof, and no recourse under or upon any obligation, covenant or

agreement of the Company in the Indenture, or in any of the Notes or because of the creation of any Debt represented thereby, will be had against any incorporator, shareholder, director, commissioner, officer, employee or controlling person of the Company or of any successor Person thereof. Each Holder, by accepting the Notes, waives and releases all such liability. The waiver and release are part of the consideration for the issuance of the Notes. Such waiver may not be effective to waive liabilities under the applicable securities laws.

Concerning the Trustee and the Agents

Except during the continuance of an Event of Default, the Trustee will not be liable, except for the performance of such duties as are specifically set forth in the Indenture. If an Event of Default has occurred and is continuing, the Trustee will use the same degree of care and skill in its exercise of the rights and powers vested in it under the Indenture as a prudent person would exercise under the circumstances in the conduct of such person's own affairs.

The Trustee and the Agents assume no responsibility for the accuracy or completeness of the information concerning the Company or its Affiliates or any other party referenced in this Offering Memorandum or for any failure of the Company or any other party to disclose events that may have occurred or may affect the completeness or accuracy of such information.

The Trustee is permitted to engage in other transactions with the Company and its Affiliates and shall not be obligated to account for any profits therefrom, and no Trustee and no director or officer of any corporation being a Trustee hereof shall by reason of the fiduciary position of such Trustee be in any way precluded from making any contracts or entering into any transactions in the ordinary course of business with the Company, or any person or body corporate directly or indirectly associated with the Company, or from accepting the trusteeship of any other debenture stock, debentures or securities of the Company or any person or body corporate directly or indirectly associated with the Company, and neither the Trustee nor any such director or officer shall be accountable to the Holders or the Company, or any person or body corporate directly or indirectly associated with the Company, for any profit, fees, commissions, interest, discounts or share of brokerage earned, arising or resulting from any such contracts or transactions and the Trustee and any such director or officer shall also be at liberty to retain the same for its or his own benefit, *provided that* if such Trustee or any such director or officer acquires any conflicting interest that may have a materially prejudicial effect upon the Holders, it must eliminate such conflict or resign.

The Trustee shall not be responsible for the performance by any other person appointed by the Company in relation to the Notes and, unless notified in writing to the contrary, shall assume that the same are being duly performed. The Trustee shall not be liable to any Holders or any other person for any action taken by the Holders or the Trustee in accordance with the instructions of the Holders. The Trustee shall be entitled to rely on any written direction of the Holders which has been duly given by the Holders of the requisite principal amount of the Notes outstanding.

Neither the Trustee nor the Agents will be responsible for making calculations or for verifying calculations performed by the Company or any other persons unless otherwise specified in the Indenture.

The Trustee will be under no obligation to exercise any rights or powers conferred under the Indenture for the benefit of the Holders, unless such Holders have offered to the Trustee and, if the Trustee accepts such offer, the Trustee has received, indemnity and/or security and/or pre-funding satisfactory to the Trustee against any loss, liability or expense. In the exercise of its duties, the Trustee shall not be responsible for the verification of the accuracy or completeness of any certification submitted to it by the Company and is entitled to rely exclusively on the certification contained therein. Notwithstanding anything described herein, the Trustee has no duty to monitor the performance or compliance of the Company in the fulfillment of its obligations under the Indenture and the Notes.

For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, in the event that a Global Note is exchanged for definitive Notes, the Company shall appoint and maintain a paying agent in Singapore, where the definitive Notes may be presented or surrendered for payment or redemption. In addition,

in the event that a Global Note is exchanged for definitive Notes, an announcement of such exchange shall be made by or on behalf of the Company through the SGX-ST and such announcement will include all material information with respect to the delivery of the definitive Notes, including details of the paying agent in Singapore.

Book-Entry; Delivery and Form

The certificates representing the Notes will be issued in fully registered form without interest coupons. Notes sold in offshore transactions in reliance on Regulation S under the Securities Act will initially be represented by one or more permanent global notes in definitive, fully registered form without interest coupons (each, a “Regulation S Global Note”) and will be deposited with The Bank of New York Mellon as custodian for, and registered in the name of a nominee of, DTC for the accounts of Euroclear and Clearstream. Notes sold in reliance on Rule 144A will be represented by one or more permanent global notes in definitive, fully registered form without interest coupons (each, a “Restricted Global Note;” and together with the Regulation S Global Notes, the “Global Notes”) and will be deposited with The Bank of New York Mellon as custodian for, and registered in the name of a nominee of, DTC.

Each Global Note (and any Notes issued for exchange therefor) will be subject to certain restrictions on transfer set forth therein as described under “Transfer Restrictions.”

Notes transferred to institutional “accredited investors” (as defined in Rule 501(a) (1), (2), (3) or (7) of Regulation D under the Securities Act (an “Institutional Accredited Investor”)) who are not qualified institutional buyers (“Non-Global Purchasers”) will be in registered form without interest coupons (“Certificated Notes”). Upon the transfer of Certificated Notes initially issued to a Non-Global Purchaser to a qualified institutional buyer or in accordance with Regulation S, such Certificated Notes will, unless the relevant Global Note has previously been exchanged in whole for Certificated Notes, be exchanged for an interest in a Global Note. For a description of the restrictions on the transfer of Certificated Notes, see “Transfer Restrictions.”

Ownership of beneficial interests in a Global Note will be limited to persons who have accounts with DTC (“participants”) or persons who hold interests through participants. Ownership of beneficial interests in a Global Note will be shown on, and the transfer of that ownership will be effected only through, records maintained by DTC or its nominee (with respect to interests of participants) and the records of participants (with respect to interests of persons other than participants). Beneficial owners may hold their interests in a Global Note directly through DTC if they are participants in such system, or indirectly through organizations which are participants in such system.

Euroclear and Clearstream will hold interests in the Global Notes on behalf of their participants through DTC.

So long as DTC, or its nominee, is the registered owner or holder of a Global Note, DTC or such nominee, as the case may be, will be considered the sole owner or holder of the Notes represented by such Global Note for all purposes under the Indenture and the Notes. No beneficial owner of an interest in a Global Note will be able to transfer that interest except in accordance with DTC’s applicable procedures, in addition to those provided for under the Indenture and, if applicable, those of Euroclear and Clearstream.

Payments of the principal of, premium, if any, and interest on, a Global Note, will be made to DTC or its nominee, as the case may be, as the registered owner thereof. Neither the Company, the Trustee nor the Paying Agent will have any responsibility or liability for any aspect of the records relating to or payments made on account of beneficial ownership interests in a Global Note or for maintaining, supervising or reviewing any records relating to such beneficial ownership interests.

The Company expects that DTC or its nominee, upon receipt of any payment of principal of, premium, if any, or interest in respect of a Global Note, will credit participants’ accounts with payments in amounts proportionate to their respective beneficial interests in the principal amount of such Global Note as shown on the records of DTC or its nominee. The Company also expects that payments by participants to owners of beneficial interests in such Global Note held through such participants will be governed by standing instructions and

customary practices, as is now the case with securities held for the accounts of customers registered in the names of nominees for such customers. Such payments will be the responsibility of such participants.

The Company expects that DTC will take any action permitted to be taken by a holder of Notes (including the presentation of Notes for exchange as described below) only at the direction of one or more participants to whose account the DTC interests in a Global Note is credited and only in respect of such portion of the aggregate principal amount of Notes as to which such participant or participants has or have given such direction. However, if there is an Event of Default under the Notes, DTC will exchange the applicable Global Note for Certificated Notes, which it will distribute to its participants and which may be legended as set forth under the heading “Transfer Restrictions.”

Although DTC, Euroclear and Clearstream are expected to follow the foregoing procedures in order to facilitate transfers of interests in a Global Note among participants of DTC, Euroclear and Clearstream, they are under no obligation to perform or continue to perform such procedures, and such procedures may be discontinued at any time. None of the Company, the Trustee or the Paying Agent will have any responsibility for the performance by DTC, Euroclear or Clearstream or their respective participants or indirect participants of their respective obligations under the rules and procedures governing their operations.

If DTC is at any time unwilling or unable to continue as a depository for the Global Notes and a successor depository is not appointed by the Company within 90 days, the Company will issue Certificated Notes in registered form, which may bear the legend referred to under “Transfer Restrictions,” in exchange for the Global Notes. Holders of an interest in a Global Note may receive Certificated Notes, which may bear the legend referred to under “Transfer Restrictions,” in accordance with the DTC’s rules and procedures in addition to those provided for under the Indenture.

The Clearing Systems

General

DTC, Euroclear and Clearstream have advised the Company as follows:

DTC: DTC is a limited-purpose trust company organized under the laws of the State of New York, a “banking organization” within the meaning of New York Banking Law, a member of the Federal Reserve System, a “clearing corporation” within the meaning of the New York Uniform Commercial Code, and a “clearing agency” registered pursuant to the provisions of Section 17A of the Exchange Act. DTC was created to hold securities of its participants and to facilitate the clearance and settlement of securities transactions among its participants in such securities through electronic book-entry changes in accounts of its participants, thereby eliminating the need for physical movement of securities certificates. DTC’s participants include securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations, some of whom own DTC, and may include the initial purchaser. Indirect access to the DTC system is also available to others that clear through or maintain a custodial relationship with a DTC participant, either directly or indirectly (“indirect participants”). Transfers of ownership or other interests in Notes in DTC may be made only through DTC participants. In addition, beneficial owners of Notes in DTC will receive all distributions of principal of, premium, if any, and interest on the Notes from the Trustee through such DTC participant.

Euroclear and Clearstream: Euroclear and Clearstream hold securities for participating organizations and facilitate the clearance and settlement of securities transactions between their respective participants through electronic book-entry changes in accounts of such participants. Euroclear and Clearstream provide to their participants, among other things, services for safekeeping, administration, clearance and settlement of internationally-traded securities and securities lending and borrowing. Euroclear and Clearstream interface with domestic securities markets. Euroclear and Clearstream participants are financial institutions such as underwriters, securities brokers and dealers, banks, trust companies and certain other organizations. Indirect access to Euroclear or Clearstream is also available to others such as banks, brokers, dealers and trust companies that clear through or maintain a custodial relationship with a Euroclear or Clearstream participant, either directly or indirectly.

Initial Settlement

Investors' interests in Notes held in book-entry form by DTC will be represented through financial institutions acting on their behalf as direct and indirect participants in DTC. As a result, Euroclear and Clearstream will hold positions on behalf of their participants through DTC.

Investors electing to hold their Notes through DTC (other than through accounts at Euroclear or Clearstream) must follow the settlement practices applicable to United States corporate debt obligations. The securities custody accounts of investors will be credited with their holdings against payment in same day funds on the settlement date.

Investors electing to hold their Notes through Euroclear or Clearstream accounts will follow the settlement procedures applicable to conventional Eurobonds in registered form. Notes will be credited to the securities custody accounts of Euroclear Holders and of Clearstream Holders on the Business Day following the settlement date against payment for value on the settlement date.

Secondary Market Trading

Secondary market trading between DTC participants will occur in the ordinary way in accordance with DTC rules. Secondary market trading between Clearstream participants and/or Euroclear participants will occur in the ordinary way in accordance with the applicable rules and operating procedures of Clearstream and Euroclear and will be settled using the procedures applicable to conventional eurobonds.

Cross-market transfers between persons holding directly or indirectly through DTC, on the one hand, and directly or indirectly through Clearstream participants or Euroclear participants, on the other, will be effected in DTC in accordance with DTC rules on behalf of the relevant European international clearing system by its U.S. depository; however, such cross-market transactions will require delivery of instructions to the relevant European international clearing system by the counterparty in such system in accordance with its rules and procedures and within its established deadlines (European time). The relevant European international clearing system will, if a transaction meets its settlement requirements, deliver instructions to its U.S. depository to take action to effect final settlement on its behalf by delivering or receiving Notes in DTC, and making or receiving payment in accordance with normal procedures for same-day funds settlement applicable to DTC. Clearstream participants and Euroclear participants may not deliver instructions directly to the U.S. depositories.

Because of time zone differences, credits of Notes received in Clearstream or Euroclear as a result of a transaction with a DTC participant will be made during subsequent securities settlement processing and dated the Business Day following the DTC settlement date. Such credits or any transactions in such Notes settled during such processing will be reported to the relevant Clearstream participants or Euroclear participants on such Business Day. Cash received in Clearstream or Euroclear as a result of sales of Notes by or through a Clearstream participant or a Euroclear participant to a DTC participant will be received with value on the DTC settlement date but will be available in the relevant Clearstream or Euroclear cash account only as of the Business Day following settlement in DTC.

For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, the Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of S\$200,000 (or its equivalent in foreign currencies). Accordingly, the Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of US\$200,000.

Notices

All notices or demands required or permitted by the terms of the Notes or the Indenture to be given to or by the Holders are required to be in writing and may be given or served by being sent by prepaid courier or by being deposited, first-class postage prepaid, in the United States mails (if intended for the Company) addressed to the Company (if intended for the Trustee), at the corporate trust office of the Trustee; and (if intended for any Holder) addressed to such Holder at such Holder's last address as it appears in the Note register (the "Register").

Any such notice or demand will be deemed to have been sufficiently given or served when so sent or deposited and, if to the Holders, when delivered in accordance with the applicable rules and procedures of DTC. Any such notice will be deemed to have been delivered on the day such notice is delivered to DTC or if by mail, when so sent or deposited.

Language

The Notes and the Indenture will be executed in both English and Bahasa Indonesia to comply with Law 24 of 2009 regarding Flag, Language, National Emblem and National Anthem enacted July 9, 2009, and in the event of any inconsistency between the English and Bahasa Indonesia versions of these documents, the English version shall prevail. See “Risk Factors — Risks Relating to the Notes — Indonesian law requires agreements involving Indonesian parties to be written in Bahasa Indonesia and allows parties thereto to elect a foreign language version of such agreement as the governing language; however, in the event of proceedings in an Indonesian court there can be no assurance that the judges will render their decision based on the foreign language version.”

Consent to Jurisdiction; Service of Process

The Company will irrevocably (i) submit to the non-exclusive jurisdiction of any U.S. federal or New York state court located in the Borough of Manhattan, The City of New York in connection with any suit, action or proceeding arising out of, or relating to, the Notes or the Indenture or any transaction contemplated thereby and (ii) designate and appoint Cogency Global Inc., for receipt of service of process in any such suit, action or proceeding.

Governing Law

Each of the Notes and the Indenture provides that such instrument will be governed by, and construed in accordance with, the laws of the State of New York.

Definitions

Set forth below are defined terms used in the covenants and other provisions of the Indenture. Reference is made to the Indenture for other capitalized terms used in this “Description of the 2030 Notes” for which no definition is provided.

“Affiliate” means, with respect to any Person, any other Person (a) directly or indirectly controlling, controlled by, or under direct or indirect common control with, such Person or (b) who is a commissioner, director or officer of such Person or any subsidiary of such Person or of any Person referred to in clause (a) of this definition. For purposes of this definition, “control” (including, with correlative meanings, the terms “controlling,” “controlled by” and “under common control with”), as applied to any Person, means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such Person, whether through the ownership of voting securities, by contract or otherwise.

“Business Day” means any day which is not a Saturday, Sunday, legal holiday or other day on which banking institutions in The City of New York, Singapore or Indonesia or the city where the corporate trust office of the Trustee is then located are authorized by law or governmental regulation to close; *provided that*, solely for purposes of determining the date of any payment to be made on any Note, “Business Day” means any day which is not a Saturday, Sunday, legal holiday or other day on which banking institutions in The City of New York, Singapore, Indonesia or the place in which payments on the Notes are to be made are authorized by law or governmental regulation to close.

“Change of Control” means the occurrence of any event resulting in the government of the Republic of Indonesia ceasing to directly or indirectly own and control at least 75.0% of the issued and paid-up shares of the Company.

“Change of Control Triggering Event” means a Change of Control, *provided that*, in the event that the Notes are, on the Rating Date, rated Investment Grade by two or more Rating Agencies, a Change of Control

Triggering Event shall mean the occurrence of both a Change of Control and a Rating Decline. No Change of Control Triggering Event will be deemed to have occurred in connection with any particular Change of Control unless and until such Change of Control has actually been consummated.

“Clearstream” means Clearstream Banking S.A. or any successor thereof.

“Commission” means the U.S. Securities and Exchange Commission, as from time to time constituted under the Exchange Act, or if at any time after the execution of this instrument such Commission is not existing, then the body performing such duties on such date.

“Debt” means, with respect to any Person as of any date of determination, without duplication, (a) all obligations, contingent or otherwise, of such Person for borrowed money, (b) all obligations of such Person evidenced by bonds, notes or other similar instruments, (c) all obligations of such Person in respect of letters of credit or other similar instruments, (d) all obligations of such Person to pay the unpaid purchase price of any property or service, (e) all obligations secured by a Lien on any property or asset of such Person, whether or not such obligations are assumed by such Person and (f) all obligations of others guaranteed by such Person to the extent of such guarantees and, for clauses (a), (b), (c) and (e), which has a final maturity of one year or more. The amount of Debt of any Person as of any date of determination shall be the outstanding balance at such date of all unconditional obligations as described above, the maximum liability of such Person for any such contingent obligations at such date and, in the case of clause (d), the lesser of the fair market value (as determined in good faith by the board of directors of such Person) at such date of the property or asset of such Person subject to a Lien securing the obligations of others and the amount of such obligations secured.

“Default” means any event that is, or after notice or passage of time or both would be, an Event of Default.

“Dollar Equivalent” means, with respect to any monetary amount in a currency other than U.S. dollars, at any time for the determination thereof, the amount of U.S. dollars obtained by converting such foreign currency involved in such computation into U.S. dollars at the base rate for the purchase of U.S. dollars with the applicable foreign currency as quoted by the Federal Reserve Bank of New York on the date of determination.

“DTC” means The Depository Trust Company and its successors.

“Euroclear” means Euroclear Bank SA/NV or any successor thereof.

“Fitch” means Fitch Ratings Ltd. and its successors.

“GAAP” means generally accepted accounting principles in Indonesia as in effect from time to time.

“guarantee” means any obligation, contingent or otherwise, of any Person directly or indirectly guaranteeing any Debt or other obligation of any other Person and, without limiting the generality of the foregoing, any obligation, direct or indirect, contingent or otherwise, of such Person (a) to purchase or pay (or advance or supply funds for the purchase or payment of) such Debt or other obligation of such other Person (whether arising by virtue of partnership arrangements, or by agreements to keep-well, to purchase assets, goods, securities or services, to take-or-pay, or to maintain financial statement conditions or otherwise) or (b) entered into for purposes of assuring in any other manner the obligee of such Debt or other obligation of the payment thereof or to protect such obligee against loss in respect thereof (in whole or in part); *provided that* the term “guarantee” will not include endorsements for collection or deposit in the ordinary course of business. The term “guarantee” used as a verb has a corresponding meaning.

“Holder” means the Person in whose name a Note is registered in the Register.

“Investment Grade” means a rating of “AAA,” “AA,” “A” or “BBB,” as modified by a “+” or “-” indication, or an equivalent rating representing one of the four highest rating categories, by S&P or any of its successors or assigns or a rating of “Aaa,” “Aa,” “A” or “Baa,” as modified by a “1,” “2” or “3” indication, or an equivalent rating representing one of the four highest rating categories, by Moody’s or any of its successors or assigns or a rating of “AAA,” “AA,” “A,” or “BBB,” as modified by a “+” or “-” indication, or an equivalent rating representing one of the four highest rating categories, by Fitch or any of its successors or assigns, or the equivalent ratings of any internationally recognized rating agency or agencies, as the case may be, which shall

have been designated by the Company as having been substituted for S&P, Moody's or Fitch or two or three of them, as the case may be.

"Lien" means any mortgage, pledge, fiducia security, security interest, encumbrance, lien or charge of any kind (including, without limitation, any conditional sale or other title retention agreement or lease in the nature thereof or any agreement to create any mortgage, pledge, security interest, lien, charge, easement or encumbrance of any kind but excluding liens arising by operation of law).

"Material Subsidiary" means at any time a Subsidiary of the Company:

- (a) whose total revenues (consolidated in the case of a Subsidiary which itself has Subsidiaries) or whose total assets (consolidated in the case of a Subsidiary which itself has Subsidiaries) represent in each case (or, in the case of a Subsidiary acquired after the end of the financial period to which the then latest audited consolidated accounts of the Company and its Subsidiaries relate, are equal to) not less than 5.0% of the consolidated total revenues, or, as the case may be, consolidated total assets, of the Company and its Subsidiaries taken as a whole, all as calculated respectively by reference to the then latest audited accounts (consolidated or, as the case may be, unconsolidated) of such Subsidiary and the then latest audited consolidated accounts of the Company and its Subsidiaries, *provided that*, in the case of a Subsidiary of the Company acquired after the end of the financial period to which the then latest audited consolidated accounts of the Company and its Subsidiaries relate, the reference to the then latest audited consolidated accounts of the Company and its Subsidiaries for the purposes of the calculation above shall, until consolidated accounts for the financial period in which the acquisition is made have been prepared and audited as aforesaid, be deemed to be a reference to such first-mentioned accounts as if such Subsidiary had been shown in such accounts by reference to its then latest relevant audited accounts, adjusted as deemed appropriate by the Company; or
- (b) to which is transferred the whole or substantially the whole of the undertaking and assets of a Subsidiary of the Company which immediately prior to such transfer is a Material Subsidiary, *provided that* the transferor Subsidiary shall upon such transfer forthwith cease to be a Material Subsidiary and the transferee Subsidiary shall cease to be a Material Subsidiary pursuant to this subparagraph (b) on the date on which the consolidated accounts of the Company and its Subsidiaries for the financial period current at the date of such transfer have been prepared and audited as aforesaid but so that such transferor Subsidiary or such transferee Subsidiary may be a Material Subsidiary on or at any time after the date on which such consolidated accounts have been prepared and audited as aforesaid by virtue of the provisions of subparagraph (a) above or, prior to or after such date, by virtue of any other applicable provision of this definition; or
- (c) to which is transferred an undertaking or assets which, taken together with the undertaking or assets of the transferee Subsidiary, generated (or, in the case of the transferee Subsidiary being acquired after the end of the financial period to which the then latest audited consolidated accounts of the Company and its Subsidiaries relate, generate total revenues equal to) not less than 5.0% of the consolidated total revenues of the Company, or represent (or, in the case aforesaid, are equal to) not less than 5.0% of the consolidated total assets of the Company and its Subsidiaries taken as a whole, all as calculated as referred to in subparagraph (a) above, *provided that* the transferor Subsidiary (if a Material Subsidiary) shall upon such transfer forthwith cease to be a Material Subsidiary unless immediately following such transfer its undertaking and assets generate (or, in the case aforesaid, generate total revenues equal to) not less than 5.0% of the consolidated total revenues of the Company, or its assets represent (or, in the case aforesaid, are equal to) not less than 5.0% of the consolidated total assets of the Company and its Subsidiaries taken as a whole, all as calculated as referred to in subparagraph (a) above, and the transferee Subsidiary shall cease to be a Material Subsidiary pursuant to this subparagraph (c) on the date on which the consolidated accounts of the Company and its Subsidiaries for the financial period current at the date of such transfer have been prepared and audited but so that such transferor Subsidiary or such transferee Subsidiary may be a Material Subsidiary on or at any time after the date on which such consolidated accounts have been prepared and audited as aforesaid by virtue of the

provisions of subparagraph (a) above or, prior to or after such date, by virtue of any other applicable provision of this definition.

“Moody’s” means Moody’s Investors Service, Inc. and its successors.

“Offer to Purchase” means an offer to purchase the Notes by the Company from the Holders commenced by the Company mailing a notice by prepaid courier or first class mail, postage prepaid, to the Trustee and each Holder at its last address appearing in the Register stating:

- (a) that the offer is being made pursuant to the provisions of the Indenture described under the caption “Repurchase of Notes Upon a Change of Control Triggering Event” and that all Notes validly tendered will be accepted for payment on a pro rata basis;
- (b) the purchase price and the date of purchase (which will be a Business Day no earlier than 30 days nor later than 60 days from the date such notice is mailed) (the “Offer to Purchase Payment Date”);
- (c) that any Note not tendered will continue to accrue interest pursuant to its terms;
- (d) that, unless the Company defaults in the payment of the purchase price, any Note accepted for payment pursuant to the Offer to Purchase will cease to accrue interest on and after the Offer to Purchase Payment Date;
- (e) that Holders electing to have a Note purchased pursuant to the Offer to Purchase will be required to surrender the Note, together with the form entitled “Option of the Holder to Elect Purchase” on the reverse side of the Note completed, to the Paying Agent at the address specified in the notice prior to the close of business on the Business Day immediately preceding the Offer to Purchase Payment Date;
- (f) that Holders will be entitled to withdraw their election if the Paying Agent receives, not later than the close of business on the third Business Day immediately preceding the Offer to Purchase Payment Date, a facsimile transmission or letter setting forth the name of such Holder, the principal amount of Notes delivered for purchase and a statement that such Holder is withdrawing his election to have such Notes purchased;
- (g) that Holders whose Notes are being purchased only in part will be issued new Notes equal in principal amount to the unpurchased portion of the Notes surrendered; *provided that* each Note purchased and each new Note issued will be in a principal amount of US\$200,000 or integral multiples of US\$1,000 in excess thereof; and
- (h) the CUSIP number(s) of the Notes.

One (1) Business Day prior to the Offer to Purchase Payment Date, the Company will deposit with the Paying Agent money sufficient to pay the purchase price of all Notes or portions thereof to be accepted by the Company for payment on the Offer to Purchase Payment Date. On the Offer to Purchase Payment Date, the Company will (a) accept for payment on a pro rata basis Notes or portions thereof tendered pursuant to an Offer to Purchase; and (b) deliver, or cause to be delivered, to the Trustee all Notes or portions thereof so accepted together with an Officer’s Certificate specifying the Notes or portions thereof accepted for payment by the Company.

The Paying Agent will promptly mail to the Holders the accepted payment in an amount equal to the purchase price, and the Trustee will promptly authenticate and mail to such Holders a new Note equal in principal amount to any unpurchased portion of the Note surrendered; *provided that* each Note purchased and each new Note issued will be in a principal amount of US\$200,000 or integral multiples of US\$1,000 in excess thereof. The Company will publicly announce the results of an Offer to Purchase as soon as practicable after the Offer to Purchase Payment Date.

The offer is required to contain or incorporate by reference information concerning the business of the Company and its Subsidiaries and PTFI which the Company in good faith believes will assist such Holders to make an informed decision with respect to the Offer to Purchase, including a brief description of the events

requiring the Company to make the Offer to Purchase, and any other information required by applicable law to be included therein. The offer is required to contain all instructions and materials necessary to enable such Holders to tender Notes pursuant to the Offer to Purchase.

“Officer” means one of the executive officers or directors of the Company.

“Officer’s Certificate” means a certificate signed by at least one Officer.

“Opinion of Counsel” means a written opinion from legal counsel which opinion is reasonably acceptable to the Trustee that meets the requirements of the Indenture; *provided that* legal counsel shall be entitled to rely on a certificate of the Company as to matters of fact.

“Original Issue Date” means the date on which the Notes are originally issued under the Indenture.

“Person” means any individual, corporation, partnership, limited liability company, joint venture, trust, unincorporated organization or government or any agency or political subdivision thereof.

“PTFI” means PT Freeport Indonesia.

“Qualifying PTFI IPO” means the first offering or listing of shares of PTFI, which complies with (A) the rules and regulations of a Stock Exchange; and (B) the following conditions: (i) it is an offer of shares of PTFI that consists wholly or in part of primary shares and that is made to the public for subscription or sale exclusively for cash, accompanied (or preceded) by the grant of listing of, and permission to deal in, the PTFI shares or depository shares or securities representing the PTFI shares by such Stock Exchange; and (ii) the Company shall have delivered an Officer’s Certificate to the Trustee stating that the offer satisfies the conditions in this paragraph and that, immediately after giving effect to such public offering, no Event of Default and no event which, with the giving of notice or the passage of time, or both, would constitute an Event of Default, shall have occurred and be continuing.

“Rating Agencies” means (a) S&P, (b) Moody’s and (c) Fitch; provided that, if one or more of S&P, Moody’s or Fitch shall not make a rating of the Notes publicly available, an internationally recognized securities rating agency or agencies, as the case may be, selected by the Company, which shall be substituted for S&P, Moody’s or Fitch, or any combination thereof, as the case may be.

“Rating Date” means, in connection with a Change of Control Triggering Event, that date which is 90 days prior to the earlier of (i) a Change of Control and (ii) a public notice of the occurrence of a Change of Control.

“Rating Decline” means, in connection with a Change of Control Triggering Event, the occurrence on, or within 90 days after, the date, or public notice of the occurrence of, a Change of Control (which period shall be extended (by no more than an additional three months after the consummation of the Change of Control) so long as the rating of the Notes is under publicly announced consideration for possible downgrade by any of the Rating Agencies) any of the events listed below:

- (1) in the event the Notes are rated by all three Rating Agencies on the Rating Date as Investment Grade, the rating of the Notes by any two of the three or all three Rating Agencies shall be below Investment Grade; or
- (2) in the event the Notes are rated by any two, but not three, of the three Rating Agencies on the Rating Date as Investment Grade, the rating of the Notes by either of such two Rating Agencies shall be below Investment Grade.

“S&P” means S&P Global Ratings, a business unit of S&P Financial Services LLC, and its successors.

“Securities” means bonds, debentures, notes or other similar securities having an original maturity of more than one (1) year from its date of issue which (a) are, or are issued with the intention on the part of the issuer thereof that they should be quoted, listed or ordinarily dealt in or traded on any stock exchange, over-the-counter or other securities market, and (b) either (i) are by their terms payable, or confer a right to receive payment, in any currency other than Rupiah or (ii) are denominated in Rupiah and more than 50% of the aggregate principal

amount of the offering of such securities is initially distributed outside Indonesia by or with the Company's consent.

"Stated Maturity" means, (a) with respect to any Debt, the date specified in such debt security as the fixed date on which the final installment of principal of such Debt is due and payable as set forth in the documentation governing such Debt and (b) with respect to any scheduled installment of principal of or interest on any Debt, the date specified as the fixed date on which such installment is due and payable as set forth in the documentation governing such Debt.

"Stock Exchange" means The Indonesia Stock Exchange or such other internationally recognized stock exchange approved by the shareholders of PTFI and notified in writing to the Trustee.

"Subsidiary" means (a) any corporation or other entity of which securities or other ownership interests having ordinary voting power to elect a majority of the board of directors or other persons performing similar functions are at the time directly or indirectly owned by the Company or (b) any subsidiary subject to consolidation with the Company's financial statements under GAAP.

"U.S. Government Obligations" means securities that are (a) direct obligations of the United States of America for the payment of which its full faith and credit is pledged or (b) obligations of a Person controlled or supervised by and acting as an agency or instrumentality of the United States of America the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States of America, which, in either case, are not callable or redeemable at the option of the issuer thereof at any time prior to the Stated Maturity of the Notes, and will also include a depository receipt issued by a bank or trust company as custodian with respect to any such U.S. Government Obligation or a specific payment of interest on or principal of any such U.S. Government Obligation held by such custodian for the account of the holder of a depository receipt; *provided that* (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the holder of such depository receipt from any amount received by the custodian in respect of the U.S. Government Obligation or the specific payment of interest on or principal of the U.S. Government Obligation evidenced by such depository receipt.

DESCRIPTION OF THE 2050 NOTES

For purposes of this “Description of the 2050 Notes,” the term “Company” refers only to PT Indonesia Asahan Aluminium (Persero), a state-owned enterprise established and existing with limited liability under the laws of the Republic of Indonesia, and any successor obligor on the Notes (including the Surviving Person (as defined below, under the caption “— Consolidation, Merger and Sale of Assets”)), and not to any of its Subsidiaries. Any reference to the “Notes” in this “Description of the 2050 Notes” is solely to the 2050 Notes. The Notes are to be issued under an indenture (the “Indenture”) to be dated as of the Original Issue Date, between the Company and The Bank of New York Mellon, as trustee (the “Trustee”).

The following is a summary of certain provisions of the Indenture and the Notes. This summary does not purport to be complete and is qualified in its entirety by reference to all of the provisions of the Indenture and the Notes. It does not restate the provisions of the Indenture or the Notes in their entirety. Whenever particular sections or defined terms of the Indenture not otherwise defined herein are referred to, such sections or defined terms are incorporated herein by reference. A copy of the Indenture will be available for inspection on or after the Original Issue Date during normal office hours at the corporate trust office of the Trustee at 240 Greenwich Street, New York, NY 10286, United States of America.

The proceeds from the offering of the Notes will be used to redeem certain of the Company’s existing bonds, acquire shares in other mining companies, and refinance outstanding indebtedness of the Group as set forth in this Offering Memorandum under the caption “Use of Proceeds.”

Brief Description of the Notes

The Notes will:

- (a) be direct, unsecured and unsubordinated obligations of the Company;
- (b) be senior in right of payment to any existing and future obligations of the Company expressly subordinated in right of payment to the Notes;
- (c) rank at least *pari passu* in right of payment with all other unsecured and unsubordinated Debt of the Company (subject to any priority rights of such unsubordinated Debt pursuant to applicable law); and
- (d) be effectively subordinated to secured obligations of the Company and the obligations of its subsidiaries.

The Company will initially issue US\$500,000,000 in aggregate principal amount of the Notes, which will mature on May 15, 2050 unless earlier redeemed pursuant to the terms thereof and the Indenture. The Indenture allows the Company to issue additional Notes from time to time (the “Additional Notes”), subject to certain limitations described under “— Further Issues” and applicable law. The Notes offered hereby and any Additional Notes may be treated as a single class for all purposes under the Indenture.

Interest

The Notes will bear interest at 5.800% per annum from the Original Issue Date or from the most recent interest payment date on which interest has been paid or duly provided for, payable semi-annually in arrears on May 15 and November 15 of each year (each, an “Interest Payment Date”) commencing on November 15, 2020. Interest on the Notes will be paid to Holders of record at the close of business on each April 30 or October 31, immediately preceding an Interest Payment Date (each, a “Record Date”), notwithstanding any transfer, exchange or cancellation thereof after a Record Date and prior to the immediately following Interest Payment Date. Interest on the Notes will be calculated on the basis of a 360-day year comprised of twelve 30-day months.

Payment of Notes

In any case in which the date of the payment of principal of, premium, if any, or interest on the Notes (including any payment to be made on any date fixed for redemption or purchase of any Note) is not a Business

Day in the relevant place of payment, then payment of principal, premium, if any, or interest need not be made in such place on such date but may be made on the next succeeding Business Day in such place. Any payment made on such Business Day will have the same force and effect as if made on the date on which such payment is due. Interest on overdue principal and interest and Additional Amounts, if any, will accrue at a rate that is 1% higher than the then applicable interest rate on the Notes.

The Notes will be issued only in fully registered form, without coupons, in minimum denominations of US\$200,000 and integral multiples of US\$1,000 in excess thereof. See “— Book-Entry; Delivery and Form.” No service charge will be made for any registration of transfer or exchange of Notes, but the Company may require payment of a sum sufficient to cover any transfer tax or other similar governmental charge payable in connection therewith.

All payments on the Notes will be made in U.S. dollars in immediately available funds by the Company at the office or agency of the Company maintained for that purpose in the Borough of Manhattan, the City of New York (which initially will be the specified office of The Bank of New York Mellon (the “Paying Agent”), currently located at 240 Greenwich Street, New York, NY 10286, United States of America), and the Notes may be presented for registration of transfer or exchange at such office or agency. However, at the option of the Company, payment of interest may be made by wire transfer. Interest payable on the Notes held through DTC will be available to DTC participants (as defined herein) on the Business Day following payment thereof.

Further Issues

Subject to the covenants described below and in accordance with the terms of the Indenture, the Company may, from time to time, without notice to or the consent of the Holders, issue Additional Notes having the same terms and conditions as the Notes in all respects (or in all respects except for the issue date, issue price and the date of first payment of interest on them and, to the extent necessary, certain temporary securities law transfer restrictions) so that such Additional Notes may be consolidated and form a single class with the previously outstanding Notes and vote together as one class on all matters with respect to the Notes; *provided that*, in order for Additional Notes to have the same CUSIP, ISIN, or other identifying number as the outstanding Notes, the Additional Notes must be fungible with the outstanding Notes for U.S. federal income tax purposes.

In addition, the issuance of any Additional Notes by the Company will be subject to the following conditions:

- (a) the Company shall have delivered to the Trustee an Officer’s Certificate, in form and substance satisfactory to the Trustee, confirming that the issuance of the Additional Notes complies with the Indenture; and
- (b) the Company shall have delivered to the Trustee one or more Opinions of Counsel, in form and substance satisfactory to the Trustee, confirming, among other things, (i) that the issuance of the Additional Notes does not conflict with applicable law and (ii) that such Additional Notes will constitute legally valid and binding obligations of the Company, enforceable in accordance with their terms, subject to customary exceptions.

Repurchase of Notes Upon a Change of Control Triggering Event

Not later than 30 days following a Change of Control Triggering Event, the Company will make an Offer to Purchase all outstanding Notes (a “Change of Control Offer”) at a purchase price equal to 101.0% of the principal amount thereof plus accrued and unpaid interest, if any, to the Offer to Purchase Payment Date.

The Company will agree in the Indenture that it will timely repay all Debt or obtain consents as necessary under, or terminate, agreements or instruments that would otherwise prohibit a Change of Control Offer required to be made pursuant to the Indenture. Notwithstanding these agreements, it is important to note that if the Company is unable to repay (or cause to be repaid) all of the Debt, if any, that would prohibit the repurchase of the Notes or is unable to obtain the requisite consents of the holders of such Debt, or terminate any agreements or instruments that would otherwise prohibit a Change of Control Offer, the Company would continue to be

prohibited from purchasing the Notes. In that case, the failure of the Company to purchase tendered Notes would constitute an Event of Default (as defined below) under the Indenture.

Future Debt of the Company or its Subsidiaries may also (a) prohibit the Company from purchasing the Notes in the event of a Change of Control Triggering Event; (b) provide that a Change of Control Triggering Event is a default; or (c) require the repayment or repurchase of such Debt upon a Change of Control Triggering Event. Moreover, the exercise by the Holders of their right to require the Company to purchase the Notes could cause a default under other Debt, even if the Change of Control Triggering Event itself does not, due to the financial effect of the purchase on the Company or its Subsidiaries. The ability of the Company to pay cash to Holders of the Notes following the occurrence of a Change of Control Triggering Event may be limited by the financial resources then available to the Company. There can be no assurance that sufficient funds will be available when necessary to make the required purchase of the Notes. See “Risk Factors — Risks Relating to the Notes — We may not have the ability to raise the funds necessary to finance an offer to repurchase the Notes upon the occurrence of certain events constituting a change of control triggering event or otherwise as required by the Indenture governing the Notes.”

Notwithstanding the above, the Company will not be required to make a Change of Control Offer following a Change of Control Triggering Event if a third party makes the Change of Control Offer in the manner, at the times and otherwise in compliance with the requirements set forth in the Indenture applicable to a Change of Control Offer to be made by the Company and such third party purchases all Notes validly tendered and not withdrawn under such Change of Control Offer.

A Holder will have no right to require the Company to repurchase portions of Notes if it would result in the issuance of new Notes, representing the portion not purchased, in an amount of less than US\$200,000.

The Company will comply with the requirements of Rule 14e-1 under the Exchange Act and any other securities laws and regulations thereunder to the extent those laws and regulations are applicable in connection with each repurchase of Notes pursuant to a Change of Control Offer. To the extent that the provisions of any securities laws or regulations conflict with the provisions of the covenant described hereunder, the Company will comply with the applicable securities laws and regulations and will not be deemed to have breached its obligations described hereunder by virtue of its compliance with such laws and regulations.

Except as described above with respect to a Change of Control Offer, the Indenture does not contain provisions that permit the Holders to require that the Company purchase or redeem the Notes in the event of a takeover, recapitalization or similar transaction.

The Trustee shall not be required to take any steps to ascertain whether a Change of Control Triggering Event or any event which could lead to the occurrence of a Change of Control Triggering Event has occurred and shall not be liable to any person for any failure to do so.

Sinking Fund

There will be no sinking fund payments for the Notes.

Additional Amounts

All payments of principal of, and premium, if any, and interest on the Notes will be made without withholding or deduction for, or on account of, any present or future taxes, duties, assessments or other governmental charges of whatever nature imposed or levied by or within any jurisdiction in which the Company or the Surviving Person is organized or resident for tax purposes (or any political subdivision or taxing authority thereof or therein) or through which payment is made on behalf of the Company or the Surviving Person (each, as applicable, a “Relevant Taxing Jurisdiction”), unless such withholding or deduction is required by law or by regulation or governmental policy having the force of law.

In such event, the Company or the Surviving Person, as the case may be, will make or cause to be made such deduction or withholding, make payment of the amount so deducted or withheld to the appropriate

governmental authority and will pay such additional amounts (“Additional Amounts”) as will result in receipt by the Holder of such amounts as would have been received by such Holder had no such withholding or deduction been required. However, no Additional Amounts will be payable:

- (a) for or on account of:
 - (i) any tax, duty, assessment or other governmental charge that would not have been imposed but for:
 - (A) the existence of any present or former connection between the Holder or beneficial owner of such Note and the Relevant Taxing Jurisdiction including, without limitation, such Holder’s or beneficial owner’s being or having been a citizen or resident of such Relevant Taxing Jurisdiction or treated as a resident thereof or being or having been physically present or engaged in a trade or business therein or having or having had a permanent establishment therein, other than merely holding such Note or the receipt of payments thereunder or enforcing payment under the Note;
 - (B) the presentation of such Note (where presentation is required) more than 30 days after the later of the date on which the payment of the principal of, premium, if any, or interest on, such Note became due and payable pursuant to the terms thereof or was made or duly provided for, except to the extent that the Holder thereof would have been entitled to such Additional Amounts if it had presented such Note for payment on any date within such 30-day period;
 - (C) the failure of the Holder or beneficial owner to comply with a timely request of the Company or the Surviving Person, as the case may be, addressed to the Holder, to provide information to the Company or the Surviving Person on an applicable Form DGT or any other document, information or form concerning such Holder’s or beneficial owner’s nationality, residence, identity or connection with any Relevant Taxing Jurisdiction, if and to the extent that due and timely compliance with such request is required under the laws of a Relevant Taxing Jurisdiction in order to reduce or eliminate any withholding or deduction as to which Additional Amounts would have otherwise been payable to such Holder; or
 - (D) the presentation of such Note (where presentation is required) for payment in the Relevant Taxing Jurisdiction, unless such withholding or deduction could not have been avoided by presenting the Note for payment elsewhere;
 - (ii) any estate, inheritance, gift, sale, transfer or similar tax, assessment or other governmental charge;
 - (iii) any tax, duty, assessment or other governmental charge which is payable other than by deduction or withholding from payments of principal of or interest or any premium on the Note;
 - (iv) any tax required to be withheld or deducted under Sections 1471 to 1474 of the U.S. Internal Revenue Code of 1986, as amended (the “Code”) (or any amended or successor versions of such Sections), any agreements described under section 1471(b) of the Code, any regulations or other official guidance thereunder, any intergovernmental agreement relating thereto, or any law, regulation or other official guidance enacted in any jurisdiction implementing any of the foregoing; or
 - (v) any combination of taxes, duties, assessments or other governmental charges referred to in the preceding paragraphs (i), (ii), (iii) and (iv); or
- (b) with respect to any payment of the principal of, or premium, if any, or interest on, such Note to such Holder, if the Holder is a fiduciary, corporation, limited liability company, partnership or person other than the sole beneficial owner of any payment to the extent that, under the laws of a Relevant Taxing Jurisdiction, such payment would be required to be included in income, for tax purposes, of a beneficiary or settlor with respect to the fiduciary, a shareholder of that corporation, a member of that partnership or limited liability company or a beneficial owner who would not have been entitled to

such Additional Amounts had that beneficiary, settlor, shareholder, partner, or beneficial owner been the Holder thereof; or

- (c) any combination of paragraphs (a) and (b).

As a result of these provisions, there are circumstances in which taxes could be withheld or deducted but Additional Amounts would not be payable to some or all beneficial owners of Notes.

Whenever there is mentioned in any context the payment of principal, premium or interest in respect of any Note, such mention will be deemed to include payments of Additional Amounts provided for in the Indenture to the extent that, in such context, Additional Amounts are, were or would be payable in respect thereof.

The Paying Agent and the Trustee will make payments free of withholdings or deductions on account of taxes unless required by applicable law. If such a deduction or withholding is required, the Paying Agent or the Trustee will not be obligated to pay any Additional Amount to the recipient unless such an Additional Amount is received by the Paying Agent or the Trustee from the Company or the Surviving Person.

In addition to the foregoing, the Company or the Surviving Person, as the case may be, will also pay and indemnify the Holder or beneficial owner, as applicable, for any present or future stamp, issue, registration, court or documentary taxes, or any other excise or property taxes, charges or similar levies (including penalties and interest) which are levied by any jurisdiction on the execution, delivery, issuance, registration, redemption or retirement of any of the Notes or the Indenture or any other document referred to therein (other than a transfer of the Notes after this offering) or any such taxes, charges or similar levies imposed by the United States, Indonesia, or any political subdivision thereof as a result of, or in connection with, the enforcement of any of the Notes.

Redemption for Taxation Reasons

The Notes may be redeemed at the option of the Company or the Surviving Person, as the case may be, as a whole but not in part, by giving not less than 30 days' nor more than 60 days' notice to the Holders (which notice will be irrevocable) and the Trustee, at a redemption price equal to 100% of the principal amount thereof, together with accrued and unpaid interest (including any Additional Amounts), if any, to (but not including) the date fixed by the Company or the Surviving Person, as the case may be, for redemption (the "Tax Redemption Date"), if the Company or the Surviving Person, as the case may be, is, or on the next Interest Payment Date would be, required to pay Additional Amounts, and such requirement cannot be avoided by taking reasonable measures (including an appointment of a new paying agent) by the Company or the Surviving Person, as the case may be, as a result of:

- (a) any change in, or amendment to, the laws or any regulations or rulings promulgated thereunder of a Relevant Taxing Jurisdiction affecting taxation; or
- (b) any change in, or amendment to, an official position regarding the application, administration or interpretation of such laws, regulations or rulings (including a holding, judgment or order by a court of competent jurisdiction or a change in published practice),

which change or amendment is announced and becomes effective on or after the Original Issue Date with respect to any payment due or to become due under the Notes or the Indenture (or, if the Relevant Taxing Jurisdiction was not a Relevant Taxing Jurisdiction on the Original Issue Date, the date on which such jurisdiction became a Relevant Taxing Jurisdiction under the Indenture).

Notwithstanding the above, (i) no such notice of redemption will be given earlier than 90 days prior to the earliest date on which the Company or the Surviving Person, as the case may be, would be obligated to pay such Additional Amounts if a payment in respect of the Notes were then due, and (ii) if such requirement to pay Additional Amounts is due to taxes of the Republic of Indonesia (or any political subdivision or taxing authority thereof or therein), the Company or the Surviving Person shall only be permitted to redeem the Notes in accordance with the provisions above if the rate of withholding or deduction in respect of which Additional Amounts are required is in excess of 20%.

Prior to the mailing of any notice of redemption of the Notes pursuant to the foregoing, the Company will deliver to the Trustee:

- (a) an Officer's Certificate stating that such change or amendment referred to in the prior paragraph has occurred, and describing the facts related thereto and stating that such requirement cannot be avoided by the Company, taking reasonable measures available to it; and
- (b) an Opinion of Counsel of recognized standing with respect to tax matters of the Relevant Taxing Jurisdiction stating that the requirement to pay such Additional Amounts, and withhold or deduct such taxes, duties, assessments or other government charges results from such change or amendment referred to in the prior paragraph.

The Trustee shall be entitled to accept and rely upon such certificate and opinion as sufficient evidence of the satisfaction of the conditions precedent described above without further verification, and it will be conclusive and binding on the Holders. The Trustee will not investigate or verify such certificate and opinion.

Any Notes that are redeemed will be canceled.

Optional Redemption

At any time on or after November 15, 2049, the Notes may be redeemed at the option of the Company or the Surviving Person, as the case may be, in whole or in part, by giving not less than 30 days' nor more than 60 days' notice to the Holders (which notice will be irrevocable) and the Trustee, at a redemption price equal to 100% of the principal amount thereof, together with accrued and unpaid interest (including any Additional Amounts), if any, to (but not including) the date fixed by the Company or the Surviving Person, as the case may be, for redemption (the "Optional Redemption Date").

Any Notes that are redeemed will be canceled.

Certain Covenants

Set forth below are summaries of certain covenants contained in the Indenture.

Negative pledge

So long as any of the Notes remain outstanding, the Company will not create or permit to exist, and the Company will ensure that none of its Material Subsidiaries will create or permit to exist, any Lien for the benefit of the holders of any Securities on the whole or any part of its property or assets, present or future, to secure: (a) payment of any sum due in respect of any Securities; (b) any payment under any guarantee in respect of any Securities; or (c) any indemnity or other like obligation in respect of any Securities, without in any such case, at the same time or prior thereto, making effective provision whereby the Notes are accorded (i) the same Liens equally and ratably as are created or subsisting to secure any such Securities, guarantee or indemnity or like obligation, or (ii) such other Liens as may be consented to by the holders of a majority in aggregate principal amount of the outstanding Notes.

However, the foregoing restriction shall not apply to (a) any Lien existing on any property or assets at the time of acquisition of such property or assets by the Company; *provided that* such Lien was not created, and the principal, capital or nominal amount of the Securities secured by such Lien outstanding at the time of such acquisition was not increased, in contemplation of such acquisition or in connection therewith, and (b) any Lien arising out of the refinancing, extension, renewal or refunding of any Securities secured by any such Lien; *provided that* the principal, capital or nominal amount of such Securities is not increased and such Securities are not secured by any additional property or assets.

Use of proceeds

The Company will use the proceeds received from the Notes as set forth in this Offering Memorandum under the caption "Use of Proceeds."

Provision of financial statements and reports

For so long as any of the Notes remain outstanding, the Company will file with the Trustee and furnish to the Holders upon request:

- (a) as soon as they are available, but in any event within 120 calendar days after the end of its fiscal year, copies of its financial statements (on a consolidated basis) in respect of such financial year (including a statement of income, balance sheet and cash flow statement) audited by a member firm of an internationally recognized firm of independent accountants; and
- (b) as soon as they are available, but in any event within 90 calendar days, after the end of each of its first, second and third fiscal quarters, copies of its financial statements (on a consolidated basis) in respect of such period (including a statement of income, balance sheet and cash flow statement) prepared on a basis consistent with its audited financial statements, together with a certificate signed by the Person then authorized to sign financial statements on behalf of it, to the effect that such financial statements are true in all material respects and present fairly its financial position as at the end of, and the results of its operations for, the relevant quarterly period;

provided that, in each case, the financial statements shall be in the English language, or if such statements shall be in any other language, accompanied with an English translation of the same and translated by (i) an internationally recognized firm of independent accountants or (ii) a professional translation service provider and checked by an internationally recognized firm of independent accountants, together with a certificate in English signed by the Person then authorized to sign financial statements of the Company, certifying that such translation is complete and accurate (on each of which the Trustee may conclusively rely without liability to any Holder or any other person).

If the Company makes any financial or other report (or any English translation of any financial or other report in any other language) described above available on its corporate website, the Company will be deemed to have satisfied the foregoing obligation to furnish such report (or such translation) to the Holders upon request.

In addition, so long as any of the Notes remain outstanding, the Company will provide to the Trustee promptly and in any event within seven days after it obtains actual knowledge of the occurrence thereof, written notice of the occurrence of any event or condition which constitutes an Event of Default and an Officer's Certificate setting forth the details thereof and the action it is taking or proposes to take with respect thereto, and the Trustee shall be entitled to accept such certificate as sufficient evidence thereof, in which event it shall be conclusive and binding on the Holders.

Further, the Company has agreed that, for so long as there are Notes which are "restricted securities" within the meaning of Rule 144(a)(3) under the U.S. Securities Act of 1933, as amended (the "Securities Act"), during any period in which the Company is neither subject to Section 13 or 15(d) of the U.S. Securities Exchange Act of 1934, as amended (the "Exchange Act"), nor exempt from reporting pursuant to Rule 12g3-2(b) thereunder, the Company will supply to (i) any Holder or beneficial owner of a Note or (ii) a prospective purchaser of a Note or a beneficial interest therein designated by such Holder or beneficial owner, the information specified in, and meeting the requirements of, Rule 144A(d)(4) under the Securities Act upon the request of any Holder or beneficial owner of a Note.

Events of Default

The following events will be defined as "Events of Default" in the Indenture:

- (a) default in the payment of principal of (or premium, if any, on) the Notes when the same becomes due and payable at maturity, upon acceleration, redemption or otherwise;
- (b) default in the payment of interest on any Note when the same becomes due and payable, and such default continues for a period of 30 consecutive days;
- (c) default in the performance of or breach of any provisions of the covenants described under "— Consolidation, Merger and Sale of Assets" or failure to make or consummate a Change of Control

Offer in the manner described under the caption “— Repurchase of Notes Upon a Change of Control Triggering Event;”

- (d) default in the performance of or breach of any other covenant or agreement in the Indenture or under the Notes (other than a default specified in paragraph (a), (b) or (c) above) and such default or breach continues for a period of 60 consecutive days after written notice by the Trustee or the Holders of 25% or more in aggregate principal amount of the outstanding Notes;
- (e) (i) the Company ceasing to own and control, directly or indirectly, at least 51.0% of the issued and paid-up shares of any of its Subsidiaries that are Material Subsidiaries as of the Original Issue Date or PTFI or (ii) in the event of a Qualifying PTFI IPO, the Company ceasing to own and control, directly or indirectly, at least 40.0% of the issued and paid-up shares of PTFI or ceasing to be the single largest beneficial shareholder of PTFI;
- (f) there occurs with respect to any Debt of the Company or any of its Material Subsidiaries or PTFI having an outstanding principal amount of US\$50.0 million (or the Dollar Equivalent thereof) or more in the aggregate for all such Debt of all such Persons, whether such Debt now exists or will hereafter be created, (A) an event of default that has caused the holder thereof to declare such Debt to be due and payable prior to its Stated Maturity or (B) the failure to make a payment of principal (subject to the applicable grace period in the relevant documents) of such Debt when the same becomes due;
- (g) one or more final judgments or orders for the payment of money are rendered against the Company or any of its Subsidiaries or PTFI and are not paid or discharged, and there is a period of 60 consecutive days following entry of the final judgment or order that causes the aggregate amount for all such final judgments or orders outstanding and not paid or discharged against all such Persons to exceed US\$50.0 million (or the Dollar Equivalent thereof) during which a stay of enforcement, by reason of a pending appeal or otherwise, is not in effect;
- (h) an involuntary case or other proceeding is commenced against the Company or any Material Subsidiary or PTFI with respect to it or its Debts under any applicable bankruptcy, insolvency or other similar law now or hereafter in effect seeking the appointment of a receiver, liquidator, assignee, custodian, trustee, sequestrator or similar official of the Company or any Material Subsidiary or PTFI or for any substantial part of the property and assets of the Company or any Material Subsidiary or PTFI and such involuntary case or other proceeding remains undismissed and unstayed for a period of 60 consecutive days; or an order for relief is entered against the Company or any Material Subsidiary or PTFI under any applicable bankruptcy, insolvency or other similar law as now or hereafter in effect; or
- (i) the Company or any Material Subsidiary or PTFI (i) commences a voluntary case under any applicable bankruptcy, insolvency or other similar law now or hereafter in effect, or consents to the entry of an order for relief in an involuntary case under any such law, (ii) consents to the appointment of or taking possession by a receiver, liquidator, assignee, custodian, trustee, sequestrator or similar official of the Company or any Material Subsidiary or PTFI or for all or substantially all of the property and assets of the Company or any Material Subsidiary or PTFI or (iii) effects any general assignment for the benefit of creditors.

If an Event of Default (other than an Event of Default specified in paragraph (h) or (i) above) occurs and is continuing under the Indenture, the Trustee (in its sole discretion and without further notice) or the Holders of at least 25% in aggregate principal amount of the Notes, then outstanding, by written notice to the Company (and to the Trustee if such notice is given by the Holders), may, and the Trustee at the written request of such Holders will (subject to being indemnified and/or secured and/or prefunded to its satisfaction), declare the principal of, premium, if any, and accrued and unpaid interest on the Notes to be immediately due and payable. Upon a declaration of acceleration, such principal of, premium, if any, and accrued and unpaid interest will be immediately due and payable. If an Event of Default specified in paragraph (h) or (i) above occurs, the principal of, premium, if any, and accrued and unpaid interest on the Notes then outstanding will automatically become and be immediately due and payable without any declaration or other act on the part of the Trustee or any Holder.

The Holders of at least a majority in principal amount of the outstanding Notes by written notice to the Company and the Trustee, may on behalf of all of the Holders waive all past defaults and rescind and annul a declaration of acceleration and its consequences with respect to the Notes if:

- (a) the Company pays or deposits with the Trustee a sum sufficient to pay all monies then due with respect to the Notes (other than amounts due solely because of such declaration of acceleration) and all other existing Events of Default have been cured or waived, and
- (b) the rescission would not conflict with any judgment or decree of a court of competent jurisdiction.

Upon such waiver, the Default will cease to exist, and any Event of Default arising therefrom will be deemed to have been cured, but no such waiver will extend to any subsequent or other Default or impair any right consequent thereon.

The Holders of at least a majority in aggregate principal amount of the outstanding Notes may direct the time, method and place of conducting any proceeding for any remedy available to the Trustee or exercising any trust or power conferred on the Trustee, subject to the Trustee being indemnified and/or secured and/or prefunded to its satisfaction in advance of the proceedings. However, the Trustee may refuse to follow any direction that is unclear, conflicting or equivocal, that conflicts with law or the Indenture, that may involve the Trustee in personal liability, or that may be unduly prejudicial to the rights of Holders not joining in the giving of such direction and may take any other action it deems proper that is not inconsistent with any such direction received from Holders. In addition, the Trustee will not be required to expend its own funds in following such direction if it does not believe that reimbursement or satisfactory indemnification and/or security and/or prefunding is assured to it.

A Holder may not pursue or institute any proceeding, judicial or otherwise, with respect to the Indenture or the Notes, or for the appointment of a receiver or trustee, or for any other remedy under the Indenture or the Notes, unless:

- (a) the Holder has previously given the Trustee written notice of a continuing Event of Default;
- (b) the Holders of at least 25% in aggregate principal amount of outstanding Notes make a written request to the Trustee to pursue the remedy;
- (c) such Holder or Holders offer the Trustee indemnity and/or security and/or pre-funding satisfactory to the Trustee against any costs, liability or expense to be incurred in compliance with such request;
- (d) the Trustee does not comply with the request within 60 days after receipt of the request and the offer of indemnity and/or security and/or pre-funding; and
- (e) during such 60-day period, the Holders of a majority in aggregate principal amount of the outstanding Notes do not give the Trustee a direction that is inconsistent with the request.

However, such limitations do not apply to the right of any Holder of a Note to receive payment of the principal of, premium, if any, or interest, and Additional Amounts, if any, on, such Note or to bring suit for the enforcement of any such payment, on or after the due date expressed in the Notes, which right will not be impaired or affected without the consent of the Holder.

Officers of the Company must certify to the Trustee in writing, on or before a date not more than 120 calendar days after the end of each fiscal year, that a review has been conducted of the activities of the Company and its Subsidiaries and PTFI and the Company's performance under the Indenture and the Notes and that the Company has fulfilled all obligations thereunder, or, if there has been a default in the fulfillment of any such obligation, specifying each such default and the nature and status thereof. The Company will also be obligated to notify the Trustee in writing of any default or defaults in the performance of any covenants or agreements under the Indenture. See "— Provision of Financial Statements and Reports."

The Trustee and the Agents need not do anything to ascertain whether any Event of Default has occurred or is continuing and will not be responsible to Holders or any other person for any loss arising from any failure by it

to do so, and the Trustee or the Agents may assume that no such event has occurred and that the Company is performing all its obligations under the Indenture and the Notes unless the Trustee has received written notice of the occurrence of such event or facts establishing that an Event of Default has occurred or the Company is not performing all of its obligations under the Indenture and the Notes. The Trustee is entitled to rely on any Opinion of Counsel or Officer's Certificate regarding whether an Event of Default has occurred.

Consolidation, Merger and Sale of Assets

The Company will not consolidate with, or merge with or into, another Person, permit any Person to merge with or into it, or sell, convey, transfer, lease or otherwise dispose of all or substantially all of its properties and assets, computed on a consolidated basis with its Subsidiaries (as an entirety or substantially an entirety in one transaction or a series of related transactions), unless:

- (a) the Company will be the continuing Person, or the Person (if other than the Company) formed by such consolidation or merger or that acquired or leased such property and assets (the "Surviving Person") will be a corporation organized and validly existing under the laws of the jurisdiction in which the Company is organized and will expressly assume, by a supplemental indenture to the Indenture, executed and delivered to the Trustee, all the obligations of the Company under the Indenture and the Notes, including the obligation to pay Additional Amounts, and the Indenture and the Notes will remain in full force and effect;
- (b) immediately after giving effect to such transaction, no Default or Event of Default will have occurred and be continuing; and
- (c) the Company delivers to the Trustee an Officer's Certificate and an Opinion of Counsel, in each case stating that such consolidation, merger or transfer and the relevant supplemental indenture complies with this provision and that all conditions precedent provided for in the Indenture relating to such transaction have been complied with and that the relevant supplemental indenture is enforceable.

For purposes of this covenant, the conveyance, transfer or lease of all or substantially all of the property or assets of one or more Subsidiaries of the Company, which constitutes all or substantially all of the property or assets of the Company and its Subsidiaries on a consolidated basis, shall be deemed to be the transfer of all or substantially all of the property or assets of the Company.

Although there is a limited body of case law interpreting the phrase "substantially all," there is no precise established definition of the phrase under applicable law. Accordingly, in certain circumstances there may be a degree of uncertainty as to whether a particular transaction would involve "all or substantially all" of the property or assets of a Person.

The foregoing provisions would not necessarily afford Holders protection in the event of highly-leveraged or other transactions involving the Company that may adversely affect Holders.

No Payments for Consents

The Company will not, and will not permit any of its Subsidiaries or PTFI to, directly or indirectly, pay or cause to be paid any consideration, whether by way of interest, fee or otherwise, to any Holder for or as an inducement to any consent, waiver or amendment of any of the terms or provisions of the Indenture or the Notes, unless such consideration is offered to be paid or is paid to all Holders that consent, waive or agree to amend such term or provision within the time period set forth in the solicitation documents relating to such consent, waiver or amendment. Notwithstanding the foregoing, in any offer or payment of consideration for, or as an inducement to, any consent, waiver or amendment of any of the terms or provisions of the Indenture or the Notes, the Company and any of its Subsidiaries and PTFI may exclude (a) in connection with an exchange offer, holders or beneficial owners of the Notes that are not qualified institutional buyers as defined in Rule 144A under the Securities Act, and (b) in connection with any consent, waiver or amendment, holders or beneficial owners of the Notes in any jurisdiction where the inclusion of such holders or beneficial owners would require the Company or any of its Subsidiaries or PTFI to comply with the registration requirements or other similar requirements under

any securities laws of such jurisdiction, or the solicitation of such consent, waiver or amendment from, or the granting of such consent or waiver, or the approval of such amendment by, holders or beneficial owners in such jurisdiction would be unlawful, in each case as determined by the Company in its sole discretion.

Defeasance

Defeasance and discharge

The Indenture will provide that the Company will be deemed to have paid and will be discharged from any and all obligations in respect of the Notes on the 183rd day after the deposit referred to below and payments of all amounts due to the Trustee were made, and the provisions of the Indenture will no longer be in effect with respect to the Notes (except for, among other matters, certain obligations to register the transfer or exchange of the Notes, to replace stolen, lost or mutilated Notes, to maintain paying agencies and to hold monies for payment in trust and to pay Additional Amounts) if, among other things:

- (a) the Company has (i) deposited with the Trustee, in trust, cash in U.S. dollars, U.S. Government Obligations or a combination thereof that through the payment of interest, premium, if any, and principal in respect thereof in accordance with their terms will provide money in an amount sufficient to pay the principal of, premium, if any, and accrued interest on the Notes on the Stated Maturity of such payments in accordance with the terms of the Indenture and the Notes and (ii) delivered to the Trustee (x) a certificate of an internationally recognized firm of independent accountants to the effect that the amount deposited by the Company is sufficient to provide payment for the principal of, premium, if any, and accrued interest on, the Notes on the Stated Maturity of such payment in accordance with the terms of the Indenture and the Notes and (y) an Opinion of Counsel to the effect that the Holders have a valid, perfected, exclusive security in such trust;
- (b) the Company has delivered to the Trustee either (x) an Opinion of Counsel of recognized standing with respect to U.S. federal income tax matters which is based on a change in applicable U.S. federal income tax law occurring after the Original Issue Date to the effect that beneficial owners will not recognize income, gain or loss for U.S. federal income tax purposes as a result of the Company's exercise of its option under this "— Defeasance and Discharge" provision and will be subject to U.S. federal income tax on the same amount and in the same manner and at the same time as would have been the case if such deposit, defeasance and discharge had not occurred or (y) a ruling directed to the Company or the Trustee received from the U.S. Internal Revenue Service to the same effect as the aforementioned Opinion of Counsel;
- (c) the Company has delivered to the Trustee an Officer's Certificate stating that the deposit was not made by it with the intent of preferring the Holders over any other of its creditors or with the intent of defeating, hindering, delaying or defrauding any other of its creditors or others; and
- (d) immediately after giving effect to such deposit on a pro forma basis, no Event of Default, or event that after the giving of notice or lapse of time or both would become an Event of Default, will have occurred and be continuing on the date of such deposit or during the period ending on the 183rd day after the date of such deposit, and such defeasance will not result in a breach or violation of, or constitute a default under, any other agreement or instrument to which the Company or any Material Subsidiary or PTFI is a party or by which the Company or any Material Subsidiary or PTFI is bound.

Amendments and Waivers

Amendments without consent of Holders

The Indenture may be amended or supplemented, without the consent of any Holder of Notes, to:

- (a) cure any ambiguity, defect or inconsistency in the Indenture or the Notes, provided that any such amendment may not adversely affect the interests of the Holder;
- (b) comply with the provisions described under "Certain Covenants — Consolidation, Merger and Sale of Assets;"

- (c) evidence and provide for the acceptance of appointment by a successor Trustee;
- (d) add any guarantor or guarantee with respect to the Notes;
- (e) provide for the issuance of Additional Notes in accordance with the limitations set forth in the Indenture;
- (f) effect any change in any other case where a supplemental indenture to the Indenture is required or permitted to be entered into pursuant to the provisions of the Indenture without the consent of any Holder;
- (g) effect any changes to the Indenture in a manner necessary to comply with the procedures of DTC;
- (h) provide collateral to secure the Notes;
- (i) make any other change that does not materially and adversely affect the rights of any Holder of Notes;
- (j) comply with the rules of any applicable securities depository; or
- (k) conform the text of the Indenture or the Notes to any provision of this “Description of the 2050 Notes” to the extent that such provision in this “Description of the 2050 Notes” was intended to be a verbatim recitation of a provision of the Indenture or the Notes.

Amendments with consent of Holders

Amendments of the Indenture may be made by the Company and the Trustee with the consent of the Holders of not less than a majority in aggregate principal amount of the outstanding Notes, and the holders of a majority in aggregate principal amount of the outstanding Notes may waive future compliance by the Company with any provision of the Indenture or the Notes, *provided that* no such modification, amendment or waiver may, without the consent of each Holder:

- (a) change the Stated Maturity of the principal of, or any installment of interest on, any Note;
- (b) reduce the principal amount of, or premium, if any, or interest on, any Note;
- (c) change the currency, time or place of payment of principal of, or premium, if any, or interest on, any Note;
- (d) impair the right to institute suit for the enforcement of any payment on or after the Stated Maturity (or, in the case of a redemption, on or after the redemption date) of any Note;
- (e) reduce the above stated percentage of outstanding Notes the consent of whose Holders is necessary to modify or amend the Indenture, to waive compliance with certain provisions of the Indenture or to waive certain defaults;
- (f) waive a default in the payment of principal of, premium, if any, or interest on the Notes;
- (g) amend, change or modify (i) the obligation of the Company in respect of the due and punctual payment of the principal of, premium, if any, or interest on, any Note; (ii) the obligation of the Company to pay Additional Amounts, or (iii) the ranking of the Notes, in each case, in a manner that adversely affects the Holders; or
- (h) reduce the premium payable upon the redemption or repurchase of any Note, or change the time and manner in which any Note may be redeemed or repurchased as described above under the captions “— Repurchase of Notes Upon a Change of Control Triggering Event” or “— Redemption for Taxation Reasons,” except that the 75.0% threshold in the definition of the term “Change of Control” in the Indenture may, prior to the occurrence of a Change of Control, be waived modified or amended with the consent of the holders of not less than a majority in aggregate principal amount of the Notes.

No Personal Liability of Incorporators, Shareholders, Directors, Commissioners, Officers or Employees

No recourse for the payment of the principal of, premium, if any, or interest on any of the Notes or for any claim based thereon or otherwise in respect thereof, and no recourse under or upon any obligation, covenant or

agreement of the Company in the Indenture, or in any of the Notes or because of the creation of any Debt represented thereby, will be had against any incorporator, shareholder, director, commissioner, officer, employee or controlling person of the Company or of any successor Person thereof. Each Holder, by accepting the Notes, waives and releases all such liability. The waiver and release are part of the consideration for the issuance of the Notes. Such waiver may not be effective to waive liabilities under the applicable securities laws.

Concerning the Trustee and the Agents

Except during the continuance of an Event of Default, the Trustee will not be liable, except for the performance of such duties as are specifically set forth in the Indenture. If an Event of Default has occurred and is continuing, the Trustee will use the same degree of care and skill in its exercise of the rights and powers vested in it under the Indenture as a prudent person would exercise under the circumstances in the conduct of such person's own affairs.

The Trustee and the Agents assume no responsibility for the accuracy or completeness of the information concerning the Company or its Affiliates or any other party referenced in this Offering Memorandum or for any failure of the Company or any other party to disclose events that may have occurred or may affect the completeness or accuracy of such information.

The Trustee is permitted to engage in other transactions with the Company and its Affiliates and shall not be obligated to account for any profits therefrom, and no Trustee and no director or officer of any corporation being a Trustee hereof shall by reason of the fiduciary position of such Trustee be in any way precluded from making any contracts or entering into any transactions in the ordinary course of business with the Company, or any person or body corporate directly or indirectly associated with the Company, or from accepting the trusteeship of any other debenture stock, debentures or securities of the Company or any person or body corporate directly or indirectly associated with the Company, and neither the Trustee nor any such director or officer shall be accountable to the Holders or the Company, or any person or body corporate directly or indirectly associated with the Company, for any profit, fees, commissions, interest, discounts or share of brokerage earned, arising or resulting from any such contracts or transactions and the Trustee and any such director or officer shall also be at liberty to retain the same for its or his own benefit, *provided that* if such Trustee or any such director or officer acquires any conflicting interest that may have a materially prejudicial effect upon the Holders, it must eliminate such conflict or resign.

The Trustee shall not be responsible for the performance by any other person appointed by the Company in relation to the Notes and, unless notified in writing to the contrary, shall assume that the same are being duly performed. The Trustee shall not be liable to any Holders or any other person for any action taken by the Holders or the Trustee in accordance with the instructions of the Holders. The Trustee shall be entitled to rely on any written direction of the Holders which has been duly given by the Holders of the requisite principal amount of the Notes outstanding.

Neither the Trustee nor the Agents will be responsible for making calculations or for verifying calculations performed by the Company or any other persons unless otherwise specified in the Indenture.

The Trustee will be under no obligation to exercise any rights or powers conferred under the Indenture for the benefit of the Holders, unless such Holders have offered to the Trustee and, if the Trustee accepts such offer, the Trustee has received, indemnity and/or security and/or pre-funding satisfactory to the Trustee against any loss, liability or expense. In the exercise of its duties, the Trustee shall not be responsible for the verification of the accuracy or completeness of any certification submitted to it by the Company and is entitled to rely exclusively on the certification contained therein. Notwithstanding anything described herein, the Trustee has no duty to monitor the performance or compliance of the Company in the fulfillment of its obligations under the Indenture and the Notes.

For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, in the event that a Global Note is exchanged for definitive Notes, the Company shall appoint and maintain a paying agent in Singapore, where the definitive Notes may be presented or surrendered for payment or redemption. In addition,

in the event that a Global Note is exchanged for definitive Notes, an announcement of such exchange shall be made by or on behalf of the Company through the SGX-ST and such announcement will include all material information with respect to the delivery of the definitive Notes, including details of the paying agent in Singapore.

Book-Entry; Delivery and Form

The certificates representing the Notes will be issued in fully registered form without interest coupons. Notes sold in offshore transactions in reliance on Regulation S under the Securities Act will initially be represented by one or more permanent global notes in definitive, fully registered form without interest coupons (each, a “Regulation S Global Note”) and will be deposited with The Bank of New York Mellon as custodian for, and registered in the name of a nominee of, DTC for the accounts of Euroclear and Clearstream. Notes sold in reliance on Rule 144A will be represented by one or more permanent global notes in definitive, fully registered form without interest coupons (each, a “Restricted Global Note;” and together with the Regulation S Global Notes, the “Global Notes”) and will be deposited with The Bank of New York Mellon as custodian for, and registered in the name of a nominee of, DTC.

Each Global Note (and any Notes issued for exchange therefor) will be subject to certain restrictions on transfer set forth therein as described under “Transfer Restrictions.”

Notes transferred to institutional “accredited investors” (as defined in Rule 501(a) (1), (2), (3) or (7) of Regulation D under the Securities Act (an “Institutional Accredited Investor”)) who are not qualified institutional buyers (“Non-Global Purchasers”) will be in registered form without interest coupons (“Certificated Notes”). Upon the transfer of Certificated Notes initially issued to a Non-Global Purchaser to a qualified institutional buyer or in accordance with Regulation S, such Certificated Notes will, unless the relevant Global Note has previously been exchanged in whole for Certificated Notes, be exchanged for an interest in a Global Note. For a description of the restrictions on the transfer of Certificated Notes, see “Transfer Restrictions.”

Ownership of beneficial interests in a Global Note will be limited to persons who have accounts with DTC (“participants”) or persons who hold interests through participants. Ownership of beneficial interests in a Global Note will be shown on, and the transfer of that ownership will be effected only through, records maintained by DTC or its nominee (with respect to interests of participants) and the records of participants (with respect to interests of persons other than participants). Beneficial owners may hold their interests in a Global Note directly through DTC if they are participants in such system, or indirectly through organizations which are participants in such system.

Euroclear and Clearstream will hold interests in the Global Notes on behalf of their participants through DTC.

So long as DTC, or its nominee, is the registered owner or holder of a Global Note, DTC or such nominee, as the case may be, will be considered the sole owner or holder of the Notes represented by such Global Note for all purposes under the Indenture and the Notes. No beneficial owner of an interest in a Global Note will be able to transfer that interest except in accordance with DTC’s applicable procedures, in addition to those provided for under the Indenture and, if applicable, those of Euroclear and Clearstream.

Payments of the principal of, premium, if any, and interest on, a Global Note, will be made to DTC or its nominee, as the case may be, as the registered owner thereof. Neither the Company, the Trustee nor the Paying Agent will have any responsibility or liability for any aspect of the records relating to or payments made on account of beneficial ownership interests in a Global Note or for maintaining, supervising or reviewing any records relating to such beneficial ownership interests.

The Company expects that DTC or its nominee, upon receipt of any payment of principal of, premium, if any, or interest in respect of a Global Note, will credit participants’ accounts with payments in amounts proportionate to their respective beneficial interests in the principal amount of such Global Note as shown on the records of DTC or its nominee. The Company also expects that payments by participants to owners of beneficial interests in such Global Note held through such participants will be governed by standing instructions and

customary practices, as is now the case with securities held for the accounts of customers registered in the names of nominees for such customers. Such payments will be the responsibility of such participants.

The Company expects that DTC will take any action permitted to be taken by a holder of Notes (including the presentation of Notes for exchange as described below) only at the direction of one or more participants to whose account the DTC interests in a Global Note is credited and only in respect of such portion of the aggregate principal amount of Notes as to which such participant or participants has or have given such direction. However, if there is an Event of Default under the Notes, DTC will exchange the applicable Global Note for Certificated Notes, which it will distribute to its participants and which may be legended as set forth under the heading “Transfer Restrictions.”

Although DTC, Euroclear and Clearstream are expected to follow the foregoing procedures in order to facilitate transfers of interests in a Global Note among participants of DTC, Euroclear and Clearstream, they are under no obligation to perform or continue to perform such procedures, and such procedures may be discontinued at any time. None of the Company, the Trustee or the Paying Agent will have any responsibility for the performance by DTC, Euroclear or Clearstream or their respective participants or indirect participants of their respective obligations under the rules and procedures governing their operations.

If DTC is at any time unwilling or unable to continue as a depository for the Global Notes and a successor depository is not appointed by the Company within 90 days, the Company will issue Certificated Notes in registered form, which may bear the legend referred to under “Transfer Restrictions,” in exchange for the Global Notes. Holders of an interest in a Global Note may receive Certificated Notes, which may bear the legend referred to under “Transfer Restrictions,” in accordance with the DTC’s rules and procedures in addition to those provided for under the Indenture.

The Clearing Systems

General

DTC, Euroclear and Clearstream have advised the Company as follows:

DTC: DTC is a limited-purpose trust company organized under the laws of the State of New York, a “banking organization” within the meaning of New York Banking Law, a member of the Federal Reserve System, a “clearing corporation” within the meaning of the New York Uniform Commercial Code, and a “clearing agency” registered pursuant to the provisions of Section 17A of the Exchange Act. DTC was created to hold securities of its participants and to facilitate the clearance and settlement of securities transactions among its participants in such securities through electronic book-entry changes in accounts of its participants, thereby eliminating the need for physical movement of securities certificates. DTC’s participants include securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations, some of whom own DTC, and may include the initial purchaser. Indirect access to the DTC system is also available to others that clear through or maintain a custodial relationship with a DTC participant, either directly or indirectly (“indirect participants”). Transfers of ownership or other interests in Notes in DTC may be made only through DTC participants. In addition, beneficial owners of Notes in DTC will receive all distributions of principal of, premium, if any, and interest on the Notes from the Trustee through such DTC participant.

Euroclear and Clearstream: Euroclear and Clearstream hold securities for participating organizations and facilitate the clearance and settlement of securities transactions between their respective participants through electronic book-entry changes in accounts of such participants. Euroclear and Clearstream provide to their participants, among other things, services for safekeeping, administration, clearance and settlement of internationally-traded securities and securities lending and borrowing. Euroclear and Clearstream interface with domestic securities markets. Euroclear and Clearstream participants are financial institutions such as underwriters, securities brokers and dealers, banks, trust companies and certain other organizations. Indirect access to Euroclear or Clearstream is also available to others such as banks, brokers, dealers and trust companies that clear through or maintain a custodial relationship with a Euroclear or Clearstream participant, either directly or indirectly.

Initial Settlement

Investors' interests in Notes held in book-entry form by DTC will be represented through financial institutions acting on their behalf as direct and indirect participants in DTC. As a result, Euroclear and Clearstream will hold positions on behalf of their participants through DTC.

Investors electing to hold their Notes through DTC (other than through accounts at Euroclear or Clearstream) must follow the settlement practices applicable to United States corporate debt obligations. The securities custody accounts of investors will be credited with their holdings against payment in same day funds on the settlement date.

Investors electing to hold their Notes through Euroclear or Clearstream accounts will follow the settlement procedures applicable to conventional Eurobonds in registered form. Notes will be credited to the securities custody accounts of Euroclear Holders and of Clearstream Holders on the Business Day following the settlement date against payment for value on the settlement date.

Secondary Market Trading

Secondary market trading between DTC participants will occur in the ordinary way in accordance with DTC rules. Secondary market trading between Clearstream participants and/or Euroclear participants will occur in the ordinary way in accordance with the applicable rules and operating procedures of Clearstream and Euroclear and will be settled using the procedures applicable to conventional eurobonds.

Cross-market transfers between persons holding directly or indirectly through DTC, on the one hand, and directly or indirectly through Clearstream participants or Euroclear participants, on the other, will be effected in DTC in accordance with DTC rules on behalf of the relevant European international clearing system by its U.S. depository; however, such cross-market transactions will require delivery of instructions to the relevant European international clearing system by the counterparty in such system in accordance with its rules and procedures and within its established deadlines (European time). The relevant European international clearing system will, if a transaction meets its settlement requirements, deliver instructions to its U.S. depository to take action to effect final settlement on its behalf by delivering or receiving Notes in DTC, and making or receiving payment in accordance with normal procedures for same-day funds settlement applicable to DTC. Clearstream participants and Euroclear participants may not deliver instructions directly to the U.S. depositories.

Because of time zone differences, credits of Notes received in Clearstream or Euroclear as a result of a transaction with a DTC participant will be made during subsequent securities settlement processing and dated the Business Day following the DTC settlement date. Such credits or any transactions in such Notes settled during such processing will be reported to the relevant Clearstream participants or Euroclear participants on such Business Day. Cash received in Clearstream or Euroclear as a result of sales of Notes by or through a Clearstream participant or a Euroclear participant to a DTC participant will be received with value on the DTC settlement date but will be available in the relevant Clearstream or Euroclear cash account only as of the Business Day following settlement in DTC.

For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, the Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of S\$200,000 (or its equivalent in foreign currencies). Accordingly, the Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of US\$200,000.

Notices

All notices or demands required or permitted by the terms of the Notes or the Indenture to be given to or by the Holders are required to be in writing and may be given or served by being sent by prepaid courier or by being deposited, first-class postage prepaid, in the United States mails (if intended for the Company) addressed to the Company (if intended for the Trustee), at the corporate trust office of the Trustee; and (if intended for any Holder) addressed to such Holder at such Holder's last address as it appears in the Note register (the "Register").

Any such notice or demand will be deemed to have been sufficiently given or served when so sent or deposited and, if to the Holders, when delivered in accordance with the applicable rules and procedures of DTC. Any such notice will be deemed to have been delivered on the day such notice is delivered to DTC or if by mail, when so sent or deposited.

Language

The Notes and the Indenture will be executed in both English and Bahasa Indonesia to comply with Law 24 of 2009 regarding Flag, Language, National Emblem and National Anthem enacted July 9, 2009, and in the event of any inconsistency between the English and Bahasa Indonesia versions of these documents, the English version shall prevail. See “Risk Factors — Risks Relating to the Notes — Indonesian law requires agreements involving Indonesian parties to be written in Bahasa Indonesia and allows parties thereto to elect a foreign language version of such agreement as the governing language; however, in the event of proceedings in an Indonesian court there can be no assurance that the judges will render their decision based on the foreign language version.”

Consent to Jurisdiction; Service of Process

The Company will irrevocably (i) submit to the non-exclusive jurisdiction of any U.S. federal or New York state court located in the Borough of Manhattan, The City of New York in connection with any suit, action or proceeding arising out of, or relating to, the Notes or the Indenture or any transaction contemplated thereby and (ii) designate and appoint Cogency Global Inc., for receipt of service of process in any such suit, action or proceeding.

Governing Law

Each of the Notes and the Indenture provides that such instrument will be governed by, and construed in accordance with, the laws of the State of New York.

Definitions

Set forth below are defined terms used in the covenants and other provisions of the Indenture. Reference is made to the Indenture for other capitalized terms used in this “Description of the 2050 Notes” for which no definition is provided.

“Affiliate” means, with respect to any Person, any other Person (a) directly or indirectly controlling, controlled by, or under direct or indirect common control with, such Person or (b) who is a commissioner, director or officer of such Person or any subsidiary of such Person or of any Person referred to in clause (a) of this definition. For purposes of this definition, “control” (including, with correlative meanings, the terms “controlling,” “controlled by” and “under common control with”), as applied to any Person, means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of such Person, whether through the ownership of voting securities, by contract or otherwise.

“Business Day” means any day which is not a Saturday, Sunday, legal holiday or other day on which banking institutions in The City of New York, Singapore or Indonesia or the city where the corporate trust office of the Trustee is then located are authorized by law or governmental regulation to close; *provided that*, solely for purposes of determining the date of any payment to be made on any Note, “Business Day” means any day which is not a Saturday, Sunday, legal holiday or other day on which banking institutions in The City of New York, Singapore, Indonesia or the place in which payments on the Notes are to be made are authorized by law or governmental regulation to close.

“Change of Control” means the occurrence of any event resulting in the government of the Republic of Indonesia ceasing to directly or indirectly own and control at least 75.0% of the issued and paid-up shares of the Company.

“Change of Control Triggering Event” means a Change of Control, *provided that*, in the event that the Notes are, on the Rating Date, rated Investment Grade by two or more Rating Agencies, a Change of Control

Triggering Event shall mean the occurrence of both a Change of Control and a Rating Decline. No Change of Control Triggering Event will be deemed to have occurred in connection with any particular Change of Control unless and until such Change of Control has actually been consummated.

“Clearstream” means Clearstream Banking S.A. or any successor thereof.

“Commission” means the U.S. Securities and Exchange Commission, as from time to time constituted under the Exchange Act, or if at any time after the execution of this instrument such Commission is not existing, then the body performing such duties on such date.

“Debt” means, with respect to any Person as of any date of determination, without duplication, (a) all obligations, contingent or otherwise, of such Person for borrowed money, (b) all obligations of such Person evidenced by bonds, notes or other similar instruments, (c) all obligations of such Person in respect of letters of credit or other similar instruments, (d) all obligations of such Person to pay the unpaid purchase price of any property or service, (e) all obligations secured by a Lien on any property or asset of such Person, whether or not such obligations are assumed by such Person and (f) all obligations of others guaranteed by such Person to the extent of such guarantees and, for clauses (a), (b), (c) and (e), which has a final maturity of one year or more. The amount of Debt of any Person as of any date of determination shall be the outstanding balance at such date of all unconditional obligations as described above, the maximum liability of such Person for any such contingent obligations at such date and, in the case of clause (d), the lesser of the fair market value (as determined in good faith by the board of directors of such Person) at such date of the property or asset of such Person subject to a Lien securing the obligations of others and the amount of such obligations secured.

“Default” means any event that is, or after notice or passage of time or both would be, an Event of Default.

“Dollar Equivalent” means, with respect to any monetary amount in a currency other than U.S. dollars, at any time for the determination thereof, the amount of U.S. dollars obtained by converting such foreign currency involved in such computation into U.S. dollars at the base rate for the purchase of U.S. dollars with the applicable foreign currency as quoted by the Federal Reserve Bank of New York on the date of determination.

“DTC” means The Depository Trust Company and its successors.

“Euroclear” means Euroclear Bank SA/NV or any successor thereof.

“Fitch” means Fitch Ratings Ltd. and its successors.

“GAAP” means generally accepted accounting principles in Indonesia as in effect from time to time.

“guarantee” means any obligation, contingent or otherwise, of any Person directly or indirectly guaranteeing any Debt or other obligation of any other Person and, without limiting the generality of the foregoing, any obligation, direct or indirect, contingent or otherwise, of such Person (a) to purchase or pay (or advance or supply funds for the purchase or payment of) such Debt or other obligation of such other Person (whether arising by virtue of partnership arrangements, or by agreements to keep-well, to purchase assets, goods, securities or services, to take-or-pay, or to maintain financial statement conditions or otherwise) or (b) entered into for purposes of assuring in any other manner the obligee of such Debt or other obligation of the payment thereof or to protect such obligee against loss in respect thereof (in whole or in part); *provided that* the term “guarantee” will not include endorsements for collection or deposit in the ordinary course of business. The term “guarantee” used as a verb has a corresponding meaning.

“Holder” means the Person in whose name a Note is registered in the Register.

“Investment Grade” means a rating of “AAA,” “AA,” “A” or “BBB,” as modified by a “+” or “-” indication, or an equivalent rating representing one of the four highest rating categories, by S&P or any of its successors or assigns or a rating of “Aaa,” “Aa,” “A” or “Baa,” as modified by a “1,” “2” or “3” indication, or an equivalent rating representing one of the four highest rating categories, by Moody’s or any of its successors or assigns or a rating of “AAA,” “AA,” “A,” or “BBB,” as modified by a “+” or “-” indication, or an equivalent rating representing one of the four highest rating categories, by Fitch or any of its successors or assigns, or the equivalent ratings of any internationally recognized rating agency or agencies, as the case may be, which shall

have been designated by the Company as having been substituted for S&P, Moody's or Fitch or two or three of them, as the case may be.

"Lien" means any mortgage, pledge, fiducia security, security interest, encumbrance, lien or charge of any kind (including, without limitation, any conditional sale or other title retention agreement or lease in the nature thereof or any agreement to create any mortgage, pledge, security interest, lien, charge, easement or encumbrance of any kind but excluding liens arising by operation of law).

"Material Subsidiary" means at any time a Subsidiary of the Company:

- (a) whose total revenues (consolidated in the case of a Subsidiary which itself has Subsidiaries) or whose total assets (consolidated in the case of a Subsidiary which itself has Subsidiaries) represent in each case (or, in the case of a Subsidiary acquired after the end of the financial period to which the then latest audited consolidated accounts of the Company and its Subsidiaries relate, are equal to) not less than 5.0% of the consolidated total revenues, or, as the case may be, consolidated total assets, of the Company and its Subsidiaries taken as a whole, all as calculated respectively by reference to the then latest audited accounts (consolidated or, as the case may be, unconsolidated) of such Subsidiary and the then latest audited consolidated accounts of the Company and its Subsidiaries, *provided that*, in the case of a Subsidiary of the Company acquired after the end of the financial period to which the then latest audited consolidated accounts of the Company and its Subsidiaries relate, the reference to the then latest audited consolidated accounts of the Company and its Subsidiaries for the purposes of the calculation above shall, until consolidated accounts for the financial period in which the acquisition is made have been prepared and audited as aforesaid, be deemed to be a reference to such first-mentioned accounts as if such Subsidiary had been shown in such accounts by reference to its then latest relevant audited accounts, adjusted as deemed appropriate by the Company; or
- (b) to which is transferred the whole or substantially the whole of the undertaking and assets of a Subsidiary of the Company which immediately prior to such transfer is a Material Subsidiary, *provided that* the transferor Subsidiary shall upon such transfer forthwith cease to be a Material Subsidiary and the transferee Subsidiary shall cease to be a Material Subsidiary pursuant to this subparagraph (b) on the date on which the consolidated accounts of the Company and its Subsidiaries for the financial period current at the date of such transfer have been prepared and audited as aforesaid but so that such transferor Subsidiary or such transferee Subsidiary may be a Material Subsidiary on or at any time after the date on which such consolidated accounts have been prepared and audited as aforesaid by virtue of the provisions of subparagraph (a) above or, prior to or after such date, by virtue of any other applicable provision of this definition; or
- (c) to which is transferred an undertaking or assets which, taken together with the undertaking or assets of the transferee Subsidiary, generated (or, in the case of the transferee Subsidiary being acquired after the end of the financial period to which the then latest audited consolidated accounts of the Company and its Subsidiaries relate, generate total revenues equal to) not less than 5.0% of the consolidated total revenues of the Company, or represent (or, in the case aforesaid, are equal to) not less than 5.0% of the consolidated total assets of the Company and its Subsidiaries taken as a whole, all as calculated as referred to in subparagraph (a) above, *provided that* the transferor Subsidiary (if a Material Subsidiary) shall upon such transfer forthwith cease to be a Material Subsidiary unless immediately following such transfer its undertaking and assets generate (or, in the case aforesaid, generate total revenues equal to) not less than 5.0% of the consolidated total revenues of the Company, or its assets represent (or, in the case aforesaid, are equal to) not less than 5.0% of the consolidated total assets of the Company and its Subsidiaries taken as a whole, all as calculated as referred to in subparagraph (a) above, and the transferee Subsidiary shall cease to be a Material Subsidiary pursuant to this subparagraph (c) on the date on which the consolidated accounts of the Company and its Subsidiaries for the financial period current at the date of such transfer have been prepared and audited but so that such transferor Subsidiary or such transferee Subsidiary may be a Material Subsidiary on or at any time after the date on which such consolidated accounts have been prepared and audited as aforesaid by virtue of the

provisions of subparagraph (a) above or, prior to or after such date, by virtue of any other applicable provision of this definition.

“Moody’s” means Moody’s Investors Service, Inc. and its successors.

“Offer to Purchase” means an offer to purchase the Notes by the Company from the Holders commenced by the Company mailing a notice by prepaid courier or first class mail, postage prepaid, to the Trustee and each Holder at its last address appearing in the Register stating:

- (a) that the offer is being made pursuant to the provisions of the Indenture described under the caption “Repurchase of Notes Upon a Change of Control Triggering Event” and that all Notes validly tendered will be accepted for payment on a pro rata basis;
- (b) the purchase price and the date of purchase (which will be a Business Day no earlier than 30 days nor later than 60 days from the date such notice is mailed) (the “Offer to Purchase Payment Date”);
- (c) that any Note not tendered will continue to accrue interest pursuant to its terms;
- (d) that, unless the Company defaults in the payment of the purchase price, any Note accepted for payment pursuant to the Offer to Purchase will cease to accrue interest on and after the Offer to Purchase Payment Date;
- (e) that Holders electing to have a Note purchased pursuant to the Offer to Purchase will be required to surrender the Note, together with the form entitled “Option of the Holder to Elect Purchase” on the reverse side of the Note completed, to the Paying Agent at the address specified in the notice prior to the close of business on the Business Day immediately preceding the Offer to Purchase Payment Date;
- (f) that Holders will be entitled to withdraw their election if the Paying Agent receives, not later than the close of business on the third Business Day immediately preceding the Offer to Purchase Payment Date, a facsimile transmission or letter setting forth the name of such Holder, the principal amount of Notes delivered for purchase and a statement that such Holder is withdrawing his election to have such Notes purchased;
- (g) that Holders whose Notes are being purchased only in part will be issued new Notes equal in principal amount to the unpurchased portion of the Notes surrendered; *provided that* each Note purchased and each new Note issued will be in a principal amount of US\$200,000 or integral multiples of US\$1,000 in excess thereof; and
- (h) the CUSIP number(s) of the Notes.

One (1) Business Day prior to the Offer to Purchase Payment Date, the Company will deposit with the Paying Agent money sufficient to pay the purchase price of all Notes or portions thereof to be accepted by the Company for payment on the Offer to Purchase Payment Date. On the Offer to Purchase Payment Date, the Company will (a) accept for payment on a pro rata basis Notes or portions thereof tendered pursuant to an Offer to Purchase; and (b) deliver, or cause to be delivered, to the Trustee all Notes or portions thereof so accepted together with an Officer’s Certificate specifying the Notes or portions thereof accepted for payment by the Company.

The Paying Agent will promptly mail to the Holders the accepted payment in an amount equal to the purchase price, and the Trustee will promptly authenticate and mail to such Holders a new Note equal in principal amount to any unpurchased portion of the Note surrendered; *provided that* each Note purchased and each new Note issued will be in a principal amount of US\$200,000 or integral multiples of US\$1,000 in excess thereof. The Company will publicly announce the results of an Offer to Purchase as soon as practicable after the Offer to Purchase Payment Date.

The offer is required to contain or incorporate by reference information concerning the business of the Company and its Subsidiaries and PTFI which the Company in good faith believes will assist such Holders to make an informed decision with respect to the Offer to Purchase, including a brief description of the events

requiring the Company to make the Offer to Purchase, and any other information required by applicable law to be included therein. The offer is required to contain all instructions and materials necessary to enable such Holders to tender Notes pursuant to the Offer to Purchase.

“Officer” means one of the executive officers or directors of the Company.

“Officer’s Certificate” means a certificate signed by at least one Officer.

“Opinion of Counsel” means a written opinion from legal counsel which opinion is reasonably acceptable to the Trustee that meets the requirements of the Indenture; *provided that* legal counsel shall be entitled to rely on a certificate of the Company as to matters of fact.

“Original Issue Date” means the date on which the Notes are originally issued under the Indenture.

“Person” means any individual, corporation, partnership, limited liability company, joint venture, trust, unincorporated organization or government or any agency or political subdivision thereof.

“PTFI” means PT Freeport Indonesia.

“Qualifying PTFI IPO” means the first offering or listing of shares of PTFI, which complies with (A) the rules and regulations of a Stock Exchange; and (B) the following conditions: (i) it is an offer of shares of PTFI that consists wholly or in part of primary shares and that is made to the public for subscription or sale exclusively for cash, accompanied (or preceded) by the grant of listing of, and permission to deal in, the PTFI shares or depository shares or securities representing the PTFI shares by such Stock Exchange; and (ii) the Company shall have delivered an Officer’s Certificate to the Trustee stating that the offer satisfies the conditions in this paragraph and that, immediately after giving effect to such public offering, no Event of Default and no event which, with the giving of notice or the passage of time, or both, would constitute an Event of Default, shall have occurred and be continuing.

“Rating Agencies” means (a) S&P, (b) Moody’s and (c) Fitch; provided that, if one or more of S&P, Moody’s or Fitch shall not make a rating of the Notes publicly available, an internationally recognized securities rating agency or agencies, as the case may be, selected by the Company, which shall be substituted for S&P, Moody’s or Fitch, or any combination thereof, as the case may be.

“Rating Date” means, in connection with a Change of Control Triggering Event, that date which is 90 days prior to the earlier of (i) a Change of Control and (ii) a public notice of the occurrence of a Change of Control.

“Rating Decline” means, in connection with a Change of Control Triggering Event, the occurrence on, or within 90 days after, the date, or public notice of the occurrence of, a Change of Control (which period shall be extended (by no more than an additional three months after the consummation of the Change of Control) so long as the rating of the Notes is under publicly announced consideration for possible downgrade by any of the Rating Agencies) any of the events listed below:

- (1) in the event the Notes are rated by all three Rating Agencies on the Rating Date as Investment Grade, the rating of the Notes by any two of the three or all three Rating Agencies shall be below Investment Grade; or
- (2) in the event the Notes are rated by any two, but not three, of the three Rating Agencies on the Rating Date as Investment Grade, the rating of the Notes by either of such two Rating Agencies shall be below Investment Grade.

“S&P” means S&P Global Ratings, a business unit of S&P Financial Services LLC, and its successors.

“Securities” means bonds, debentures, notes or other similar securities having an original maturity of more than one (1) year from its date of issue which (a) are, or are issued with the intention on the part of the issuer thereof that they should be quoted, listed or ordinarily dealt in or traded on any stock exchange, over-the-counter or other securities market, and (b) either (i) are by their terms payable, or confer a right to receive payment, in any currency other than Rupiah or (ii) are denominated in Rupiah and more than 50% of the aggregate principal

amount of the offering of such securities is initially distributed outside Indonesia by or with the Company's consent.

"Stated Maturity" means, (a) with respect to any Debt, the date specified in such debt security as the fixed date on which the final installment of principal of such Debt is due and payable as set forth in the documentation governing such Debt and (b) with respect to any scheduled installment of principal of or interest on any Debt, the date specified as the fixed date on which such installment is due and payable as set forth in the documentation governing such Debt.

"Stock Exchange" means The Indonesia Stock Exchange or such other internationally recognized stock exchange approved by the shareholders of PTFI and notified in writing to the Trustee.

"Subsidiary" means (a) any corporation or other entity of which securities or other ownership interests having ordinary voting power to elect a majority of the board of directors or other persons performing similar functions are at the time directly or indirectly owned by the Company or (b) any subsidiary subject to consolidation with the Company's financial statements under GAAP.

"U.S. Government Obligations" means securities that are (a) direct obligations of the United States of America for the payment of which its full faith and credit is pledged or (b) obligations of a Person controlled or supervised by and acting as an agency or instrumentality of the United States of America the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States of America, which, in either case, are not callable or redeemable at the option of the issuer thereof at any time prior to the Stated Maturity of the Notes, and will also include a depository receipt issued by a bank or trust company as custodian with respect to any such U.S. Government Obligation or a specific payment of interest on or principal of any such U.S. Government Obligation held by such custodian for the account of the holder of a depository receipt; *provided that* (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the holder of such depository receipt from any amount received by the custodian in respect of the U.S. Government Obligation or the specific payment of interest on or principal of the U.S. Government Obligation evidenced by such depository receipt.

TAXATION

The following summary is based on applicable tax laws, regulations, decisions, administrative guidelines and circulars, and practices in effect on the date of this Offering Memorandum, and is subject to changes, including changes that could have retroactive effect. The following summary does not take into account or discuss the tax laws of any jurisdiction other than the ones described below. The summary represents a general guide only. The summary is not to be regarded as advice on the tax position of any Noteholder or of any person acquiring, selling or otherwise dealing with the Notes or on any tax implications arising from the acquisition, sale or other dealings in respect of the Notes. The following summary does not purport to be a comprehensive description of all of the tax considerations that may be relevant to a decision to purchase, own or dispose of the Notes and does not purport to deal with the tax consequences applicable to all categories of investors, some of which may be subject to special rules. Prospective purchasers in all jurisdictions are advised to consult their own tax advisors as to tax consequences applicable to the acquisition, ownership and disposition of the Notes, including, in particular, the effect of any foreign, state or local tax laws to which they are subject.

Indonesian Taxation

The following is a summary of the principal Indonesian tax consequences relevant to prospective Noteholders who are either tax residents of Indonesia and/or non-residents who have no permanent establishment in Indonesia based on Indonesian tax laws and their implementing regulations in force as of the date of this Offering Memorandum.

General

In general, an individual is considered to be a non-resident of Indonesia if the individual does not reside in Indonesia, does not stay in Indonesia for more than 183 days within a 12-month period, or is present in Indonesia during a tax year but does not intend to reside in Indonesia. A corporation will be considered a non-resident of Indonesia if the entity is not established or domiciled in Indonesia. Non-resident individuals and non-resident corporates are further classified into those that have a permanent establishment in Indonesia and those that do not. In determining the tax residence or existence of a permanent establishment of an individual or a corporation consideration will also be given to the provision of any applicable agreement for the avoidance of double taxation (a “tax treaty”) that Indonesia has entered into with other countries. In this section, both a non-resident individual and a non-resident corporation without permanent establishment in Indonesia will be referred to as “non-resident taxpayers” unless the context requires otherwise.

Resident taxpayers who receive income from Indonesia in the form of interest on the Notes are generally subject to a final withholding income tax at the rate of 15.0%. Non-resident taxpayers who receive Indonesian sourced income, including interest, are generally subject to a final withholding income tax at the rate of 20.0%. This withholding tax may be reduced or exempted under the provisions of the applicable tax treaty.

Withholding tax on interest on the Notes

Pursuant to Government Regulation No. 16/2009 dated February 9, 2009 (“GR 16/2009”), as lastly amended by Government Regulation No. 55/2019 dated August 7, 2019 (“GR 55/2019”), and Ministry of Finance Regulation No. 85/PMK.03/2011 dated May 23, 2011 (“MoFR 85/2011”), which has been amended by Ministry of Finance Regulation No. 07/PMK.011/2012 dated January 13, 2012 (“MoFR 07/2012”), interest on the Notes is subject to a final withholding tax under Article 4(2) of the Income Tax Law.

Interest on the Notes (including premium or discount and any other payments in the nature of interest in the form of additional amounts) paid to a resident taxpayer is subject to a final withholding tax at the rate of 15.0% for which the issuer or custodian in Indonesia as appointed paying agent shall be obliged to act as the withholding agent. A special withholding tax at the rate of 5.0% is available until the end of 2020 for interest on the Notes received by mutual funds, infrastructure investment funds (under collective investment contract arrangements), real estate investment funds (under collective investment contract arrangements) and asset-backed securities (under collective investment contract arrangements) registered at OJK. From 2021 onwards, a special withholding tax at the rate of 10.0% is available for interest on the Notes received by such taxpayers.

Interest due on the Notes (including premium or discount and any other payments in the nature of interest in the form of additional amounts) paid to a non-resident taxpayer is subject to a final withholding tax of 20.0% for which the issuer or custodian in Indonesia as appointed paying agent shall be obliged to act as the withholding agent. However, the withholding tax rate could be reduced or exempted under the applicable tax treaty. The application of the tax treaty rate or benefits is subject to the completion of certain requirements by the non-tax residents as stipulated under the Indonesian tax regulations. See “— Procedures for the application of tax treaty benefits” below.

Withholding tax on disposition and repayment at maturity of the Notes

Pursuant to GR 16/2009 (as lastly amended by GR 55/2019) and MoFR 85/2011 (as amended by MoFR 07/2012), gains from the disposal of the Notes, and gains or discounts from the repayment of the Notes at maturity, are considered interest and is therefore subject to the final withholding tax outlined above.

Any gain from the disposal of the Notes by a resident taxpayer, where the transactions are conducted through a securities company, dealer or bank in Indonesia (either as intermediary or buyer), and any gain or discount from the repayment of the Notes at maturity, will be subject to a final withholding tax at the rate of 15.0%.

Any gain from the disposal of Notes by a non-resident taxpayer, where the transactions are conducted through a securities company, dealer or bank in Indonesia (either as intermediary or buyer), and any gain or discount from the repayment of the Notes at maturity, will be subject to a final withholding tax at the rate of 20.0% which is normally applicable to Indonesian-sourced interest.

In relation to the gain on the disposal of the Notes, the withholding tax should be paid by the relevant securities company, dealer or bank in Indonesia (either as intermediary or buyer). In relation to the gain or discount on the repayment of the Notes at maturity, the withholding tax should be paid by the issuer or custodian in Indonesia as the appointed paying agent.

However, if the non-resident taxpayer is a tax resident of a country that has a tax treaty with Indonesia which defines the gain on the disposal of the Notes as capital gain instead of interest, and where the treaty provides an exemption for capital gain in relation to the disposal of the Notes, relief from the imposition of such withholding tax shall be available. The exempted withholding tax is applicable subject to the satisfaction of the eligibility and reporting requirements for the relevant tax treaty and the Indonesian tax regulations, including the requirements that the recipient be the beneficial owner of the income and the availability of the certificate of domicile (i.e. the form from the Directorate General of Taxes (“DGT”), also known as “Form DGT”). See “— Procedures for the application of tax treaty benefits.”

Procedures for the application of tax treaty benefits

Indonesia has concluded tax treaties with a number of countries, including the United States of America, the United Kingdom, the Netherlands, Australia, Belgium, Canada, France, Germany, Japan, Singapore, Sweden and Switzerland. The relevant tax treaty may provide a different definition of non-resident taxpayers and permanent establishment and the reduced rate or exemption of withholding tax that might be applied to payments on the Notes.

Where a tax treaty exists and the eligibility requirements of that treaty are satisfied, the tax treaty benefits are not abused and the administrative requirements under Indonesian tax regulations are met, a reduced rate of withholding tax or exemption of withholding tax may be applicable on interest (or payments in the nature of interest, such as premium or discount) and gains from the disposal of the Notes or gains from the repayment of the Notes at maturity.

Indonesia has specific rules regarding the application of benefits under the various tax treaties. On November 21, 2018, the Indonesian tax authority issued Regulation No. PER-25/PJ/2018 (“PER 25/2018”) regarding the Procedures for Applying Tax Treaties. The regulation is effective starting January 1, 2019 and revoked the previous regulation. This regulation sets out tests and administrative criteria to be satisfied. Failure to

comply with the conditions means that the domestic withholding tax of 20.0% will apply. Under PER 25/2018, the provisions of tax treaty apply under the following conditions:

- the income recipient is not an Indonesian tax resident;
- the income recipient is an individual or an entity who is a tax resident of a tax treaty partner;
- the administrative requirements have been fulfilled;
- there is no tax treaty abuse by the income recipient; and
- the income recipient is the beneficial owner of the income (if so required by the tax treaty).

Administrative requirements

Under PER 25/2018, in order to enjoy tax treaty benefits, the certificate of domicile must meet the following administrative requirements:

- be in the form prescribed in the attachment to PER 25/2018 (i.e. Form DGT);
- filled in correctly, completely and clearly by the non-resident taxpayer;
- signed by the non-resident taxpayer or equivalent mark as normally used in its country;
- certified by the competent tax authority of the treaty country of the non-resident taxpayer or equivalent mark as normally used;
- included declaration from the non-resident taxpayer that there is no treaty abuse;
- included declaration that the non-resident taxpayer is the beneficial owner of the income (if so required by the tax treaty); and
- used for the period stated in the Form DGT (a maximum of 12 months).

If certification from the tax authority of the tax treaty country (as set out in point (d) above) cannot be obtained, non-resident taxpayers may replace this with the local Certificate of Residence (“CoR”) issued by the competent tax authority of the treaty country. In this case, the local CoR issued by the competent tax authority is required to be attached to the Form DGT that has been completed and signed by the non-resident taxpayer. The local CoR must satisfy certain requirements set by the DGT as follows:

- is in the English language;
- contains, at least, information concerning the name of the non-resident taxpayer, issuance date and the applicable tax year; and
- bears the name and signature of the authorized tax officer of the competent tax authority of the tax treaty country or sign/stamp that is equal to the signature of the tax officer and the name of the tax officer as commonly used.

Non-resident taxpayers should provide the original Form DGT (including local CoR, if applicable) to the Indonesian tax withholder. The Indonesian tax withholder is required to attach the copy of Form DGT from the non-resident taxpayer, or a receipt of earlier filing, in the relevant monthly tax return.

No treaty abuse

A tax treaty abuse takes place when the main purpose or one of the main purposes of the transaction(s) or arrangement(s) is to directly or indirectly obtain tax treaty benefits and in contradiction with the purposes and intention of the tax treaty. A treaty abuse will not have taken place where:

- there is economic substance in the establishment of the entity or in the execution of the transaction;
- the legal form is the same as the economic substance in the establishment of the entity or the execution of the transaction;

- the non-resident has activities managed by its own management and the management has appropriate authorities to carry out transactions;
- the non-resident has fixed assets and non-fixed assets (other than the assets generating income from Indonesia), which are adequate and sufficient to conduct business activities in the tax treaty partner country;
- the non-resident has sufficient employees with the expertise and certain skills in accordance with the line of business; and
- the non-resident has activities or active business other than receiving the income in the form of dividends, interest, royalties from Indonesia.

Beneficial Owner

Where a non-resident taxpayer is required by a tax treaty to be the beneficial owner of the income (e.g. for interest income), in addition to satisfying the conditions for non-abuse of the tax treaty, the non-resident taxpayer must fulfill the following:

- for a non-resident individual, he/she is not acting as an agent or nominee; or
- for a non-resident entity, it is not acting as an agent, nominee, or conduit, which is an entity that:
 - (i) has the power to use or enjoy the funds, assets, or rights to earn income from Indonesia;
 - (ii) does not use more than 50.0% of the total non-consolidated income to fulfill obligations to other parties in the form of interest, royalty, or other fees (excluding reasonable remuneration to employees and other normal business expenditures);
 - (iii) bears the risks of its own assets, capital, and/or liabilities; and
 - (iv) has no contractual or legal obligation to transfer the whole or part of the income received from Indonesia to another party.

In the event that there is tax treaty abuse or the income recipient is not the beneficial owner the following will apply:

- the Indonesian tax withholder will not be entitled to apply the tax treaty benefits and must withhold tax which is payable in accordance with Indonesian tax regulations (i.e. withholding tax at the rate of 20.0%); and
- the non-resident taxpayer who abuses the tax treaty will not be able to apply for a refund for the overpayment of the tax which should not have been payable.

If there is a difference between the legal form of a structure/scheme and the economic substance, the tax regulations will be applied in accordance with the economic substance (i.e. substance over form).

Multilateral Instrument

On November 12, 2019, the President of Indonesia issued Regulation No. 77 of 2019 (“PerPres No. 77/2019”), which ratifies the multilateral convention implementing tax treaty-related measures to prevent base erosion and profit shifting (“MLI”). Pursuant to PerPres No. 77/2019, 47 tax treaties (also referred to as Covered Tax Agreements (“CTAs”)) with Indonesia are nominated by Indonesia to become subject to the changes set out under the MLI, including CTAs with Australia, Canada, France, Hong Kong, India, Japan, Luxembourg, Malaysia, Netherlands, Singapore, Switzerland, the United Kingdom and the U.S.

The MLI will become effective and modify a relevant CTA at a point (determined in the MLI) after both relevant jurisdictions have deposited the instrument of ratification, acceptance or approval and the entry into force of the MLI. On April 28, 2020, Indonesia deposited its instrument of ratification for implementation of the

MLI with the Organization for Economic Co-operation and Development (“OECD”). The MLI will enter into force for Indonesia on August 1, 2020. Out of the 47 treaty partner jurisdictions, some of treaty partner jurisdictions have already deposited the instrument of ratification with the OECD, while others have not.

The MLI will introduce several changes to a relevant CTA including, among others, the following:

- a) the addition of the following preamble to the purpose of a CTA:

“Intending to eliminate double taxation with respect to the taxes covered by this agreement without creating opportunities for non-taxation or reduced taxation through tax evasion or avoidance (including through treaty-shopping arrangements aimed at obtaining reliefs provided in this agreement for the indirect benefit of residents of third jurisdictions);” and

- b) the replacement of the existing provision relating to the prevention of treaty abuse with the below or the addition of the provision below relating to the prevention of treaty abuse:

“Notwithstanding any provisions of the CTA, a benefit under the CTA shall not be granted in respect of an item of income or capital if it is reasonable to conclude, having regard to all relevant facts and circumstances, that obtaining that benefit was one of the principal purposes of any arrangement or transaction that resulted directly or indirectly in that benefit, unless it is established that granting that benefit in these circumstances would be in accordance with the object and purpose of the relevant provisions of the CTA.”

Noteholders should monitor the timing of when the MLI comes into effect and understand how the corresponding modifications to the provisions of a CTA will impact the Noteholders’ respective resident jurisdiction. To the extent the MLI comes into effect and operates to modify an applicable CTA with a Noteholder’s resident jurisdiction, the Noteholder should, in particular, note the potential implications, arising from the acquisition, sale and other dealings in respect of the Notes, of the principal purpose test and limitation of benefits (“LOB”) under the MLI, which may operate to limit treaty benefits in certain circumstances. Only some of the nominated tax treaties will be modified to include an LOB.

Stamp duty and other Indonesian taxes

Nominal stamp duty applies on a per document basis, and is not related to the value of the transaction. Stamp duty applies to certain documents made, executed or brought into Indonesia or intended to be used as evidence for civil proceedings. Documents subject to stamp duty include notarial deeds, documents evidencing or recording the receipt of money and securities instruments. The nominal amount of the Indonesian stamp duty for any kind of securities transaction having a value greater than Rp.1,000,000 is Rp.6,000. Generally, the stamp duty is due at the time the document is executed. Stamp duty is payable by the party that benefits from the executed document unless both parties state otherwise.

There are no other Indonesian taxes (namely estate tax, inheritance tax, succession tax or gift taxes) generally applicable to an acquisition, ownership or disposition of the Notes. There are no Indonesian registration or similar taxes payable by the Noteholders.

Certain U.S. Federal Income Tax Considerations for U.S. Holders

The following discussion is a summary of certain U.S. federal income tax considerations relating to the purchase, ownership and disposition of the Notes by a U.S. holder (as defined below), but does not purport to be a complete analysis of all potential tax effects (including consequences under the alternative minimum tax or net investment income tax) and does not address the effects of the U.S. federal estate or gift tax laws or any state, local or non-U.S. tax laws. This discussion is based upon the U.S. Internal Revenue Code of 1986, as amended (the “Code”), U.S. Treasury regulations issued thereunder, and judicial and administrative interpretations thereof, as well as the U.S.-Indonesia income tax treaty, each as publicly available and in effect on the date hereof, and all of which are subject to change, possibly with retroactive effect. There can be no assurance that the U.S. Internal Revenue Service (“IRS”) will not take a different position concerning the tax consequences of the purchase, ownership or disposition of the Notes or that any such position would not be sustained.

This discussion does not address all of the U.S. federal income tax consequences that might be relevant to a holder in light of such holder's particular circumstances or to holders subject to special tax rules, such as:

- banks, insurance companies, or certain other financial institutions;
- dealers or traders in securities;
- partnerships or other pass-through entities, or persons holding the Notes through such entities;
- real estate investment trusts or regulated investment companies;
- accrual method taxpayers subject to special tax accounting rules as a result of its use of financial statements under section 451(b) of the Code;
- tax-exempt organizations;
- certain U.S. expatriates;
- U.S. holders whose functional currency is not the U.S. dollar; or
- persons holding the Notes as part of a straddle, hedge, conversion or integrated transaction.

In addition, this discussion is limited to persons that purchase the Notes for cash at original issue and at their "issue price" (generally, the first price at which a substantial portion of the Notes is sold to the public for cash, excluding sales to bond houses, brokers or similar persons or organizations acting in the capacity of underwriters, placement agents or wholesalers) and that hold the Notes as capital assets within the meaning of section 1221 of the Code (generally, property held for investment).

For purposes of this discussion, a "U.S. holder" is a beneficial owner of a Note that is, for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) created or organized in the United States or under the laws of the United States, any state thereof or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income taxation regardless of its source; or
- a trust, if a court within the United States is able to exercise primary supervision over the administration of the trust and one or more U.S. persons have the authority to control all substantial decisions of the trust, or if a valid election is in place to treat the trust as a U.S. person.

If a partnership (or other entity or arrangement treated as a partnership for U.S. federal income tax purposes) holds the Notes, the tax treatment of a partner in the partnership will generally depend upon the status of the partner and the activities of the partnership. Holders that are partnerships or other entities or arrangements treated as partnerships for U.S. federal income tax purposes, and partners in such partnerships, should consult their tax advisors regarding the tax consequences of the purchase, ownership and disposition of the Notes.

This discussion of certain U.S. federal income tax considerations is for general information only and is not tax advice. Prospective investors should consult their tax advisors concerning the tax consequences of purchasing, owning and disposing of Notes in light of their particular circumstances, including the application of the U.S. federal income tax considerations discussed below, as well as the application of the U.S. federal estate or gift tax laws, any U.S. state, local or non-U.S. tax laws, or provisions of any applicable tax treaties.

Payments of interest

It is anticipated, and this discussion assumes, that the Notes will not be issued with original issue discount for U.S. federal income tax purposes. Payments of stated interest on the Notes will generally be taxable to a U.S. holder as ordinary income at the time that such payments are received or accrued, in accordance with such U.S. holder's method of accounting for U.S. federal income tax purposes.

Interest income on a Note will generally be foreign source “passive category income,” but could, in the case of certain U.S. holders, be “general category income” for purposes of computing the foreign tax credit allowable to U.S. holders under U.S. federal income tax laws.

As described in “— Indonesian Taxation,” interest payments will be subject to a 20.0% Indonesian withholding tax. Subject to certain customary exceptions, the Issuer is required to pay Additional Amounts with respect to such tax as described in “Description of the 2025 Notes — Additional Amounts,” “Description of the 2030 Notes — Additional Amounts” and “Description of the 2050 Notes — Additional Amounts.” The amount of a U.S. holder’s interest income for U.S. federal income tax purposes will include the Indonesian withholding tax deducted from interest payments and any Additional Amounts paid in respect thereof. Indonesian taxes (withheld at a rate not exceeding the applicable rate under the U.S.-Indonesia income tax treaty (generally 10.0%) in the case of a U.S. holder that is entitled to the treaty benefits) would, subject to limitations and conditions, be treated as foreign income tax eligible for credit against such holder’s U.S. federal income tax liability or, at such holder’s election, eligible for deduction in computing such holder’s U.S. federal taxable income. U.S. holders should consult their tax advisors regarding the creditability or deductibility of any withholding taxes. U.S. holders that are entitled to the benefits of the U.S.-Indonesia income tax treaty should review “— Indonesian Taxation” regarding how to obtain the treaty rate.

Sale, exchange, redemption or other taxable disposition of Notes

Upon the sale, exchange, redemption or other taxable disposition of a Note, a U.S. holder will generally recognize U.S. source gain or loss equal to the difference between the amount realized upon the disposition (less an amount equal to any accrued but unpaid interest, which will be taxable as interest income as discussed above to the extent not previously included in income by the U.S. holder) and the adjusted tax basis of the Note. A U.S. holder’s adjusted tax basis in a Note will generally be its cost for that Note.

Any gain or loss will be capital gain or loss. Capital gains of non-corporate U.S. holders (including individuals) derived in respect of capital assets held for more than one year are eligible for reduced rates of taxation. The deductibility of capital losses is subject to limitations.

As described in “— Indonesian Taxation,” in certain circumstances gain from the sale, exchange, redemption or other taxable disposition of Notes may be subject to Indonesian tax. U.S. holders will likely not be able to credit such Indonesian tax against its U.S. federal income tax liability with respect to any gain realized by the U.S. holder upon the sale, exchange, redemption or other taxable disposition. U.S. holders should consult their tax advisors regarding the creditability of any such tax. U.S. holders that are entitled to the benefits of the U.S.-Indonesia income tax treaty should review “— Indonesian Taxation” regarding how to obtain any treaty relief.

Information reporting and backup withholding

In general, information reporting requirements will apply to certain payments of principal and interest paid on the Notes and to the proceeds of the sale, exchange, redemption or other disposition of a Note paid to a U.S. holder, unless such U.S. holder is an exempt recipient that, when required, demonstrates this fact. Backup withholding might apply to such payments if the U.S. holder fails to provide a taxpayer identification number or otherwise fails to comply with applicable certification requirements. Certain U.S. holders who are individuals and who do not hold Notes through U.S. financial institutions (within the meaning of section 6038D of the Code) are required to report information relating to an interest in our Notes, subject to certain exceptions. Under certain circumstances, an entity may be treated as an individual for purposes of the foregoing rules. U.S. holders should consult their tax advisors regarding the application of the information reporting and backup withholding rules and any other reporting obligations that may apply to the ownership or disposition of Notes, including requirements related to the holding of certain foreign financial assets.

Backup withholding is not an additional tax and any amounts withheld under the backup withholding rules may be allowed as a credit against a U.S. holder’s U.S. federal income tax liability or as a refund, provided the required information is timely furnished to the IRS.

The Proposed Financial Transactions Tax (“FTT”)

On February 14, 2013, the European Commission published a proposal (the “Commission’s Proposal”) for a Directive for a common FTT in Belgium, Germany, Estonia, Greece, Spain, France, Italy, Austria, Portugal, Slovenia and Slovakia (the “participating Member States”). However, Estonia has since stated that it will not participate.

The Commission’s Proposal has very broad scope and could, if introduced, apply to certain dealings in the Notes (including secondary market transactions) in certain circumstances.

Under the Commission’s Proposal, the FTT could apply in certain circumstances to persons both within and outside of the participating Member States. Generally, it would apply to certain dealings in the Notes where at least one party is a financial institution, and at least one party is established in a participating Member State. A financial institution may be, or be deemed to be, “established” in a participating Member State in a broad range of circumstances, including (a) by transacting with a person established in a participating Member State or (b) where the financial instrument which is subject to the dealings is issued in a participating Member State.

The FTT may give rise to tax liabilities for the Issuer if it is adopted based on the Commission’s Proposal. It should be noted that the FTT could be payable by Noteholders, including in relation to secondary market transactions, if the conditions for a charge to arise are satisfied and the FTT is adopted based on the Commission’s Proposal. Primary market transactions referred to in Article 5(c) of Regulation EC No 1287/2006 are expected to be exempt but there is, however, uncertainty in relation to the intended scope of the exemption for certain money market instruments and structured issues.

However, the FTT proposal remains subject to negotiation between participating Member States. It may therefore be altered prior to any implementation, the timing of which remains unclear. Additional EU Member States may decide to participate.

Prospective Noteholders are advised to seek their own professional advice in relation to the FTT.

PLAN OF DISTRIBUTION

Subject to the terms and conditions set forth in a purchase agreement (the “Purchase Agreement”) among us and BNP Paribas, Citigroup, HSBC, DBS, Mandiri Securities, Maybank, Mizuho Securities, MUFG and SMBC Nikko as the initial purchasers (the “Initial Purchasers”), we have agreed to sell to the Joint Global Coordinators, and each of the Joint Global Coordinators has agreed, severally and not jointly, to purchase from us, the principal amount of the Notes set forth opposite its name below.

<u>Initial Joint Global Coordinators</u>	<u>Principal amount of the 2025 Notes</u>	<u>Principal amount of the 2030 Notes</u>	<u>Principal amount of the 2050 Notes</u>
	(US\$)	(US\$)	(US\$)
BNP Paribas	333,334,000	333,333,000	166,667,000
Citigroup	333,333,000	333,334,000	166,666,000
HSBC	333,333,000	333,333,000	166,667,000
Total	<u>1,000,000,000</u>	<u>1,000,000,000</u>	<u>500,000,000</u>

Subject to the terms and conditions set forth in the Purchase Agreement, the Joint Global Coordinators have agreed, severally and not jointly, to purchase all of the Notes sold under the Purchase Agreement if any of these Notes are purchased. If a Joint Global Coordinator defaults, the Purchase Agreement provides that the purchase commitments of the non-defaulting Joint Global Coordinators may be increased or the Purchase Agreement may be terminated. The Purchase Agreement provides that the obligations of the Joint Global Coordinators to purchase the Notes are subject to approval of legal matters by counsel and to other conditions. The issue of the Notes may be canceled by the Initial Purchasers in certain circumstances at any time up to the time when the proceeds of the issue have been received and the Notes issued. The Joint Global Coordinators reserve the right to withdraw, cancel or modify offers to investors and to reject orders in whole or in part. The Joint Global Coordinators may offer and sell the Notes in various jurisdictions through certain of their affiliates.

We have agreed to indemnify the Initial Purchasers against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the Initial Purchasers may be required to make in respect of those liabilities.

The Initial Purchasers or their respective affiliates may purchase the Notes for its or their own account and enter into transactions, including credit derivatives, such as asset swaps, repackaging and credit default swaps relating to the Notes and/or other securities of the Company or its subsidiaries or associates at the same time as the offer and sale of the Notes or in secondary market transactions. Such transactions would be carried out as bilateral trades with selected counterparties and separately from any existing sale or resale of Notes to which this Offering Memorandum relates (notwithstanding that such selected counterparties may also be purchasers of Notes). The Initial Purchasers or certain of their affiliates may purchase Notes and be allocated Notes for asset management and/or proprietary purposes but not with a view to distribution.

To the extent the Joint Global Coordinators intend to make any offers or sales of the Notes in the United States, or to nationals or residents of the United States, they will do so only through one or more registered broker-dealers in compliance with applicable securities laws and regulations, and the rules of the Financial Industry Regulatory Authority, as well as with applicable laws of the various states.

Commissions and Discounts

The Joint Global Coordinators propose initially to offer the Notes at the offering price set forth on the cover page of this Offering Memorandum. After the initial offering, the offering price or any other term of the offering may be changed.

Notes Are Not Being Registered

The Notes have not been registered under the Securities Act or any state securities laws. The Joint Global Coordinators propose to offer the Notes for resale in transactions not requiring registration under the Securities

Act or applicable state securities laws, including sales pursuant to Rule 144A and Regulation S. The Joint Global Coordinators will not offer or sell the Notes except to persons they reasonably believe to be qualified institutional buyers or pursuant to offers and sales that occur outside of the United States within the meaning of Regulation S. Each purchaser of the Notes will be deemed to have made acknowledgments, representations and agreements as described under “Transfer Restrictions.”

New Issue of Notes

The Notes are a new issue of securities with no established trading market. Approval in-principle has been received from the SGX-ST for the listing and quotation of the 2030 Notes and the 2050 Notes on the SGX-ST. Application will be made to the SGX-ST for the listing and quotation of the 2025 Notes on the SGX-ST. However, we cannot assure you that we will obtain or be able to maintain a listing of the Notes on the SGX-ST, or that, if listed, a liquid trading market will develop. We have been advised by the Initial Purchasers that they presently intend to make a market in the Notes after completion of the offering. However, they are under no obligation to do so and may discontinue any market-making activities at any time without any notice. We cannot assure the liquidity of the trading market for the Notes. If an active trading market for the Notes does not develop, the market price and liquidity of the Notes may be adversely affected. If the Notes are traded, they may trade at a discount from their initial offering price, depending on prevailing interest rates, the market for similar securities, our operating performance and financial condition, general economic conditions and other factors.

Settlement

We expect that delivery of the Notes will be made to investors on or about the closing date specified on the cover page of this Offering Memorandum, which will be the fourth business day following the date of this Offering Memorandum (such settlement being referred to as “T+4”). Under Rule 15c6-1 under the Exchange Act, trades in the secondary market are required to settle in two business days, unless the parties to any such trade expressly agree otherwise. Accordingly, purchasers who wish to trade the Notes prior to the delivery of the Notes hereunder will be required, by virtue of the fact that the Notes initially settle in T+4, to specify an alternate settlement arrangement at the time of any such trade to prevent a failed settlement. Purchasers of the Notes who wish to trade the Notes prior to their date of delivery hereunder should consult their advisors.

No Sales of Similar Securities

We have agreed that we will not, for a period of 90 days after the Closing Date, without first obtaining the prior written consent of the Initial Purchasers, directly or indirectly offer, sell, contract to sell or otherwise dispose of any debt securities (except for the Notes sold to the Joint Global Coordinators pursuant to the Purchase Agreement) or enter into any transaction which is designed to, or might reasonably be expected to, result in the disposition of any debt securities or securities exchangeable for or convertible into debt securities of the Company.

Short Positions and Stabilizing Transactions

In connection with this offering, Citigroup, as Stabilizing Manager, or any person acting for it, may purchase and sell Notes in the open market. These transactions may, to the extent permitted by law, include short sales, stabilizing transactions and purchases to cover positions created by short sales. Short sales involve the sale of a greater amount of Notes than the Joint Global Coordinators are required to purchase in this offering. Stabilizing transactions consist of certain bids or purchases for the purpose of preventing or retarding a decline in the market price of the Notes while this offering is in progress. These activities, to the extent permitted by law, may stabilize, maintain or otherwise affect the market price of the Notes. These activities may be conducted in the over-the-counter market or otherwise. As a result, the price of the Notes may be higher than the price that otherwise might exist in the open market. If these activities are commenced, they may be discontinued at any time and must in any event be brought to an end after a limited time. These activities will be undertaken solely for the account of the Stabilizing Manager and not for and on behalf of the Issuer.

Other Relationships

Certain of the Initial Purchasers and their respective affiliates have, from time to time, performed, and may in the future perform, certain commercial banking, investment banking and advisory and other banking services for us, and/or our affiliates for which they have received or will receive customary fees and expenses. The Initial Purchasers and their respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advice, investment management, principal investment, hedging, financing and brokerage activities. In the ordinary course of their various business activities, the Initial Purchasers and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investments and securities activities may involve securities and instruments of the Company. We intend to use a portion of the net proceeds of the offering of the Notes to refinance outstanding indebtedness of our Group, including loans extended by certain of the Initial Purchasers and/or their respective affiliates.

Selling Restrictions

General

We and the Initial Purchasers have not taken any action, nor will we and the Initial Purchasers take any action, in any jurisdiction that would permit a public offering of the Notes, or the possession, circulation or distribution of this Offering Memorandum or any other material relating to us, the Notes in any jurisdiction where action for that purpose is required. Accordingly, an investor may not offer or sell, directly or indirectly, any Note and may not distribute or publish either this Offering Memorandum or any other offering material or advertisements in connection with the Notes, in or from any country or jurisdiction except in compliance with any applicable rules and regulations of such country or jurisdiction.

United States

The Notes have not been and will not be registered under the Securities Act or any state securities laws and, unless so registered, may not be offered or sold within the United States except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act and applicable state securities laws. See “Transfer Restrictions” for a description of other restrictions on the transfer of Notes. Accordingly, the Notes are being offered and sold only to qualified institutional buyers in accordance with Rule 144A and outside the United States in offshore transactions in accordance with Regulation S. Resales of the Notes are restricted as described under “Transfer Restrictions.”

Until 40 days after the commencement of this offering, an offer or sale of Notes within the United States by a dealer (whether or not participating in this offering) may violate the registration requirements of the Securities Act if such offer or sale is made otherwise than in accordance with Rule 144A or pursuant to another exemption from registration under the Securities Act.

As used herein, the term “United States” has the meaning given to it in Regulation S.

United Kingdom

Each Initial Purchaser has severally represented and agreed that:

- (a) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the Financial Services and Markets Act 2000 (“FSMA”)) received by it in connection with the issue or sale of the Notes in circumstances in which Section 21(1) of the FSMA does not apply to us; and
- (b) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the Notes in, from or otherwise involving the United Kingdom.

Hong Kong

Each Initial Purchaser has severally represented and agreed that (i) it has not offered or sold and will not offer or sell in the Hong Kong Special Administrative Region of the People's Republic of China ("Hong Kong"), by means of any document, any Notes other than (x) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong (the "SFO") and any rules made under the SFO; or (y) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong (the "C(WUMP)O") or which do not constitute an offer to the public within the meaning of the C(WUMP)O; and (ii) it has not issued or had in its possession for the purposes of issue and will not issue or have in its possession for the purposes of issue any advertisement, invitation or document relating to the Notes, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to Notes which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the SFO and any rules made under the SFO.

Indonesia

This offering does not constitute a public offering in Indonesia under the Indonesia Capital Markets Law. This Offering Memorandum may not be distributed in Indonesia and the Notes may not be offered or sold in Indonesia or to Indonesian citizens wherever they are domiciled, or to Indonesian residents in a manner which constitutes a public offering under the laws and regulations of Indonesia.

Japan

The Notes have not been and will not be registered under the Financial Instruments and Exchange Act of Japan (Act No. 25 of 1948, as amended, the "Financial Instruments and Exchange Act"). Accordingly, each Initial Purchaser has represented and agreed that it has not, directly or indirectly, offered or sold and will not, directly or indirectly, offer or sell any Notes in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan) or to others for re-offering or re-sale, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Act and other relevant laws and regulations of Japan.

Korea

The Notes have not been registered and will not be registered with the Financial Services Commission of Korea for a public offering in Korea under the Korea Financial Investment Services and Capital Markets Act ("FSCMA"). The Notes have not been and will not be offered, sold or delivered directly or indirectly, or offered, sold or delivered to any person for re-offering or resale, directly or indirectly, in Korea or to any resident of Korea (as defined in the Foreign Exchange Transactions Law of Korea ("FETL") and its Enforcement Decree) within one year of the issuance of the Notes, except as otherwise permitted under applicable Korean laws and regulations, including the FSCMA and the FETL and the decrees and regulations thereunder.

Singapore

Each Initial Purchaser has acknowledged that this Offering Memorandum has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, each Initial Purchaser has severally represented and agreed that it has not offered or sold any Notes or caused the Notes to be made the subject of an invitation for subscription or purchase and will not offer or sell any Notes or cause the Notes to be made the subject of an invitation for subscription or purchase, and has not circulated or distributed, nor will it circulate or distribute, this Offering Memorandum or any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the Notes, whether directly or indirectly, to any person in Singapore

other than (i) to an institutional investor (as defined in Section 4A of the SFA) pursuant to Section 274 of the SFA, (ii) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA and (where applicable) Regulation 3 of the Securities and Futures (Classes of Investors) Regulations 2018, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the Notes are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

- (a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or
- (b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities or securities-based derivatives contracts (each term as defined in Section 2(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the Notes pursuant to an offer made under Section 275 of the SFA except:

- (i) to an institutional investor or to a relevant person, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;
- (ii) where no consideration is or will be given for the transfer;
- (iii) where the transfer is by operation of law;
- (iv) as specified in Section 276(7) of the SFA; or
- (v) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018.

Any reference to the SFA is a reference to the Securities and Futures Act, Chapter 289 of Singapore, as modified and amended from time to time, and a reference to any term as defined in the SFA or any provision in the SFA is a reference to that term or provision as modified or amended from time to time including by such of its subsidiary legislation as may be applicable at the relevant time.

Switzerland

The offering of the Notes in Switzerland is exempt from the requirement to prepare and publish a prospectus under the Swiss Financial Services Act ("FinSA"). The Notes will not be admitted to trading on any trading venue (exchange or multilateral trading facility) in Switzerland. This Offering Memorandum does not constitute a prospectus pursuant to the FinSA, and no such prospectus has been or will be prepared for or in connection with the offering of the Notes.

Taiwan

The Notes have not been and will not be registered or filed with, or approved by, the Financial Supervisory Commission of Taiwan and/or other regulatory authority of Taiwan pursuant to relevant securities laws and regulations of Taiwan and may not be issued, offered or sold within Taiwan through a public offering or in circumstances which constitute an offer within the meaning of the Securities and Exchange Act of Taiwan that requires a registration, filing or approval of the Financial Supervisory Commission of Taiwan and/or other regulatory authority of Taiwan. No person or entity in Taiwan has been authorized to offer or sell the Notes in Taiwan unless the Notes offered or sold to investors in Taiwan are otherwise through Taiwan licensed financial institutions to the extent permitted under relevant Taiwan laws or regulations.

Republic of Italy

The offering of the Notes has not been registered with the *Commissione Nazionale per le Società e la Borsa* (“CONSOB”) pursuant to Italian securities legislation and, accordingly, no Notes may be offered, sold or delivered, nor may copies of this Offering Memorandum or of any other document relating to any Notes be distributed in Italy, except, in accordance with any Italian securities, tax and other applicable laws and regulations.

Each Initial Purchaser has represented and agreed that it has not offered, sold or delivered, and will not offer, sell or deliver any Notes or distribute any copy of this Offering Memorandum or any other document relating to the Notes in Italy except:

- (a) to qualified investors (*investitori qualificati*), pursuant to Article 2 of Regulation (EU) No. 1129 of June 14, 2017 (the “Prospectus Regulation”) and any applicable provision of Legislative Decree no. 58 of February 24, 1998 (the “Financial Services Act”) and/or Italian CONSOB regulation, all as amended; or
- (b) in any other circumstances which are exempted from the rules on public offerings pursuant to Article 1 of the Prospectus Regulation, Article 34-ter of CONSOB Regulation 11971 of May 14, 1999, as amended from time to time, and the applicable Italian laws.

In any event, any offer, sale or delivery of the Notes or distribution of copies of this Offering Memorandum or any other document relating to the Notes in Italy under paragraphs (a) or (b) above must be:

- (i) made by an investment firm, bank or financial intermediary permitted to conduct such activities in Italy in accordance with the Financial Services Act, Legislative Decree No. 385 of September 1, 1993 (the “Banking Act”) and CONSOB Regulation No. 20307 of February 15, 2018, all as amended from time to time;
- (ii) in compliance with Article 129 of the Banking Act, as amended from time to time, and the implementing guidelines of the Bank of Italy, as amended from time to time; and
- (iii) in compliance with any other applicable laws and regulations, including any limitation or requirement which may be imposed from time to time by CONSOB or the Bank of Italy or other competent authority.

TRANSFER RESTRICTIONS

Because the following restrictions will apply to the Notes, investors should consult legal counsel prior to making any offer, resale, pledge or transfer of the Notes.

The Notes have not been and will not be registered under the Securities Act and may not be offered or sold within the United States except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act. Accordingly, the Notes are being offered and sold only:

- to “qualified institutional buyers” in compliance with Rule 144A; and
- outside the United States in offshore transactions, in reliance upon Regulation S under the Securities Act.

Rule 144A Notes

Each purchaser of the Notes within the United States pursuant to Rule 144A, by accepting delivery of this Offering Memorandum, will be deemed to have represented, agreed and acknowledged that:

- (1) It is (a) a qualified institutional buyer within the meaning of Rule 144A (a “QIB”), (b) acquiring such notes for its own account or for the account of a QIB and (c) aware, and each beneficial owner of such notes has been advised, that the sale of such notes to it is being made in reliance on Rule 144A.
- (2) It understands that such notes have not been and will not be registered under the Securities Act and (a) may not be offered, sold, pledged or otherwise transferred except (i) in accordance with Rule 144A to a person that it and any person acting on its behalf reasonably believe is a QIB purchasing for its own account or for the account of a QIB, (ii) in an offshore transaction in accordance with Rule 903 or Rule 904 of Regulation S or (iii) pursuant to an exemption from registration under the Securities Act provided by Rule 144 thereunder (if available), in each case in accordance with any applicable securities laws of any State of the United States; (b) the purchaser will, and each subsequent purchaser is required to, notify any subsequent purchaser of such notes from it of the resale restrictions referred to in (a) above; and (c) no representation can be made as to the availability of the exemption provided by Rule 144 under the Securities Act for resale of the Notes.
- (3) If it is a person other than a person outside the United States, it agrees that if it should resell or otherwise transfer the Notes, it will do so only:
 - to the Company or any of our respective affiliates;
 - inside the United States to a qualified institutional buyer in compliance with Rule 144A;
 - outside the United States in compliance with Rules 903 or 904 under the Securities Act;
 - pursuant to the exemption from registration provided by Rule 144 under the Securities Act (if available); or
 - pursuant to an effective registration statement under the Securities Act.
- (4) It understands that such notes, unless otherwise agreed between the Company and the Trustee in accordance with applicable law, will bear a legend to the following effect:

“THIS NOTE HAS NOT BEEN AND WILL NOT BE REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE “SECURITIES ACT”), OR WITH ANY SECURITIES REGULATORY AUTHORITY OF ANY STATE OR OTHER JURISDICTION OF THE UNITED STATES AND, MAY NOT BE OFFERED, SOLD, PLEDGED OR OTHERWISE TRANSFERRED EXCEPT (1) IN ACCORDANCE WITH RULE 144A UNDER THE SECURITIES ACT (“RULE 144A”) TO A PERSON THAT THE HOLDER AND ANY PERSON ACTING ON ITS BEHALF REASONABLY BELIEVE IS A QUALIFIED INSTITUTIONAL BUYER WITHIN THE MEANING OF RULE 144A PURCHASING FOR ITS OWN ACCOUNT OR FOR THE ACCOUNT

OF A QUALIFIED INSTITUTIONAL BUYER, (2) IN AN OFFSHORE TRANSACTION IN ACCORDANCE WITH RULE 903 OR RULE 904 OF REGULATION S UNDER THE SECURITIES ACT OR (3) PURSUANT TO AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT PROVIDED BY RULE 144 THEREUNDER (IF AVAILABLE), IN EACH CASE IN ACCORDANCE WITH ANY APPLICABLE SECURITIES LAWS OF ANY STATE OF THE UNITED STATES. THE HOLDER WILL, AND EACH SUBSEQUENT HOLDER IS REQUIRED TO, NOTIFY ANY SUBSEQUENT PURCHASER OF THESE NOTES FROM IT OF THE RESALE RESTRICTIONS REFERRED TO ABOVE. NO REPRESENTATION CAN BE MADE AS TO THE AVAILABILITY OF THE EXEMPTION PROVIDED BY RULE 144 UNDER THE SECURITIES ACT FOR REALES OF THIS NOTE.”

- (5) The Company, the Registrar, the Initial Purchasers and their affiliates, and others will rely upon the truth and accuracy of the foregoing acknowledgments, representations and agreements and, if any such acknowledgments, representations or agreements deemed to have been made by virtue of its purchase of the Notes are no longer accurate, it agrees to promptly notify us. If it is acquiring any Notes for the account of one or more qualified institutional buyers, it represents that it has sole investment discretion with respect to each such account and it has full power to make the foregoing acknowledgments, representations and agreements on behalf of each such account.
- (6) It understands that the Notes offered in reliance on Rule 144A will be represented by the Rule 144A Global Notes. Before any interest in the Rule 144A Global Notes may be offered, sold, pledged or otherwise transferred to a person who takes delivery in the form of an interest in the Regulation S Global Notes, it will be required to provide the Registrar with a written certification (in the form provided in the Indentures) as to compliance with applicable securities laws.

Prospective purchasers are hereby notified that sellers of the Notes may be relying on the exemption from the provisions of Section 5 of the Securities Act provided by Rule 144A.

Regulation S Notes

Each purchaser of the Notes outside the United States pursuant to Regulation S, by accepting delivery of this Offering Memorandum and the Notes, will be deemed to have represented, agreed and acknowledged that:

- (1) It is, or at the time such Notes are purchased will be, the beneficial owner of such notes and (a) it is located outside the United States (within the meaning of Regulation S) and (b) it is not an affiliate of the Company or a person acting on behalf of such an affiliate.
- (2) It understands that such Notes have not been and will not be registered under the Securities Act.
- (3) The Company, the Registrar, the Initial Purchasers and their affiliates, and others will rely upon the truth and accuracy of the foregoing acknowledgments, representations and agreements and, if any such acknowledgments, representations or agreements deemed to have been made by virtue of its purchase of the Notes are no longer accurate, it agrees to promptly notify us.

SUMMARY OF CERTAIN DIFFERENCES BETWEEN INDONESIAN FINANCIAL ACCOUNTING STANDARDS AND U.S. GAAP

Our consolidated financial information included in this Offering Memorandum has been prepared and presented in conformity with IFAS. Certain differences exist between IFAS and U.S. GAAP which might be material to the financial information herein. The matters described below summarizes certain differences between IFAS and U.S. GAAP that may be material. We are responsible for preparing the summary below. We have not prepared a complete reconciliation of our consolidated financial statements and related footnote disclosures between IFAS and U.S. GAAP and have not quantified such differences. Accordingly, we cannot assure you that the following summary of differences between IFAS and U.S. GAAP is complete. In making an investment decision, investors must rely upon their own examination of the Company and its subsidiaries, the terms of the offering and the financial information contained herein. Potential investors should consult their own professional advisors for an understanding of the differences between IFAS and U.S. GAAP and how those differences might affect the financial information herein.

Consolidation and Equity-Method Investment

IFAS focuses on the concept of control in determining whether a parent-subsidary relationship exists. “Control” is defined as the power to govern the financial and operating policies of an entity to obtain benefits from its activities. The standard and interpretation provide indicators of when the substance of a relationship indicates control is present. In assessing control of an entity, an investor should consider the entity’s purpose and design to identify the relevant activities, how decisions about such relevant activities are made, who has the current ability to direct those activities, and who is exposed or has rights to the returns from those activities. When an entity is controlled by voting rights, control is presumed to exist when a parent owns, directly or indirectly, more than 50.0% of an entity’s voting power. Control also exists when a parent owns half or less of the voting power but has legal or contractual rights to control either the majority of the entity’s voting power or the board of directors. Control may exist even in cases where an entity owns little or none of a structured equity. The application of the control concept requires, in each case, judgment in the context of all relevant factors.

Under U.S. GAAP, all consolidation decisions are evaluated first under the Variable Interest Entity (“VIE”) model. VIEs are evaluated for consolidation based on all contractual, ownership, or other interest that expose their holders to the risks and rewards of the entity, where such interests are termed variable interests. An entity with a variable interest in a VIE is required to qualitatively assess the determination of the primary beneficiary of the VIE. In applying the qualitative model, an entity is deemed to have a controlling financial interest if it meets the following criteria:

- power to direct activities of the VIE that most significantly impact the VIE’s economic performance (power criterion); and
- obligation to absorb losses from or right to receive benefits of the VIE that could potentially be significant to the VIE (losses/benefits criteria).

In assessing whether an enterprise has a controlling financial interest in an entity, it should consider the entity’s purpose and design, including the risks that the entity was designed to create and pass through to its variable interest holders.

Only one enterprise, if any, is expected to be identified as the primary beneficiary of a VIE. Although more than one enterprise could meet the losses/benefits criteria, only one enterprise, if any, will have the power to direct the activities of a VIE that most significantly impact the entity’s economic performance. If an entity is determined not to be a VIE, it is assessed under the voting interest model. Unlike IFAS, only actual voting rights are considered. Under the voting interest model, control can be direct or indirect. In certain unusual circumstances, control may exist with less than 50.0% ownership, when contractually supported.

Under IFAS, consolidated financial statements are prepared by using uniform accounting policies for like transactions and events in similar circumstances for all the entities in a group.

Under U.S. GAAP, consolidated financial statements are also prepared by using uniform accounting policies for all the entities in a group. However, limited exceptions exist when a subsidiary has specialized industry accounting principles. Retention of the specialized accounting policy in consolidation is permitted in such cases.

Investments in Associates

Under IFAS, share of losses of the associates in excess of the Company and its subsidiaries' interest in those associates (which includes any long-term interests that, in substance, form part of the Company and its subsidiaries' net investment in the associate) are recognized only to the extent that the Company and its subsidiaries have incurred legal or constructive obligations or made payments on behalf of the associate.

Under U.S. GAAP, an investor should continue to recognize losses when the imminent return to profitable operations of an investee appears to be assured, even if the investor has not (1) guaranteed obligations of the investee or (2) otherwise committed to provide further financial support to the investee.

Inventory

Under IFAS, cost of inventory is generally determined using the first-in, first-out ("FIFO") or weighted average cost method. The use of the last-in, first-out ("LIFO") method is prohibited.

Under U.S. GAAP, the cost of inventory may be determined using the LIFO method in addition to the FIFO or weighted-average cost method.

Under IFAS, inventory provisions related to adjustments for the lower of cost and net realizable value can be written back up if there is clear evidence that the net realizable value has increased because of the change in economic circumstances.

Under U.S. GAAP, a provision to write down inventories to the lower of cost and net realizable value cannot be reversed should the market value recover prior to the sale or disposition because of the change in economic circumstances. As a result, under U.S. GAAP, write-downs of inventory can only be recovered through a sale or a disposition.

Land Rights

The title of land in Indonesia rests with the state under Agrarian Law No. 5 of 1960. Land use is granted through land rights, whereby the holder of the right enjoys the full use of the land for a stated period of time, subject to extensions. Land rights generally are freely tradeable and may be pledged as security under borrowing agreements.

Under IFAS, the cost of acquired land rights is not amortized unless (a) the condition of the land is no longer suitable for the main operation of the enterprise, (b) the nature of the enterprise's main operation will result in the abandonment of the land and buildings subsequent to completion of the project, or (c) management's prediction or certainty that an extension or removal of the land rights will not be obtained. Costs to obtain those rights for the first time are capitalized as fixed assets but subsequent costs to extend or renew the rights are recognized as intangible assets and then amortized.

Under U.S. GAAP, the cost of acquired land rights is amortized over the period for which the holder is expected to retain the land rights.

Long-Lived Assets

Under IFAS, historical cost is the primary basis of accounting. However, IFAS permits the revaluation to fair value of some property, plant, and equipment, and investment property and inventories in certain industries (e.g., commodity broker/dealer). IFAS also requires that biological assets (except bearer plants) be reported at fair value.

U.S. GAAP generally utilizes historical cost and prohibits revaluations except for certain categories of financial instruments, which are carried at fair value.

Under IFAS, separate significant components of property, plant, and equipment with different economic lives should be recorded and depreciated separately. The guidance includes a requirement to review residual values and useful lives at each balance sheet date.

Under U.S. GAAP, the component approach is generally not required for depreciation. While it would generally be expected that the appropriateness of significant assumptions within the financial statements would be reassessed at each reporting period, there is no explicit requirement for an annual review of residual values. Further, there is also no explicit requirement to evaluate the remaining useful life for property, plant, and equipment at each reporting period.

Under IFAS, eligible borrowing costs that are capitalized as part of a qualifying long-lived asset include exchange rate differences from foreign currency borrowings to the extent that such borrowing costs are regarded as an adjustment to interest costs. For borrowings associated with a specific qualifying long-lived asset, actual borrowing costs are capitalized and offset by investment income earned on those borrowings.

Under U.S. GAAP, eligible borrowing costs that are capitalized as part of qualifying long-lived assets do not include exchange rate differences. Interest earned on the investment of borrowed funds generally cannot offset interest costs incurred during the period. For borrowings associated with a specific qualifying long-lived asset, borrowing costs equal to the weighted-average accumulated expenditures times the borrowing rate are capitalized.

Under IFAS, costs that represent a replacement of a previously identified component of a long-lived asset, such as costs of a major overhaul, are capitalized if future economic benefits are probable and the costs can be reliably measured; otherwise, expensed as incurred.

Under U.S. GAAP, multiple accounting models have evolved in practice for costs related to a major overhaul, including (i) expense costs as incurred, (ii) capitalize costs and amortize them through the date of the next overhaul or (iii) follow the approach provided under IFAS or the International Financial Reporting Standards.

Under IFAS, investment property is separately defined as property (land and/or buildings) held in order to earn rentals and/or for capital appreciation. The definition does not include owner-occupied property, property held for sale in the ordinary course of business, or property being constructed or developed for such sale. Properties under construction or development for future use as investment properties are within the scope of investment properties. Investment property is initially measured at cost (transaction costs are included). Thereafter, it may be accounted for on a historical-cost basis or on a fair value basis as an accounting policy choice. When fair value is applied, the gain or loss arising from a change in the fair value is recognized in the income statement. The carrying amount is not depreciated. The election to account for investment property at fair value may also be applied to leased property.

Under U.S. GAAP, there is no specific definition of investment property. The historical-cost model is used for most real estate companies and operating companies holding investment-type property. Investor entities — such as many investment companies, insurance companies' separate accounts, bank-sponsored real estate trusts and employee benefit plans that invest in real estate — carry their investments at fair value. The fair value alternative for leased property does not exist.

Impairment of Long-Lived Assets, Goodwill, and Intangible Assets

Under IFAS, impairment of long-lived assets is determined using the “one-step” approach, which requires that impairment loss calculation be performed if impairment indicators exist. Impairment loss is recognized when the carrying amount of the long-lived asset exceeds its recoverable amount. Recoverable amount is the higher of (i) fair value less costs to sell or (ii) value in use. Fair value less costs of disposal represents the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date less costs of disposal. Current and deferred tax balances, with the exception of unused tax losses and their associated cash flows, are taken into account when calculating fair value less costs of disposal, if a market participant would also include them. Value in use represents entity-specific or cash-generating unit

("CGU")-specific future pre-tax cash flows discounted to present value by using a pre-tax, market-determined rate that reflects the current assessment of the time value of money and the risks specific to the asset or CGU for which the cash flow estimates have not been adjusted.

Under U.S. GAAP, impairment of long-lived assets is determined using the "two-steps" approach, which requires that a recoverability test be performed first. Under a recoverability test, the carrying amount of the long-lived asset is compared with the sum of the future undiscounted cash flows generated through use and eventual disposition. If the carrying amount is lower than the undiscounted cash flows, no impairment loss is recognized, although it might be necessary to review depreciation (or amortization) estimates and methods for the related asset. If it is determined that the long-lived asset is not recoverable (the carrying amount is higher than the undiscounted cash flows), an impairment loss is measured as the difference between the carrying amount and fair value. Fair value is defined as the price that would be received to sell an asset in an orderly transaction between market participants at the measurement date (an exit price). Fair value should consider the impact of the related current and deferred tax balances and should be based on the assumptions of market participants and not those of the reporting entity.

Under IFAS, changes in market interest rates can potentially trigger impairment and hence, are impairment indicators.

Under U.S. GAAP, changes in market interest rates are not considered impairment indicators.

Under IFAS, goodwill is allocated to a cash-generating unit ("CGU") or group of CGUs that represents the lowest level within the entity at which the goodwill is monitored for internal management purposes and cannot be larger than an operating segment (before aggregation). The use of qualitative assessment in determining the impairment of goodwill (and indefinite-lived intangibles) is not permitted. Impairment of goodwill (and indefinite-lived intangibles) is determined using the "one-step" approach, which requires that an impairment test be performed at the CGU level by comparing the CGU's carrying amount (including goodwill) and its recoverable amount. Impairment loss on the CGU, which is the amount by which the CGU's carrying amount (including goodwill) exceeds its recoverable amount, is allocated first to reduce goodwill to zero, then the carrying amount of other assets in the CGU are reduced on a pro-rata basis based on the carrying amount of each asset.

Under U.S. GAAP, goodwill is assigned to a reporting unit, which is defined as an operating segment or one level below an operating segment (component). The determination of reporting units is based on a segment reporting structure. When performing the goodwill impairment test, an entity may first assess qualitative factors to determine whether the quantitative goodwill impairment test is necessary. If the entity determines, based on the qualitative assessment, that it is more likely than not that the fair value of a reporting unit is below its carrying amount, the impairment test is performed. An entity can bypass the qualitative assessment for any reporting unit in any period and proceed directly to the quantitative assessment.

Under IFAS, the reversal of impairment loss previously recognized is prohibited for goodwill, while other assets must be reviewed at the end of each reporting period for reversal indicators. If appropriate, impairment loss should be reversed up to the newly estimated recoverable amount to not exceed the initial carrying amount adjusted for depreciation.

Under U.S. GAAP, the reversal of impairment loss previously recognized is prohibited for all assets to be held and used.

Provisions and Contingencies

Under IFAS, a contingent liability is defined as a possible obligation from a past event whose outcome will be confirmed only by the occurrence or non-occurrence of one or more uncertain future events not wholly within the entity's control. A contingent liability is not recognized. A contingent liability becomes a provision and is recorded when three criteria are met: (i) a present obligation from a past event exists, (ii) it is probable that an outflow of resources will be required to settle the obligation and (iii) a reliable estimate can be made. The term "probable" is used for describing a situation in which the outcome is more likely than not to occur. Generally, the

phrase “more likely than not” denotes any chance greater than 50.0%. The amount recognized should be the best estimate of the expenditure required (the amount an entity would rationally pay to settle or transfer to a third party the obligation at the balance sheet date). Where there is a continuous range of possible outcomes and each point in that range is as likely as any other, the midpoint of the range is used. The amount of a provision to be recorded is the present value of the expenditure expected to be required to settle the obligation. The anticipated cash flows are discounted using a pre-tax discount rate (or rates) that reflect(s) current market assessments of the time value of money and the risks specific to the liability (for which the cash flow estimates have not been adjusted) if the effect is material. Provisions shall be reviewed at the end of each reporting period and adjusted to reflect the current best estimate. The carrying amount of a provision increases in each period to reflect the passage of time with said increase recognized as a borrowing cost.

Under U.S. GAAP, a loss contingency is an existing condition, situation, or set of circumstances involving uncertainty as to possible loss to an entity that will ultimately be resolved when one or more future events occur or fail to occur. An accrual for a loss contingency is required if two criteria are met: (i) if it is probable that a liability has been incurred and (ii) the amount of loss can be reasonably estimated. Implicit in the first condition above is that it is probable that one or more future events will occur confirming the fact of the loss. The guidance uses the term “probable” to describe a situation in which the outcome is likely to occur. While a numeric standard for probable does not exist, practice generally considers an event that has a 75.0% or greater likelihood of occurrence to be probable. A single standard does not exist to determine the measurement of obligations. Instead, entities must refer to guidance established for specific obligations (e.g., environmental or restructuring) to determine the appropriate measurement methodology. Pronouncements related to provisions do not necessarily have settlement price or even fair value as an objective in the measurement of liabilities, and the guidance often describes an accumulation of the entity’s cost estimates. When no amount within a range is a better estimate than any other amount, the low end of the range is accrued. For losses that meet the accrual criteria of ASC 450, an entity will generally record them at the amount that will be paid to settle the contingency, without considering the time that may pass before the liability is paid. Discounting these liabilities is acceptable when the aggregate amount of the liability and the timing of cash payments for the liability are fixed or determinable. Entities with these liabilities that are eligible for discounting are not, however, required to discount those liabilities. The decision to discount is an accounting policy choice. The classification in the statement of operations of the accretion of the liability to its settlement amount is an accounting policy decision that should be consistently applied and disclosed. When discounting is applied, the discount rate applied to a liability should not change from period to period if the liability is not recorded at fair value. There are certain instances outside of ASC 450 (e.g., in the accounting for asset retirement obligations) where discounting is required.

Revenue Recognition

Under IFAS, prior to January 1, 2020, under SFAS 23 — Revenue, revenue from sale of goods is recognized only when (i) risks and rewards of ownership have been transferred, (ii) the seller retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods sold, (iii) revenues can be measured reliably, (iv) it is probable that the economic benefits will flow to the seller and (v) the costs incurred or to be incurred in respect of the transaction can be measured reliably.

Revenue from rendering of services is recognized when the outcome of the transaction can be estimated reliably. This is done by reference to the stage of completion of the transaction at the balance sheet date, using requirements similar to those for construction contracts. The outcome of a transaction can be estimated reliably when (i) the amount of revenue can be measured reliably, (ii) it is probable that economic benefits will flow to the entity, (iii) the stage of completion can be measured reliably, and (iv) the costs incurred and costs to complete can be reliably measured.

Under IFAS, the new revenue standard SFAS 72 — Revenue from Contracts with Customers has been effective beginning January 1, 2020. SFAS 72 contains principles that an entity will apply to determine the measurement of revenue and the timing of when it is recognized. The underlying principle is that an entity will recognize revenue to depict the transfer of goods or services to customers at an amount that the entity expects to be entitled to in exchange for those goods or services. Under SFAS 72, revenue is recognized based on the

satisfaction of performance obligations. In applying SFAS 72, entities would follow a five-step process: (1) identify the contract with a customer, (2) identify the separate performance obligations in the contract, (3) determine the transaction price, (4) allocate the transaction price to the separate performance obligations, and (5) recognize revenue when (or as) each performance obligation is satisfied. As a result, SFAS 72 could significantly change how many entities recognize revenue and will also result in a significant increase in the volume of disclosures related to revenue recognition. SFAS 72 is adopted from IFRS 15 — Revenue from Contracts with Customers.

Since IFRS 15 and ASC 606, Revenue from Contracts with Customers are the converged standards from Financial Accounting Standards Board (“FASB”) and International Accounting Standards Board (“IASB”), the new model introduced by the standard eliminates many of the existing differences in accounting for revenue between the two frameworks, with the exception of a few discrete areas, among others, as follows:

- any non-cash consideration received from a customer needs to be included in the transaction price. Non-cash consideration is measured at fair value. ASC 606 was amended to specify that non-cash consideration should be measured at contract inception and addresses how to apply the variable consideration guidance to contracts with non-cash consideration. Non-cash consideration paid to a customer is recognized as contra-revenue, unless it is payment for a distinct good or service. This is true even if such payments are in the form of share-based payments, which would be valued as non-cash consideration following ASC 606. However, IFRS 15 has not been amended to address non-cash consideration, and as a result, approaches other than that required by ASC 606 may, where appropriate, be applied under IFRS 15;
- ASC 606 and IFRS 15 have some differences in practical expedients available to ease application of and transition to the revenue standards. Additionally, the two standards define a “completed contract” differently. ASC 606 provides a “use of hindsight” practical expedient intended to simplify the transition for contracts modified multiple times prior to the initial application of the standard. An entity applying the expedient will determine the transaction price of a contract at the date of initial application and perform a single, stand-alone selling price allocation (with the benefit of hindsight) to all of the satisfied and unsatisfied performance obligations in the contract from inception. IFRS 15 provides a similar “use of hindsight” practical expedient; however, entities can choose to apply the expedient either at the beginning of the earliest period presented or at the date of initial application;
- ASC 606 permits entities using the modified retrospective transition approach to apply the new standard to either all contracts or only contracts that are not yet complete as of the date of initial application. The U.S. GAAP standard defines a completed contract as a contract for which all (or substantially all) of the revenue was recognized in accordance with legacy revenue guidance before the date of initial application. IFRS 15 permits entities to apply the new standard either to all contracts or only contracts that are not yet complete as of the date of initial application under the modified retrospective transition approach. The IFRS standard defines a completed contract as a contract for which the entity has transferred all of the goods or services identified in accordance with legacy revenue guidance. IFRS 15 also permits entities using the full retrospective transition approach to not restate contracts that are completed contracts as of the beginning of the earliest period presented;
- entities that sell products often deliver them via third-party shipping service providers. Management needs to consider whether the entity is the principal for the shipping service or is an agent arranging for the shipping service to be provided to the customer when control of the goods transfers at shipping point. ASC 606 allows entities to elect to account for shipping and handling activities that occur after the customer has obtained control of a good as a fulfillment cost rather than an additional promised service. IFRS 15 does not provide this election. IFRS reporters (and U.S. GAAP reporters that do not make this election) are required to consider whether shipping and handling services give rise to a separate performance obligation; and
- the revenue standards require entities to recognize an impairment loss on contract costs (that is, capitalized costs to acquire or fulfill a contract) when certain conditions are met. Consistent with other

U.S. GAAP impairment guidance, ASC 340-40, Other Assets and Deferred Costs — Contracts with Customers, does not permit entities to reverse impairment losses recognized on contract costs. Consistent with other IFRS impairment guidance, IFRS 15 requires impairment losses to be reversed in certain circumstances similar to the existing standard on impairment of assets. Since SFAS 72 is adopted from IFRS 15, the same principles apply with respect to SFAS 72 and ASC 606. ASC 606 was effective for annual periods beginning after December 15, 2018, for non-public entities.

Financial Instruments

Under IFAS, prior to January 1, 2020, accounting for financial instruments are prescribed in various standards such as (i) SFAS 50 — Financial Instruments: Presentation, (ii) SFAS 55 — Financial Instruments: Recognition and Measurement, (iii) SFAS 60 — Financial Instruments: Disclosures, (iv) Interpretation of Financial Accounting Standards 26 — Reassessment of Embedded Derivatives and (v) IFAS 28 — Extinguishing Financial Liabilities — with Equity Instruments.

SFAS 71 — Financial Instruments has replaced SFAS 55 for financial years beginning on or after January 1, 2020. However, for some entities, SFAS 55 remains relevant (e.g., for insurers that apply SFAS 62 — Insurance contracts). In transitioning to SFAS 71 entities may also continue to apply hedge accounting under SFAS 55. The objective of the new standards is to establish requirements for all aspects of accounting for financial instruments, including distinguishing debt from equity, netting, recognition, derecognition, measurement, hedge accounting and disclosure.

Under IFAS, prior to January 1, 2020, under SFAS 55, there are four classes of financial assets: (1) fair value through profit or loss, (2) held to maturity, (3) loans and receivables, and (4) available for sale. Financial liabilities are classified either as financial liabilities measured at fair or at amortized cost. SFAS 71 replaces the multiple classification and measurement models for financial assets under SFAS 55 (“FVOCI”) with a single model that has three classification categories: (1) amortized cost, (2) fair value through OCI, and (3) fair value through profit and loss. Classification under SFAS 71 is driven by the entity’s business model for managing the financial assets and whether the contractual characteristics of the financial assets represent solely payments of principal and interest. However, at initial recognition an entity may irrevocably designate a financial asset as measured at fair value through profit and loss if doing so eliminates or significantly reduces an accounting mismatch. Some financial instruments and other contracts combine a derivative and a non-derivative in a single contract. The derivative part of the contract is referred to as an “embedded derivative.”

Under IFAS, prior to January 1, 2020, embedded derivatives that are not “closely related” to the rest of the contract are separated and accounted for as standalone derivatives (that is, measured at fair value, generally with changes in fair value recognized in profit or loss). An embedded derivative is not “closely related” if its economic characteristics and risks are different from those of the rest of the contract. SFAS 71 removes the requirement to separate embedded derivatives from financial asset hosts. It requires a hybrid contract to be classified in its entirety at either amortized cost or fair value if the contractual cash flows do not represent solely payments of principal and interest. SFAS 71 prohibits reclassifications except in rare circumstances when the entity’s business model changes. There is specific guidance for contractually linked instruments that leverage credit risk, which is often the case with investment tranches in a securitization.

The impairment rules under IFAS, prior to January 1, 2020, were based on the “incurred loss” model, while the new impairment rules under SFAS 71 introduce a new, forward looking, expected credit loss (“ECL”) impairment model which generally results in earlier recognition of losses as compared to SFAS 55. The hedging rules of SFAS 71 better aligns hedge accounting with management’s risk management strategies. Further, some of the prohibitions and rules under SFAS 55 have been removed or changed, making hedge accounting easier or less costly to achieve for many hedges. For instance, the 80.0% to 125.0% bright line test under SFAS 55 has been replaced with a requirement for there to be an economic relationship between the hedged item and hedging instrument and no imbalance between their weighting that would create ineffectiveness. Risk components can be designated for non-financial hedged items provided the risk component is separately identifiable and reliably measurable and there will be less income statement volatility for entities using options or forwards for hedging. Both of these changes will likely result in more hedges qualifying for hedge accounting than under SFAS 55.

SFAS 71 provides an accounting policy choice: entities can either continue to apply the hedge accounting requirements of SFAS 55 until the macro hedging project is finalized, or they can apply SFAS 71 (with the scope exception only for fair value macro hedges of interest rate risk). This accounting policy choice will apply to all hedge accounting and cannot be made on a hedge-by-hedge basis.

There are differences between the accounting standards applicable to financial instruments under the International Financial Reporting Standards (“IFRS”) and U.S. GAAP. Below is not the exhaustive list but rather certain aspects that may have a significant difference. Since SFAS 71 is adopted from IFRS 9 — Financial Instrument, all the differences between IFRS and U.S. GAAP will apply to the differences between IFAS and U.S. GAAP.

Under both IFRS and U.S. GAAP, the determination of whether a financial asset is considered debt or equity has implications on its classification and subsequent measurement. However, the criteria for making this determination are different. Therefore, certain investments could be accounted for as a debt investment under one framework and as an equity investment under the other. Under both IFRS and U.S. GAAP, equity investments are generally required to be measured at fair value with changes in fair value recognized in earnings. Unlike U.S. GAAP, IFRS does not include simplifications such as the “NAV exception” or “measurement alternative,” which exist under U.S. GAAP. However, IFRS provides an option to recognize the changes in the fair value of equity investments in other comprehensive income, with no subsequent reclassification to profit or loss. Classification of loans and receivables is not driven by legal form under IFRS, whereas legal form drives the classification of debt securities under U.S. GAAP. The potential classification differences drive subsequent measurement differences under IFRS and U.S. GAAP. Classification of debt securities is not driven by legal form under IFRS, whereas legal form drives the classification of debt securities under U.S. GAAP.

Under IFRS 9, an entity does not need to determine whether embedded derivatives need to be bifurcated from financial assets. The contractual features of the financial asset are assessed as part of the SPPI test, which drives the classification of the instrument as a whole. Under U.S. GAAP, bifurcation of embedded derivatives is required. This can create a significant difference between the models, since under U.S. GAAP only a particular feature may require bifurcation and measurement at fair value through profit or loss, whereas under IFRS 9, the entire instrument may require measurement at fair value through profit or loss.

Under IFRS 9, for debt instruments measured at FVOCI, the total change in fair value is bifurcated, with the portion associated with foreign exchange gains/losses on the amortized cost basis separately recognized in the income statement. The remaining portion of the total change in fair value (except for impairment losses) is recognized in OCI, net of tax effect. Under U.S. GAAP, the total change in fair value of available-for-sale debt securities — net of associated tax effects — is recorded in Other Comprehensive Income (“OCI”). Any component of the overall change in fair market value that may be associated with foreign exchange gains and losses on an available-for-sale debt security is treated in a manner consistent with the remaining overall change in the instrument’s fair value. A financial asset that is within the scope of IFRS 9 is not assessed for embedded derivatives because the SPPI test is applied to the entire hybrid contract to determine the appropriate measurement category. If an entity fails the SPPI test, the entire instrument is measured at FVTPL.

Under U.S. GAAP, when the terms of a financial asset involve returns that vary in timing or amounts, the asset should be evaluated to determine if there are any embedded derivatives that should be accounted for separately and measured at fair value through profit or loss.

The IFRS 9 impairment model is an expected loss model. Current U.S. GAAP (until the effective date of the expected credit loss (“ECL”) model) is an incurred loss model. The impairment models are therefore currently fundamentally different. The models will be more converged when the ECL model under U.S. GAAP becomes effective; however, many significant differences will still exist.

Leases

Under IFAS, prior to January 1, 2020, under SFAS 30 — Leases, a lease is classified as a finance lease if it transfers substantially all risks and rewards incidental to ownership otherwise it will be classified as operating

lease (off balance sheet) by a lessee. For financial years beginning on or after January 1, 2020, the new lease standard (SFAS 73 — Leases) requires the lessee to recognize almost all lease contracts on the balance sheet; the only optional exemptions are for certain short-term leases and leases of low-value assets. For lessees that have entered into contracts classified as operating leases under existing accounting standard, this could have a significant impact on the financial statements.

There are significant differences between SFAS 30 and SFAS 73 under IFAS including, among others, the following:

- Under SFAS 73, lease components need to be separated if provide separate benefit to lessees and are not highly interrelated with other components. Under SFAS 30, there is no specific guidance except for leases of land and buildings;
- Under SFAS 73, lease contracts should be combined if meeting certain criteria. Under SFAS 30, there is no comprehensive guidance;
- Under SFAS 73, exemption is provided for lessees for short-term leases (leases with terms less or equal to 12 months provided that no purchase option and low-value assets (although no explicit absolute threshold)). Under SFAS 30, there is no such exemption;
- Under SFAS 73, variable lease payments are part of lease liability if they depend on index or rate. Under SFAS 30, variable lease payments are not part of lease liability;
- Under SFAS 73, modification of lease contract can be treated as adjustment of existing lease or accounted for as a separate lease depending on type of modification. Under SFAS 30, there is no specific guidance; and
- Under SFAS 73, sale and leaseback is distinguished based on whether the transfer qualifies as a sale, while under SFAS 30, it is based on the classification of leaseback. SFAS 73 is adopted from IFRS 16 — Leases.

Since IFRS 16 and ASC 842 are joint projects of the IASB and the FASB, these standards on leases are nearly identical. However, application of the guidance may require significant judgment, and as a result, the practical application of the principles to similar transaction may differ. The same principles apply with respect to SFAS 73 and ASC 842. ASC 842 was effective for non-public entities for annual periods beginning after December 15, 2020.

Deferred Exploration and Development Costs

Under IFAS, an entity is permitted to develop an accounting policy for recognition of exploration and evaluation expenditures. As such, an entity may defer exploration and evaluation costs incurred in an area of interest associated with a potential mineral deposit and valid mining right and, when either: (a) exploration costs are expected to be recovered through exploitation or sale of proved reserves; or (b) activities have not yet reached a stage permitting reasonable assessments of the existence or otherwise of economically recoverable reserves. The reporting entity also needs to demonstrate that active and significant exploration of the area of interest is continuing to substantiate deferral. Expenditures related to the development of ore body shall not be recognized as exploration and evaluation assets.

Under U.S. GAAP, costs incurred before mineralization are expensed. The standard prohibits capitalization of exploration and evaluation costs until a feasibility study is completed and permits are in place. Costs are capitalized when it has been determined that an ore body can be economically developed, which requires the completion of a feasibility study. The time between initial acquisition and full evaluation of property's potential is variable and is determined by several factors, including the location relative to existing infrastructure, the property's stage of development, geological controls and ore prices. If an ore body is determined to be economically mineable, acquisition and development costs are amortized when production begin using the unit-of-production method based on proved and probable reserves.

Amortization of Mining Properties and Property, Plant and Equipment

Under IFAS, amortization of mining properties (which include exploration and development costs) are calculated based on the units-of-production method. Under certain circumstances, the amortization is calculated based on the estimated useful economic life of the area of interest if it is considered to result in more accurate financial information. Other amortization methods can be used as long as it reflects the pattern in which the asset's future economic benefits are expected to be consumed by the entity. The basis for calculating amortization should be applied consistently. If the unit-of-production method is used, the amortization rate each year should be based on the reasonable reserves which could be produced until the end of the exploration period of that area of interest. If the amortization is based on the passage of time, then the estimated economic useful life should not be longer than the exploitation period or the term of mining license. Amortization method are revised whenever there is a change in the pattern in which the asset's future economic benefits are expected to be consumed by the entity. The revisions are accounted for prospectively as changes in estimates.

Under IFAS, property, plant and equipment are depreciated using a method which reflect the pattern in which the asset's future economic benefits are expected to be consumed by the entity. Generally, an entity in the mining industry will depreciate its property, plant and equipment to their residual value using the straight-line method over the estimated useful liver, life of mine or the term of the relevant minerals cooperation agreement, whichever is shorter.

Under U.S. GAAP, amortization of mining properties, property, plant and equipment is computed using the units-of-production method over the estimated proved and probable reserves or the economic useful life of the equipment if shorter. In certain limited circumstances, the straight-line method may be used if the impact is substantially similar to the units-of-production method. Units-of-production depreciation rates are revised whenever there is an indication of the need for revision. The revisions are accounted for prospectively as changes in estimates.

Asset Retirement Obligations

Under IFAS, management's best estimate of the costs of dismantling and removing item or restoring the site on which it is located is required to be recorded when an obligation exists. The estimate is to be based on a present obligation (legal or constructive) that arises as a result of acquisition, construction or development of a long-lived asset. If it is not clear whether a present obligation exists, the entity may evaluate the evidence under a more-likely-than-not threshold. This threshold is evaluated in relation to the likelihood of settling the obligation. The measurement of the liability is based on the present of the expenditure expected to be required to settle the obligation. The anticipated cash flows are discounted using a pre-tax discount rate (or rates) that reflect(s) current market assessments of the time value of money and the risks specific to the liability (for which the cash flow estimates have not been adjusted) if the effect is material. The estimated liability shall be reviewed at the end of each reporting period and adjusted to reflect the current best estimates. Changes in the measurement of an existing decommissioning, restoration, or similar liability that result from changes in the estimated timing or amount of the cash outflows or other resources, or a change in the discount rate, adjust the carrying value of the related asset under the cost model. Adjustments may result in an increase of the carrying amount of an asset beyond its recoverable amount. An impairment loss would result in such circumstances. Adjustments may not reduce the carrying amount of an asset to a negative value. Once the carrying value reaches zero, further reductions are recorded in profit and loss. The periodic unwinding of the discount is recognized in profit or loss as a finance cost as it occurs.

Under U.S. GAAP, asset retirement obligations ("ARO") are recorded at fair value and are based upon the legal obligation that arises as a result of an acquisition, construction, or development of a long-lived asset. The use of a credit-adjusted, risk-free rate is required for the discounting purposes when an expected present-value technique is used for estimating the fair value of the liability. The guidance also required an entity to measure changes in the liability for an ARO due to passage of time by applying an interest method of allocation to the amount of the liability at the beginning of the period. The interest rate used for measuring that change would be the credit-adjusted, risk-free rate that existed when the liability, or portion thereof, was initially measure. In

addition, changes to the undiscounted cash flows are recognized as an increase or decrease in both the liability for an ARO and the related asset retirement cost. Upward revisions are discounted by using the current credit-adjusted, risk-free rate. Downward revisions are discounted by using the credit-adjusted, risk-free rate that existed when the original liability was recognized. If an entity cannot identify the prior period to which the downward revision related, it may use a weighted average, credit-adjusted, risk-free rate to discount the downward revision to estimated future cash flows.

Stripping Costs Incurred During the Production Phase

Under IFAS, stripping activity conducted during the production phase may provide two benefits that accrue to an entity: (i) coal or other ore minerals that is processed into inventory in the current year; and (ii) improved access to the coal or other ore minerals body in future periods. To the extent that the benefit from the stripping activity is realized in the form of inventory produced, an entity should account for the costs of this stripping activity as variable production costs and should be included in the costs of the inventory produced during the period that the stripping costs are incurred. To the extent the benefit is improved access to the coal or other ore minerals body, an entity should recognize these costs as a stripping activity asset provided that all of the following criteria are met: (a) it is probable that the future economic benefit (improved access to the coal or other ore minerals body) associated with the stripping activity will flow to that entity; (b) the entity can identify the component of the coal body for which access has been improved; and (c) the costs relating to the stripping activity associated with that component can be measured reliably. When the costs of the stripping activity asset and the inventory produced are not separately identifiable, an entity allocates the production stripping costs between the inventory produced and the stripping activity asset using an allocation basis that is based on a relevant production measure.

Under U.S. GAAP, stripping costs incurred during the production phase of a mine are variable production costs that should be included in the costs of the inventory produced (i.e. extracted) during the period that the stripping costs are incurred.

LEGAL MATTERS

Certain legal matters with respect to the Notes will be passed upon for us by Sidley Austin LLP as to matters of New York law and U.S. federal securities law and by Assegaf Hamzah & Partners as to matters of Indonesian law. Certain legal matters with respect to the Notes will be passed upon for the Initial Purchasers by Linklaters Singapore Pte. Ltd. as to matters of New York law and U.S. federal securities law and by Widyawan & Partners as to matters of Indonesian law.

INDEPENDENT ACCOUNTANTS

Our consolidated financial statements as of December 31, 2019, 2018 and 2017 and for each of the three years in the period ended December 31, 2019, included in this Offering Memorandum, have been audited by Kantor Akuntan Publik Tanudiredja, Wibisana, Rintis & Rekan (a member of the PricewaterhouseCoopers network of firms), independent accountants, as stated in their report appearing herein.

PTFI's audited consolidated financial statements as of and for the years ended December 31, 2019, 2018 and 2017, included in this Offering Memorandum, have been audited by Kantor Akuntan Publik Purwantono, Sungkoro & Surja (a member firm of Ernst & Young Global Limited), independent accountants, as stated in their report appearing herein.

MINING AND ALUMINUM SMELTING INDUSTRY CONSULTANT

The information contained in the section “Industry Overview” in this Offering Memorandum, including all statistics and data therein, was prepared by CRU, independent mining and aluminum smelting industry consultants and experts in the mining and aluminum smelting industry. CRU has given and not withdrawn their written consent to the issue of this Offering Memorandum with the inclusion herein of their name and all references thereto and to the inclusion of the “Industry Overview” section in this Offering Memorandum, in the form and context in which it appears, and to act in such capacity in relation thereto. The “Industry Overview” section does not include all of the information that may be important for an investment decision.

The data relied on for forecasts by CRU in the “Industry Overview” section were obtained in January and February 2020. Since then, the COVID-19 pandemic outside China has escalated rapidly. CRU forecasts that this will exert a significant downward impact on global economic activity and demand for commodities in 2020 and that there will be significant supply-side disruptions, the net-effect of which will vary by commodity and geography.

RATINGS

The Notes are expected to be rated “Baa2” by Moody’s and “BBB-” by Fitch. The credit ratings accorded the Notes are not a recommendation to purchase, hold or sell the Notes inasmuch as such ratings do not comment as to market price or suitability for a particular investor. There can be no assurance that the ratings will remain in effect for any given period or that the ratings will not be revised by the rating agencies in the future if, in their judgment, circumstances so warrant. See “Risk Factors — Risks Relating to the Notes — The ratings assigned to the Notes may be lowered or withdrawn entirely in the future.”

GLOSSARY

AFT	Ash fusion temperature, an indicator of the melting properties of a coal ash and its reactivity to high boiler temperatures.
Air-dried basis	Inclusion of inherent moisture only.
Alloy	A mixture composed of two or more metals.
Alluvium	Unconsolidated mud, silt, sand or pebbles deposited by a stream or river that may contain valuable minerals.
Alluvium extrusion	Extrusion is the process of shaping aluminum by forcing it to flow through a specifically shaped opening in a die. The extruded aluminum comes out as an elongated piece with the same profile as the die opening.
Aluminum fluoride	Aluminum fluoride is an inorganic compound used primarily in the production of aluminum. This colorless solid can be prepared synthetically but also occurs in nature as minerals rosenbergite and oskarssonite.
Aluminum foundry alloys	Aluminum foundry alloys are used for aluminum castings. Metals are cast into shapes by melting them into a liquid, pouring the aluminum in a mold, and removing the mold material or casting after the aluminum has solidified as it cools.
Anodes	An anode is an electrode through which the conventional current enters into a polarized electrical device. This contrasts with a cathode, an electrode through which conventional current leaves an electrical device.
Anthracite	A hard, brittle and black lustrous coal, often referred to as hard coal, containing a high percentage of fixed carbon and a low percentage of volatile matter. It is the highest rank of coal.
Ash	Impurities consisting of iron, alumina and other incombustible matter that are contained in coal. Since ash increases the weight of coal, it adds to the cost of handling and can affect the burning characteristics of coal.
As-received basis	Analytical data calculated to the condition of the sample as it arrived at the laboratory, before processing or conditioning.
Au	Chemical symbol for gold.
Bank cubic meter	A measure of the volume of overburden waste material.
Barge	A long and large, usually flat-bottomed, boat that is towed by tugboats.
Bayer process	The principal process through which alumina is extracted from bauxite ore.
Benching system	In mining, a bench is a narrow, strip of land cut into the side of an open-pit mine. These step-like zones are created along the walls of an open-pit mine for access and mining.
Beneficiation	Beneficiation is any process that improves the economic value of the ore by removing the commercially valueless minerals, which results in a higher grade product and a waste stream.

Bituminous coal	A dense coal, usually black, sometimes dark brown, often with well-defined bands of bright and dull material, used primarily as fuel in steam-electric power generation, with substantial quantities also used for heat and power applications in manufacturing and to make coke. Its moisture content usually is less than 20.0% The heat content of bituminous coal ranges from 21 to 30 million Btu per tonne on a moist, mineral-matter-free basis.
Btu	British thermal unit.
Blast furnace	The receptacle for iron ore, coke and other raw materials used in the processing of iron ore into pig iron. Pig iron is subsequently processed into steel.
Blasting	The process of causing explosions in the mine.
Bucket-wheel dredger	A bucket-wheel dredger has a rotating mechanical device, an excavator, perpendicular to the ship's axis, mounted in front of the suction head.
CAGR	Compound annual growth rate.
Capesize vessels	Large-sized bulk carriers and tankers typically with capacities of above 150,000 DWT.
Calorific value or CV	A coal sample's energy content measured as the heat released on complete combustion in air or oxygen, usually expressed as the amount of heat (measured in kilo calories) per unit weight of coal (measured in kilograms) or (kcal/kg).
CIF	Cost, insurance and freight, an agreed term of sale where a seller covers the costs, insurance and freight against the possibility of loss or damage to a buyer's order while it is in transit to an export port.
Carbon-in-leach process	A gold extraction process called cyanidation where carbon is added to the leach tanks (or reaction vessel) so that leaching and absorption take place in the same tanks.
Coal seam	Coal deposits occur in layers in a bed of coal lying between a roof and floor with each layer called a "seam."
Coal tar pitch	Coal tar is a thick dark liquid which is a by-product of the production of coke and coal gas from coal. It has both medical and industrial uses.
Coke	Coke is a fuel with a high carbon content and few impurities, made by heating coal in the absence of air. It is the solid carbonaceous material derived from destructive distillation of low-ash, low-sulfur bituminous coal.
Competent Person	A minerals industry professional responsible for the preparation and/or signing off of reports on exploration results and mineral reserves and resources estimates and who is accountable for the prepared reports.
Concentrate	A powdery product containing higher concentrations of minerals resulting from ore grinding, magnetic separation, flotation or other processing techniques, which as a semi-finished product would need to be further processed, such as by smelting, to effect recovery of metal.

Crusher	A machine for crushing rocks to smaller grain size.
Cu	Chemical symbol for copper.
Cut and fill method	In earthmoving, cut and fill is the process of constructing a railway, road or canal whereby the amount of material from cuts roughly matches the amount of fill needed to make nearby embankments, so minimizing the amount of construction labor.
Cutter suction dredger	A cutter suction dredger is equipped with a rotating cutter head, for cutting and fragmenting hard soils.
Cyanide process	Gold cyanidation is a hydrometallurgical technique for extracting gold from low-grade ore by converting the gold to a water-soluble coordination complex. It is the most commonly used leaching process for gold extraction.
Deposit	A body of mineralization containing a sufficient average grade of tin to warrant further exploration and/or development expenditure.
De-sulfurization process	Desulfurization is a chemical process for the removal of sulfur from a material. This involves either the removal of sulfur from a molecule or the removal of sulfur compounds from a mixture such as oil refinery streams.
dmt	Dry metric tonne, a unit of measurement with the same mass value as a metric tonne, but the material has been dried to decrease the moisture level.
Dozer ripping	The ripper is the long claw-like device on the back of the bulldozer. Rippers can come as a single (single shank/giant ripper) or in groups of two or more (multi shank rippers).
Drilling	A technique or process of making a circular hole in the ground with a drilling machine, which typically occurs to obtain a cylindrical cone as a sample of ore. Alternatively, blasthole drilling is a technique used to create a hole to house an explosive charge in preparation for blasting a zone of rock.
DWT	Deadweight tonnage, a measure of how much weight a ship can carry, excluding the ship's own weight.
Electrolytic reduction	The electrolytic reduction is a type of electrolysis. The oxides, hydroxide and chlorides of metals in fused state are electrically reduced by using this method.
Electro-refining	Electro-refining refers to the process of using electrolysis to increase the purity of a metal extracted from its ore (compound or mixture of compounds from which a metal can be extracted commercially). The anode, positive electrode, is the impure metal to be purified.
Electro-winning	Electro-winning, also called electroextraction, is the electrodeposition of metals from their ores that have been put in solution via a process commonly referred to as leaching. Electro-refining uses a similar process to remove impurities from a metal.
FOB	Free On Board, an agreed term of coal sale where the coal is delivered by the seller to the point of shipment, which include barge (i.e. FOB barge) or mother vessel (i.e. FOB mother vessel). The buyer

	arranges and pays for the transportation (and insurance thereof) of the coal. The responsibility of the seller ceases when the coal is delivered to the agreed point of shipment.
Gibbsite	Gibbsite is an aluminum hydroxide mineral made from bauxite or high-alumina materials for use in the production of aluminum metal and alumina chemicals.
Goethite	Goethite is an iron-bearing hydroxide mineral of the diasporite group. It is found in soil and other low-temperature environments. Goethite has been well known since ancient times for its use as a pigment (brown ochre).
Gold bullion	Refined gold in the form of bars.
Gold concentrate	Concentrate of gold.
Grade	The relative amount of valuable elements or minerals contained in a parcel of ore material.
Grinding mills	A mill is a device that breaks solid materials into smaller pieces by grinding, crushing, or cutting.
Gross-as-received or GAR	A calculation of calorific value of a coal with moisture as received or total moisture (“TM”). The calculation is based on the conversion from the air-dried-basis value. The calculation pursuant to said conversion is dependent on the specific moisture content of the coal.
GW	Gigawatt, a unit of power equal to one billion watts.
GWh	Gigawatt hour, a unit of energy representing one billion watt hours and equivalent to one million kilowatt hours. Gigawatt hour units are often used as a measure of the output of large electricity power stations.
Harga Batubara Acuan or HBA	A monthly reference price published by the Indonesian government, and is used to determine the minimum price of coal sales. The headline HBA for Newcastle benchmark quality coal is calculated based on the monthly average of a basket of spot price indices. Minimum prices for Indonesian export brands are then calculated by applying various quality-based adjustments, with the adjustment formulae used published along with the monthly prices.
HGI	Hardgrove Grindability Index, a measure for the grindability of coal.
Hopper	A hopper car or hopper wagon is a type of railroad freight car used to transport loose bulk commodities such as coal, ore, grain, and track ballast.
Hydraulic	Hydraulic excavators are heavy construction equipment consisting of a boom, dipper (or stick), bucket and cab on a rotating platform known as the “house.” The house sits atop an undercarriage with tracks or wheels. They are a natural progression from the steam shovels and often mistakenly called power shovels.
Inherent moisture	The moisture that is stored within the pores of individual particles and can only be removed using thermal methods.
ISO	International Organization for Standardization.

IUP	<i>Izin Usaha Pertambangan</i> , a mining permit issued by the Government that is required to carry out mining activities.
JORC	The Australasian Joint Ore Reserves Committee, which is sponsored by the Australian mining industry and its professional organization.
JORC Code	The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves published by the JORC, Australian Institute of Geoscientists and Minerals Council of Australia in 2004, which contains the minimum standards, recommendations and guidelines for the reporting of exploration results, mineral resources and ore reserves.
Jumbo drill	A jumbo drill is a rock drilling machine. Jumbo drills are usually used in underground mining, if mining is done by drilling and blasting. They are also used in tunneling, if rock hardness prevents use of tunneling machines.
Kcal/kg	Kilocalorie per kilogram.
Kg	Kilogram.
Kilo tonne	A unit of weight, equal to 1000 tonnes.
Km	Kilometer.
Koz	Kilo ounce or 1000 ounces.
Koz t	Kilo troy ounce or 1000 troy ounces.
Ktpa	Kilo tonnes per annum.
kV	Kilovolt.
kVA	Kilovolt-ampere.
kWp	Kilowattpeak.
kWh	Kilowatt-hour
Lb	Symbol for pound, a unit of mass equal to 0.45359237 kilograms.
LBMA	The London Bullion Market Association.
Lignite	The lowest rank of coal, often referred to as brown coal, used almost exclusively as fuel for steam-electric power generation. It is brownish-black and has a high inherent moisture content, sometimes as high as 45.0% percent.
Limonite	Limonite type laterites are highly enriched in iron due to very strong leaching of magnesium and silica. They consist largely of goethite and contain 1.0% to 2.0% nickel incorporated in goethite.
Liter	A metric unit of capacity equal to 1,000 cubic centimeters.
Load haul dump	Load haul dump loaders are similar to conventional front end loaders but developed for the toughest of hard rock mining applications, with overall production economy, safety and reliability in mind.
Mineable	Portion of a mineralized deposit for which extraction is technically and economically feasible.
Moisture content	The amount of moisture in coal, expressed as a percentage of the weight of the coal. The moisture content of coal varies by the type of

coal, the region where it is mined and the location of coal within a seam. In general, high moisture content decreases the calorific value and energy content and increases the weight of the coal. Two types of moisture can be found in coal, including (a) free or surface moisture, which can be removed by exposure to air, and (b) inherent moisture, which is trapped in the coal and can be removed by heating the coal.

Mother vessel	A seagoing ship that serves only major ports. The term is usually used in contrast to a “feeder vessel,” which is smaller in size and serves both smaller and major ports.
Mtpa	Metric ton per annum.
MW	Megawatt
MWh	Megawatt-hour
Open-cut mining	A form of mining designed to extract minerals that lie near the surface. Overburden is removed to expose the minerals for mining. Rock covering the minerals may be blasted and removed by large draglines or electric shovels and trucks.
Open-pit mining	A mining method which involves removing the overlying strata or overburden and extracting the coal.
Ore	Mineral bearing rock which can be mined and treated profitably under current or immediately foreseeable economic conditions.
Ore reserve	The economically mineable part of a measured and/or indicated mineral resource, including diluting materials and allowances for losses which may occur when the material is mined.
Overburden	Any material, consolidated or unconsolidated, such as layers of earth and rock, that overlies a coal seam. In surface mining operations, overburden is removed prior to coal extraction.
Oz	Ounce or ounces, a unit of mass, weight, or volume equal to approximately 28 grams.
Oz t	Troy ounce or troy ounces, a unit of mass, weight, or volume equal to approximately 31 grams or approximately 1.1 oz.
Primary aluminum	Primary aluminum refers to aluminum produced directly from mined ore. The ore is refined and electrolytically reduced to elemental aluminum.
Processing	The process which in general refers to the extraction of usable portions of ore by using physical and chemical methods.
PWh	Petawatt hour, a unit of energy representing one trillion watt hours. Petawatt hour units are large enough to conveniently express the annual electricity generation for whole countries and the world energy consumption.
Reclamation	The process of restoring the environment to a stable state following mining activities by restoring topsoil and planting vegetation. The process commonly includes “recontouring” or “reshaping” the land to its approximate original appearance, restoring topsoil and planting native grass and ground covers. Reclamation operations are usually

	underway before the mining of a particular site is completed. Reclamation is regulated by applicable local law.
ROM coal	Run-of-mine coal is coal delivered directly from the mine mouth to the coal preparation or handling facility.
Rotary dryer	The rotary dryer is a type of industrial dryer employed to reduce or minimize the liquid moisture content of the material it is handling by bringing it into direct contact with a heated gas.
Rotary kiln	A rotary kiln is a pyroprocessing device used to raise materials to a high temperature (calcination) in a continuous process.
Saprolite	Saprolite nickel ore is formed beneath the limonite zone. It contains generally 1.5% to 2.5% nickel.
Serpentine	The serpentine subgroup are greenish, brownish, or spotted minerals commonly found in serpentinite rocks. They are used as a source of magnesium and asbestos, and as a decorative stone.
Slag	By-product of smelting, consisting of a mixture of metal oxides and silicon dioxide.
Sluice box	A sluice box is a long, narrow box that traps gold as running water passes through. Many gold sluices quickly and easily convert to highbankers and dredges.
Smelting	A pyro-metallurgical process of separating metal by fusion from those impurities with which it is chemically combined or physically mixed in ores.
Stacker/reclaimer	A type of heavy equipment that receives coal from a charge conveyor or discharges coal from a yard to a discharging conveyor. It is operated by remote control with a computer.
Stockpile	A stockpile is a pile or storage location for bulk materials, forming part of the bulk material handling process.
Strip or strip ratio	The strip ratio is the number of bank cubic meters of overburden needing removal to access one tonne of coal. A strip ratio of 4:1 means that four bank cubic meters of overburden must be stripped to produce one metric tonne of coal. Strip ratios vary based primarily on geological characteristics of the “in situ” coal and the depth at which deposits lie.
Sub-bituminous coal	A coal whose properties range from those of lignite to those of bituminous coal and used primarily as fuel for steam-electric power generation. It may be dull, dark brown to black, soft and crumbly, at the lower end of the range, to bright, jetblack, hard, and relatively strong, at the upper end. Sub-bituminous coal contains 20.0% to 30.0% inherent moisture by weight.
Sulfur	One of the elements present, in varying quantities, in coal that contributes to environmental degradation when coal is burned. Sulfur dioxide is produced as a gaseous by-product of coal combustion.
Sulfur content	Coal is commonly described by its sulfur content due to the importance of sulfur to customers concerned about compliance with environmental regulations. “Low sulfur” coal has a variety of

definitions, but typically is used to describe coal consisting of 1.0% or less sulfur.

Surface mine	A mine in which the ore lies near the surface and can be extracted by removing the overburden.
Thermal coal	Coal used in thermal plants to generate electricity.
TNi	Tonnes of nickel contained in ferronickel.
Tonne	Tonne or metric ton is a metric unit of mass equal to 1,000 kilograms or approximately 2,204.6 pounds.
Total moisture	The entire amount of water stored within a porous medium.
TWh	Terrawatt-hour
Underground mining	The extraction of coal or its products from rock strata by underground mining methods such as room-and-pillar mining, shortwall (continuous mines) mining and longwall mining.
Vein	Sheet-like body of minerals formed by fracture filling or replacement of host rock.
Vibro-compactor	Vibratory compactors are frequently used machines to compact materials such as soil in order to increase its density for construction and are utilized for in landfill tasks.
Volatile matter	Those substances, other than water, that are given off as gas or vapor when coal is heated under certain prescribed conditions to produce coking coal.
Volt	The basic unit of electrical potential, potential difference and electromotive force in the meter–kilogram–second system. It is equal to the difference in potential between two points in a conductor carrying one ampere current when the power dissipated between the points is one watt.
Volt-ampere	The basic unit of apparent electrical power. It is equal to the product of voltage and current.
wmt	Wet metric tonne, a unit of measurement with the same mass value as a metric tonne, for materials with slurry or liquid components.

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**PT INDONESIA ASAHAN ALUMINIUM (PERSERO)
AND SUBSIDIARIES**

CONSOLIDATED FINANCIAL STATEMENTS

31 DECEMBER 2019, 2018 AND 2017

DIRECTORS' STATEMENT REGARDING

THE RESPONSIBILITY FOR CONSOLIDATED FINANCIAL STATEMENTS AS AT 31 DECEMBER 2019, 2018 AND 2017 AND FOR THE YEAR ENDED 31 DECEMBER 2019, 2018 AND 2017

PT INDONESIA ASAHAN ALUMINIUM (PERSERO) AND SUBSIDIARIES

On behalf of the Board of Directors, we, the undersigned:

1. Name : Orias Petrus Moedak
Office address : Kuala Tanjung, Kecamatan Sei Suka, 21257, Kabupaten Batu Bara, Sumatera Utara
Position : President Director
2. Name : Ogi Prastomiyono
Office address : Kuala Tanjung, Kecamatan Sei Suka, 21257, Kabupaten Batu Bara, Sumatera Utara
Position : Director

declare that:

1. We are responsible for the preparation and presentation of the consolidated financial statements of PT Indonesia Asahan Aluminium (Persero) and subsidiaries (the "Group").
2. The Group's consolidated financial statements have been prepared and presented in accordance with Indonesian Financial Accounting Standards.
3. a. All information has been fully and correctly disclosed in the Group's consolidated financial statements.
b. The Group's consolidated financial statements do not contain false material information or facts, nor do they omit material information or facts, and
4. We are responsible for the Group's internal control systems.

This statement is confirmed to the best of our knowledge and belief.

Kuala Tanjung,
17 April 2020

For and on behalf of the Board of Directors



Orias Petrus Moedak
President Director



Ogi Prastomiyono
Director



**INDEPENDENT AUDITORS' REPORT
TO THE SHAREHOLDERS OF**

PT INDONESIA ASAHAN ALUMINIUM (PERSERO)

We have audited the accompanying consolidated financial statements of PT Indonesia Asahan Aluminium (Persero) and its subsidiaries (together the "Group"), which comprise the consolidated statements of financial position as at 31 December 2019, 2018 and 2017, and the consolidated statements of profit or loss and other comprehensive income, statements of changes in equity and statements of cash flows for the years then ended, and a summary of significant accounting policies and other explanatory information.

Management's responsibility for the consolidated financial statements

Management is responsible for the preparation and fair presentation of these consolidated financial statements in accordance with Indonesian Financial Accounting Standards, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We conducted our audits in accordance with Standards on Auditing established by the Indonesian Institute of Certified Public Accountants. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditors consider internal control relevant to the entity's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial positions of PT Indonesia Asahan Aluminium (Persero) and its subsidiaries as at 31 December 2019, 2018 and 2017, and their consolidated financial performances and cash flows for the years then ended, in accordance with Indonesian Financial Accounting Standards.

Emphasis of matter

We draw attention to Note 48d in the consolidated financial statements in which management has described the uncertainties related to the possible impact of the COVID-19 pandemic on the Group's business and financials. Our opinion is not modified in respect of this matter.

Kantor Akuntan Publik Tanudiredja, Wibisana, Rintis & Rekan

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Nomor Izin Usaha: KEP-241/KM.1/2015.

00636/2.1025/AU.1/04/0222-1/1/IV/2020



Other matter

Prior to the issuance of this audit report, we have issued independent auditors' reports No. 00616/2.1025/AU.1/04/0222-1/1/IV/2020 dated 16 April 2020, No. 00423/2.1025/AU.1/04/0243-2/1/III/2019 dated 29 March 2019 and No. A180326012/DC2/YSR/2018 dated 26 March 2018 on the consolidated financial statements of PT Indonesia Asahan Aluminium (Persero) and its subsidiaries as at and for the years ended 31 December 2019, 2018 and 2017, respectively, which expressed unmodified opinions. This report has been prepared solely for inclusion in the offering document in connection with the proposed offering of debt securities of PT Indonesia Asahan Aluminium (Persero). Therefore it is not intended to be, and should not be, used for any other purpose.

JAKARTA
17 April 2020

A handwritten signature in blue ink, appearing to read "M. Jusuf Wibisona".

Drs. M. Jusuf Wibisona, M.Ec., CPA
License of Public Accountant No. AP.0222

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION**31 DECEMBER 2019, 2018 AND 2017**

(Expressed in millions of Rupiah)

	<u>Notes</u>	<u>31 December 2019</u>	<u>31 December 2018 *)</u>	<u>31 December 2017 *)</u>
ASSETS				
CURRENT ASSETS				
Cash and cash equivalents	6	14,581,691	20,268,540	16,143,068
Time deposits	7	6,378,590	3,153,326	2,207,042
Trade receivables	8	6,085,688	6,628,431	8,290,890
Other receivables				
- Third parties	43d	660,754	300,883	654,944
- Related parties	39a	23,953	18,381	15,674
Inventories	9	11,800,289	9,984,083	6,465,257
Prepaid taxes				
- Corporate income taxes	18a	461,036	361,295	159,728
- Other taxes	18a	2,581,967	1,685,848	1,033,828
Available-for-sale financial assets	10	181,213	325,227	430,192
Other current assets	11	<u>910,542</u>	<u>1,050,285</u>	<u>1,298,103</u>
Total current assets		<u>43,665,723</u>	<u>43,776,299</u>	<u>36,698,726</u>
NON-CURRENT ASSETS				
Time deposits	7	-	-	200,000
Trade receivables	8	240,865	-	-
Other receivables				
- Third parties	43d	-	458,119	400,383
- Related parties	39a	90,375	75,300	1,557,911
Inventories	9	786,849	634,253	479,439
Available-for-sale financial assets	10	-	-	7,255,450
Investment in PT Freeport Indonesia	12	64,716,799	65,596,356	-
Investment in associates	13a	817,986	1,385,082	1,998,986
Investment in joint ventures	13b	2,914,403	2,449,867	2,159,060
Exploration and evaluation assets	14	658,741	706,756	707,712
Investment properties	15	1,499,019	1,121,267	912,679
Fixed assets	16	39,673,299	38,932,316	31,338,322
Mining properties	17	3,040,428	2,631,843	2,195,838
Prepaid taxes				
- Corporate income taxes	18a	1,453,181	661,187	440,712
- Other taxes	18a	1,262,490	1,287,529	946,686
Deferred tax assets	18d	1,971,127	2,374,514	2,646,069
Other tax receivables	19	793,365	536,058	536,058
Other non-current assets	11	<u>1,258,382</u>	<u>1,932,047</u>	<u>1,536,368</u>
Total non-current assets		<u>121,177,309</u>	<u>120,782,494</u>	<u>55,311,673</u>
TOTAL ASSETS		<u>164,843,032</u>	<u>164,558,793</u>	<u>92,010,399</u>

*) As restated (refer to Note 49)

The accompanying notes to the consolidated financial statements form an integral part of these consolidated financial statements.

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

31 DECEMBER 2019, 2018 AND 2017

(Expressed in millions of Rupiah)

	Notes	31 December 2019	31 December 2018 *)	31 December 2017 *)
LIABILITIES				
CURRENT LIABILITIES				
Trade payables	20	4,165,025	3,949,986	2,525,160
Accruals	21	3,596,257	4,539,066	2,715,055
Short-term employee benefit liabilities	22	1,600,191	2,059,509	1,263,880
Short-term bank borrowings	23	10,198,934	6,149,624	5,115,674
Taxes payable				
- Corporate income taxes	18b	138,238	219,439	719,833
- Other taxes	18b	483,056	838,087	329,530
Current maturities of non-current liabilities				
- Bank borrowings	24	1,806,559	1,153,506	576,984
- Finance lease liabilities	25	170,611	286,563	141,874
- Bonds payable	26	600,000	-	899,594
- Provision for environmental reclamation and mine closure	27	197,161	185,963	313,299
Other current liabilities	29	1,188,378	1,216,146	524,909
Total current liabilities		<u>24,144,410</u>	<u>20,597,889</u>	<u>15,125,792</u>
NON-CURRENT LIABILITIES				
Non-current liabilities, net of current maturities				
- Bank borrowings	24	5,308,292	5,483,229	3,236,282
- Finance lease liabilities	25	299,893	226,860	496,612
- Bonds payable	26	58,289,091	59,807,717	3,597,247
- Provision for environmental reclamation and mine closure	27	1,593,032	1,069,025	576,079
Post-employment benefit obligations	28	3,350,754	3,083,376	4,154,350
Deferred tax liabilities	18d	59,866	46,400	47,331
Other non-current liabilities	29	6,916	18,180	3,762
Total non-current liabilities		<u>68,907,844</u>	<u>69,734,787</u>	<u>12,111,663</u>
TOTAL LIABILITIES		<u>93,052,254</u>	<u>90,332,676</u>	<u>27,237,455</u>
EQUITY				
Share capital	30	54,177,941	54,177,941	54,177,941
Equity of merging entities		-	-	-
Additional paid-in capital	4	(19,001,920)	(19,001,920)	(19,001,920)
Retained earnings				
- Appropriated		7,797,659	601,440	601,440
- Unappropriated		1,592,774	11,294,581	3,930,851
Other comprehensive income/(loss)		40,225	(6,154)	-
Currency differences from translation of the Group's entity financial statements		<u>13,969,899</u>	<u>13,660,146</u>	<u>12,767,071</u>
Total equity attributable to owner of the parent entity		<u>58,576,578</u>	<u>60,726,034</u>	<u>52,475,383</u>
Non-controlling interests	46	<u>13,214,200</u>	<u>13,500,083</u>	<u>12,297,561</u>
TOTAL EQUITY		<u>71,790,778</u>	<u>74,226,117</u>	<u>64,772,944</u>
TOTAL LIABILITIES AND EQUITY		<u>164,843,032</u>	<u>164,558,793</u>	<u>92,010,399</u>

*) As restated (refer to Note 49)

The accompanying notes to the consolidated financial statements form an integral part of these consolidated financial statements.

**CONSOLIDATED STATEMENTS OF PROFIT OR LOSS
AND OTHER COMPREHENSIVE INCOME
FOR THE YEARS ENDED 31 DECEMBER 2019, 2018 AND 2017**
(Expressed in millions of Rupiah)

	Notes	31 December 2019	31 December 2018 *)	31 December 2017 *)
Revenue	31	80,628,662	65,277,429	47,184,283
Cost of revenue	32	<u>(66,130,864)</u>	<u>(48,807,119)</u>	<u>(32,960,882)</u>
Gross profit		<u>14,497,798</u>	<u>16,470,310</u>	<u>14,223,401</u>
General and administrative expenses	33	(6,187,725)	(5,142,859)	(3,585,237)
Selling and marketing expenses	34	<u>(2,538,323)</u>	<u>(2,370,153)</u>	<u>(1,497,189)</u>
Operating profit		<u>5,771,750</u>	<u>8,957,298</u>	<u>9,140,975</u>
Finance income	35	870,163	1,010,526	629,860
Finance costs	36	<u>(5,300,340)</u>	<u>(2,120,651)</u>	<u>(999,112)</u>
Share in net (loss)/profit from PT Freeport Indonesia ("PTFI")	12	(576,228)	184,086	-
Share in net loss from associates	13a	<u>(87,167)</u>	<u>(320,060)</u>	<u>(133,906)</u>
Share in net profit/(loss) from joint ventures	13b	179,455	(573,633)	(987,155)
Other income, net	37	<u>1,410,756</u>	<u>6,754,313</u>	<u>597,143</u>
Profit before income tax		<u>2,268,389</u>	<u>13,891,879</u>	<u>8,247,805</u>
Income tax expenses	18c	<u>(2,241,341)</u>	<u>(3,021,803)</u>	<u>(2,474,385)</u>
Profit for the year from continuing operations		<u>27,048</u>	<u>10,870,076</u>	<u>5,773,420</u>
Loss from discontinued operations		<u>(2,508)</u>	<u>(43,464)</u>	<u>(6,497)</u>
Profit for the year		<u>24,540</u>	<u>10,826,612</u>	<u>5,766,923</u>

*) As restated (refer to Note 49)

The accompanying notes to the consolidated financial statements form an integral part of these consolidated financial statements.

**CONSOLIDATED STATEMENTS OF PROFIT OR LOSS
AND OTHER COMPREHENSIVE INCOME
FOR THE YEARS ENDED 31 DECEMBER 2019, 2018 AND 2017**
(Expressed in millions of Rupiah)

	<u>Notes</u>	<u>31 December 2019</u>	<u>31 December 2018 *)</u>	<u>31 December 2017 *)</u>
Profit for the year		24,540	10,826,612	5,766,923
Other comprehensive (loss)/income				
Items that will not be reclassified to profit or loss:				
Remeasurement of post-employment benefit obligations	28	(320,721)	885,445	(1,005,305)
Related income tax benefits/(expenses)		58,116	(203,095)	247,525
Other comprehensive income		52,765	-	-
Items that will be reclassified to profit or loss:				
Currency differences from translation of the Group's entity financial statements		260,982	953,608	344,219
Changes in fair value of available-for-sale financial assets	10	18,326	(9,465)	(3,620)
Share of other comprehensive (loss)/ income from PTFI, associates and joint ventures	12, 13a, 13b	(81,403)	172,486	(16,286)
Other comprehensive (loss)/ income for the year, net of tax		(11,935)	1,798,979	(433,467)
Total comprehensive income for the year		12,605	12,625,591	5,333,456
(Loss)/profit for the year attributable to:				
Owner of the parent entity		(1,200,391)	8,411,335	4,270,046
Non-controlling interests		1,224,931	2,415,277	1,496,877
		24,540	10,826,612	5,766,923
Comprehensive (loss)/income for the year attributable to:				
Owner of the parent entity		(1,061,960)	10,170,401	4,066,305
Non-controlling interests		1,074,565	2,455,190	1,267,151
		12,605	12,625,591	5,333,456
Basic and diluted (loss)/earnings per share attributable to owner of the parent entity (full amount)	45	(9,195)	64,430	32,708

*) As restated (refer to Note 49)

The accompanying notes to the consolidated financial statements form an integral part
of these consolidated financial statements.

Schedule 3/1

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

*) As restated (refer to Note 49)

CONSOLIDATED STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED 31 DECEMBER 2019, 2018 AND 2017
(Expressed in millions of Rupiah)

	31 December 2019	31 December 2018 *)	31 December 2017 *)
CASH FLOWS FROM OPERATING ACTIVITIES			
Receipts from customers	80,761,009	67,239,466	43,566,878
Receipts from other taxes restitution	1,005,788	138,930	206,729
Receipts from interest income	834,280	877,063	598,604
Receipts from corporate income tax restitution	208,303	342,847	653,569
Payment to suppliers and employees	(71,574,133)	(53,575,534)	(33,904,035)
Payment of interest	(5,678,336)	(925,281)	(789,217)
Payment of corporate income tax	(2,921,226)	(3,798,883)	(2,089,059)
Payment of royalties	(2,346,030)	(1,791,304)	(1,658,713)
Payment of bonds issuance costs	-	(1,650,608)	-
Other payments, net	-	(3,397)	(739,255)
Net cash received from operating activities	289,655	6,853,299	5,845,501
CASH FLOWS FROM INVESTING ACTIVITIES			
Dividend receipt from associates	331,724	219,693	171,945
Proceeds from sale of fixed assets	185,988	-	-
Proceeds from disposal of available-for-sale financial assets	158,669	86,718	307,792
Withdrawal/(placement) of performance bonds	50,421	63,013	(153,236)
Purchase of fixed assets	(4,800,620)	(4,492,697)	(4,611,647)
Time deposits placement, net	(3,225,264)	(746,284)	(94,924)
Addition of investment in PT Freeport Indonesia	(2,337,678)	(55,751,850)	-
Disbursements for exploration and evaluation assets and others	(600,150)	(227,560)	(73,101)
Addition of investment in associates and joint ventures	(378,243)	(599,001)	(11,250)
Addition of investment properties	(98,721)	-	-
Dividend receipt from available-for-sale financial assets	-	2,569,263	427,587
Proceeds from share divestment	-	326,458	-
Cash acquired from the acquisition of subsidiary	-	284,521	-
Loan to joint ventures	-	(782,516)	(724,055)
Disbursements for other non-current assets	-	(368,850)	-
Transaction costs related to the acquisition of subsidiary	-	(309,994)	-
Other proceeds from investing activities	-	-	13,527
Net cash used in investing activities	(10,713,874)	(59,729,086)	(4,747,362)

*) As restated (refer to Note 49)

The accompanying notes to the consolidated financial statements form an integral part
of these consolidated financial statements

CONSOLIDATED STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED 31 DECEMBER 2019, 2018 AND 2017
(Expressed in millions of Rupiah)

	31 December 2019	31 December 2018 *)	31 December 2017 *)
CASH FLOWS FROM FINANCING ACTIVITIES			
Proceeds from bank borrowings	60,485,304	38,609,030	7,081,729
Receipt from sales of treasury shares	1,793,336	-	-
Receipt from issuance of bonds	1,193,000	57,924,000	1,500,000
Proceeds from finance lease	-	60,034	-
Repayments of bank borrowings	(55,636,077)	(36,242,169)	(8,465,435)
Payment of dividends	(2,447,944)	(3,172,418)	(955,184)
Repayment of finance lease	(193,531)	(180,217)	(126,342)
Receipt from other payables	-	368,850	-
Repayment of bonds payable	-	(900,000)	-
Net cash received from/(used in) financing activities	5,194,088	56,467,110	(965,232)
NET (DECREASE)/INCREASE IN CASH AND CASH EQUIVALENTS	(5,230,131)	3,591,323	132,907
Reclassified (to)/from assets of disposal group classified as held for sale	(6,288)	5,801	(4,376)
Effect of foreign exchange gain on cash and cash equivalents	(450,430)	528,348	47,754
CASH AND CASH EQUIVALENTS AT THE BEGINNING OF THE YEAR	20,268,540	16,143,068	15,966,783
CASH AND CASH EQUIVALENTS AT THE END OF THE YEAR	14,581,691	20,268,540	16,143,068

*) As restated (refer to Note 49)

The accompanying notes to the consolidated financial statements form an integral part of these consolidated financial statements

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
31 DECEMBER 2019, 2018 AND 2017**

(Expressed in millions of Rupiah, unless otherwise stated)

1. GENERAL**The Company's establishment and general information**

PT Indonesia Asahan Aluminium (the "Company") was established on 6 January 1976 as a joint venture between the Government of the Republic of Indonesia (the "Gol") and Nippon Asahan Aluminium Co., Ltd. as a follow-up to a Master Agreement between the Gol and a consortium of 12 (twelve) Japanese investing companies signed on 7 July 1975. The Company's deed of establishment No. 2 dated 6 January 1976 was notarised by Notary Juliaan Nimrod Siregar Gelar Mangaradja Namora, S.H., and was approved by the Minister of Justice in its Decision Letter No. Y.A.5/12/20 dated 10 January 1976 and was published in State Gazette No. 4 dated 13 January 1976.

The Company commenced its commercial operations in 1983.

On 19 December 2013, based on Notarial Deed of Transfer of Shares No. 86 of Notary Aryanti Artisari, S.H., M.Kn., Nippon Asahan Aluminium Co., Ltd. transferred its shares to the Gol. The amendment of the Articles of Association to reflect the change in shareholders where the Gol became the sole owner of the Company was approved by the Minister of Law and Human Rights of the Republic of Indonesia in its Decision Letter No. AHU-AH.01.10-56092 dated 24 December 2013. The Company's status was officially changed to a State-Owned Enterprise ("BUMN") in accordance with Government Regulation ("GR") No. 26 Year 2014 dated 21 April 2014 on the Determination of PT Indonesia Asahan Aluminium as a Perusahaan Perseroan (Persero). The change in the Company's status to BUMN was notarised under Notarial Deed No. 35 dated 8 May 2014 of Notary Aryanti Artisari, S.H., M.Kn. and approved by the Minister of Law and Human Rights of the Republic of Indonesia in its Decision Letter No. AHU-02942.40.20.2014 dated 9 May 2014.

The Company's Articles of Association have been amended several times. In 2017, the amendment was regarding changes in the Company's share capital as explained in Note 30 and was approved by the Minister of Law and Human Rights of the Republic of Indonesia in its Decision Letter No. AHU-0024869.AH.01.02. Year 2017 dated 27 November 2017. Hence, since November 2017, the Company became *Holding Industri Pertambangan*.

The latest amendment to the Articles of Association is regarding changes in the Company's plans and objectives and additions to its main business activities. The changes were approved by the Minister of Law and Human Rights of the Republic of Indonesia in its Decision Letter No. AHU-0028482.AH.01.02. Year 2019 dated 24 May 2019.

Based on its Articles of Association, the Company's plans and purpose involve in conducting business in integrated aluminium, mining and industrial sectors. The main business activities of the Company are conducting business in alumina production and processing, calcination plant of coke and its derivatives, aluminium smelting plant and its derivatives, developing mineral and coal mining business, conducting business in industrial sectors relating to mining from upstream to downstream, trading, marketing, transportation and distribution of product, services, company management and management consultation services and also constructing and operating power plants for its own and other parties' usage.

In August 2019, without formally changing the Company's name, the Company as *Holding Industri Pertambangan* has rebranded into Mining Industry Indonesia ("MIND ID").

The Company's office and its aluminium smelting plant are located in Kuala Tanjung, Batu Bara Regency, North Sumatra. The power plant is located in Paritohan, Toba Samosir Regency, North Sumatra. The Company also has representative office in Jakarta.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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(Expressed in millions of Rupiah, unless otherwise stated)

1. GENERAL (continued)**The Company's establishment and general information** (continued)

The composition of the Company's Boards of Commissioners and Directors are as follows:

	31 December 2019	31 December 2018	31 December 2017
Board of Commissioners			
President Commissioner	Agus Tjahajana Wirakusumah	Fajar Harry Sampurno	Agus Tjahajana Wirakusumah
Commissioner	Muhammad Munir	Agus Tjahajana Wirakusumah	Emmy Yuhassarie
Commissioner	Purbaya Yudhi Sadewa	Purbaya Yudhi Sadewa	Purbaya Yudhi Sadewa
Commissioner	Bambang Gatot Ariyono	Bambang Gatot Ariyono	-
Commissioner	Ilyas Asaad	Sigit Hardwinarto	-
Commissioner	Arya Mahendra Sinulingga	-	-
Board of Directors			
President Director	Orias Petrus Moedak	Budi Gunadi Sadikin	Budi Gunadi Sadikin
Director	Oggy Achmad Kosasih	Oggy Achmad Kosasih	Oggy Achmad Kosasih
Director	Ogi Prastomiyono	Sahala Hasoloan Sijabat	Sahala Hasoloan Sijabat
Director	Suryo Eko Hadiananto	Carry Mumbunan	Carry Mumbunan
Director	-	Orias Petrus Moedak	-
Director	-	Ogi Prastomiyono	-

The composition of the Company's Audit Committee as at 31 December 2019, 2018 and 2017 are as follows:

	31 December 2019	31 December 2018	31 December 2017
Chairman	Agus Tjahajana Wirakusumah	Agus Tjahajana Wirakusumah	Emmy Yuhassarie
Member	Muhammad Munir	Hary Noegroho Soelistianto	Hary Noegroho Soelistianto
Member	Ilyas Asaad	Togu Sihombing	Togu Sihombing
Member	Widodo Setiadharmaji	-	-
Member	Eko Wisnu Warsitosunu	-	-

Mining business permits

The Company and its subsidiaries (collectively referred to as the "Group") have valid Mining Business Permits ("IUP") which consist of Production Operation IUPs ("IUP OP") and Exploration IUPs as well as Coal Contract of Work ("CCoW") in various areas of Indonesia. As the holder of IUPs and CCoWs, the Group has an obligation to pay items such as royalties, dead rent and other contributions in accordance with the applicable regulations.

As at 31 December 2019, 2018 and 2017, the structure of the Group was as follows:

	Commence- ment of commercial operations	Effective percentage of ownership			Total assets (before consolidation elimination)		
		2019	2018	2017	2019	2018	2017
Directly-owned subsidiaries							
Mining							
PT Aneka Tambang Tbk ("Antam")	1968	65.00%	65.00%	65.00%	30,194,908	32,195,351	28,798,635
PT Bukit Asam Tbk ("Bukit Asam") ¹⁾	1938	65.93%	65.02%	65.02%	26,098,052	24,172,933	21,987,482
PT Timah Tbk ("Timah")	1976	65.00%	65.00%	65.00%	20,361,278	15,220,685	11,718,724
PT Indonesia Papua Mineral dan Metal ("IPMM")	2009	100.00%	100.00%	-	29,590,880	30,775,802	6,210,315
Providing services and industries							
PT Nasional Hijau Lestari	2019	100.00%	100.00%	100.00%	25,098	9,063	15,823
PT Borneo Alumina Indonesia	-	100.00%	100.00%	100.00%	504,777	198,022	56,322
Indirectly-owned subsidiaries							
Mining							
PT Batubara Bukit Kendi	1997	98.00%	98.00%	98.00%	609	567	287
PT Internasional Prima Coal	2010	51.00%	51.00%	51.00%	641,543	851,334	698,962
PT Bukit Asam Metana Ombilin	-	99.99%	99.99%	99.99%	34	34	34
PT Bukit Asam Metana Enim	-	99.99%	99.99%	99.99%	73	73	73
PT Bukit Energi Metana	-	99.99%	99.99%	99.99%	51	51	51
PT Bukit Asam Banko	-	99.99%	99.99%	99.99%	313	313	313

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(Expressed in millions of Rupiah, unless otherwise stated)

1. GENERAL (continued)

	Commence- ment of commercial operations	Effective percentage of ownership			Total assets (before consolidation elimination)		
		2019	2018	2017	2019	2018	2017
Mining (continued)							
PT Indonesia Coal Resources	2010	100.00%	100.00%	100.00%	42,453	68,170	70,902
PT Antam Resourcindo	1997	99.98%	99.98%	99.98%	161,170	153,492	112,694
PT Dwimitra Enggang Khatulistiwa	-	100.00%	100.00%	100.00%	1,139	5,375	3,814
PT Cibaliung Sumberdaya ("CSD")	2010	100.00%	100.00%	100.00%	148,253	155,875	152,651
PT Gag Nikel	2018	100.00%	100.00%	100.00%	337,804	226,688	124,120
PT Citra Tobindo Sukses Perkasa	2011	100.00%	100.00%	100.00%	21,220	51,861	27,050
PT Timah Investasi Mineral	1996	99.90%	99.90%	99.90%	295,407	291,422	453,661
PT Tanjung Alam Jaya	1998	100.00%	100.00%	99.95%	100,922	107,320	154,018
PT Kutaraja Tembaga Raya	1997	99.95%	99.95%	99.95%	3	3	3
PT Truba Bara Banyu Enim	2001	100.00%	100.00%	99.90%	13,562	10,583	16,829
PT Tim Nikel Sejahtera	2018	100.00%	100.00%	-	301	301	-
Trading and providing services							
PT Bukit Asam Prima	2007	99.99%	99.99%	99.99%	264,762	312,400	344,599
PT Internasional Prima Cemerlang	2018	99.99%	99.99%	99.99%	2,528	3,809	1,948
PT Bukit Prima Bahari	2014	99.99%	99.99%	99.99%	153,826	172,159	120,987
Anthrakas Pte. Ltd.	2014	100.00%	100.00%	100.00%	33,949	44,456	58,753
PT Pelabuhan Bukit Prima	2014	99.99%	99.99%	99.99%	59,486	47,997	33,311
PT Satria Bahana Sarana	2014	95.00%	95.00%	95.00%	1,646,472	1,340,625	1,047,579
PT Penajam Internasional Terminal	2015	72.00%	72.00%	72.00%	10,098	4,943	3,840
PT Bukit Energi Service Terpadu	2015	99.62%	99.62%	99.62%	92,522	88,560	98,129
PT Bukit Multi Properti	2019	99.90%	-	-	1,000	-	-
PT Mega Citra Utama	-	100.00%	100.00%	100.00%	62,013	106,909	114,625
PT Borneo Edo International	-	100.00%	100.00%	100.00%	46,046	44,477	37,877
PT International Mineral Capital	2011	100.00%	100.00%	100.00%	621,992	628,283	621,361
PT Kawasan Industri Antam Timur	-	100.00%	100.00%	100.00%	51	46	51
PT Feni Haltim ("FHT")	2016	100.00%	100.00%	100.00%	595,812	604,476	618,831
PT Gunung Kendaik	-	100.00%	100.00%	100.00%	8,222	6,166	6,667
PT Nusa Karya Arindo	2014	100.00%	100.00%	100.00%	10,398	13,287	17,535
PT Sumberdaya Arindo	2015	100.00%	100.00%	100.00%	53,980	47,675	31,510
PT Antam Energi Indonesia	-	100.00%	100.00%	100.00%	124	86	144
Indometal (London) Limited	1988	100.00%	100.00%	100.00%	2,315,082	1,963,680	1,303,824
Indometal Corporation Asia Pacific Pte. Ltd.	2019	100.00%	-	-	207,134	-	-
PT Dok dan Perkapalan Air Kantung	1996	100.00%	100.00%	100.00%	486,746	358,227	244,728
Great Force Trading Limited	2012	100.00%	100.00%	100.00%	14,048	14,718	14,240
Timah International Investment Pte. Ltd.	2014	100.00%	100.00%	100.00%	63,303	48,790	16,959
PT Timah Karya Persada Properti	2017	100.00%	100.00%	100.00%	187,270	182,938	169,097
Investing company							
PT Bukit Multi Investama	2014	99.99%	99.99%	99.99%	2,950,201	3,226,472	2,406,527
PT Bukit Energi Investama	2015	99.99%	99.99%	99.99%	159,922	152,605	163,184
Asia Pacific Nickel Pty. Ltd.	2003	100.00%	100.00%	100.00%	341,767	227,308	121,877
Agriculture, industries and hospital							
PT Bumi Sawindo Permai	2007	99.99%	99.99%	99.99%	415,695	843,684	260,850
PT Bukit Asam Medika	2014	97.50%	97.50%	97.50%	51,519	28,993	22,468
PT Abuki Jaya Stainless Indonesia ("AJSI")	-	100.00%	100.00%	100.00%	10,344	20,263	15,081
PT Borneo Edo International Agro	-	100.00%	100.00%	100.00%	42	42	39
PT Indonesia Chemical Alumina ("ICA")	2010	100.00%	100.00%	80.00%	4,387,905	4,952,920	408,908
PT Timah Industri	1998	100.00%	100.00%	100.00%	1,394,656	1,224,272	1,343,189
PT Timah Agro Manunggal	2017	100.00%	100.00%	100.00%	15,538	10,580	8,480
Rumah Sakit Bakti Timah	2014	99.99%	99.90%	99.90%	373,027	255,460	231,554
PT Bakti Timah Solusi Medika	2016	100.00%	100.00%	100.00%	3,241	3,291	3,801

¹⁾ On 7 May 2019, the Company purchased 105,213,200 treasury shares of Bukit Asam amounting to Rp357,897 million.

Other than Anthrakas Pte Ltd and Timah Investment International Ltd. which are both located in Singapore, Indometal (London) Limited and Indometal Corporation Asia Pacific Pte. Ltd. which are both located in the United Kingdom and Asia Pacific Nickel Pty., Ltd. and Great Force Trading Limited which are located in Australia and Hong Kong, respectively, all of the directly-owned subsidiaries and indirectly-owned subsidiaries are located in Indonesia.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
31 DECEMBER 2019, 2018 AND 2017

(Expressed in millions of Rupiah, unless otherwise stated)

2. SIGNIFICANT ACCOUNTING POLICIES

Management of the Group is responsible for the preparation of the consolidated financial statements that were completed and authorised for issuance by the Board of Directors on 17 April 2020.

The consolidated financial statements as at and for the year ended 31 December 2019 were originally issued on 16 April 2020, in a bilingual format in both Bahasa Indonesia and English. The consolidated financial statements have been reissued as one set of English-only financial statements with the consolidated financial statements for the years ended 31 December 2018 and 2017 for the purpose of offering debt securities of the Company inside and outside the United States of America, in reliance on Rule 144A and Regulation S, respectively, of the United States Securities Act of 1993, as amended. There were no other significant changes between the previously issued consolidated financial statements and these reissued consolidated financial statements other than disclosed in Note 49.

a. Basis of preparation of the consolidated financial statements

The consolidated financial statements of the Group have been prepared in accordance with Indonesian Financial Accounting Standards.

The consolidated financial statements have been prepared under the historical cost convention except for available-for-sale financial assets and investment properties, and using the accrual basis except for the consolidated statement of cash flows.

The consolidated statement of cash flows is prepared based on the direct method by classifying cash flows on the basis of operating, investing, and financing activities.

The accounting policies adopted in preparing the consolidated financial statements have been consistently applied, unless otherwise stated.

In order to provide further understanding of the financial performance of the Group, due to the significance of their nature or amount, several items of income or expense have been presented separately.

The preparation of consolidated financial statements in conformity with Indonesian Financial Accounting Standards requires the use of certain critical accounting estimates and assumptions. It also requires management to exercise its judgement in the process of applying the Group's accounting policies. The areas involving a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements are disclosed in Note 3.

b. Changes to the Statements of Financial Accounting Standards ("SFAS") and Interpretations of Financial Accounting Standards ("IFAS")

New standards, amendments and interpretations issued and effective for the financial year beginning 1 January 2019 did not result in substantial change to the Group's accounting policies and had no material effect on the amounts reported for the current or prior financial years.

- IFAS 33 "Foreign Currency Transactions and Advance Consideration"
- IFAS 34 "Uncertainty over Income Tax Treatments"
- Amendment to SFAS 24 "Employee Benefits - Curtailment or Settlement"
- Annual Improvement to SFAS 22 "Business Combination"
- Annual Improvement to SFAS 26 "Borrowing Cost"
- Annual Improvement to SFAS 46 "Income Taxes"
- Annual Improvement to SFAS 66 "Joint Arrangements"

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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(Expressed in millions of Rupiah, unless otherwise stated)

2. SIGNIFICANT ACCOUNTING POLICIES (continued)

b. Changes to the Statements of Financial Accounting Standards ("SFAS") and Interpretations of Financial Accounting Standards ("IFAS") (continued)

New standards, amendments, annual improvements and interpretations issued but are not yet effective for the financial year beginning on 1 January 2019 are as follows:

- Annual Improvements SFAS 1 "Presentation of Financial Statements"
- SFAS 71 "Financial Instruments"
- SFAS 72 "Revenue from Contract with Customers"
- SFAS 73 "Leases"
- SFAS 112 "Accounting for Endowments"
- IFAS 35 "Presentation of Non-Profit Oriented Entity Financial Statements"
- Amendment to SFAS 1 "Presentation of Financial Statements Concerning the Title of Financial Statements"
- Amendment to SFAS 15 "Investments in Associates and Joint Ventures"
- Amendment to SFAS 22 "Business Combination"
- Amendment to SFAS 25 "Accounting Policies, Accounting Estimates and Errors"
- Amendment to SFAS 62 "Insurance Contract"
- Amendment to SFAS 71 "Financial Instruments - Prepayment Features with Negative Compensation"

The above new standards, amendments, annual improvements and interpretations are effective beginning 1 January 2020, except for SFAS 112 and Amendment to SFAS 22, which is effective from 1 January 2021. Early adoption of the above standards is permitted except for early adoption of IFAS 35, while early adoption of SFAS 73 is permitted only upon the early adoption of SFAS 72.

As at the issuance date of these consolidated financial statements, the Group is evaluating the potential impact of these new standards and amendments, annual improvements and interpretations on the Group's consolidated financial statements.

c. Principles of consolidation and equity accounting

i. Subsidiaries

Subsidiaries are all entities (including structured entities) over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date on which that control ceases.

The Group applies the acquisition method to account for business combinations. The consideration transferred for the acquisition of a subsidiary is the fair value of the assets transferred, the liabilities incurred to the former owners of the acquiree and the equity interests issued by the Group. The consideration transferred includes the fair value of any asset or liability resulting from a contingent consideration arrangement. Identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date.

The Group recognises any non-controlling interest in the acquiree either at fair value or at the non-controlling interest's proportionate share of the acquiree's net assets. Non-controlling interest is reported as equity in the consolidated statement of financial position, separate from the equity of the parent's entity.

Acquisition-related costs are expensed as incurred.

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
31 DECEMBER 2019, 2018 AND 2017**

(Expressed in millions of Rupiah, unless otherwise stated)

2. SIGNIFICANT ACCOUNTING POLICIES (continued)**c. Principles of consolidation and equity accounting (continued)****i. Subsidiaries (continued)**

If the business combination is achieved in stages, the carrying value at the acquisition date of the acquirer's previously held equity interest in the acquiree is remeasured to fair value at the acquisition date through profit or loss. The acquirer may have recognised changes in the value of its equity interest in other comprehensive income. If so, the amount that was recognised in other comprehensive income shall be recognised on the same basis as would be required if the acquirer has disposed directly of the previously held equity interest.

Any contingent consideration to be transferred by the Group is recognised at fair value at the acquisition date. Subsequent changes to the fair value of the contingent consideration that is deemed to be an asset or liability is recognised in profit or loss. Contingent consideration that is classified as equity is not remeasured and its subsequent settlement is accounted for within equity.

The excess of the consideration transferred, the amount of any non-controlling interest in the acquiree and the acquisition-date fair value of any previous equity interest in the acquiree over the fair value of the net identifiable assets acquired is recorded as goodwill. If those amount are less than the fair value of the net identifiable assets of the business acquired, in the case of a bargain purchase, the difference is recognised directly in profit or loss.

Business combination transactions between entities under common control were accounted under SFAS 38 (Revised 2012) "Business Combination of Entities Under Common Control" where the differences between the transfer price paid and the carrying value of net assets acquired is presented as part of the additional paid-in capital account in equity.

In accordance with SFAS 38 (Revised 2012), the financial statement items of the combined entities, for the period in which the business combination under common control occurred and for any comparative period, shall be presented as if the combination had occurred from the beginning of the period for which the combined entities were under common control.

Intercompany transactions, balances and unrealised gains on transactions between Group companies are eliminated. Unrealised losses are also eliminated. Where necessary, amounts reported by subsidiaries have been adjusted to conform to the Group's accounting policies.

ii. Associates

Associates are all entities over which the Group has significant influence but not control, generally accompanying a shareholding of between 20% and 50% of the voting rights. Investments in associates are accounted for using the equity method (see point (iv) below), after initially being recognised at cost.

iii. Joint arrangements

Under SFAS 66, investments in joint arrangements are classified as either joint operations or joint ventures depending on the contractual rights and obligations of each investor rather than the legal structure of the joint arrangement. The Group has assessed the nature of its joint arrangements and determined them to be joint ventures. Joint ventures are accounted for using the equity method, after initially being recognised at cost in the consolidated statement of financial position.

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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(Expressed in millions of Rupiah, unless otherwise stated)

2. SIGNIFICANT ACCOUNTING POLICIES (continued)**c. Principles of consolidation and equity accounting (continued)****iv. Equity method**

Under the equity method, the investment is initially recognised at cost and adjusted thereafter to recognise the investor's share of the post-acquisition profits or losses of the investee in profit or loss, and its share of movements in other comprehensive income of the investee in other comprehensive income.

Unrealised gains on transactions between the Group and its associates and joint ventures are eliminated to the extent of the Group's interest in these entities. Unrealised losses are eliminated unless the transaction provides evidence of an impairment of the asset transferred. Accounting policies of associates and joint ventures have been changed where necessary to ensure consistency with the policies adopted by the Group.

When the Group's share of losses in an associate or joint venture equals or exceeds its interest in the associate or joint venture, including any unsecured receivables, the Group does not recognise further losses, unless it has incurred legal or constructive obligations or made payments on behalf of the associate or joint ventures.

The Group determines at each reporting date whether there is any objective evidence that the investment in the associates and joint ventures are impaired. If this is the case, the carrying amount of the equity accounting investments is tested for impairment in accordance with the policy described in Note 2r.

Dividends received or receivable from associates or joint ventures are recognised as reductions in the carrying amounts of the investments.

v. Changes in ownership interest

The Group treats transactions with non-controlling interests that do not result in a loss of control as transactions with equity owners of the Group. A change in ownership interest results in an adjustment between the carrying amounts of the controlling and non-controlling interests to reflect their relative interests in the subsidiary. Any difference between the amount of the adjustment to non-controlling interests and any consideration paid or received is recognised in a separate reserve within equity attributable to the owner of the parent.

The cost of an associate acquired in stages is measured as the sum of the fair value of the equity interest previously held, plus the fair value of any additional consideration transferred as at the date when the investment became an associate. The related cost of this transaction is charged to profit or loss.

When the Group ceases to consolidate or equity account for an investment because of a loss of control, joint control or significant influence, any retained interest in the entity is remeasured to its fair value at the date when the control is lost, with the change in carrying amount recognised in profit or loss. The fair value is the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate, joint venture or financial asset. In addition, any amounts previously recognised in other comprehensive income in respect of that entity are accounted for as if the Group had directly disposed of the related assets or liabilities. This may mean that amounts previously recognised in other comprehensive income are reclassified to profit or loss.

If the ownership interest in a joint venture or an associate is reduced but joint control or significant influence is retained, only a proportionate share of the amounts previously recognised in other comprehensive income are reclassified to profit or loss where appropriate.

**NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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(Expressed in millions of Rupiah, unless otherwise stated)

2. SIGNIFICANT ACCOUNTING POLICIES (continued)**d. Foreign currency translation****(a) Functional and presentation currency**

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates (the "functional currency").

The Group chooses to present the consolidated financial statements in Rupiah.

For consolidation purposes, due to the Company's functional currency is US Dollars, the Company's assets and liabilities are translated using the Bank of Indonesia middle rate at the end of each reporting period. Besides, revenue and expenses are translated using the average of the Bank of Indonesia middle rates during profit or loss period.

The difference arising from the translation of the Company's financial statements into Rupiah is presented as Other comprehensive income - Currency differences from translation of the Group's entity financial statements account in the equity section of the consolidated statement of financial position.

(b) Transaction and balance

Foreign currency transactions are translated into functional currency using the exchange rates prevailing at the dates of the transactions. At each reporting date, monetary assets and liabilities denominated in foreign currency are translated into functional currency using the closing exchange rate. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at period-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in profit or loss.

The United States Dollar (US Dollars or US\$) exchange rates to Rupiah based on the middle rate published by Bank Indonesia as at 31 December 2019 is Rp13,901 (2018: Rp14,481 and 2017: Rp13,548).

e. Transactions with related parties

The Group has entered into transactions with related parties as defined in SFAS 7 "Related Party Disclosures".

Significant transactions and balances of the Group with the related parties are disclosed in the notes to the consolidated financial statements.

f. Revenue and expenses

Revenue from sales of goods/products is recognised when all of the following conditions are met:

- the Group has transferred to the buyer the significant risks and rewards of ownership of the goods;
- the Group retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods sold;
- the amount of revenue can be measured reliably;
- it is probable that the economic benefits associated with the transaction will flow to the Group; and
- the costs incurred or to be incurred in relation to the sales transaction can be measured reliably.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**31 DECEMBER 2019, 2018 AND 2017**

(Expressed in millions of Rupiah, unless otherwise stated)

2. SIGNIFICANT ACCOUNTING POLICIES (continued)**f. Revenue and expenses (continued)**

The sale of a product arranged by a third party (agent) is recognised as revenue when the product is received by the end-users.

Certain sale agreements provide for the provisional pricing of sales at the time of shipment. The final pricing is based on the price benchmark i.e. London Metal Exchange ("LME") price. Such a provisional sale contains an embedded derivative that is closely related and not recorded separately from the host sales contract. At the reporting date, the provisionally priced sales are adjusted to the best estimates price with the adjustments recorded in sales.

Revenue from the rendering of services is recognised when services are rendered.

Expense is recognised as incurred.

g. Cash and cash equivalents and time deposits

Cash and cash equivalents include cash on hand, cash in banks and other short-term highly liquid investments with original maturities of three months or less.

Time deposits with original maturities more than three months are presented separately as the time deposits account in the consolidated statement of financial position.

Cash in banks and time deposits that are restricted as to use are presented as "restricted cash" and presented as part of other assets in the consolidated statement of financial position.

h. Trade receivables and other receivables

Trade and other receivables are recognised initially at fair value and subsequently measured at amortised cost using the effective interest method, if the impact of discounting is significant, less any provision for impairment. Trade receivables are amounts due from customers for goods and services sold or provided in the ordinary course of business. If collection is expected in one year or less (or in the ordinary operating cycle of the business if longer), they are classified as current assets. If not, they are presented as non-current assets.

Provision for doubtful receivables is established where there is objective evidence that the outstanding amounts will not be collected. Doubtful receivables are written off during the period in which they are determined to be not collectible.

i. Inventories

The finished goods inventory is measured at the lower of cost or net realisable value. Cost is determined using the weighted-average method. The cost of finished goods and work in progress products comprises materials, labour and an appropriate proportion of directly attributable fixed and variable overheads. Net realisable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and estimated cost necessary to make the sale. The current portion of inventories is determined based on the expected amounts to be processed within the next 12 months. Inventories not expected to be processed within the next 12 months are classified as non-current.

Spare parts and other consumable supplies are valued at cost, determined on a moving average basis, less provision for obsolete items.

Provision for obsolete inventory is determined on the basis of estimated future usage of individual inventory items.

j. Prepaid expenses

Prepaid expenses are amortised over their beneficial periods using the straight-line method.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
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(Expressed in millions of Rupiah, unless otherwise stated)

2. SIGNIFICANT ACCOUNTING POLICIES (continued)

k. Financial assets

(i) Classification

Management determines the classification of its financial assets at initial recognition. As at 31 December 2019, 2018 and 2017, the Group has financial assets classified as financial assets at fair value through profit or loss and loans and receivables.

(a) Loans and receivables

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. They are included in current assets, except for maturities greater than 12 months after the end of the reporting period. These are classified as non-current assets. The Group's loans and receivables comprise cash and cash equivalents, time deposits, trade receivables, other receivables and other financial assets.

(b) Available-for-sale financial assets

Available-for-sale financial assets are non-derivatives that are either designated in this category or not classified in any of the other categories. They are included in non-current assets unless the investment matures or management intends to dispose of it within 12 months of the end of the reporting period.

(ii) Recognition and derecognition

Regular purchases and sale of financial assets are recognised on the trade-date - the date on which the Group commits to purchase or sell the asset. Financial assets are derecognised when the rights to receive cash flows from the investments have expired or have been transferred and the Group has transferred substantially all risks and rewards of ownership.

(iii) Measurement

Investments are initially recognised at fair value plus the transaction costs for all financial assets not carried at fair value through profit or loss. Available-for-sale financial assets are subsequently carried at fair value. Loans and receivables are carried at amortised cost using the effective interest rate method.

Changes in the fair value of monetary and non-monetary securities classified as available-for-sale are recognised in other comprehensive income.

Dividend income from financial assets at fair value through profit or loss and available-for-sale securities are recognised in the profit or loss as part of other income, net when the Group's right to receive payments is established. Interest income from financial assets at fair value through profit or loss is included in the "finance income".

Interest on available-for-sale securities calculated using the effective interest method is recognised in the profit or loss as part of "finance income".

l. Offsetting financial instruments

Financial assets and liabilities are offset and the net amount is reported in the consolidated statement of financial position when there is a legally enforceable right to offset the recognised amounts and there is either an intention to settle on a net basis, or to realise the asset and settle the liability simultaneously.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
31 DECEMBER 2019, 2018 AND 2017

(Expressed in millions of Rupiah, unless otherwise stated)

2. SIGNIFICANT ACCOUNTING POLICIES (continued)

m. Impairment of financial assets

At the end of each reporting period, the Group assesses whether there is objective evidence that a financial asset or group of financial assets is impaired. A financial asset or a group of assets is impaired and impairment losses are incurred only if there is objective evidence of impairment as a result of one or more events that occurred after the initial recognition of the asset (a "loss event") and that the loss event (or events) have an impact on the estimated future cash flows of the financial asset or group of financial assets that can be reliably estimated.

In the case of equity investments classified as available-for-sale, a significant and prolonged decline in the fair value of the security below its cost is considered as an indicator that the assets are impaired.

(i) Assets carried at amortised cost

For the loans and receivables category, the amount of the loss is measured as the difference between the asset's carrying amount and the present value of estimated future cash flows (excluding future credit losses that have not been incurred) discounted at the financial asset's original effective interest rate. The carrying amount of the asset is reduced and the amount of the loss is recognised in profit or loss. If a loan has a floating interest rate, the discount rate for measuring any impairment loss is the current effective interest rate determined under the contract. As a practical expedient, the Group may measure impairment on the basis of an instrument's fair value using an observable market price.

If, in a subsequent period, the amount of the impairment loss decreases and the decrease can be related objectively to an event occurring after the impairment was recognised (such as an improvement in the debtor's credit rating), the reversal of the previously recognised impairment loss is recognised in profit or loss.

(ii) Assets classified as available-for-sale

If there is objective evidence of impairment for available-for-sale financial assets, the cumulative loss measured as the difference between the acquisition cost and the current fair value, less any impairment loss on that financial asset previously recognised in profit or loss is removed from equity and recognised in profit or loss.

If, in a subsequent period, the fair value of a debt instrument classified as available-for-sale increases and the increase can be objectively related to an event occurring after the impairment loss was recognised in profit or loss, the impairment loss is reversed through the statement of profit or loss.

Impairment losses on equity instruments recognised in the consolidated financial statements are not reversed through profit or loss in a subsequent period.

n. Exploration and evaluation assets

Exploration and evaluation expenditures comprise costs that are directly attributable to the following:

- acquisition of rights to explore;
- topographical, geological, geochemical and geophysical studies;
- exploratory drilling;
- trenching and sampling; and
- activities involved in evaluating the technical feasibility and commercial viability of extracting mineral resources.