OFFERING CIRCULAR

# Korea National Oil Corporation

**(incorporated with limited liability under the laws of the Republic of Korea)**

**U.S.$9,000,000,000**

## Global Medium Term Note Program

This Offering Circular replaces and supersedes the offering circular dated March 17, 2017 describing the Program (as defined below). Any Notes (as defined below) issued under this Program on or after the date of this Offering Circular are issued subject to the provisions described herein. This does not affect any Notes issued prior to the date of this Offering Circular.

Under this U.S.$9,000,000,000 Global Medium Term Note Program (the "Program"), Korea National Oil Corporation (the "Issuer" or the "Company") may from time to time issue notes (the "Notes") denominated in any currency agreed between the Issuer and the relevant Dealer(s) (as defined below).

The Notes may be issued in bearer or registered form (respectively, "Bearer Notes" and "Registered Notes"). The maximum aggregate nominal amount of all Notes from time to time outstanding under the Program will not exceed U.S.$9,000,000,000 (or its equivalent in other currencies calculated as described herein), subject to increase as described herein.

The Notes may be issued on a continuing basis to one or more of the Dealers specified under "Summary of the Program" and any additional Dealer appointed under the Program from time to time by the Issuer (each a "Dealer" and together, the "Dealers"), which appointment may be for a specific issue or on an ongoing basis. References in this Offering Circular to the "relevant Dealer" shall, in the case of an issue of Notes being (or intended to be) subscribed by more than one Dealer, be to all Dealers agreeing to purchase such Notes.

Approval in-principle has been received from the Singapore Exchange Securities Trading Limited (the "Singapore Stock Exchange") in connection with the Program and application will be made for the listing and quotation of Notes that may be issued pursuant to the Program and which are agreed at or prior to the time of issue thereof, to be so listed on the Singapore Stock Exchange. Such permission will be granted when such Notes have been admitted for listing and quotation on the Singapore Stock Exchange. Notice of the aggregate nominal amount of Notes, interest (if any) payable in respect of Notes, the issue price of Notes and any other terms and conditions not contained herein that are applicable to each Tranche (as defined under "Terms and Conditions of the Notes") of Notes will be set out in a pricing supplement (the "Pricing Supplement") which, with respect to Notes to be listed on the Singapore Stock Exchange, will be submitted to the Singapore Stock Exchange before the date of listing of the Notes of such Tranche.

The Singapore Stock Exchange assumes no responsibility for the correctness of any of the statements made, opinions expressed or reports contained herein. Approval in-principle from, admission to the Official List of, and the listing and quotation of any Notes on, the Singapore Stock Exchange are not to be taken as an indication of the merits of the Issuer, the Program or the Notes.

The Program provides that the Notes may be listed or admitted to trading on such other or further stock exchange(s) as may be agreed between the Issuer and the relevant Dealer. The Issuer may also issue unlisted Notes.

**See "Risk Factors" for a discussion of certain factors to be considered in connection with an investment in the Notes.**

The Notes have not been registered under the U.S. Securities Act of 1933, as amended (the "Securities Act"), or any U.S. state securities laws and, unless so registered, may not be offered or sold in the United States, or for the account or benefit of, U.S. persons, 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. Accordingly, the Notes will be offered and sold (a) in the United States, only to "qualified institutional buyers" (as defined in Rule 144A under the Securities Act) or to "accredited investors" (as defined in Rule 501(a)(1), (2), (3) or (7) under the Securities Act) that are institutions and (b) in "offshore transactions" to persons other than "U.S. persons" (each as defined in Regulation S under the Securities Act). See "Subscription and Sale and Transfer and Selling Restrictions."

The Issuer may agree with any Dealer that Notes may be issued in a form not contemplated by the Terms and Conditions of the Notes herein, in which event (in the case of Notes intended to be listed on the Singapore Stock Exchange) a supplementary Offering Circular, if appropriate, will be submitted to the Singapore Stock Exchange and made available which will describe the effect of the agreement reached in relation to such Notes.

*Arranger*

**Citigroup**

*Dealers*

| | |
|---|---|
| **BNP PARIBAS** | **BofA Securities** |
| **Citigroup** | **Crédit Agricole CIB** |
| **Credit Suisse** | **HSBC** |
| **J.P. Morgan** | **The Korea Development Bank** |
| **Morgan Stanley** | **MUFG** |
| **Nomura** | **Standard Chartered Bank** |
| **Société Générale Corporate & Investment Banking** | **UBS** |

The date of this Offering Circular is September 18, 2020.

The Issuer, having made all reasonable enquiries, confirms that this Offering Circular contains or incorporates all information which is material in the context of the issuance and offering of the Notes, that the information contained or incorporated in this Offering Circular is true and accurate in all material respects and is not misleading in any material respect, that the opinions and intentions expressed in this Offering Circular are honestly held and have been reached after considering all relevant circumstances and are based on reasonable assumptions, and that there are no other facts, the omission of which would, in the context of the issue and offering of the Notes, make this Offering Circular as a whole or any information or the expression of any opinions or intentions expressed in this Offering Circular misleading in any material respect. The Issuer accepts responsibility accordingly. Information provided in this Offering Circular with respect to Korea, its political status and economy has been derived from information published by the Korean government and other public sources, and the Issuer accepts responsibility only for the accurate extraction of information from such sources.

This Offering Circular is to be read in conjunction with all documents that are deemed to be incorporated herein by reference (see "Documents Incorporated by Reference" below). This Offering Circular shall be read and construed on the basis that such documents are incorporated and form part of this Offering Circular.

The Dealers have not separately verified all of the information contained herein. Accordingly, no representation, warranty or undertaking, express or implied, is made and no responsibility or liability is accepted by the Dealers as to the accuracy or completeness of the information contained or incorporated in this Offering Circular or any other information provided by the Issuer in connection with the Program. No Dealer accepts any responsibility or liability in relation to the information contained or incorporated by reference in this Offering Circular or any other information provided or statement made or purported to be made by the Issuer or a Dealer on its behalf in connection with the Program, the Issuer or the issue and offering of the Notes. The Dealers accordingly disclaim all and any liability whether arising in tort or contract or otherwise which it might otherwise have in respect of this Offering Circular or any such information or statement.

No person is or has been authorized by the Issuer to give any information or to make any representation not contained in or not consistent with this Offering Circular or any other information supplied in connection with the Program or the Notes and, if given or made, such information or representation must not be relied upon as having been authorized by the Issuer or any of the Dealers.

Neither this Offering Circular nor any other information supplied in connection with the Program or any Notes (a) is intended to provide the basis of any credit or other evaluation or (b) should be considered as a recommendation by the Issuer or any of the Dealers that any recipient of this Offering Circular or any other information supplied in connection with the Program or any Notes should purchase any Notes. Each investor contemplating purchasing any Notes should make its own independent investigation of the financial condition and affairs, and its own appraisal of the creditworthiness, of the Issuer. Neither this Offering Circular nor any other information supplied in connection with the Program or the issue of any Notes constitutes an offer or invitation by or on behalf of the Issuer or any of the Dealers to any person to subscribe for or to purchase any Notes.

Neither the delivery of this Offering Circular nor the offering, sale or delivery of any Notes shall in any circumstances imply that the information contained herein concerning the Issuer is correct at any time subsequent to the date hereof or that any other information supplied in connection with the Program is correct as of any time subsequent to the date indicated in the document containing the same. The Dealers expressly do not undertake to review the financial condition or affairs of the Issuer during the life of the Program or to advise any investor in the Notes of any information coming to their attention. Investors should review, inter alia, the most recently published documents incorporated by reference into this Offering Circular when deciding whether or not to purchase any Notes.

This Offering Circular does not constitute an offer to sell or the solicitation of an offer to buy any Notes in any jurisdiction to any person to whom it is unlawful to make the offer or solicitation in such jurisdiction. The distribution of this Offering Circular and the offer or sale of the Notes may be restricted by law in certain jurisdictions. The Issuer and the Dealers do not represent that this Offering Circular may be lawfully distributed, or that any Notes may be lawfully offered, in compliance with any applicable registration or other requirements in any such jurisdiction, or pursuant to an exemption available thereunder, or assume any responsibility for facilitating any such distribution or offering. In particular, no action has been taken by the Issuer or the Dealers that would permit a public offering of any Notes or distribution of this document in any jurisdiction where action for that purpose is required. Accordingly, no Notes may be offered or sold, directly or indirectly, and neither this Offering Circular nor any advertisement or other offering material may be distributed or published in any jurisdiction, except under circumstances that will result in compliance with any applicable laws and regulations.

Persons into whose possession this Offering Circular or any Notes may come must inform themselves about, and observe, any such restrictions on the distribution of this Offering Circular and the offering and sale of the Notes. In particular, there are restrictions on the distribution of this Offering Circular and the offer or sale of Notes in the United States of America, the European Economic Area (the "EEA"), the United Kingdom (the "UK"), Japan, Hong Kong, Singapore, Korea and Switzerland. See "Subscription and Sale and Transfer and Selling Restrictions."

In making an investment decision, investors must rely on their own examination of the Issuer and the terms of the Notes being offered, including the merits and risks involved. The Notes have not been approved or disapproved by the United States Securities and Exchange Commission (the "SEC") or any other securities commission or other regulatory authority in the United States, nor have the foregoing authorities approved this Offering Circular or confirmed the accuracy or determined the adequacy of the information contained in this Offering Circular. Any representation to the contrary is unlawful.

The final terms (or Pricing Supplement, as the case may be) in respect of any Series (as defined under "Terms and Conditions of the Notes") of Notes may include information entitled "MiFID II Product Governance," which will outline the target market assessment in respect of the Notes of any such Series and which channels for distribution of the Notes are appropriate. If such information is included, any person subsequently offering, selling or recommending the Notes (a "distributor") should take into consideration the target market assessment; however, a distributor subject to Directive 2014/65/EU (as amended, "MiFID II") will be responsible for undertaking its own target market assessment in respect of the Notes (by either adopting or refining the target market assessment) and determining the appropriate distribution channels.

A determination will be made in relation to each issue of Notes about whether, for the purpose of the MiFID Product Governance rules under EU Delegated Directive 2017/593 (the "MiFID Product Governance Rules"), each of the Arranger and Dealers subscribing for any Notes is a manufacturer in respect of such notes, but otherwise neither the Arranger nor the Dealer nor any of their respective affiliates will be a manufacturer for the purpose of the MiFID Product Governance Rules.

**IMPORTANT — EEA or UK RETAIL INVESTORS —** If the final terms (or Pricing Supplement, as the case may be) in respect of any Series of Notes includes a legend entitled "Prohibition of Sales to EEA or UK Retail Investors," the Notes of any such Series are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the EEA or in the UK. For these purposes: (a) the expression "retail investor" means a person who is one (or more) of the following: (i) a retail client as defined in point (11) of Article 4(1) of MiFID II; (ii) a customer within the meaning of Directive (EU) 2016/97 (as amended, the "Insurance Distribution Directive"), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (iii) not a qualified investor as defined in the Prospectus Regulation (as defined below); and (b) the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes. Consequently, no key information document required by Regulation (EU) No 1286/2014 (the "PRIIPs Regulation") for offering or selling the Notes or otherwise making them available to retail investors in the EEA or in the UK will be prepared and therefore, offering or selling the Notes or otherwise making them available to any retail investor in the EEA or in the UK may be unlawful under the PRIIPs Regulation.

For the purposes of the foregoing paragraph, the expression "Prospectus Regulation" means Regulation (EU) 2017/1129.

This Offering Circular is only being distributed to and is only directed at (i) persons who are outside the UK or (ii) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000

(Financial Promotion) Order 2005 (the "Order") or (iii) high net worth entities, and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as "relevant persons"). The Notes will only be available to, and any invitation, offer or agreement to subscribe, purchase or otherwise acquire such Notes will be engaged in only with, relevant persons. Any person who is not a relevant person should not act or rely on this Offering Circular or any of its contents.

None of the Dealers or the Issuer makes any representation to any investor regarding the legality of its investment in the Notes under any applicable laws. The contents of this Offering Circular should not be construed as providing legal, business, accounting or tax advice. Any investor should be able to bear the economic risk of an investment in the Notes for an indefinite period of time.

## U.S. INFORMATION

This Offering Circular is being submitted on a confidential basis in the United States to a limited number of QIBs or Institutional Accredited Investors (each as defined under "Form of the Notes") for informational use solely in connection with the consideration of the purchase of the Notes being offered hereby. Its use for any other purpose in the United States is not authorized. It may not be copied or reproduced in whole or in part nor may it be distributed or any of its contents disclosed to anyone other than the prospective investors to whom it is originally submitted.

The Notes in bearer form are subject to U.S. tax law requirements and may not be offered, sold or delivered within the United States or its territories or to United States persons, except in certain transactions permitted by U.S. tax regulations. Terms used in this paragraph have the meanings given to them by the U.S. Internal Revenue Code and the regulations promulgated thereunder.

The Registered Notes may be offered or sold within the United States only to QIBs or to Institutional Accredited Investors, in either case in transactions exempt from registration under the Securities Act. Each U.S. purchaser of the Registered Notes is hereby notified that the offer and sale of any Registered Notes to it may be being made in reliance upon the exemption from the registration requirements of the Securities Act provided by Rule 144A under the Securities Act ("Rule 144A").

Purchasers of the Definitive IAI Registered Notes will be required to execute and deliver an IAI Investment Letter (each as defined under "Terms and Conditions of the Notes"). Each purchaser or holder of the Definitive IAI Registered Notes, the Notes represented by a Rule 144A Global Note (as defined below) or any Notes issued in registered form in exchange or substitution therefor (together "Legended Notes") will be deemed, by its acceptance or purchase of any such Legended Notes, to have made certain representations and agreements intended to restrict the resale or other transfer of such Notes as set out in "Subscription and Sale and Transfer and Selling Restrictions." Unless otherwise stated, terms used in this paragraph have the meanings given to them in "Form of the Notes."

## SINGAPORE INFORMATION

Notification under Section 309B(1)(c) of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA") — Unless otherwise stated in the Pricing Supplement in respect of any Notes, the Issuer has determined, and hereby notifies all relevant persons (as defined in Section 309A(1) of the SFA), that the Notes to be issued under the Program shall be prescribed capital markets products (as defined in the Securities and Futures (Capital Markets Products) Regulations 2018 of Singapore) 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).

## AVAILABLE INFORMATION

To permit compliance with Rule 144A in connection with any resales or other transfers of Notes that are "restricted securities" within the meaning of the Securities Act, the Issuer has undertaken in a deed poll dated April 1, 2016 (the "Deed Poll") to furnish, upon the request of a holder of such Notes or any beneficial interest therein, free of charge at the specified offices of the Paying Agents, to such holder or to a prospective purchaser designated by him, the information required to be delivered under Rule 144A(d)(4) under the Securities Act if, at the time of the request, the Issuer is neither a reporting company under 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.

## PRESENTATION OF FINANCIAL INFORMATION

The Issuer maintains its financial books and records and prepares its financial statements in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions ("Government Accounting Standards"), and where accounting provisions have not been specified under the Government Accounting Standards, the Issuer has also applied Korean International Financial Reporting Standards ("K-IFRS") as allowed under the Government Accounting Standards. The Issuer uses the dollar as its functional currency and the Won as its presentation currency in accordance with the Government Accounting Standards or K-IFRS, as the case may be. Investors should be cautioned that K-IFRS differs in certain respects from generally accepted accounting principles in other countries, including generally accepted accounting principles in the United States ("U.S. GAAP"). The Issuer has made no attempt to identify or quantify the impact of differences between K-IFRS and U.S. GAAP. See "Risk Factors — Risks Relating to Korea — There are special risks involved with investing in securities of Korean companies, including the possibility of restrictions being imposed by the government in emergency circumstances as well as accounting and corporate disclosure standards that differ from those in other jurisdictions."

The audited consolidated financial statements of the Issuer as of and for the years ended December 31, 2017, 2018 and 2019 contained in this Offering Circular have been prepared in accordance with the Government Accounting Standards or K-IFRS, as the case may be. The interim consolidated financial statements of the Issuer as of June 30, 2020 and for the six-month periods ended June 30, 2020 and 2019 contained in this Offering Circular have been prepared in accordance with K-IFRS No. 1034 "Interim Financial Reporting."

All financial and other information in the Offering Circular regarding the Issuer's activities, financial condition and results of operations are, unless otherwise indicated or required by context, presented on a consolidated basis.

Following the transfer of the Issuer's Special Accounts for Energy and Resources ("SAER") related responsibilities to Korea Energy Agency in July 2017 and the Issuer's decision to dispose of its drillship, the Doo Sung, in September 2017 pursuant to the measure set forth by the Ministry of Economy and Finance and the Ministry of Trade, Industry and Energy in June 2016 (the "June 2016 Government Plan"), the Issuer classified all income and expenses relating to its financing and drillship chartering segments as discontinued operations for the year ended December 31, 2017. See Notes 6 and 7 to the Issuer's consolidated financial statements as of and for the years ended December 31, 2018 and 2017 and Note 4 to the Issuer's consolidated financial statements as of and for the years ended December 31, 2019 and 2018.

## PRESENTATION OF RESERVES DATA

The determination of oil and natural gas reserves involves the preparation of estimates that have an inherent degree of associated uncertainty. Categories of proved and probable reserves have been established to reflect the level of these uncertainties and to provide an indication of the probability of recovery. The estimation and classification of reserves requires the application of professional judgment combined with geological and engineering knowledge to assess whether or not specific reserves classification criteria have been satisfied. Knowledge of concepts including uncertainty and risk, probability and statistics, and deterministic and probabilistic estimation methods is required to properly use and apply reserves definitions.

The crude oil and natural gas reserve estimates presented herein with respect to the oil and gas fields of the Company have been measured in accordance with the guidelines of the respective jurisdictions in which the fields are located.

The crude oil and natural gas reserve estimates of Harvest Operations presented herein are based on the guidelines contained in the Canadian Oil and Gas Evaluation Handbook (the "COGE Handbook") and the reserve definitions contained in both National Instrument 51-101 — *Standards of Disclosure for Oil and Gas Activities* ("NI 51-101") and the COGE Handbook. The crude oil and natural gas reserves estimates presented herein in respect of Harvest Operations are based on reports prepared by GLJ Petroleum Consultants Ltd. (the "Independent Reserves Evaluators") for the years ended December 31, 2017, 2018 and 2019.

"Proved reserves" generally mean those estimated quantities which geological and engineering data demonstrate with reasonable certainty to be recoverable in future years from known reservoirs under existing economic and operating conditions as of the date the estimate is made. "Proved developed reserves" generally mean those reserves that are expected to be recovered through existing wells with existing equipment and operating methods. "Proved undeveloped reserves" generally mean those reserves that are expected to be recovered from new wells on undrilled acreage or from existing wells where a relatively major expenditure is required for recompletion. However, such definitions may vary according to the applicable guidelines of the respective jurisdictions in which the fields are located.

Disclosure provided herein in respect of barrel of oil equivalent ("BOE") should be understood as follows. A BOE conversion ratio of 6 million cubic feet : 1 barrel is based on an energy equivalency conversion method primarily applicable at the burner tip and does not represent a value equivalency at the wellhead. Given the value ratio based on the current price of crude oil as compared to natural gas is significantly different from the energy equivalency of 6:1, utilizing a conversion ratio at 6:1 may be misleading as an indication of value.

## CERTAIN DEFINED TERMS AND CONVENTIONS

All references to "Korea" and the "Republic" contained in this Offering Circular shall mean The Republic of Korea. All references to the "Government" shall mean the government of Korea. All references to the "Issuer", "Company" or "KNOC" shall mean Korea National Oil Corporation, a statutory juridical entity established under the Korea National Oil Corporation Act of 1978, as amended (the "KNOC Act"), or Korea National Oil Corporation and its consolidated subsidiaries collectively, as required or as indicated by context. All references to "U.S." or the "United States" shall mean the United States of America. In this Offering Circular, all references to "Won" or "₩" are to the lawful currency of Korea, all references to "dollars," "$", "U.S.$" or "US$" are to the lawful currency of the United States, all references to "S$" are to the lawful currency of Singapore, all references to "Japanese Yen" are to the lawful currency of Japan, all references to "Chinese Renminbi" are to the lawful currency of the People's Republic of China, all references to "euro" or "€" are to the lawful currency of the European Union, all references to "British Pounds", "£" or "GBP" are to the lawful currency of the UK, all references to "Swiss Franc" or "CHF" are to the lawful currency of Swiss Confederation, all references to "Hong Kong dollars" or "HKD" are to the lawful currency of Hong Kong Special Administrative Region of the People's Republic of China ("Hong Kong"), all references to "Canadian dollars", "C$" or "CAD" are to the lawful currency of Canada and all references to "Norwegian Krone" or "NOK" are to the lawful currency of Norway. For the reader's convenience, certain Won amounts in this Offering Circular have been translated into dollars at the market average exchange rate, announced by Seoul Money Brokerage Services, Ltd. in Seoul, between Won and dollars, rounded to the nearest tenth of one Won (the "Market Average Exchange Rate"). Unless otherwise stated, the translations of Won into dollars have been made at the Market Average Exchange Rate in effect on June 30, 2020, which was Won 1,200.7 to US$1.00. For a discussion of historical information regarding the rate of exchange between the Won and the dollar, see "Exchange Rates." No representation is made that the Won or dollar amounts referred to in this Offering Circular could have been or could be converted into dollars or Won, as the case may be, at any particular rate or at all.

Any discrepancies in any table between totals and the sums of the amounts listed are due to rounding.

## SERVICE OF PROCESS AND ENFORCEMENT OF CIVIL LIABILITIES

The Issuer is a statutory juridical entity established in Korea pursuant to the KNOC Act. All of the Issuer's directors and officers and certain other persons named in this Offering Circular reside in Korea, and all or a significant portion of the assets of the directors and officers and certain other persons named in this Offering Circular and, substantial part of the Issuer's assets are located in Korea. As a result, it may not be possible for you to effect service of process within the United States upon such persons or to enforce against them or against the Issuer in U.S. courts judgments predicated upon the civil liability provisions of the federal securities laws of the United States. There is doubt as to the enforceability in Korea, either in original actions or in actions for enforcement of judgments of U.S. courts, of civil liabilities predicated on the U.S. federal securities laws.

## FORWARD-LOOKING STATEMENTS

This Offering Circular contains certain "forward-looking statements" that are based on the Issuer's current expectations, assumptions, estimates and projections about the Issuer and the oil industry. The forward looking statements are subject to various risks and uncertainties. Generally, these forward-looking statements can be identified by the use of forward-looking terminology such as "anticipate", "believe", "estimate", "expect", "intend", "target", "seek", "aim", "contemplate", "project", "plan", "goal", "should" and similar expressions or the negatives thereof. Those statements include, among other things, the discussions of the Issuer's business strategy and expectations concerning its market position, future operations, cash flows, margins, profitability, liquidity and capital resources. Reliance on any forward-looking statement involves risks and uncertainties, and although the Issuer believes that the assumptions on which the forward-looking statements are based are reasonable, any of those assumptions could prove to be inaccurate, and, as a result, the forward-looking statements based on those assumptions could be incorrect. The uncertainties in this regard include, but are not limited to, those identified in the risk factors discussed elsewhere in this Offering Circular. See the section entitled "Risk Factors" in this Offering Circular. In light of these and other uncertainties, you should not conclude that the Issuer will necessarily achieve any plans and objectives or projected financial results referred to in any of the forward-looking statements. The Issuer does not undertake to release the results of any revisions of these forward-looking statements to reflect future events or circumstances, except as required by law.

# TABLE OF CONTENTS

DOCUMENTS INCORPORATED BY REFERENCE . . . . . viii

GENERAL DESCRIPTION OF THE PROGRAM . . . . . ix

SUMMARY OF THE PROGRAM . . . . . 1

RISK FACTORS . . . . . 5

FORM OF THE NOTES . . . . . 26

TERMS AND CONDITIONS OF THE NOTES . . . . . 39

USE OF PROCEEDS . . . . . 70

EXCHANGE RATES . . . . . 71

CAPITALIZATION . . . . . 72

SELECTED FINANCIAL AND OTHER DATA . . . . . 73

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS . . . . . 76

BUSINESS . . . . . 109

MANAGEMENT . . . . . 141

RELATED PARTY TRANSACTIONS . . . . . 144

REGULATION . . . . . 145

TAXATION . . . . . 149

INDEPENDENT AUDITORS . . . . . 160

SUBSCRIPTION AND SALE AND TRANSFER AND SELLING RESTRICTIONS . . . . . 161

BOOK-ENTRY CLEARANCE SYSTEMS . . . . . 170

GENERAL INFORMATION . . . . . 174

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS . . . . . F-1

In connection with the issue and distribution of any Tranche of Notes, the Dealer(s) (if any) named as the Stabilizing Manager(s) (or persons acting on behalf of any Stabilizing Manager(s)) in the applicable Pricing Supplement may, subject to all applicable laws and regulations, over-allot the Notes or effect transactions with a view to supporting the market price of the Notes of a Series (as defined below) of which such Tranche forms a part at a level higher than that which might otherwise prevail, for a limited period after the issue date. However, there may be no obligation on the Stabilizing Manager(s) (or persons acting on behalf of any Stabilizing Manager(s)) to undertake any stabilizing action. Such stabilizing, if commenced, may be discontinued at any time, and must be brought to an end after a limited period.

## DOCUMENTS INCORPORATED BY REFERENCE

The following documents published or issued from time to time after the date hereof shall be deemed to be incorporated into, and to form part of, this Offering Circular:

> (a) the most recently published audited consolidated annual financial statements and, if published later, the most recently published interim consolidated financial statements of the Issuer from time to time (see "General Information" for a description of the financial statements currently published by the Issuer); and
>
> (b) all supplements or amendments to this Offering Circular circulated by the Issuer from time to time,

save that any statement contained herein or in a document which is deemed to be incorporated by reference herein shall be deemed to be modified or superseded for the purpose of this Offering Circular to the extent that a statement contained in any such subsequent document which is deemed to be incorporated by reference herein modifies or supersedes such earlier statement (whether expressly, by implication or otherwise). Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this Offering Circular.

The Issuer will provide, without charge, to each person to whom a copy of this Offering Circular has been delivered, upon the request of such person, a copy of any or all of the documents deemed to be incorporated herein by reference unless such documents have been modified or superseded as specified above. Requests for such documents should be directed to the Issuer at its office set out at the end of this Offering Circular. In addition, such documents will be available from the principal office of Citibank N.A., London Branch (the "Principal Paying Agent") for any Notes listed on the Singapore Stock Exchange.

The Issuer will, in connection with the listing of the Notes on the Singapore Stock Exchange, so long as the rules of the Singapore Stock Exchange so require, in the event of any material change which is not reflected in this Offering Circular, prepare a supplement to this Offering Circular or publish a new Offering Circular for use in connection with any subsequent issue of the Notes to be listed on the Singapore Stock Exchange.

If the terms of the Program are modified or amended in a manner that would make this Offering Circular, as so modified or amended, inaccurate or misleading, a new offering circular will be prepared.

## GENERAL DESCRIPTION OF THE PROGRAM

Under the Program, the Issuer may from time to time issue Notes denominated in any currency, subject as set out herein. A summary of the terms and conditions of the Program and the Notes appears below. The applicable terms of any Notes will be agreed between the Issuer and the relevant Dealer prior to the issue of the Notes and will be set out in the terms and conditions of the Notes endorsed on, attached to, or incorporated by reference into, the Notes, as modified and supplemented by the applicable Pricing Supplement attached to, or endorsed on, such Notes, as more fully described under "Form of the Notes" below.

This Offering Circular and any supplement will only be valid for the offering of Notes in an aggregate nominal amount of the Notes which, when added to the aggregate nominal amount then outstanding of all Notes previously or simultaneously issued under the Program, does not exceed U.S.$9,000,000,000 or its equivalent in other currencies. For the purpose of calculating the U.S. dollar equivalent of the aggregate nominal amount of Notes issued under the Program from time to time:

(a) the U.S. dollar equivalent of Notes denominated in another Specified Currency (as specified in the applicable Pricing Supplement in relation to the relevant Notes, described under "Form of the Notes") shall be determined, at the discretion of the Issuer, either as of the date on which agreement is reached for the issue of Notes or on the preceding day on which commercial banks and foreign exchange markets are open for business in London, in each case on the basis of the spot rate for the sale of the U.S. dollar against the purchase of such Specified Currency in the London foreign exchange market quoted by any leading international bank selected by the Issuer on the relevant day of calculation;

(b) the U.S. dollar equivalent of Dual Currency Notes, Index Linked Notes and Partly Paid Notes (each as specified in the applicable Pricing Supplement in relation to the relevant Notes, described under "Form of the Notes") shall be calculated in the manner specified above by reference to the original nominal amount on issue of such Notes (in the case of Partly Paid Notes, regardless of the subscription price paid); and

(c) the U.S. dollar equivalent of Zero Coupon Notes (as specified in the applicable Pricing Supplement in relation to the relevant Notes, described under "Form of the Notes") and other Notes issued at a discount or a premium shall be calculated in the manner specified above by reference to the net proceeds received by the Issuer for the relevant issue.

## SUMMARY OF THE PROGRAM

*The following summary does not purport to be complete and is taken from, and is qualified in its entirety by, the remainder of this Offering Circular and, in relation to the terms and conditions of any particular Tranche of Notes, the applicable Pricing Supplement. Words and expressions defined in "Form of the Notes" and "Terms and Conditions of the Notes" below shall have the same meanings in this summary.*

| | |
|---|---|
| Issuer | Korea National Oil Corporation |
| Description | Global Medium Term Note Program |
| Arranger | Citigroup Global Markets Inc. |
| Dealers | BNP Paribas, Citigroup Global Markets Inc., Crédit Agricóle Corporate and Investment Bank, Credit Suisse Securities (Europe) Limited, The Hongkong and Shanghai Banking Corporation Limited, J.P. Morgan Securities plc, The Korea Development Bank, Merrill Lynch International, Morgan Stanley & Co. International plc, MUFG Securities EMEA plc, Nomura Singapore Limited, Société Générale, Standard Chartered Bank, UBS AG, Hong Kong Branch and any other Dealers appointed in accordance with the Program Agreement. |
| Certain Restrictions | Each issue of Notes denominated in a currency in respect of which particular laws, guidelines, regulations, restrictions or reporting requirements apply will only be issued in circumstances which comply with such laws, guidelines, regulations, restrictions or reporting requirements from time to time (see "Subscription and Sale and Transfer and Selling Restrictions") including the following restrictions applicable at the date of this Offering Circular.<br>**Notes with a maturity of less than one year:**<br>Notes having a maturity of less than one year from the date of issue will, if the proceeds of the issue are accepted in the UK, constitute deposits for the purposes of the prohibition on accepting deposits contained in section 19 of the Financial Services and Markets Act 2000 unless they are issued to a limited class of professional investors and have a denomination of at least £100,000 or its equivalent. See "Subscription and Sale and Transfer and Selling Restrictions." |
| Issuing and Principal Paying Agent | Citibank, N.A., London Branch |
| Registrar | Citibank, N.A., London Branch |
| Program Size | Up to U.S.$9,000,000,000 (or its equivalent in other currencies calculated as described under "General Description of the Program") outstanding at any time. The Issuer may increase the amount of the Program in accordance with the terms of the Program Agreement. |
| Distribution | Notes may be distributed by way of private or public placement and in each case on a syndicated or non-syndicated basis. |
| Currencies | Subject to any applicable legal or regulatory restrictions, any currency agreed between the Issuer and the relevant Dealer. |
| Redenomination | The applicable Pricing Supplement may provide that certain Notes may be redenominated in euros. The relevant provisions applicable to any such redenomination are contained in Condition 5. |

| | |
|---|---|
| Maturities | Such maturities as may be agreed between the Issuer and the relevant Dealer, subject to such minimum or maximum maturities as may be allowed or required from time to time by the relevant central bank (or equivalent body) or any laws or regulations applicable to the Issuer or the relevant Specified Currency. |
| Issue Price | Notes may be issued on a fully paid or a partly paid basis and at an issue price which is at par or at a discount to, or premium over, par. |
| Form of Notes | The Notes will be issued in registered form or in bearer form as described in “Form of the Notes.” Registered Notes will not be exchangeable for Bearer Notes and vice versa. |
| Fixed Rate Notes | Fixed interest will be payable on such date or dates as may be agreed between the Issuer and the relevant Dealer and on redemption, and will be calculated on the basis of such Day Count Fraction (as defined in “Terms and Conditions of the Notes”) as may be agreed between the Issuer and the relevant Dealer. |
| Floating Rate Notes | Floating Rate Notes will bear interest at a rate determined:<br>(i) on the same basis as the floating rate under a notional interest rate swap transaction in the relevant Specified Currency governed by an agreement incorporating the 2006 ISDA Definitions (as published by the International Swaps and Derivatives Association, Inc., and as amended and updated as at the Issue Date of the first Tranche of Notes of the relevant Series); or<br>(ii) on the basis of a reference rate appearing on the agreed screen page of a commercial quotation service; or<br>(iii) on such other basis as may be agreed between the Issuer and the relevant Dealer, all as indicated in the applicable Pricing Supplement.<br>The margin (if any) relating to such floating rate will be agreed between the Issuer and the relevant Dealer for each Series (as defined under “Terms and Conditions of the Notes”) of Floating Rate Notes. |
| Index Linked Notes | Payments of interest in respect of Index Linked Interest Notes will be calculated by reference to such index and/or formula or to changes in the prices of securities or commodities or to such other factors as the Issuer and the relevant Dealer may agree. |
| Other provisions in relation to Floating Rate Notes and Index Linked Interest Notes | Floating Rate Notes and Index Linked Interest Notes may also have a maximum interest rate, a minimum interest rate or both. Interest on Floating Rate Notes and Index Linked Interest Notes in respect of each Interest Period, as agreed prior to issue by the Issuer and the relevant Dealer, will be payable on such Interest Payment Dates, and will be calculated on the basis of such Day Count Fraction, as may be agreed between the Issuer and the relevant Dealer. |
| Dual Currency Notes | Payments (whether in respect of principal or interest and whether at maturity or otherwise) in respect of Dual Currency Notes will be made in such currencies, and based on such rates of exchange, as the Issuer and the relevant Dealer may agree. |

| | |
|---|---|
| Zero Coupon Notes | Zero Coupon Notes will be offered and sold at a discount to their nominal amount and will not bear interest other than in the case of late payment. |
| Change of Control | Upon the occurrence of a Change of Control, each holder of Notes will have the right to require the Issuer to redeem all or any part of such holder's Notes at a redemption price equal to 100% of the principal amount thereof plus accrued but unpaid interest, if any, to the date of redemption, as further described in Condition 8(d)(i). |
| Redemption | The applicable Pricing Supplement will indicate either that the relevant Notes cannot be redeemed prior to their stated maturity (other than in specified installments, if applicable, or for taxation reasons or following an Event of Default (as defined in "Terms and Conditions of the Notes"), or that such Notes will be redeemable at the option of the Issuer and/or the Noteholders (as defined in "Terms and Conditions of the Notes") upon giving notice to the Issuer or the Noteholders, as the case may be, on a date or dates specified prior to such stated maturity and at a price or prices and on such other terms as may be agreed between the Issuer and the relevant Dealer. The applicable Pricing Supplement may provide that the Notes may be redeemable in two or more installments of such amounts and on such dates as are indicated in the applicable Pricing Supplement. |
| Denomination of Notes | The Notes will be issued in such denominations as may be agreed between the Issuer and the relevant Dealer save that the minimum denomination of each Note will be such as may be allowed or required from time to time by the relevant central bank (or equivalent body) or any laws or regulations applicable to the relevant Specified Currency. Unless otherwise stated in the applicable Pricing Supplement, the minimum denomination of each Definitive IAI Registered Note will be U.S.$500,000 or its approximate equivalent in other Specified Currencies. |
| Taxation | All payments in respect of the Notes will be made without deduction for or on account of withholding taxes imposed by any Tax Jurisdiction (as defined in "Terms and Conditions of the Notes"), subject as provided in Condition 9. In the event that any such deduction is made, the Issuer will, save in certain limited circumstances provided in Condition 9, be required to pay additional amounts to cover the amounts so deducted. |
| Certain Covenants | The terms of the Notes will contain a negative pledge provision and certain other covenants, as further described in Condition 4. |
| Cross Default | The terms of the Notes will contain a cross default provision as further described in Condition 11. |
| Status of the Notes | The Notes and any related Receipts (as defined in "Terms and Conditions of the Notes") and Coupons (as defined in "Terms and Conditions of the Notes") will constitute direct, unconditional, unsubordinated and, subject to the provisions of Condition 4, unsecured obligations of the Issuer and will rank pari passu among themselves (save for certain obligations preferred by law) and equally |

| | |
|---|---|
| | with all other unsecured and unsubordinated obligations of the Issuer, from time to time outstanding. |
| Listing . . . . . . . . . . . . . . . . . . . . . . . . . . . | Approval in-principle has been received from the Singapore Stock Exchange in connection with the Program and application will be made for the listing and quotation of Notes that may be issued pursuant to the Program and which are agreed at or prior to the time of issue thereof to be so listed on the Singapore Stock Exchange. Such permission will be granted when such Notes have been admitted for listing and quotation on the Singapore Stock Exchange. For so long as any Notes are listed on the Singapore Stock Exchange and the rules of the Singapore Stock Exchange so require, such Notes, if traded on the Singapore Stock Exchange, will be traded in a minimum board lot size of S$200,000 (or its equivalent in foreign currencies). The Notes may also be listed on such other or further stock exchange(s) as may be agreed between the Issuer and the relevant Dealer in relation to each Series. Unlisted Notes may also be issued. The applicable Pricing Supplement will state whether or not the relevant Notes are to be listed or admitted to trading and, if so, on which stock exchange(s). |
| Governing Law . . . . . . . . . . . . . . . . . . . . | The Notes and any non-contractual obligations arising out of or in connection with the Notes will be governed by, and construed in accordance with, English law. |
| Selling Restrictions . . . . . . . . . . . . . . . . . | There are restrictions on the offer, sale and transfer of the Notes in the United States of America, the EEA, the UK, Japan, Hong Kong, Singapore, Korea and Switzerland and such other restrictions as may be required in connection with the offering and sale of a particular Tranche of Notes. See "Subscription and Sale and Transfer and Selling Restrictions." |

# RISK FACTORS

*Investing in the Notes involves risks and uncertainties. Prospective purchasers of the Notes are advised to review carefully all of the information contained elsewhere in this Offering Circular and should consider, in particular, the following risk factors before purchasing the Notes. The risks described below are not the only ones that may be relevant to the Company or the Notes. Additional risks not currently known to the Company or those which the Company believes are immaterial may also impair its business operations.*

## Risks Relating to the Company

### *The Company has experienced complete equity erosion in the first half of 2020 due to a large net loss resulting primarily from significant declines in the prices of crude oil.*

As of June 30, 2020, the liabilities of the Company exceeded the assets of the Company by Won 557 billion, as the Company incurred a loss for the period of Won 1,183 billion in the first half of 2020. Such net loss was due primarily to significant declines in the prices of crude oil resulting from, among others, the ongoing global pandemic of a new strain of coronavirus ("COVID-19"), which has materially and adversely affected the global economy and financial markets in recent months, which in turn has also decreased the global demand for crude oil. See "—The Company's operations are affected by the volatility of prices for crude oil, natural gas and petroleum products and price differentials between heavy and light oil, and a substantial or extended decline or fluctuations in such prices or differentials would have a material adverse effect on the Company's business, financial condition and results of operations" and "— If future oil and gas prices are forecasted to decline substantially, the Company may be required to write down the book value of its assets, which may have a material adverse effect on the Company's business, financial condition and results of operations." Such volatility has had and will continue to have a significant effect on the Company's business, results of operations and financial condition and the Company expects that it will continue to experience significant losses for at least the near future.

If the Company continues to incur net losses in the future without significant capital contributions and other support from the Government permitted under the KNOC Act, the Company's equity will remain completely eroded. Under the KNOC Act, the Company's authorized capital is Won 13.0 trillion, and as of June 30, 2020, the amount of the Company's share capital was Won 10.5 trillion. Without increasing the Company's authorized capital through an amendment to the KNOC Act, the Government would be capped in the amount of additional capital contributions it can make to the Company.

On July 21, 2020, in response to the continued depression of global oil prices as well as investments in the global energy sector, among others due to COVID-19, and the adverse impact of such depression on the financial conditions of the three Government-controlled enterprises in the natural resources sector, including the Company, an independent task force was appointed by MOTIE (the "Task Force"). The Task Force will focus on (1) objectively reviewing the main overseas natural development projects and the financial conditions of these Government-controlled enterprises; (2) examining and supplementing the restructuring plans so that such plans may be effectively implemented; and (3) in-depth discussions regarding the natural resources development plan based on cooperation between the public and private sectors. The Task Force was established for an initial term of six months, which may be extended for a period of up to six months if necessary. The Company has no control over any recommendations that may be made by the Task Force or measures that may ultimately be adopted by the Government. Depending on the nature of any such measures, they may be subject to approval, among others, by the National Assembly. There is no assurance that any such measures will be adopted on a timely basis (if at all), or that they will be sufficient to address the Company's complete equity erosion and liquidity problems. The failure to address the Company's complete equity erosion and liquidity problems, or to implement an acceptable plan, may have a material adverse effect on the Company's business and financial condition and the Holders.

No bankruptcy, rehabilitation or similar proceedings have been initiated against the Company under the Debtor Rehabilitation and Bankruptcy Act of Korea ("Bankruptcy Act"). While it is not clear whether the Bankruptcy Act applies to wholly state-owned statutory juridical corporations such as the Company, Lee & Ko, the Company's Korean counsel, has advised that the possibility of the Bankruptcy Act being applied to the Company is low as a practical matter. The Act on Management of Public Institutions of Korea, which is the general act governing the operation of public agencies, such as the Company, does not have any provisions relating to the bankruptcy, liquidation or rehabilitation of a public agency. However, should it be found that the Bankruptcy Act does apply to the Company, or the Bankruptcy Act is amended or an analogous act is passed to include statutory juridical wholly state-owned corporations, such as the Company, in the scope of such act, bankruptcy, rehabilitation or similar proceedings could be brought against the Company while its equity is eroded. If the Company is adjudicated to be bankrupt or insolvent by a court or other relevant body having jurisdiction over the Company and such adjudication is not cured, such adjudication may constitute an event of default under the Notes, which may have a material adverse effect on the Company's business, financial condition and results of operations.

### *Although the Government has provided and is expected to continue to provide financial support to the Company, the Government is not legally required to do so.*

While the Government has regularly provided financial support to the Company in the form of capital contributions and is permitted to guarantee Notes issued by the Company pursuant to the KNOC Act, there is no statutory or legal requirement for the Government to do so, and the Government would be prevented from providing additional capital contributions once the Company reaches the amount of its authorized capital unless the Company's authorized capital is increased through an amendment to the KNOC Act, as described above. The provision of capital contributions and other forms of Government financial support to the Company is subject to prior authorization by the National Assembly of Korea as part of its budget approval process. Accordingly, there can be no assurance that the Government's support will continue or be provided on a timely basis.

### *The Company's operations are affected by the volatility of prices for crude oil, natural gas and petroleum products and price differentials between heavy and light oil, and a substantial or extended decline or fluctuations in such prices or differentials would have a material adverse effect on the Company's business, financial condition and results of operations.*

International crude oil, natural gas and petroleum product prices are subject to global supply and demand, and fluctuate due to many factors beyond the Company's control. These factors include competition within the oil and natural gas industry and with other industries in supplying consumers with competing commodities, international economic trends, exchange rate and interest rate fluctuations, expectations of inflation, domestic and foreign governmental regulations, concerns regarding the security of energy supply, political and other events in major oil and gas producing and consuming nations and actions taken by members of the Organization of the Petroleum Exporting Countries ("OPEC") and other oil exporting countries. In particular, the ongoing global COVID-19 pandemic has materially and adversely affected the global economy and financial markets in recent months, which in turn has also decreased the global demand for crude oil. See "—Earthquakes, tsunamis, floods, severe health epidemics (including the ongoing global COVID-19 pandemic and any possible recurrence of other types of widespread infectious diseases) and other natural calamities could materially adversely affect the Company's business, results of operations or financial condition." Such developments have been exacerbated by a conflict between OPEC led by Saudi Arabia and Russia relating to crude oil production cuts, and the market price of crude oil fell to a historical low in April 2020. While the market price of crude oil has partially recovered since then, and the oil producing nations were able to reach and have since sustained a consensus on reduced production levels, future prospects for crude oil prices remain highly uncertain and volatile. Although the full impact of such events cannot be reasonably estimated at this time, the cumulative nature of these events could have a material adverse effect on the Company's business, financial condition and results of operations.

The prices of oil and natural gas have fluctuated greatly during the recent period of volatility in the global credit and financial markets. For example, the Company's average sales prices for crude oil were US$48.32, US$58.59 and US$54.86 per barrel in 2017, 2018 and 2019, respectively, but decreased to US$36.19 per barrel in the first six months of 2020.

Furthermore, the financial condition and results of operations of Harvest Operations Corp. ("Harvest Operations"), the Company's wholly owned subsidiary, are also affected by the price differentials between light oil and heavy oil. For the first six months of 2020, Harvest Operations' production was approximately 9% light and medium gravity crude oil, 38% heavy oil, 10% natural gas liquids and 43% natural gas. Processing and refining heavy oil is more expensive than processing and refining light oil and accordingly, producers of heavy oil receive lower prices than light oil for their production. The price differential between light oil and heavy oil has fluctuated widely during recent years, and has resulted in substantial increase in the volatility of heavy oil prices. An increase in the heavy oil price differential, normally caused by seasonal supply and demand, pipeline constraints and heavy oil processing capacities of refineries, all of which are beyond the control of Harvest Operations, usually results in Harvest Operations receiving lower prices for its heavy oil.

It is impossible to accurately predict future crude oil, natural gas or petroleum product price movements or price differentials between heavy and light oil. Accordingly, crude oil and natural gas prices may not remain at, and may vary significantly from, their current levels. When international crude oil and natural gas prices are low, the Company earns less sales revenue, and therefore earns less income because the Company's production costs remain relatively constant. Conversely, when crude oil and natural gas prices are high, the Company earns more sales revenue and its income increases. As a result, a substantial or extended decline in international crude oil and natural gas prices or price differentials between heavy and light oil would have a material adverse effect on the Company's business, financial condition and results of operations. The Company currently engages in only limited hedging transactions or other derivative trading to reduce the impact of the fluctuations of crude oil or gas prices on its financial condition.

***If future oil and gas prices are forecasted to decline substantially, the Company may be required to write down the book value of its assets, which may have a material adverse effect on the Company's business, financial condition and results of operations.***

The Company reviews its assets at the end of each reporting period, or more frequently when there is an indication that the asset may be impaired, to determine whether there is any indication of impairment. If any such indication exists, the Company estimates the recoverable amount of the relevant assets. The recoverable amount of an asset is the greater of its value in use, which is the estimated future net cash flow expected to be generated by the asset adjusted by a discount rate that reflects current market assessments of the time value of money and the risks specific to the asset, and its fair value less costs to sell. If the book value exceeds the recoverable amount of an asset, an impairment loss will be recognized and the book value of such asset will be adjusted to their recoverable amount.

The Company estimates the future net cash flows of its assets based on long-term forecasts from globally recognized research institutions. If such long-term forecasts estimate that oil and gas prices will decrease substantially, the Company may be required to recognize impairment losses on its assets. Likewise, certain of the entities in which the Company has made equity investments may be required to recognize impairment losses on their assets, which may contribute to the recognition of loss in investments in associates and joint ventures and financial assets at fair value through other comprehensive loss by the Company.

The Company recognized impairment losses on its oil and gas properties, net of reversals, of Won 157 billion in 2017, Won 250 billion in 2018, Won 151 billion in 2019 and Won 474 billion in the first six months of 2020 and impairment losses on intangible assets of Won 315 billion in 2017, Won 609 billion in 2018 and Won 48 billion in the first six months of 2020 due to decreases in forecasted oil prices and probable reserves and the return of mining rights. The Company recognized a net reversal of impairment losses on intangible assets of Won 35 billion in 2019 due to increases in probable reserves and others. Similarly, the Company recognized valuation losses of Won 85 billion, as well as impairment of available-for-sale financial assets of Won 72 billion, in 2017 primarily due to a decrease in the fair value of the Company's equity investment in EP Energy Corporation ("EP Energy") for the year ended December 31, 2017. The Company also recognized valuation losses of financial assets measured at fair value through other comprehensive income of Won 62 billion in 2018 and Won 27 billion in 2019 primarily due to valuation losses of EP Energy. In addition, the Company recognized impairment losses of Won 6 billion in 2017, Won 1 billion in 2018, Won 39 billion in 2019 and Won 53 billion in the first six months of 2020 from Offshore International Group, Inc. ("OIG"). Such recognition of impairment losses contributed to net losses of Won 737 billion in 2017, Won 1,160 billion in 2018, Won 155 billion in 2019 and Won 1,183 billion in the first six months of 2020.

The Company cannot accurately predict the amount or timing of any impairment of assets. If the Company is required to recognize an impairment loss on a significant portion of its assets, such impairment would have a material adverse effect on the Company's business, financial condition and results of operations.

### *If the Company is unable to dispose of its assets or reinvest the proceeds of any such disposal, each on acceptable terms, the Company's financial condition and results of operations may be adversely affected.*

Pursuant to the June 2016 Government Plan, the Company has developed and is implementing a plan for the sale of its interests in overseas exploration, development and production operations (taking into consideration strategic value and profitability) to third parties with preference given to institutional investors in Korea if possible and with an aim to maximize the returns on such sales. For example, the Company disposed of its (1) headquarters building in 2017, (2) interest in Harvest Operation's Wilson Creek fields in Canada in 2018 and (3) interest in Harvest Operation's Blueberry fields in Canada in 2019 pursuant to the June 2016 Government Plan. Although the Company is exploring potential avenues to dispose of certain of its assets, such disposals may require the consent of third parties outside of the Company's control, such as consents of lenders under its borrowings or general partners. Any potential transaction would be dependent upon a number of factors that may be beyond the Company's control, including, among other factors, market conditions, industry trends, the interest of third-parties and the availability of financing to potential buyers on reasonable terms. The ongoing global COVID-19 pandemic has had a material adverse effect on the global energy markets, including for oil producing assets, which may adversely affect the Company's ability to consummate such disposals. There can be no assurance that the Company will be able to consummate any such transaction on acceptable terms or at all. See "— The Company has experienced complete equity erosion in the first half of 2020 due to a large net loss resulting primarily from significant declines in the prices of crude oil," "— The Company's operations are affected by the volatility of prices for crude oil, natural gas and petroleum products and price differentials between heavy and light oil, and a substantial or extended decline or fluctuations in such prices or differentials would have a material adverse effect on the Company's business, financial condition and results of operations" and "— If future oil and gas prices are forecasted to decline substantially, the Company may be required to write down the book value of its assets, which may have a material adverse effect on the Company's business, financial condition and results of operations."

Even if the Company is successful in disposing of certain of its assets through a sale or otherwise, the Company may be required to recognize a loss in connection with such disposal if the disposal price of such assets is less than their respective book value. In addition, the Company may not be able to reinvest the proceeds of any disposal on acceptable terms or at all.

The Company's failure to successfully dispose of its assets or to reinvest the proceeds of any such disposal, each on acceptable terms, may have a material adverse effect on the Company's financial condition and results of operations.

### *The Company (excluding its subsidiaries) is restricted in the amount of bonds it can issue relative to the sum of its issued capital and reserves under the KNOC Act.*

Under the KNOC Act, the outstanding aggregate principal amount of the bonds issued by the Company (excluding its subsidiaries) cannot exceed twice the sum of the Company's issued capital and reserves. As of June 30, 2020, on a separate basis, the outstanding aggregate principal amount of bonds payable by the Company was Won 10.1 trillion and the Company's issued capital was Won 10.5 trillion (the Company did not have any reserves), representing a bond payables to share capital ratio of 0.96:1. The majority of the Company's outstanding indebtedness was incurred through bond issuances. See "Capitalization of the Company." The Company may be restricted in the amount of new bonds it can issue to finance its business and refinance its debt obligations as they become due as a result of the bond to issued capital and reserves ratio.

***Exploration drilling involves numerous risks, including risks that the Company will encounter no commercially productive crude oil or natural gas reserves.***

The Company is currently involved in exploration activities in various geographic areas, including in some areas where natural conditions may be challenging and where the costs of such exploration activities may be high. As a result, the Company may incur cost overruns or may be required to curtail, delay or cancel drilling operations because of many factors, including, but not limited to, the following:

- unexpected drilling conditions;
- pressure or irregularities in geological formations;
- equipment failures or accidents;
- adverse weather conditions, natural disasters and global health epidemics;
- compliance with environmental regulation;
- governmental requirements and standards; or
- delays in the availability of drillships and delivery and maintenance of equipment.

If the Company fails to conduct successful exploration activities or to acquire or retain assets holding proved reserves, its proved reserves will decline as it extracts crude oil and natural gas from the reservoirs. In addition, the volume of production from crude oil and natural gas properties generally decline as reserves are depleted. For example, the Company discontinued its exploration activities in the West Ferghana and Chinabad blocks in November 2017 and Block JDZ-Subzone 1 in Korea in June 2017 due to its determination that the areas did not contain economically viable hydrocarbon deposits. The Company is currently evaluating other potential exploratory projects. The Company's future production depends significantly upon its success in finding or acquiring additional reserves and retaining and developing such reserves. If the Company is unsuccessful, it may not meet its production or growth targets, and its total proved reserves and production will decline, which would adversely affect the Company's results of operations and financial condition.

***The Company's exploration, development and production activities require substantial expenditure and investments, and the Company's plans for, and its ability to make, such expenditures and investments are subject to various risks.***

Exploring, developing and producing crude oil and natural gas fields are capital-intensive activities with high risks. The Company incurred capital expenditures (consisting of cash used for acquisitions of (1) property, plant and equipment, (2) intangible assets other than goodwill and (3) investments in associates and joint ventures) of Won 850 billion for 2017, Won 669 billion for 2018, Won 560 billion for 2019 and Won 519 billion for the first six months of 2020. The Company's capital expenditure budget for 2020 for its exploration, development and production activities (including amounts expended through June 30, 2020) is approximately Won 1,305 billion on a consolidated basis, which represents an increase from its 2019 budget of Won 923 billion due to expectations of increased drilling activities during 2020.

The Company's ability to carry out its exploration, development and production activities and make the necessary capital expenditures and investments is subject to many risks, contingencies and other uncertainties, which may prevent the Company from achieving its desired results, or which may significantly increase the expenditures and investments that the Company makes, including, but not limited to, the following:

- the Company's ability to generate sufficient cash flows from operations to finance its expenditures, investments and other requirements, which are affected by changes in crude oil and natural gas prices and other factors;
- the availability and terms of external financing;
- the Company's mix of exploration and development activities conducted on an independent basis and those conducted jointly with other partners;

- the extent to which the Company's ability to influence or adjust plans for exploration- and development-related expenditures is limited under joint operating agreements for those projects in which the Company has partners;
- government approvals required for exploration- and development-related expenditures and investments in jurisdictions in which the Company conducts its business; and
- economic, political and other conditions in jurisdictions in which the Company conducts its business.

***The Company is subject to the control of the Government, and its activities are heavily regulated.***

The Company was established under the KNOC Act to, among other policy objectives, secure Korea's supply of crude oil in times of large oil price fluctuations or shortages. From time to time, the Company is required to take action in furtherance of public policy considerations and the Government's broader objectives for the crude oil and natural gas industry, which may not necessarily be in the Company's best commercial interests or the interests of the Noteholders. As of the date of this Offering Circular, the Government holds 100.00% of the Company's issued share capital. Accordingly, the Government is able to elect the Company's board of directors including the president of the board of directors (the "President"), as well as control its management. Although the Company's management runs the day-to-day operations, the Government may determine material policies relating to the direction of the Company's business. For example, public policy considerations relating to the level of the Company's exploration and production activities or stockpiling activities may affect the Company's results of operations. The Government has historically influenced, and is likely to continue to influence, the Company's strategy and operations. For instance, in June 2016, the Ministry of Economy and Finance and the Ministry of Trade, Industry and Energy announced broad-based measures (the "June 2016 Government Plan") to rationalize the overseas natural resource exploration, development and production activities of government-controlled enterprises, including the Company. Pursuant to such improvement measures, the Company has developed and is implementing a plan for the sale of its interests in overseas exploration, development and production operations (taking into consideration strategic value and profitability) to third parties with preference given to institutional investors in Korea if possible and with an aim to maximize the returns on such sales. For example, the Company disposed of its (1) headquarters in 2017, (2) interest in Harvest Operation's Wilson Creek fields in Canada in 2018 and (3) interest in Harvest Operation's Blueberry fields in Canada in 2019 pursuant to the June 2016 Government Plan. The timing of any such sales will be subject to market conditions and the Company will be limited from entering into any new overseas investments other than any such investments that are in furtherance of important policy objectives. In addition, pursuant to the June 2016 Government Plan, the responsibility for administrative tasks related to the day-to-day operation of the SAER funds and the administration of SAER loans for oil-related projects, other than the administration of taxes and dues, were transferred from the Company to the Korea Energy Agency in July 2017. See "Business — Relationship with the Government."

The Company is also heavily regulated by a variety of laws and government bodies, including the Ministry of Trade, Industry and Energy and the Ministry of Economy and Finance. The Ministry of Trade, Industry and Energy, among other things, establishes policies relating to crude oil production and stockpiling. In addition, the Company must receive the Ministry of Trade, Industry and Energy's consent in most instances, and in some cases must seek amendments to current laws, to expand its operations into new businesses outside of its core operations. This may cause delays in or cancellations of the Company's plans to expand its core business, which may adversely affect the Company's results of operations and financial condition. See "Regulation."

***Earthquakes, tsunamis, floods, severe health epidemics (including the ongoing global COVID-19 pandemic and any possible recurrence of other types of widespread infectious diseases) and other natural calamities could materially adversely affect the Company's business, results of operations or financial condition.***

If earthquakes, tsunamis, floods, severe health epidemics or any other natural calamities were to occur in any area where any of the Company's assets, exploration, production or development projects or customers are located, the Company's business, results of operations or financial condition could be adversely affected. As of

June 30, 2020, the Company had interests in 32 exploration, production and development projects located across 16 countries, including Canada, Korea, the United Arab Emirates, the UK, the United States, Vietnam and Yemen. Any occurrence of such natural calamities in countries where the Company's exploration, production or development projects are located may lead to reduced production or delays in the production of crude oil or natural gas. In addition, natural calamities in areas where the Company's customers are located, including Canada, Europe and Korea, may cause disruptions in their businesses, which in turn could adversely impact their demand for the Company's crude oil and natural gas, which may also lead to lower prices for such crude oil and natural gas.

In particular, COVID-19, an infectious disease caused by severe acute respiratory syndrome coronavirus 2 that was first transmitted to humans in November 2019 and has spread globally, has materially and adversely affected the global economy and financial markets in recent months as well as disrupted the Company's business operations. For example, the Company's Block 8 in Peru has been shut down since April 2020 due to the country-wide lockdown announced by the President of Peru. While the Company is currently following recommendations of each relevant government to minimize exposure risk for the employees at its projects, the impact of COVID-19, and the duration of the business disruptions and related financial impacts cannot be reasonably estimated at this time.

While the Company believes that COVID-19 has not caused material disruption to its business operations to date, COVID-19 has had a material adverse effect on the overall Korean and global economies and the demand for, and the prices and margins of, the Company's products during the first six months of 2020 and beyond. Primarily as a result of such effect, including the decrease in crude oil prices described in "— The Company's operations are affected by the volatility of prices for crude oil, natural gas and petroleum products and price differentials between heavy and light oil, and a substantial or extended decline or fluctuations in such prices or differentials would have a material adverse effect on the Company's business, financial condition and results of operations," the Company's revenues decreased to Won 1,028 billion in the first six months of 2020 from Won 1,460 billion in the first six months of 2019, and the Company recognized loss for the period of Won 1,183 billion in the first six months of 2020 compared to profit for the period of Won 108 billion in the first six months of 2019.

Risks associated with a prolonged outbreak of COVID-19, which was declared a pandemic in March 2020 by the World Health Organization, or other types of widespread infectious diseases include:

- disruption in the normal operations of the businesses of the Company's customers, which in turn may decrease demand for the Company's crude oil and natural gas and adversely affect their prices;
- disruption in the normal operations of the Company's business resulting from contraction of COVID-19 by the Company's employees or those of the Company's exploration, production and development projects, which may necessitate such employees to be quarantined and/or the Company's exploration, production and development projects or offices to be temporarily shut down, which in turn may adversely impact the Company's production capacity;
- disruption in the distribution of the Company's crude oil and natural gas to its customers;
- disruption resulting from the necessity for social distancing, including implementation of temporary adjustment of work arrangements requiring employees to work remotely, which may lead to a reduction in labor productivity;
- unstable global and Korean financial markets, which may adversely affect the Company's ability to meet its funding needs on a timely and cost-effective basis; and
- impairments in the fair value of the Company's investments in companies that may be adversely affected by the pandemic, which in turn may adversely affect the sale of the Company's overseas assets pursuant to the June 2016 Government Plan.

It is not possible to predict the duration or full magnitude of harm from COVID-19. In the event that COVID-19 or other types of widespread infectious diseases cannot be effectively and timely contained, the Company's business, financial condition and results of operations may be materially adversely affected.

***The crude oil and natural gas reserve estimates in this Offering Circular are only estimates, and may require substantial revisions as a result of future drilling, testing and production, and as such, the Company's actual production, revenues and expenditures may also differ materially from estimates.***

This Offering Circular includes estimates made by the Company of the Company's proved crude oil and natural gas reserves. Petroleum engineering is a subjective process of estimating underground accumulations of crude oil and natural gas that cannot be measured in an exact manner. The reliability of the estimates of the value and quantity of economically recoverable crude oil and natural gas reserves, rates of production, and the timing of development expenditures depend upon several variables and assumptions, including but not limited to the following:

- quality and quantity of the technical and economic data used in the estimation process;
- extensive engineering judgments;
- interpretation of geological and geophysical data;
- continuity of current fiscal policy and regulatory regime in the countries where the reserves are located;
- assumptions concerning future crude oil and natural gas prices;
- capital expenditures; and
- assumptions concerning future operating costs, development and production costs and workover and remedial costs.

Many of the factors, assumptions and variables involved in estimating reserves are beyond the Company's control and may prove to be incorrect over time. As a result, the Company's reserve estimates may require substantial upward or downward revisions if subsequent drilling, testing and production reveal different results. Any downward adjustment could indicate lower future production and thus adversely affect the Company's business, financial condition and future prospects.

***Any failure to acquire rights to or discover additional crude oil and natural gas reserves that can be developed for commercially viable production or any failure to develop the proved undeveloped reserves in which the Company has invested could adversely affect the Company's business, financial condition and results of operations.***

Success of the Company's business depends largely on acquiring rights to or discovering additional crude oil and natural gas reserves that can be developed for commercially viable production. If the acquisition and exploration activities in which the Company participated or which it conducts are not successful, the Company's total proved reserves and future production will decline. In addition, approximately 42% of the Company's proved reserves were undeveloped as of June 30, 2020. The Company's future success will also depend on its ability to develop these reserves in a timely and cost-effective manner. If the Company is unable to generate profitable production from such reserves, its business, financial condition and results of operations could be adversely affected.

There are many reasons why the Company may not be able to acquire rights to, or discover crude oil and natural gas reserves, or develop them for commercially viable production, including, but not limited to, the following:

- the Company may be unable to negotiate commercially reasonable terms for such acquisition, exploration, development or production activities;
- the Company may be unable to limit development and production costs because of, for example, adverse weather, natural disasters, global health epidemics, environmental considerations, equipment shortages, procurement delays or difficulties arranging transportation for production, all of which may make it uneconomical to proceed with developing such reserves;
- the Company may face difficulties arising from political, environmental and other conditions in the areas where the reserves are located or through which its products are transported or where its products are stored; or

- a partner company on which the Company relies as operator may commit errors or misjudgments, and the Company has limited ability to control day-to-day activities on a project on which it is not the operator.

### *The Company may encounter problems with its joint overseas exploration and production projects over which it may have limited control, and such problems may adversely affect its business.*

Many of the Company's overseas exploration and production projects and other infrastructure projects are conducted with consortium partners or in joint ventures. The Company sometimes lacks a controlling interest in these projects even though the Company sometimes holds the largest interest in the projects among the consortium partners, and may have limited ability to influence or control operations or future developments. Therefore, the Company at times is unable to require that its joint ventures sell assets or return invested capital, make additional capital contributions or take any other action without the vote of at least a majority of its consortium partners. If there are disagreements between the Company and its consortium partners or among the other consortium partners regarding the business and operations of the joint projects, the Company cannot assure you that it will be able to resolve them in a manner that will be in the Company's best interests. Certain major decisions, such as selling or refinancing these projects, may require the consent of all other consortium partners. These limitations may adversely affect the Company's ability to sell, refinance, or otherwise operate and profit from these projects.

- In addition, the Company's consortium partners may:
- have economic or business interests or goals that are inconsistent with the Company;
- take actions contrary to the Company's instructions, requests, policies or objectives;
- be unable or unwilling to fulfill their obligations;
- have financial difficulties; or
- have disputes with the Company as to their rights, responsibilities and obligations.

Any of these or any other factors may have a material adverse effect on the performance of the Company's joint projects and expose them to a number of risks, including the risk that these projects may not be able to fulfill their obligations under contracts with customers, resulting in disputes not only between the Company and its partners, but also between the joint ventures and their customers. Such a material adverse effect on the performance of the Company's joint projects may in turn materially and adversely affect the Company's results of operations and financial condition.

### *Failure to implement key elements of the Company's strategy could have a material adverse effect on its business and results of operations.*

A major element of the Company's business strategy is to achieve growth through exploration activities. The Company produced approximately 172,000 barrels of oil equivalent of crude oil and natural gas per day as of June 30, 2020, and is targeting to maintain its production at approximately 156,000 barrels per day in 2020. Both the process of drilling new productive wells and acquisition of other companies are affected by many factors beyond the Company's control, and it may not be able to achieve the desired objectives. Where the Company enters into joint ventures with partners in exploration and production projects, the Company may not act as an operator and will need to depend on its partners for their financial commitment and technical expertise. The Company cannot guarantee that its partners will successfully execute the business plans and strategies formulated for the joint ventures.

The ability to meet increasing exploratory and development drilling targets depends to a large extent on the ability to secure access to rigs. Third party rigs are in great demand at a time of limited rig availability, and there can be no guarantee that the Company or the operator of any exploration and development project in which the Company participates will be able to secure access to rigs in a sufficient quantity at a cost effective price to meet drilling targets at acceptable costs, or at all.

***If the Company is unable to achieve the expected benefits of acquisitions, including realization of adequate rate of return on prices paid, successful integration of the acquired businesses and/or assets, the Company's business, financial condition and results of operations may be adversely affected.***

Success of an acquisition or other similar transactions depends, in part, on the Company's ability to realize adequate return on the prices paid for properties, the anticipated synergies, cost savings and growth opportunities from integrating the business of the acquired company or the asset with its business. The prices paid by the Company for acquisitions are based, in part, on engineering and economic assessments made by the Company's engineers. These assessments include a number of material assumptions regarding such factors as recoverability and marketability of crude oil, natural gas and natural gas liquids, future prices of oil, natural gas and natural gas liquids and operating costs, future capital expenditures and royalties and other taxes which will be imposed over the producing life of the reserves. Many of these factors are subject to change and are beyond the Company's control. In particular, the prices of and markets for petroleum and natural gas may change from those anticipated at the time of making acquisitions. In addition, all engineering assessments involve a measure of geological and engineering uncertainty, which could result in lower production and reserves than those attributed to the properties when they were acquired. For example, for the reasons described above: (i) in 2017, the Company recognized impairment losses on oil and gas properties of Harvest Operations of Won 25 billion and impairment losses on goodwill of Harvest Operations of Won 87 billion; (ii) in 2018, the Company recognized impairment losses on oil and gas properties of ANKOR E&P Holdings Corporation of Won 40 billion; (iii) in 2019, the Company recognized impairment losses on oil and gas properties of Dana Petroleum Limited ("Dana Petroleum") of Won 94 billion; and (iv) in the first six months of 2020, the Company recognized impairment losses on oil and gas properties of Block 11-2 in Vietnam of Won 1 billion.

Furthermore, the integration of two independent companies is a complex, costly and time-consuming process. The difficulties of combining the operations of two companies include, among others:

- retaining key employees and senior management team;
- lack of experience in managing large operations;
- consolidating corporate and administrative infrastructures;
- preserving important relationships of the companies;
- integrating and managing information technology systems of the companies;
- using the acquired company's liquid capital and other assets efficiently to develop the business of the combined company;
- consolidating research and development operations;
- diverting management's attention from ongoing business concerns;
- coordinating geographically separate organizations; and
- the time required before the benefits of the acquisition are realized.

There can be no assurance that the Company will receive all of the anticipated benefits of any transaction, including recovery of costs paid for properties or companies, or that any of the risks described above will not occur. The Company's failure or inability to identify suitable candidates and complete acquisitions, joint ventures or other similar transactions, to raise sufficient capital for the transactions at a commercially reasonable cost and eventually recover such costs, or to receive anticipated benefits of any such transaction could significantly harm its business, financial condition and results of operations.

***Exploring, developing, producing, transporting and stockpiling activities involve numerous risks that may result in accidents and other substantial operating risks and costs, for which the Company may not be fully insured.***

The Company is subject to exploration, development, production, equipment, transportation and stockpiling risks that are common among upstream oil and gas companies, including, but not limited to, the following:

- exploration and production risks: risks related to fluctuations in production that may be affected by reserve levels, accidents, mechanical difficulties, work stoppages, adverse natural conditions, global health epidemics, as well as the inability to manage unforeseen production costs;
- equipment risks: risks related to adequacy and condition of the production facilities, including situations where equipment, especially the equipment for stockpiling, becomes obsolete;
- transportation risks: risks related to the condition of pipelines and vulnerability and costs of other modes of transportation, such as oil tankers; and
- stockpiling risks: risks related to the condition of storage tanks and other stockpiling facilities and their compliance with safety and environmental standards.

In particular, the Company's business is subject to significant risk of pipeline explosions, oil spills and leaks, unexpected geological formations or pressures, sudden blowouts, violent explosions of oil, natural gas or water from drilling wells followed by uncontrolled flow, fires and mechanical failures and collapsed holes, particularly in horizontal wellbores. There can be no assurances that such accidents will not occur.

The occurrence of any of these events could result in the loss of human life, significant damage to property, environmental pollution, impairment of the Company's operations and substantial financial and reputational losses to the Company. For the Company's pipelines, stockpile facilities or production facilities located near populated areas, including residential areas, commercial business centers, industrial sites and other public gathering areas, the potential damage resulting from the occurrence of these events is greater. The Company maintains insurance against certain of these risks and losses in accordance with customary industry practice. However, these insurance policies do not cover all potential liabilities that may result from these risks. The occurrence of any of these events not fully covered by insurance would require the Company to cover the damages with its own funds, thereby reducing its profits, which could have a material adverse effect on the Company's financial condition and results of operations.

***The Company is exposed to political, economic, regulatory and legal risks related to countries where it participates in exploration, development and production projects.***

The Company currently has operations and assets in various foreign countries and regions, including Egypt, Kazakhstan, Libya, Nigeria and Yemen. The Company is subject to political, legal and regulatory environments in these countries, some of which are known to be unstable, and differ in certain significant respects from those prevailing in developed countries. The Company is currently involved in disputes in certain countries in which it operates. See "Business — Legal Matters."

In addition, the Company's results of operations may be adversely affected by a number of factors in the countries in which it operates or has interests, including, but not limited to, the following:

- changes in international and domestic political and economic conditions, as well as social conditions;
- challenges caused by distance, language, local business customs and cultural differences;
- difficulty in obtaining licenses, permits or other regulatory approvals from local authorities and in enforcing the Company's rights under contracts;
- with respect to those countries that are members of OPEC, the lowering of petroleum production volume pursuant to OPEC policy;
- changes in laws, regulations or government policies, or in the interpretation or enforcement of laws, regulations and government policies, including changes driven by resource nationalism, or uncertainties thereof;

- measures which may be introduced to control inflation;
- changes in the rate or method of taxation;
- imposition of additional restrictions on currency conversion and remittances abroad;
- military hostilities, war, political unrest or acts of terrorism targeted at the Company's fields or facilities;
- reduction in tariff protection and other import restrictions;
- natural disasters and epidemics or outbreaks, such as the COVID-19 pandemic;
- international economic sanctions;
- anti-corruption laws compliance; and
- changes in the usage and costs of state-controlled transportation services.

Any failure on the Company's part to recognize or respond to these challenges may adversely affect the success of its operations in those markets, which in turn could materially and adversely affect the Company's business and results of operations.

***The Company's business operations may be adversely affected by present or future environmental or safety regulations.***

The Company's activities, including activities through Harvest Operations and Dana Petroleum, are subject to a wide variety of federal, state and local laws and regulations and permit requirements relating to the safety and protection of human health and the environment, in Korea, Canada and the UK and other jurisdictions in which it has operations. For a discussion of the environmental laws and regulations in Korea that are relevant for the Company, see "Regulation — Environmental Legislation." The Company incurs, and expects to incur, capital and operating costs in order to comply with such laws and regulations, which are becoming increasingly complex. The introduction of new laws and regulations, the imposition of tougher requirements in licenses, or increasingly strict enforcement or new interpretations of existing laws, regulations and licenses may require further expenditure to modify operations, install pollution control equipment, or curtail or cease certain operations. In addition, the discovery of previously unknown contaminations may require site clean-ups and the payment of fees, fines or other payments for pollution, discharges or other breaches of environmental requirements. In addition, in joint projects where the Company does not act as the operator, it relies on its partners to comply with the applicable environmental regulations and may incur additional expenses or liabilities if its partners fail to comply.

Furthermore, international and national commitments to reduce greenhouse gas emissions and counteract climate change may lead to increased costs for the Company. Carbon tax proposals in various jurisdictions as well as consumer preference changes in response to growing concerns of climate change could stimulate the emergence of alternative technologies and renewable energy availability, which may impact demand for oil and gas while increasing corporate expenses. The Company's oil sands activities in Canada could be particularly affected by international and national carbon emissions reduction targets, taxes, and other carbon emissions related regulations.

The Company believes that the facilities and operations in which it holds interests are in material compliance with the requirements of the relevant environmental protection laws and safety regulations. While the costs of the measures taken to comply with such laws or regulations have not had a material adverse effect on the Company's financial condition or results of operations to date, the costs of such measures and liabilities related to damages caused by the Company's operations may increase in the future. Also, if the Company is unable to comply with the applicable laws and regulations, the local government may, at its discretion, close the non-complying facility, or force the Company to cease operations until proper compliance is made. Such increases in environmental or safety compliance costs or disruptions in operations may have a material adverse effect on the Company's results of operations and financial condition.

### *The Company faces competition from other oil and natural gas companies in a majority of its operations.*

The oil and gas industry is highly competitive, and the Company competes with much larger, well-established companies with substantially greater financial, human, technical and other resources. Some of these competitors have been engaged in the oil and gas business for much longer than the Company, and have strong market power through a combination of different factors, such as diversification and reduction of risk, financial strength, exploitation of benefits of integration and economic scale, strengthening of their positions in the global market and their relations with the governments of oil and gas producing countries. Many of these competitors also have greater financial capacity to fund acquisitions of oil and gas properties and conduct oil and gas exploration, development and production than the Company. As such, they may be able to identify, bid for and purchase a greater number of properties and prospects, including operatorships and licenses, than the Company's financial or human resources permit. The Company's competitors include major international oil and gas companies, independent oil and gas companies and state-owned oil and gas companies. Significant competitive pressure could make it difficult for the Company to acquire additional exploration licenses and development and production leases or acquire attractive companies and assets in the oil and gas sector, thereby causing a material adverse effect on its business, financial condition and results of operations.

### *The Company's business may be materially and adversely affected by legal claims and regulatory actions against it.*

The Company is subject to the risk of legal claims and regulatory actions in the ordinary course of its business, which may expose it to substantial monetary damages and legal costs, injunctive relief, criminal and civil penalties, sanctions against its management and employees and regulatory restrictions on its operations, as well as significant reputational harm. See "Business — Legal Matters."

In June 2015, the Seoul Central District Prosecutor's Office arrested Mr. Young Won Kang, former chief executive officer of the Company who left the Company in June 2012, and in July 2015 indicted him on charges of breach of fiduciary duty, for allegedly wasting corporate funds by making financially unsound acquisitions during his tenure, including North Atlantic Refining Limited. The Seoul District Court and, on appeal, the Seoul High Court ruled in favor of Mr. Kang. The case has been appealed to the Supreme Court of Korea in September 2016, where it is currently pending. The Company believes that this court proceeding will not have a material effect on its financial liability, based on the current status of the trial, but it can make no assurances with respect thereto.

In February 2020, the Courts of England issued an interim charging order on all of Dana Petroleum's issued shares, which are owned by the Company, in connection with a dispute filed by Mohammad Reza Dayyani and others against the Government, which owns all of the Company's shares. Neither the Company nor Dana Petroleum is party to the aforementioned dispute. The Company understands that the Government is preparing an appeal to set aside the charging order.

In February 2020, the Busan Regional Office of the National Tax Service commenced a tax audit of the Company. As a result of the tax audit, the Company received a notification in July 2020 assessing additional taxes of Won 69 billion and the Company has requested a re-evaluation of such assessment in August 2020.

The Company is unable to predict the outcome of these and other investigations, lawsuits and regulatory actions, and the scope of the investigations in these matters may increase. Additional investigations may be launched by governmental authorities or civil claims may be filed against the Company in the future with respect to these or other alleged legal violations by the Company and its officers and employees. An adverse determination in any such proceedings may result in significant regulatory sanctions as well as reputational harm to the Company, which in turn may have a material adverse effect on the Company's business, results of operations and financial condition.

### *Harvest Operations is subject to certain risks related to the BlackGold oil sands project, which in turn may have an adverse effect on the Company.*

The Company acquired a 100.00% interest in an oil sands lease for the BlackGold area located in northeastern Alberta in August 2006. In August 2010, the interest in the BlackGold oil sands project was transferred to Harvest Operations for approximately CAD 374 million, which was funded by Harvest Operations through the issuance of additional capital stock to the Company. The initial phase of the project commenced production of approximately 8,000 to 9,000 barrels per day in September 2018. The expansion phase of the BlackGold project, which is targeted to expand production to 30,000 barrels per day, was approved by provincial regulators in 2013.

The further development of the expansion phase of the BlackGold project will require substantial capital investment by Harvest Operations. The BlackGold project competes for cash flows against Harvest Operations' other capital projects and cash commitments. Harvest Operations may not have sufficient capital resources to finance all its projects and may delay or curtail certain development projects, including the BlackGold project. To help Harvest Operations fund the BlackGold project's initial capital, the Company has also injected approximately CAD 86 million of capital through the subsequent issuance of additional capital stock by Harvest Operations in 2010. Harvest Operations may require additional capital from the Company if it cannot finance the BlackGold project through operating cash flow, additional borrowings or proceeds from the sale of its assets.

As is the case with any large scale, technically complex project, the ongoing development of the BlackGold project subjects Harvest Operations to risks associated with cost overruns, scheduling delays and unforeseen technical challenges, including as a result of third-party performance failures, fluctuating market conditions, delays in regulatory approvals and other unexpected challenges. Any failure on Harvest Operations' part to recognize or respond to these and other risks may adversely affect the success of its operations, financial position and cash flows, which in turn could materially and adversely affect the Company's business and results of operations, or require the Company to make additional capital injections.

## Risks Relating to Korea

### *The Company is significantly supported by the Government, and its current business and future growth could be materially and adversely affected if financial and economic conditions in Korea deteriorate.*

The Company is wholly owned by the Government and serves as an execution arm for Government policies and businesses relating to oil, supported by significant capital contributions and other support from the Government. The Company's headquarters and significant parts of its operations, customers and assets are also located in Korea. Accordingly, the Company's performance and successful fulfillment of its operational strategies are necessarily dependent on the overall Korean economy and the resulting impact on the need for energy, including crude oil and natural gas. The economic indicators in Korea, including gross domestic product ("GDP"), in recent years have shown mixed signs of growth and uncertainty. For example, based on preliminary data, GDP in the second quarter of 2020 contracted by 2.7% at chained 2015 year prices primarily as a result of the ongoing global outbreak of the COVID-19 pandemic. Future growth of the Korean economy is subject to many factors beyond the control of the Company, including developments in the global economy. Any future deterioration of the Korean or global economy could adversely affect the business, financial condition and results of operations of the Company.

Factors that could adversely affect the future performance of the Korean economy include:

- adverse developments in the economies of countries and regions that are important export markets for Korea, such as China, the United States, Europe and Japan, or in emerging market economies in Asia or elsewhere, including as a result of uncertainty in economic and trade relations between the United States and China and uncertainty regarding the UK's exit from the European Union;
- declines in consumer confidence and a slowdown in consumer spending in the Korean or global economy;
- adverse changes or volatility in foreign currency reserve levels, commodity prices (including oil prices), exchange rates (including fluctuation of the Dollar, the Euro or the Yen exchange rates or revaluation of the Chinese Renminbi), interest rates, inflation rates or stock markets;
- the occurrence of severe health epidemics in Korea and other parts of the world (such as the ongoing global outbreak of COVID-19, which has been characterized as a pandemic by The World Health Organization);

- the emergence of the Chinese economy, to the extent its benefits (such as increased exports to China) are outweighed by its costs (such as competition in export markets or for foreign investment and the relocation of the manufacturing base from Korea to China), as well as a slowdown of economic growth and financial instability in China;
- investigations of large Korean business groups and their senior management for possible misconduct;
- increased sovereign default risk in select countries and the resulting adverse effects on the global financial markets;
- a continuing rise in the level of household debt and increasing delinquencies and credit defaults by retail and small- and medium-sized enterprise borrowers in Korea;
- the economic impact of any pending or future free trade agreements;
- social and labor unrest;
- substantial decreases in the market prices of Korean real estate;
- a decrease in tax revenue and a substantial increase in the Government's expenditures for fiscal stimulus measures, unemployment compensation and other economic and social programs that, together, would lead to an increased government budget deficit;
- financial problems or lack of progress in the restructuring of Korean business groups, other large troubled companies, their suppliers or the financial sector;
- loss of investor confidence arising from corporate accounting irregularities or corporate governance issues at certain Korean companies;
- increases in social expenditures to support an aging population in Korea or decreases in economic productivity due to the declining population size in Korea;
- geo-political uncertainty and the risk of further attacks by terrorist groups around the world;
- deterioration in economic or diplomatic relations between Korea and its trading partners or allies, including deterioration resulting from territorial or trade disputes or disagreements in foreign policy, in particular the ongoing trade disputes with Japan;
- political uncertainty or increasing strife among or within political parties in Korea;
- hostilities or political or social tensions involving oil producing countries in the Middle East (including a potential escalation of hostilities between the United States and Iran) and North Africa, and any material disruption in the global supply of oil or sudden increase in the price of oil;
- natural or man-made disasters that have a significant adverse economic or other impact on Korea or its major trading partners;
- political or social tensions involving Russia and any resulting adverse effects on the global supply of oil or the global financial markets; and
- an increase in the level of tensions or an outbreak of hostilities between North Korea and Korea or the United States.

***Escalations in tensions with North Korea could have an adverse effect on the Company and the market value of the Notes.***

Relations between Korea and North Korea have been tense throughout Korea's modern history. The level of tension between the two Koreas has fluctuated and may increase abruptly as a result of current and future events. In particular, there have been heightened security concerns in recent years stemming from North Korea's nuclear weapon and ballistic missile programs as well as its hostile military actions against Korea. Some of the significant incidents in recent years include the following:

- North Korea renounced its obligations under the Nuclear Non-Proliferation Treaty in January 2003 and conducted six rounds of nuclear tests since October 2006, including claimed detonations of hydrogen bombs, which are more powerful than plutonium bombs, and warheads that can be mounted on ballistic missiles. Over the years, North Korea has also conducted a series of ballistic missile tests, including missiles launched from submarines and intercontinental ballistic missiles that it claims can reach the United States mainland. In response, the Government has repeatedly condemned the provocations and flagrant violations of relevant United Nations Security Council resolutions. In February 2016, the Government also closed the inter-Korea Gaesong Industrial Complex in response to North Korea's fourth nuclear test in January 2016. Internationally, the United Nations Security Council has passed a series of resolutions condemning North Korea's actions and significantly expanding the scope of sanctions applicable to North Korea, most recently in December 2017 in response to North Korea's intercontinental ballistic missile test in November 2017. Over the years, the United States and the European Union have also expanded their sanctions applicable to North Korea.

- In March 2010, a Korean naval vessel was destroyed by an underwater explosion, killing many of the crewmen on board. The Government formally accused North Korea of causing the sinking, while North Korea denied responsibility. Moreover, in November 2010, North Korea fired more than one hundred artillery shells that hit Korea's Yeonpyeong Island near the Northern Limit Line, which acts as the de facto maritime boundary between Korea and North Korea on the west coast of the Korean peninsula, causing casualties and significant property damage. The Government condemned North Korea for the attack and vowed stern retaliation should there be further provocation.

North Korea's economy also faces severe challenges, which may further aggravate social and political pressures within North Korea.

Although bilateral summit meetings were held between Korea and North Korea in April, May and September 2018 and between the United States and North Korea in June 2018, February 2019 and June 2019, there can be no assurance that the level of tensions affecting the Korean peninsula will not escalate in the future. Any increase in tensions, which may occur, for example, if North Korea experiences a leadership crisis, high-level contacts between Korea and North Korea or between the United States and North Korea break down or military hostilities occur, could have a material adverse effect on the Korean economy and on the Company's business, financial condition and results of operations and the price of the Notes, including a downgrade in the Company's credit rating or of the Notes.

### *There are special risks involved with investing in securities of Korean companies, including the possibility of restrictions being imposed by the government in emergency circumstances as well as accounting and corporate disclosure standards that differ from those in other jurisdictions.*

As the Company is a Korean company and operates in a business and cultural environment that is different from that of other countries, there are risks associated with investing in its securities that are not typical for investments in securities of companies in other jurisdictions.

Under the Foreign Exchange Transactions Act of Korea and the Presidential Decree and regulations under that Act and Decree (collectively referred to as the "Foreign Exchange Transactions Laws"), if the Government deems that certain emergency circumstances, including sudden fluctuations in interest rates or exchange rates, extreme difficulty in stabilizing the balance of payments or substantial disturbance in the Korean financial and capital markets, are likely to occur, it may impose any necessary restriction such as requiring Korean or foreign investors to obtain prior approval from the Minister of Economy and Finance for the acquisition of Korean securities or for the repatriation of interest, dividends or sales proceeds arising from Korean securities or other types of capital transactions. Moreover, if the Government deems it necessary on account of war, armed conflict, natural disaster or grave and sudden changes in domestic or foreign economic circumstances or similar events or circumstances, the Minister of Economy and Finance may temporarily suspend performance under any or all foreign exchange transactions, in whole or in part, to which the Foreign Exchange Transactions Laws apply (including suspension of payment and receipt of foreign exchange) or impose an obligation to deposit or sell any means of payment to the Bank of Korea or certain other governmental agencies or financial institutions.

In addition, the Company prepared and included in this Offering Circular its consolidated financial statements as of and for the years ended December 31, 2017, 2018 and 2019 and its interim consolidated financial statements as of June 30, 2020 and for the six-month periods ended June 30, 2020 and 2019 in accordance with the Government Accounting Standards or K-IFRS, as the case may be, and expects to prepare its financial statements in accordance with the Government Accounting Standards or K-IFRS, as the case may be, for future periods, which differ in certain respects from accounting principles applicable to companies in certain other countries, including the United States. In addition, the Company is not a listed company but makes public disclosures regarding aspects of its business pursuant to the Act on the Management of Public Institutions and other laws applicable to the Company. These disclosure rules differ in many material respects from those applicable to companies in certain other countries, including the United States. In making an investment decision, investors must rely upon their own examination of the Company, the terms of the offering and the financial information contained in this Offering Circular.

#### *The Company is generally subject to Korean corporate governance and disclosure standards, which differ in significant respects from those in other countries.*

Korean companies, including the Company, are subject to corporate governance standards applicable to Korean companies that differ in many respects from standards applicable in other countries, including the United States. The Company's operations and management are also subject to the Act on the Management of Public Institutions pursuant to Article 18 of the KNOC Act. See "Management." There may also be less publicly available information about Korean companies, such as the Company, than is regularly made available by public or non-public companies in other countries or limited public information available in English. Such differences in corporate governance standards and less public information could result in less than satisfactory corporate governance practices or disclosure to investors in certain countries.

### Risks Relating to the Notes

#### *The Notes are not guaranteed by the Republic of Korea.*

The Notes are not the obligations of, or guaranteed by, the Republic of Korea. Although under the KNOC Act, the Government is allowed, but not obligated, to guarantee bonds offered by the Company, it is not providing a guarantee in respect of the Notes. In addition, the Government is under no obligation to maintain the solvency of the Company. Therefore, investors should not rely on the Government to fulfill the Company's obligations under the Notes in the event the Company is unable to do so.

#### *The Notes are unsecured obligations.*

Because the Notes are unsecured obligations, their repayment may be compromised if:

- the Company enters into bankruptcy, liquidation, rehabilitation or other winding-up proceedings;
- there is a default in payment under the Company's future secured indebtedness or other unsecured indebtedness; or
- there is an acceleration of any of the Company's indebtedness.

If any of these events occurs, the Company's assets may not be sufficient to pay amounts due on any of the Notes. In addition, any secured indebtedness incurred by the Company would have priority over its unsecured indebtedness to the extent of the assets securing such indebtedness.

#### *The Notes are subject to transfer restrictions.*

The Notes will not be registered under the Securities Act or any state securities laws of the United States and may not be offered or sold to any person in the United States, or to, or for the account or benefit of, U.S. persons except pursuant to an exemption from, or, in a transaction not subject to, the registration requirements of the Securities Act. For a further discussion of the transfer restrictions applicable to the Notes, see "Subscription and Sale and Transfer and Selling Restrictions — Transfer Restrictions."

***The Notes may have limited liquidity.***

There can be no assurance as to the liquidity of, or the development and continuation of an active trading market for, the Notes. If an active trading market for the Notes does not develop or is not maintained, the market price and liquidity of the Notes may be adversely affected. If an active trading market for the Notes were to develop, the Notes could trade at prices that may be higher or lower than the offering price depending on many factors, including:

- prevailing interest rates;
- the Company's results of operations, financial condition and future prospects;
- political and economic developments in and affecting Korea;
- the market conditions for similar securities; and
- the financial condition and stability of the Korean oil industry and the Korean and Singaporean financial markets.

***The Notes may be redeemed by the Company in certain circumstances.***

If Issuer call is specified in the applicable pricing supplement, the Company may redeem all or some only of the Notes then outstanding on any Optional Redemption Date and at the Optional Redemption Amount(s) (each as defined in the "Terms and Conditions of the Notes") specified in the applicable Pricing Supplement together (if appropriate) with interest accrued to (but excluding) the relevant Optional Redemption Date. Furthermore, the Notes may be redeemable at the option of the Company, in whole but not in part, at their Early Redemption Amount (as defined in the "Terms and Conditions of the Notes") together (if appropriate) with interest accrued to (but excluding) the date of redemption, upon the occurrence of certain changes in applicable tax laws and regulations which requires the Company to pay additional amounts on payments of principal and interest in respect of the Notes due to withholding or deduction required by law. See "Terms and Conditions of the Notes — Condition 8 (Redemption and Purchase)."

Accordingly, holders of the Notes should not rely on being able to hold the Notes until their maturity date. The date on which the Company elects to redeem the Notes may not align with the preference of holders of the Notes, and such election by the Company may be disadvantageous to holders of the Notes in light of market conditions or the individual circumstances of such holders. In addition, if the Notes are redeemed prior to their maturity date, there can be no assurance that the holders of the Notes will be able to reinvest the amounts received upon redemption at a rate that will provide the same return as the investment in the redeemed Notes.

***Uncertainties regarding the possible discontinuation of the London Interbank Offered Rate ("LIBOR") or any other interest rate benchmark could have adverse consequences for market participants, including the Company.***

In July 2017, the U.K. Financial Conduct Authority (the "FCA"), which has regulatory authority with respect to LIBOR, announced that it does not intend to continue to encourage, or use its power to compel, panel banks to provide rate submissions for the determination of LIBOR beyond the end of 2021. It is possible that panel banks will continue to provide rate submissions, and that the ICE Benchmark Administration, the administrator of LIBOR, will continue to determine and announce LIBOR, on the current basis after 2021, if they are willing and able to do so. However, there is no guarantee that LIBOR will be determined and announced after 2021 on the current basis or at all.

Given the extensive use of LIBOR across financial markets, the transition away from LIBOR presents various risks and challenges to financial markets and institutions, including the Company. The Company holds several assets, such as loans and derivatives products, and liabilities, such as deposits and bonds, that reference LIBOR and mature after 2021.

If not sufficiently planned for, the discontinuation of LIBOR or any other interest rate benchmark could result in increased financial, operational, legal, reputational and/or compliance risks. For example, a significant challenge will be managing the impact of the LIBOR transition on the contractual mechanics of LIBOR-based financial instruments and contracts that mature after 2021. Certain of these instruments and contracts may not provide for alternative reference rates, and even if such instruments and contracts provide for alternative reference rates, such alternative reference rates are likely to differ from the prior benchmark rates and may require the Company to pay interest at higher rates on the related obligations, which could adversely impact its interest expense, results of operations and cash flows. While there are a number of international working groups focused on transition plans and the provision of fallback contract language that seek to minimize market disruption, replacement of LIBOR or any other benchmark with a new benchmark rate could adversely impact the value of and return on existing instruments and contracts. Moreover, replacement of LIBOR or other benchmark rates could result in market dislocations and have other adverse consequences for market participants, including the potential for increased costs, and litigation risks stemming from potential disputes with customers and counterparties regarding the interpretation and enforceability of fallback contract language in the LIBOR-based financial instruments and contracts. Accordingly, the Company's failure to adequately prepare for the potential discontinuation of LIBOR could have a material adverse impact on its business, reputation, results of operations and financial condition.

For risks relating to the Company's Floating Rate Notes based on LIBOR, see " — *Any future discontinuation of LIBOR and the application of a successor or alternative benchmark reference rate may adversely affect the value of and return on the Notes that are Floating Rate Notes.*"

### *Any future discontinuation of LIBOR and the application of a successor or alternative benchmark reference rate may adversely affect the value of and return on the Notes that are Floating Rate Notes.*

In the case of the Notes that are Floating Rate Notes, LIBOR may be the benchmark reference rate used to calculate the rate of interest applicable to such Notes ("LIBOR-based Floating Rate Notes") for each interest period. LIBOR for different periods and currencies is determined and announced on a daily basis by the ICE Benchmark Administration based on rate submissions provided by groups of panel banks for the relevant currencies. In July 2017, the FCA announced that it does not intend to continue to encourage, or use its power to compel, panel banks to provide rate submissions for the determination of LIBOR beyond the end of 2021. See "— Uncertainties regarding the possible discontinuation of the London Interbank Offered Rate ("LIBOR") or any other interest rate benchmark could have adverse consequences for market participants, including the Company."

Upon the occurrence of a Benchmark Transition Event (as defined in Condition 6(b)(ii)(C) of the Terms and Conditions of the Notes) with respect to LIBOR, including a public statement or publication of information by or on behalf of the FCA or the ICE Benchmark Administration announcing that the latter has ceased or will cease to provide LIBOR permanently or indefinitely, the Benchmark Replacement (as defined in Condition 6(b)(ii)(C) of the Terms and Conditions of the Notes) as determined by the Bank or its designee will replace LIBOR for all purposes relating to outstanding LIBOR-based Floating Rate Notes. Among other alternatives, the Secured Overnight Financing Rate ("SOFR"), which has been identified by the Alternative Reference Rates Committee convened by the Board of Governors of the U.S. Federal Reserve System and the Federal Reserve Bank of New York as the preferred alternative benchmark reference rate for LIBOR, together with any necessary spread adjustment, may be determined as the Benchmark Replacement to be used to calculate the rate of interest applicable to outstanding LIBOR-based Floating Rate Notes. Any such Benchmark Replacement determined by the Bank or its designee will, in the absence of manifest error, be conclusive and binding on the applicable Noteholders. See "Terms and Conditions of the Notes — 6(b)(ii)(C) Effect of Benchmark Transition Event." Accordingly, if a Benchmark Transition Event occurs with respect to LIBOR prior to the maturity of any LIBOR-based Floating Rate Notes, the method of calculation and rate of interest payable on such Notes will change. There is no guarantee that any Benchmark Replacement will be similar to, or behave in the same manner as, LIBOR, or that the rate of interest calculated based on any such Benchmark Replacement will not be lower than the rate of interest that would have applied to any LIBOR-based Floating Rate Notes for any interest period if LIBOR had continued to be used as the benchmark reference rate.

Uncertainty regarding the continued availability of LIBOR, as well as the rate of interest that would be applicable to LIBOR-based Floating Rate Notes if LIBOR is discontinued or ceases to be published, may negatively affect the trading market for and trading price of such Notes. Currently, it is not possible to predict future developments with respect to LIBOR or their timing or impact. Any such developments, including as a result of international, national or other initiatives for reform or the adoption of successor or alternative benchmark reference rates in the international debt capital markets, could have a material adverse effect on the value of and return on LIBOR-based Floating Rate Notes and also could have adverse U.S. federal income tax consequences for holders of such Notes.

### Risks Relating to Forward-Looking Statements

#### *This Offering Circular contains forward-looking statements that are the management's present expectations of future events and are subject to uncertainties that could cause actual results to differ materially from those described in the forward-looking statements.*

In addition to the risks related to the Company's business discussed above, other factors could cause actual results to differ materially from those described in the various forward-looking statements contained in this Offering Circular. These factors include, but are not limited to, the following:

- general economic, business, political and social conditions and the impact of global epidemics such as the COVID-19 pandemic;
- adverse trends in regulatory, legislative and judicial developments, including litigation and environmental regulatory restrictions and liabilities;
- changes in interest rates and foreign exchange rates;
- development projects and exploration prospects and the speculative nature of oil and gas exploration and development, including the risk of obtaining necessary licenses and permits;
- uncertainties inherent in estimating proved or potential oil and gas reserves;
- development and drilling potential and development of undeveloped reserves, including the risks and hazards associated with oil and gas development and operating or technical difficulties in connection with oil and gas development activities;
- expansion and other development trends of the oil and gas industry, and regulatory, administrative or economic conditions affecting the oil and gas industry, including changes to applicable oil and gas and other laws regulating the oil and gas industry;
- risks related to gathering and processing facilities and pipeline systems;
- business strategy, including expansion and growth of operations;
- oil and gas prices and demand;
- future earnings and cash flow;
- factors affecting future profitability;
- seasonality;
- long-term reliance on third parties;
- claims made in respect of the Company's operations, property or assets, and contests over such claims, particularly title to undeveloped properties;
- competition for, among other things, capital, the acquisition of reserves, equipment, export pipeline capacity and skilled personnel;
- environmental risks and hazards and the costs of compliance with environmental regulations;
- the Company's estimated financial information; and
- conditions in the Korean and the global financial markets.

By their nature, certain disclosures relating to these and other risks are only estimates and should one or more of these uncertainties or risks materialize, actual results may vary materially from those estimated, anticipated or projected, as well as from historical results. Specifically but without limitation, revenues could decrease, costs (including capital costs) could increase, investments could be delayed and anticipated improvements in performance might not be fully realized.

You should not place undue reliance on the forward-looking statements, which speak only as of the date of this Offering Circular. Except as required by law, the Company is not under any obligation, and expressly disclaims any obligation, to update or alter any forward-looking statements, whether as a result of new information, future events or otherwise. All subsequent forward-looking statements attributable to the Company or any person acting on the Company's behalf are expressly qualified in their entirety by the cautionary statements contained or referred to in this section.

## FORM OF THE NOTES

The Notes of each Series will be in either bearer form, with or without interest coupons attached, or registered form, without interest coupons attached. Bearer Notes will be issued outside the United States to non-U.S. persons in reliance on Regulation S under the Securities Act ("Regulation S") and Registered Notes will be issued both outside the United States in reliance on the exemption from registration provided by Regulation S and within the United States in reliance on Rule 144A or Regulation D under the Securities Act.

### Bearer Notes

Each Tranche of Bearer Notes will be in bearer form and will be initially issued in the form of either a temporary bearer global note (a "Temporary Bearer Global Note") or a permanent bearer global note (a "Permanent Bearer Global Note" and, together with a Temporary Bearer Global Note, a "Bearer Global Note") as indicated in the applicable Pricing Supplement, which, in either case, will be delivered on or prior to the original issue date of the Tranche to a common depositary (the "Common Depositary") for Euroclear Bank SA/NV ("Euroclear") and Clearstream Banking, S.A. ("Clearstream"). Whilst any Bearer Note is represented by a Temporary Bearer Global Note, payments of principal, interest (if any) and any other amount payable in respect of the Notes due prior to the Exchange Date (as defined below) will be made against presentation of the Temporary Bearer Global Note only to the extent that certification (in a form to be provided) to the effect that the beneficial owners of interests in such Bearer Note are not U.S. persons or persons who have purchased for resale to any U.S. person, as required by U.S. Treasury regulations, has been received by Euroclear and/or Clearstream and Euroclear and/or Clearstream, as applicable, has given a like certification (based on the certifications it has received) to the Principal Paying Agent ("non-U.S. beneficial ownership certification").

On and after the date (the "Exchange Date") which is 40 days after the Temporary Bearer Global Note is issued, interests in such Temporary Bearer Global Note will be exchangeable (free of charge) upon a request as described therein either for (i) interests in a Permanent Bearer Global Note of the same Series or (ii) for definitive Bearer Notes of the same Series with, where applicable, receipts, interest coupons and talons attached (as indicated in the applicable Pricing Supplement and subject, in the case of definitive Bearer Notes, to such notice period as is specified in the applicable Pricing Supplement), in each case against non-U.S. beneficial ownership certification as described above unless such certification has already been given. The holder of a Temporary Bearer Global Note will not be entitled to collect any payment of interest, principal or other amount due on or after the Exchange Date unless, upon due certification, exchange of the Temporary Bearer Global Note for an interest in a Permanent Bearer Global Note or for definitive Bearer Notes is improperly withheld or refused.

Payments of principal, interest (if any) or any other amounts on a Permanent Bearer Global Note will be made through Euroclear and/or Clearstream against presentation or surrender (as the case may be) of the Permanent Bearer Global Note without any further requirement for certification beyond the initial non-U.S. beneficial ownership certification as described above.

The applicable Pricing Supplement will specify that a Permanent Bearer Global Note will be exchangeable (free of charge), in whole but not in part, for definitive Bearer Notes with, where applicable, receipts, interest coupons and talons attached upon either (i) not less than 60 days' written notice from Euroclear and/or Clearstream (acting on the instructions of any holder of an interest in such Permanent Bearer Global Note) to the Principal Paying Agent as described therein or (ii) only upon the occurrence of an Exchange Event. In the case of definitive Bearer Notes that are issued in exchange for any Permanent Bearer Global Notes, such exchange shall only be permitted if the issuance of definitive Bearer Notes are issued in integral multiples of the Specified Denomination. For these purposes, an "Exchange Event" means that (i) an Event of Default (as defined in Condition 11) has occurred and is continuing, (ii) the Issuer has been notified that both Euroclear and Clearstream have been closed for business for a continuous period of 14 days (other than by reason of holiday, statutory or otherwise) or have announced an intention permanently to cease business or have in fact done so and no alternative clearing system is available or (iii) the Issuer has or will become subject to adverse tax consequences which would not be suffered were the Notes represented by the Permanent Bearer Global Note in definitive form (provided that, in certain circumstances where the Notes are held through Euroclear and

Clearstream, such adverse tax consequences are the result of a change in, or amendment to, the laws and regulations (taxation or otherwise) of a Tax Jurisdiction). For so long as the Notes are listed on the Singapore Stock Exchange and the rules of the Singapore Stock Exchange so require, in the event that a Bearer Global Note is exchanged for definitive Bearer Notes, the Issuer will appoint and maintain a Singapore Paying Agent (as defined below) (unless the Issuer obtains an exemption from the Singapore Stock Exchange), where the definitive Bearer Notes may be presented or surrendered for payment or redemption. In addition, in the event that a Bearer Global Note is exchanged for definitive Bearer Notes, an announcement of such exchange shall be made by the Issuer or on the Issuer's behalf through the Singapore Stock Exchange and such announcement will include all material information with respect to the delivery of the definitive Bearer Notes, including details of the Singapore Paying Agent. In the event of the occurrence of an Exchange Event, Euroclear and/or Clearstream (acting on the instructions of any holder of an interest in such Permanent Bearer Global Note) may give notice to the Principal Paying Agent requesting exchange and, in the event of the occurrence of an Exchange Event as described in (iii) above, the Issuer may also give notice to the Principal Paying Agent requesting exchange. Any such exchange shall occur not later than 45 days after the date of receipt of the first relevant notice by the Principal Paying Agent.

The following legend will appear on all Bearer Notes that have an original maturity of more than 365 days and on all receipts and interest coupons relating to such Notes:

"ANY UNITED STATES PERSON WHO HOLDS THIS OBLIGATION WILL BE SUBJECT TO LIMITATIONS UNDER THE UNITED STATES INCOME TAX LAWS, INCLUDING THE LIMITATIONS PROVIDED IN SECTIONS 165(j) AND 1287(a) OF THE INTERNAL REVENUE CODE."

The sections referred to provide that United States holders, with certain exceptions, will not be entitled to deduct any loss on Bearer Notes and will not be entitled to capital gains treatment of any gain on any sale, disposition, redemption or payment of principal in respect of such Notes.

Notes that are represented by a Bearer Global Note will only be transferable in accordance with the rules and procedures for the time being of Euroclear or Clearstream, as the case may be.

## Registered Notes

The Registered Notes of each Tranche offered and sold in reliance on Regulation S, which will be sold only to non-U.S. persons outside the United States, will initially be represented by a global note in registered form (a "Regulation S Global Note"). Prior to expiry of the distribution compliance period (as defined in Regulation S) applicable to each Tranche of Notes, beneficial interests in a Regulation S Global Note may not be offered or sold to, or for the account or benefit of, a U.S. person save as otherwise provided in Condition 2 and may not be held otherwise than through Euroclear or Clearstream and such Regulation S Global Note will bear a legend regarding such restrictions on transfer.

The Registered Notes of each Tranche may only be offered and sold in the United States or to U.S. persons in private transactions (i) to "qualified institutional buyers" within the meaning of Rule 144A under the Securities Act ("QIBs") or (ii) to "accredited investors" (as defined in Rule 501(a)(1), (2), (3) or (7) under the Securities Act) that are institutions ("Institutional Accredited Investors") who agree to purchase the Notes for their own account and not with a view to the distribution thereof. The Registered Notes of each Tranche sold to QIBs will be represented by a global note in registered form (a "Rule 144A Global Note" and, together with a Regulation S Global Note, the "Registered Global Notes").

The Registered Global Notes will either (a) be deposited with a custodian for, and registered in the name of a nominee of, the Depository Trust Company ("DTC") for the accounts of Euroclear and Clearstream or (b) be deposited with a common depositary for, and registered in the name of a common nominee of, Euroclear and Clearstream, as specified in the applicable Pricing Supplement. Persons holding beneficial interests in the Registered Global Notes will be entitled or required, as the case may be, under the circumstances described below, to receive physical delivery of definitive Notes in fully registered form. The Registered Notes of each Tranche sold to Institutional Accredited Investors will be in definitive form, registered in the name of the holder thereof ("Definitive IAI Registered Notes"). Unless otherwise set forth in the applicable Pricing Supplement, Definitive IAI Registered Notes will be issued only in minimum denominations of U.S.$250,000 and integral multiples of U.S.$1,000 in excess thereof (or the approximate equivalents in the applicable Specified Currency). Definitive IAI Registered Notes will be subject to the restrictions on transfer set forth therein and will bear the restrictive legend described under "Subscription and Sale and Transfer and Selling Restrictions." Institutional Accredited Investors that hold Definitive IAI Registered Notes may elect to hold such Notes through DTC, but transferees acquiring the Notes in transactions exempt from Securities Act registration pursuant to Regulation S or Rule 144 under the Securities Act (if available) may do so upon satisfaction of the requirements applicable to such transfer as described under "Subscription and Sale and Transfer and Selling Restrictions." The Rule 144A Global Note and the Definitive IAI Registered Notes will be subject to certain restrictions on transfer set forth therein and will bear a legend regarding such restrictions.

Payments of principal, interest and any other amount in respect of the Registered Global Notes will, in the absence of provision to the contrary, be made to the person shown on the Register (as defined in Condition 7(d)) as the registered holder of the Registered Global Notes. None of the Issuer, any Paying Agent or the Registrar will have any responsibility or liability for any aspect of the records relating to or payments or deliveries made on account of beneficial ownership interests in the Registered Global Notes or for maintaining, supervising or reviewing any records relating to such beneficial ownership interests.

Payments of principal, interest or any other amount in respect of the Registered Notes in definitive form will, in the absence of provision to the contrary, be made to the persons shown on the Register on the relevant Record Date (as defined in Condition 7(d)) immediately preceding the due date for payment in the manner provided in that Condition.

Interests in a Registered Global Note will be exchangeable (free of charge), in whole but not in part, for definitive Registered Notes without receipts, interest coupons or talons attached only upon the occurrence of an Exchange Event. For these purposes, an "Exchange Event" means that (a) an Event of Default has occurred and is continuing, (b) in the case of Notes registered in the name of a nominee for DTC, either DTC has notified the Issuer that it is unwilling or unable to continue to act as depository for the Notes and no alternative clearing system is available or DTC has ceased to constitute a clearing agency registered under the Exchange Act, (c) in the case of Notes registered in the name of a nominee for a common depositary for Euroclear and Clearstream, the Issuer has been notified that both Euroclear and Clearstream have been closed for business for a continuous period of 14 days (other than by reason of holiday, statutory or otherwise) or have announced an intention permanently to cease business or have in fact done so and, in any such case, no successor clearing system is available or (d) the Issuer has or will become subject to adverse tax consequences which would not be suffered were the Notes represented by the Registered Global Note in definitive form (provided that, in certain circumstances where the Notes are held through Euroclear and Clearstream, such adverse tax consequences are the result of a change in, or amendment to, the laws and regulations (taxation or otherwise) of a Tax Jurisdiction).

For so long as any Notes are listed on the Singapore Stock Exchange and the rules of the Singapore Stock Exchange so require, in the event that a Registered Global Note is exchanged for definitive Registered Notes, the Issuer will appoint and maintain a paying agent in Singapore (the "Singapore Paying Agent") (unless the Issuer obtains an exemption from the Singapore Stock Exchange), where the definitive Registered Notes may be presented or surrendered for payment or redemption. In addition, in the event that a Registered Global Note is exchanged for definitive Registered Notes, an announcement of such exchange shall be made by the Issuer or on the Issuer's behalf through the Singapore Stock Exchange and such announcement will include all material information with respect to the delivery of the definitive Registered Notes, including details of the Singapore Paying Agent. In the event of the occurrence of an Exchange Event, DTC, Euroclear and/or Clearstream (acting on the instructions of any holder of an interest in such Registered Global Note) may give notice to the Registrar requesting exchange and, in the event of the occurrence of an Exchange Event as described in (d) above, the Issuer may also give notice to the Registrar requesting exchange. Any such exchange shall occur not later than ten days after the date of receipt of the first relevant notice by the Registrar.

### Transfer of Interests

Interests in a Registered Global Note may, subject to compliance with all applicable restrictions, be transferred to a person who wishes to hold such interest in another Registered Global Note or in the form of a Definitive IAI Registered Note and Definitive IAI Registered Notes may, subject to compliance with all applicable restrictions, be transferred to a person who wishes to hold such Notes in the form of an interest in a Registered Global Note. No beneficial owner of an interest in a Registered Global Note will be able to transfer such interest, except in accordance with the applicable procedures of DTC, Euroclear and Clearstream, in each case to the extent applicable. Registered Notes are also subject to the restrictions on transfer set forth therein and will bear a legend regarding such restrictions, see "Subscription and Sale and Transfer and Selling Restrictions."

Pursuant to the Agency Agreement (as defined under "Terms and Conditions of the Notes"), the Principal Paying Agent shall arrange that, where a further Tranche of Notes is issued which is intended to form a single Series with an existing Tranche of Notes, the Notes of such further Tranche shall be assigned a common code and ISIN which are different from the common code and ISIN assigned to Notes of any other Tranche of the same Series until at least the expiry of the Distribution Compliance Period applicable to the Notes of such Tranche.

For so long as any of the Notes is represented by a Global Note (as defined in "Terms and Conditions of the Notes") held on behalf of Euroclear and/or Clearstream each person (other than Euroclear or Clearstream) who is for the time being shown in the records of Euroclear or of Clearstream as the holder of a particular nominal amount of such Notes (in which regard any certificate or other document issued by Euroclear or Clearstream as to the nominal amount of such Notes standing to the account of any person shall be conclusive and binding for all purposes save in the case of manifest error) shall be treated by the Issuer and its agents as the holder of such nominal amount of such Notes for all purposes other than with respect to the payment of principal or interest on such nominal amount of such Notes, for which purpose the bearer of the relevant Bearer Global Note or the registered holder of the relevant Registered Global Note shall be treated by the Issuer and its agents as the holder of such nominal amount of such Notes in accordance with and subject to the terms of the relevant Global Note, and the expressions "Noteholder" and "holder of Notes" and related expressions shall be construed accordingly.

So long as DTC or its nominee is the registered owner or holder of a Registered 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 Registered Global Note for all purposes under the Agency Agreement and such Notes except to the extent that in accordance with DTC's published rules and procedures any ownership rights may be exercised by its participants or beneficial owners through participants.

Any reference herein to Euroclear, Clearstream and/or DTC shall, whenever the context so permits, be deemed to include a reference to any additional or alternative clearing system specified in the applicable Pricing Supplement.

The Notes may be accelerated by the holder thereof in certain circumstances described in Condition 11. In such circumstances, where any Note is still represented by a Global Note and the Global Note (or any part thereof) has become due and repayable in accordance with the terms and conditions of such Notes and payment in full of the amount due has not been made in accordance with the provisions of the Global Note then, holders of interests in such Global Note credited to their accounts with Euroclear, Clearstream and/or DTC, as the case may be, will become entitled to proceed directly against the Issuer on the basis of statements of account provided by Euroclear, Clearstream and/or DTC on and subject to the terms of a deed of covenant dated April 1, 2016 (the "Deed of Covenant"), executed by the Issuer. In addition, holders of interests in such Global Note credited to their accounts with DTC may require DTC to deliver Definitive Notes in registered form in exchange for their interest in such Global Note in accordance with DTC's standard operating procedures.

## Form of Pricing Supplement

*Set out below is the form of Pricing Supplement that will be completed for each Tranche of Notes issued under the Program.*

**[MIFID II PRODUCT GOVERNANCE — Solely for the purposes of the manufacturer's product approval process, the target market assessment in respect of the Notes has led to the conclusion that: (i) the target market for the Notes is eligible counterparties and professional clients only, each as defined in Directive 2014/65/EU (as amended, "MiFID II"); and (ii) all channels for distribution of the Notes to eligible counterparties and professional clients are appropriate. Any person subsequently offering, selling or recommending the Notes (a "distributor") should take into consideration the manufacturer's target market assessment; however, a distributor subject to MiFID II is responsible for undertaking its own target market assessment in respect of the Notes (by either adopting or refining the manufacturer's target market assessment) and determining the appropriate distribution channels.]**

**[PROHIBITION OF SALES TO EEA OR UK RETAIL INVESTORS — The Notes are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the European Economic Area ("EEA") or in the United Kingdom ("UK"). For these purposes: (a) the expression "retail investor" means a person who is one (or more) of the following: (i) a retail client as defined in point (11) of Article 4(1) of Directive 2014/65/EU (as amended, "MiFID II"); (ii) a customer within the meaning of Directive (EU) 2016/97 (as amended, the "Insurance Distribution Directive"), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (iii) not a qualified investor as defined in Regulation (EU) 2017/1129 (the "Prospectus Regulation"); and (b) the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes. Consequently, no key information document required by Regulation (EU) No 1286/2014 (the "PRIIPs Regulation") for offering or selling the securities or otherwise making them available to retail investors in the EEA or in the UK has been prepared and therefore, offering or selling the securities or otherwise making them available to any retail investor in the EEA or in the UK may be unlawful under the PRIIPs Regulation.]**

**[Date]**

### Korea National Oil Corporation

### Issue of [Aggregate Nominal Amount of Tranche] [Title of Notes]

### under the U.S.$9,000,000,000

### Global Medium Term Note Program

This document constitutes the Pricing Supplement relating to the issue of Notes described herein. Terms used herein shall be deemed to be defined as such for the purposes of the Conditions set forth in the Offering Circular dated September 18, 2020 [and the supplemental Offering Circular dated [●]]. This Pricing Supplement contains the final terms of the Notes and must be read in conjunction with such Offering Circular as so supplemented.

***[The following alternative language applies if the first tranche of an issue that is being increased was issued under an Offering Circular with an earlier date.***

**Terms used herein shall be deemed to be defined as such for the purposes of the Conditions (the "Conditions") set forth in the Offering Circular dated [*original date*]. *This Pricing Supplement contains the final terms of the Notes and must be read in conjunction with the Offering Circular dated [current date], save in respect of the Conditions which are extracted from the Offering Circular dated [original date] and are attached hereto.]***

**[*Include whichever of the following apply or specify as "Not Applicable" (N/A). Note that the numbering should remain as set out below, even if "Not Applicable" is indicated for individual paragraphs or subparagraphs. Italics denote directions for completing the Pricing Supplements*]**

| | | |
|---|---|---|
| 1. | Issuer: | Korea National Oil Corporation |
| 2. | (i) Series Number: | [●] |
| | (ii) Tranche Number: | [●] (*If fungible with an existing Series, details of that Series, including the date on which the Notes become fungible*) |
| 3. | Specified Currency or Currencies: | [●] |
| 4. | Aggregate Nominal Amount: | |
| | (i) Series: | [●] |
| | (ii) Tranche: | [●] |
| 5. | (i) Issue Price: | [●] per cent. of the Aggregate Nominal Amount [plus accrued interest from [Issue Date] *(in the case of fungible issues only, if applicable)*] |
| | (ii) [Net proceeds (after deducting underwriting discounts but not estimated expenses): (required only for listed issues): | [●] |
| | (iii) [Use of proceeds]: | [●] (*if different from the use of proceeds specified in the Offering Circular*) |
| 6. | Specified Denominations: (*in the case of Registered Notes, this means the minimum integral amount* in which transfers can be made) | [●] *(N.B. Pursuant to the Prospectus Regulation (Regulation (EU) 2017/1129), Notes to be admitted to trading on a regulated market within the EEA and the UK must have a minimum denomination of €100,000 (or equivalent) in order to benefit from Transparency Directive exemptions in respect of wholesale securities and the wholesale exemption set out in Article 1(4) of the Prospectus Regulation. If an issue of Notes is (i) not admitted to trading on an EEA or UK exchange and (ii) only offered in the EEA or the UK in circumstances where a prospectus is not required to be published under the Prospectus Regulation, the €100,000 minimum denomination is not required.)*<br>*(N.B. Where Bearer Notes with multiple denominations above U.S.$200,000 or equivalent are being used, the following sample wording should be followed:*<br>*"U.S.$200,000 and integral multiples of U.S.$1,000 in excess thereof up to and including U.S.$399,000. No Notes in definitive form will be issued with a denomination above U.S.$399,000.")* |
| 7. | (i) Issue Date: | [●] |
| | (ii) Interest Commencement Date: | [●] |
| 8. | Maturity Date: | **[Fixed rate — *specify date*]**<br>Floating rate — Interest Payment Date falling in [***specify months and year***] |

| | | |
|---|---|---|
| 9. | Interest Basis: | **[[●] per cent. Fixed Rate] [[LIBOR/EURIBOR] +/- [●] per cent. Floating Rate] [Zero Coupon] [Index Linked Interest] [Dual Currency Interest] [*specify other*]** (further particulars specified below) |
| 10. | Redemption/Payment Basis: | **[Redemption at par] [Dual Currency Redemption] [Partly Paid] [Installment] [*specify other*]** |
| 11. | Change of Interest Basis or Redemption/Payment Basis: | **[Specify details of any provision for change of Notes into another Interest Basis or Redemption/ Payment Basis]** |
| 12. | Put (other than Condition 8(d)(i))/Call Options: | **[Investor Put] [Issuer Call] [(further particulars specified below)]** |
| 13. | (i) Status of the Notes: | [Senior]/[Subordinated] |
| | (ii) Date Board approval for issuance of Notes obtained: | [●] *(N.B. Only relevant where Board (or similar) authorization is required for the particular tranche of Notes)* |
| 14. | Listing: | **[Singapore Exchange Securities Trading Limited/specify other/None]** (*N.B. Notes under this Program cannot be admitted to trading on an EU regulated market without the preparation of a prospectus compliant with the disclosure requirements under the EU Prospectus Directive*) |
| 15. | Method of distribution: | **[Syndicated/Non-syndicated]** |

## PROVISIONS RELATING TO INTEREST (IF ANY) PAYABLE

| | | |
|---|---|---|
| 16. | Fixed Rate Note Provisions: | **[Applicable/Not Applicable]** ***(If not applicable, delete the remaining sub-paragraphs of this paragraph)*** |
| | (i) Rate[(s)] of Interest: | [●] per cent. per annum **[payable [annually/semi-annually/ quarterly] in arrear]** ***(If payable other than annually, consider amending Condition 6)*** |
| | (ii) Interest Payment Date(s): | **[[●] in each year up to and including the Maturity Date]/ [specify other]** [***N.B.: This will need to be amended in the case of long or short coupons***] |
| | (iii) Fixed Coupon Amount(s): | [●] per [ ] in nominal amount |
| | (iv) Broken Amount(s): | [***Insert particulars of any initial or final broken interest amounts which do not correspond with the Fixed Coupon Amount***] |
| | (v) Day Count Fraction: | **[30/360 or Actual/Actual (ICMA) or [*specify other*]]** |
| | (vi) Determination Date(s): | [●] in each year |
| | | [***Insert regular interest payment dates, ignoring issue date or maturity date in the case of a long or short first or last coupon NB: This will need to be amended in the case of regular interest payment dates which are not of equal duration. NB: Only relevant where Day Count Fraction is Actual/ Actual (ICMA)***] |
| | (vii) Business Day Convention: | [***Following Business Day Convention***] |

| | | |
|---|---|---|
| | (viii) Other terms relating to the method of calculating interest for Fixed Rate Notes: | **[None/*Give details*]** |
| 17. | Floating Rate Note Provisions: | **[Applicable/Not Applicable] *(If not applicable, delete the remaining sub-paragraphs of this paragraph)*** |
| | (i) Specified Period(s)/Specified Interest Payment Dates: | [●] |
| | (ii) Business Day Convention: | **[Floating Rate Convention/Following Business Day Convention/Modified Following Business Day Convention/ Preceding Business Day Convention/[*specify other*]]** |
| | (iii) Additional Business Centre(s): | [●] |
| | (iv) Manner in which the Rate of Interest and Interest Amount is to be determined: | **[Screen Rate Determination/ISDA Determination/*specify other*]** |
| | (v) Party responsible for calculating the Rate of Interest and Interest Amount (if not the Principal Paying Agent): | [●] |
| | (vi) Screen Rate Determination: | |
| | — Reference Rate: | [●] *(Either LIBOR, EURIBOR or other, although additional information is required if other — including fallback provisions in the Agency Agreement)* |
| | — Interest Determination Date(s): | [●] *(Second London business day prior to the start of each Interest Period if LIBOR (other than Sterling or euro LIBOR), first day of each Interest Period if Sterling LIBOR and the second day on which the TARGET 2 system is open prior to the start of each Interest Period if EURIBOR or euro LIBOR)* |
| | — Relevant Screen Page: | [●] *(In the case of EURIBOR, if not Telerate Page 248 ensure it is a page which shows a composite rate or amend the fallback provisions appropriately)* |
| | (vii) ISDA Determination: | |
| | — Floating Rate Option: | [●] |
| | — Designated Maturity: | [●] |
| | — Reset Date: | [●] |
| | (viii) Margin(s): | [+/-][●] per cent. per annum |
| | (ix) Minimum Rate of Interest: | [●] per cent. per annum |
| | (x) Maximum Rate of Interest: | [●] per cent. per annum |
| | (xi) Day Count Fraction: | **[Actual/365 Actual/365 (Fixed) Actual/365 (Sterling) Actual/360 30/360 30E/360 Other] *(See Condition 6 for alternatives)*** |

| | | |
|---|---|---|
| | (xii) Fall back provisions, rounding provisions and any other terms relating to the method of calculating interest on Floating Rate Notes, if different from those set out in the Conditions: | [●] |
| 18. | Zero Coupon Note Provisions: | **[Applicable/Not Applicable]** ***(If not applicable, delete the remaining sub-paragraphs of this paragraph)*** |
| | (i) Accrual Yield: | [●] per cent. per annum |
| | (ii) Reference Price: | [●] |
| | (iii) Any other formula/basis of determining amount payable: | [●] *(Consider applicable day count fraction if euro denominated)* |
| | (iv) Day Count Fraction in relation to Early Redemption Amount and Late Payment on Zero Coupon Notes: | **[Condition 8(e)(iii) and Condition 8(j) apply/*specify other*]** ***(Consider applicable day count fraction if not U.S. dollar denominated)*** |
| 19. | Index Linked Interest Note Provisions: | **[Applicable/Not Applicable]** ***(If not applicable, delete the remaining sub-paragraphs of this paragraph)*** |
| | (i) Index/Formula: | ***[give or annex details]*** |
| | (ii) Calculation Agent responsible for calculating the interest due: | [●] |
| | (iii) Provisions for determining Coupon where calculation by reference to Index and/or Formula is impossible or impracticable: | [●] |
| | (iv) Specified Period(s)/Specified Interest Payment Dates: | [●] |
| | (v) Business Day Convention: | **[Floating Rate Convention/Following Business Day Convention/Modified Following Business Day Convention/ Preceding Business Day Convention/*specify other*]** |
| | (vi) Additional Business Centre(s): | [●] |
| | (vii) Minimum Rate of Interest: | [●] per cent. per annum |
| | (viii) Maximum Rate of Interest: | [●] per cent. per annum |
| | (ix) Day Count Fraction: | [●] |
| 20. | Dual Currency Note Provisions: | **[Applicable/Not Applicable]** ***(If not applicable, delete the remaining sub-paragraphs of this paragraph)*** |
| | (i) Rate of Exchange/method of calculating Rate of Exchange: | [***give details***] |
| | (ii) Calculation Agent, if any, responsible for calculating the principal and/or interest payable: | [●] |
| | (iii) Provisions applicable where calculation by reference to Rate of Exchange impossible or impracticable: | [●] |

| | | |
|---|---|---|
| | (iv) Person at whose option Specified Currency(ies) is/are payable: | [●] |

## PROVISIONS RELATING TO REDEMPTION

| | | |
|---|---|---|
| 21. | Issuer Call: | **[Applicable/Not Applicable]** ***(If not applicable, delete the remaining sub-paragraphs of this paragraph)*** |
| | (i) Optional Redemption Date(s): | [●] |
| | (ii) Optional Redemption Amount of each Note and method, if any, of calculation of such amount(s): | [●] per Note of [●] Specified Denomination |
| | (iii) If redeemable in part: | |
| | (a) Minimum Redemption Amount: | [●] |
| | (b) Higher Redemption Amount: | [●] |
| | (iv) Notice period (if other than as set out in the Conditions): | [●] *(N.B. If setting notice periods which are different to those provided in the Conditions, the Issuer is advised to consider the practicalities of distribution of information through intermediaries, for example, clearing systems and custodians, as well as any other notice requirements which may apply, for example, as between the Issuer and the Principal Paying Agent)* |
| 22. | Investor Put (other than Condition 8(d)(i)): | **[Applicable/Not Applicable]** ***(If not applicable, delete the remaining sub-paragraphs of this paragraph)*** |
| | (i) Optional Redemption Date(s): | [●] |
| | (ii) Optional Redemption Amount of each Note and method, if any, of calculation of such amount(s): | [●] per Note of [●] Specified Denomination |
| | (iii) Notice period (if other than as set out in the Conditions): | [●] *(N.B. If setting notice periods which are different to those provided in the Conditions, the Issuer is advised to consider the practicalities of distribution of information through intermediaries, for example, clearing systems and custodians, as well as any other notice requirements which may apply, for example, as between the Issuer and the Principal Paying Agent)* |
| 23. | Final Redemption Amount of each Note: | [Par/*specify other*/see Appendix] |
| 24. | Early Redemption Amount of each Note payable on redemption for taxation reasons or on event of default and/or the method of calculating the same (if required or if different from that set out in Condition 8(e)): | [●] |

## GENERAL PROVISIONS APPLICABLE TO THE NOTES

| | | |
|---|---|---|
| 25. | Form of Notes: | **[Bearer Notes:**<br>**[Temporary Bearer Global Note exchangeable for a Permanent Bearer Global Note which is exchangeable for Definitive Notes [on 60 days' notice given at any time/only upon an Exchange Event]]**<br>**[Temporary Bearer Global Note exchangeable for Definitive Notes on and after the Exchange Date]**<br>**[Permanent Bearer Global Note exchangeable for Definitive Notes [on 60 days' notice given at any time/only upon an Exchange Event]]**<br>**[Registered Notes:**<br>**Regulation S Global Note (U.S.$[●] nominal amount) registered in the name of a nominee for [DTC/a common depositary for Euroclear and Clearstream]/Rule 144A Global Note (U.S.$[●] nominal amount) registered in the name of a nominee for [DTC/a common depositary for Euroclear and Clearstream]/Definitive IAI Registered Notes (specify nominal amounts)]** |
| 26. | Additional Financial Centre(s) or other special provisions relating to Payment Days: | ***[Not Applicable/give details] (Note that this item relates to the place of payment and not Interest Period end dates to which items 17(iii) and 19(vi) relate)*** |
| | (i) Additional Financial Centre(s): | [●] |
| | (ii) Relevant cities for Payment Days: | London, [●] |
| 27. | Talons for future Coupons or Receipts to be attached to Definitive Bearer Notes (and dates on which such Talons mature): | **[Yes/No.** ***If yes, give details*****]** |
| 28. | Details relating to Partly Paid Notes: amount of each payment comprising the Issue Price and date on which each payment is to be made and consequences of failure to pay, including any right of the Issuer to forfeit the Notes and interest due on late payment: | **[Not Applicable/*give details. NB: new forms of Global Note(s) may be required for Partly Paid issues.*]** |
| 29. | Details relating to Installment Notes: amount of each installment, date on which each payment is to be made: | **[Not Applicable/*give details*]** |
| 30. | Redenomination applicable: | Redenomination **[not]** applicable. **[*(If Redenomination is applicable, specify the applicable Day Count Fraction and any provisions necessary to deal with floating rate interest calculation (including alternative reference rates))] [(if Redenomination is applicable, specify the terms of the redenomination in an Annex to the Pricing Supplement)*]** |

31. Other terms or special conditions: **[Not Applicable/give details]**

**DISTRIBUTION**

32. (i) If syndicated, names of Managers: **[Not Applicable/*give names*]**

(ii) Stabilizing Manager (if any): **[Not Applicable/*give name*]**

33. If non-syndicated, name of relevant Dealer: [●]

34. U.S. Selling Restrictions: **[Reg. S Category 1/Reg. S Category 2]**

**[TEFRA D/TEFRA C/TEFRA not applicable]**

35. Prohibition of sales to EEA or UK retail investors: **[Applicable/Not Applicable]**

36. Additional selling restrictions: **[Not Applicable/*give details*]**

(***If Item 34 confirms that either TEFRA C or TEFRA D applies, then specify each of the selling restrictions and representations that should be complied with to ensure that the issuance of Notes is U.S. Treas. Reg. § 1.163-5(c)(2)(i)(C) (i.e., TEFRA C) or U.S. Treas. Reg. § 1.163-5(c)(2)(i)(D) (i.e., TEFRA D) compliant, as applicable***)

**OPERATIONAL INFORMATION**

37. Any clearing system(s) other than Euroclear and Clearstream and the relevant identification number(s): **[Not Applicable/*give name(s) and number(s)*]**

38. Delivery: Delivery **[against/free of]** payment

39. In the case of Registered Notes, specify the Registrar: **[Not Applicable/Citibank, N.A., London Branch]**

40. Specify the Principal Paying Agent: **[Citibank, N.A., London Branch]**

41. In the case of Registered Notes, specify the location of the office of the Registrar if other than New York: **[Not Applicable/give location]**

42. Additional Paying Agent(s) (if any): [●]

ISIN: [●]

Common Code: [●]

*(insert here any other relevant codes such as CUSIP and CINS codes)*

**[NOTIFICATION UNDER SECTION 309B(1)(C) OF THE SECURITIES AND FUTURES ACT, CHAPTER 289 OF SINGAPORE (THE ‘‘SFA’’)**

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 [OR] capital markets products other than prescribed capital markets products]* (as defined in the Securities and Futures (Capital Markets Products) Regulations 2018 of Singapore) and [Excluded Investment Products [OR] Specified 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).]

**[LISTING APPLICATION**

**This Pricing Supplement comprises the final terms required to list the issue of Notes described herein pursuant to the U.S.$9,000,000,000 Global Medium Term Note Program of Korea National Oil Corporation.]**

**RESPONSIBILITY**

The Issuer accepts responsibility for the information contained in this Pricing Supplement, which, when read together with the Offering Circular and the supplemental Offering Circular referred to above, contains all information that is material in the context of the issue of the Notes.

Signed on behalf of the Issuer:

By:

*Duly authorized*

If the applicable Pricing Supplement specifies any modification to the Terms and Conditions of the Notes as described herein, it is envisaged that, to the extent that such modification relates only to Conditions 1, 5, 6, 7, 8 (except Condition 8(b)), 12, 13, 14, 15 (insofar as such Notes are not listed or admitted to trading on any stock exchange) or 17, they will not necessitate the preparation of a supplement to this Offering Circular. If the Terms and Conditions of the Notes of any Series are to be modified in any other respect, a supplement to this Offering Circular will be prepared, if appropriate.

## TERMS AND CONDITIONS OF THE NOTES

*The following are the Terms and Conditions of the Notes which will be incorporated by reference into each Global Note (as defined below) and each definitive Note, in the latter case only if permitted by the relevant stock exchange or other relevant authority (if any) and agreed by the Issuer and the relevant Dealer at the time of issue but, if not so permitted and agreed, such definitive Note will have endorsed thereon or attached thereto such Terms and Conditions. The applicable Pricing Supplement in relation to any Tranche of Notes may specify other terms and conditions which shall, to the extent so specified or to the extent inconsistent with the following Terms and Conditions, replace or modify the following Terms and Conditions for the purpose of such Notes. The applicable Pricing Supplement (or the relevant provisions thereof) will be endorsed upon, or attached to, each Global Note and definitive Note. Reference should be made to "Form of the Notes" for a description of the content of Pricing Supplements which will specify which of such terms are to apply in relation to the relevant Notes.*

This Note is one of a Series (as defined below) of Notes issued by Korea National Oil Corporation (the "Issuer") pursuant to the Agency Agreement (as defined below).

References herein to the "Notes" shall be references to the Notes of this Series and shall mean:

(a) in relation to any Notes represented by a global Note (a "Global Note"), units of the lowest Specified Denomination in the Specified Currency;

(b) any Global Note;

(c) any definitive Notes in bearer form ("Bearer Notes") issued in exchange for a Global Note in bearer form; and

(d) any definitive Notes in registered form ("Registered Notes") (whether or not issued in exchange for a Global Note in registered form).

The Notes, the Receipts (as defined below) and the Coupons (as defined below) have the benefit of the agency agreement dated 1 April 2016, as further amended and/or supplemented from time to time (the "Agency Agreement"), and made between the Issuer, Citibank, N.A., London Branch as issuing and principal paying agent (the "Principal Paying Agent," which expression shall include any successor agent) and the other paying agents named therein (together with the Principal Paying Agent, the "Paying Agents," which expression shall include any additional or successor paying agents), as exchange agent (the "Exchange Agent," which expression shall include any additional or successor exchange agent) and as registrar (the "Registrar," which expression shall include any successor registrar) and a transfer agent and the other transfer agents named therein (together with the Registrar, the "Transfer Agent" which expression shall include any additional or successor transfer agents).

Interest bearing definitive Bearer Notes (unless otherwise indicated in the applicable Pricing Supplement) have interest coupons ("Coupons") and, if indicated in the applicable Pricing Supplement, talons for further Coupons ("Talons") attached on issue. Any reference herein to Coupons or coupons shall, unless the context otherwise requires, be deemed to include a reference to Talons or talons. Definitive Bearer Notes repayable in installments have receipts ("Receipts") for the payment of the installments of principal (other than the final installment) attached on issue. Registered Notes and Global Notes do not have Receipts, Coupons or Talons attached on issue.

The Pricing Supplement for this Note (or the relevant provisions thereof) is attached to or endorsed on this Note and supplements these Terms and Conditions and may specify other terms and conditions which shall, to the extent so specified or to the extent inconsistent with these Terms and Conditions, replace or modify these Terms and Conditions for the purposes of this Note. References to the "applicable Pricing Supplement" are to the Pricing Supplement (or the relevant provisions thereof) attached to or endorsed on this Note.

Any reference to "Noteholders" or "holders" in relation to any Notes shall mean (in the Bearer Notes) the holders of the Notes and (in the case of Registered Notes) the persons in whose name the Notes are registered and shall, in relation to any Notes represented by a Global Note, be construed as provided below. Any reference herein to "Receiptholders" shall mean the holders of the Receipts and any reference herein to "Couponholders" shall mean the holders of the Coupons and shall, unless the context otherwise requires, include the holders of the Talons.

As used herein, "Tranche" means Notes which are identical in all respects (including as to listing) and "Series" means a Tranche of Notes together with any further Tranche or Tranches of Notes which are (a) expressed to be consolidated and form a single series and (b) identical in all respects (including as to listing) except for their respective Issue Dates, Interest Commencement Dates and/or Issue Prices.

The Noteholders, the Receiptholders and the Couponholders are entitled to the benefit of a deed of covenant dated 1 April 2016 (the "Deed of Covenant") made by the Issuer. The original of the Deed of Covenant is held by the common depositary for Euroclear (as defined below) and Clearstream (as defined below).

Copies of the Agency Agreement, a deed poll dated 1 April 2016 (the "Deed Poll") and made by the Issuer, the applicable Pricing Supplement and the Deed of Covenant are available during normal business hours at the specified office of each of the Principal Paying Agent, the Registrar and the other Paying Agents and Transfer Agents (such agents and the Registrar being together referred to as the "Agents"). Copies of the applicable Pricing Supplement are obtainable during normal business hours at the specified office of each of the Agents save that, if this Note is an unlisted Note of any Series, the applicable Pricing Supplement will only be available for inspection by a Noteholder holding one or more unlisted Notes of that Series and such Noteholder must produce evidence satisfactory to the Issuer or the relevant Paying Agent as to its holding of such Notes and identity. The Noteholders, the Receiptholders and the Couponholders are deemed to have notice of, and are entitled to the benefit of, all the provisions of the Agency Agreement, the Deed Poll, the Deed of Covenant and the applicable Pricing Supplement which are applicable to them. The statements in these Terms and Conditions include summaries of, and are subject to, the detailed provisions of the Agency Agreement.

Words and expressions defined in the Agency Agreement or used in the applicable Pricing Supplement shall have the same meanings where used in these Terms and Conditions unless the context otherwise requires or unless otherwise stated and provided that, in the event of inconsistency between the Agency Agreement and the applicable Pricing Supplement, the applicable Pricing Supplement will prevail.

## 1. FORM, DENOMINATION AND TITLE

The Notes are in bearer form or in registered form as specified in the applicable Pricing Supplement and, in the case of definitive Notes, serially numbered, in the Specified Currency and the Specified Denomination(s). Notes of one Specified Denomination may not be exchanged for Notes of another Specified Denomination and Bearer Notes may not be exchanged for Registered Notes and vice versa.

This Note may be a Fixed Rate Note, a Floating Rate Note, a Zero Coupon Note, an Index Linked Interest Note, a Dual Currency Interest Note or a combination of any of the foregoing, depending upon the Interest Basis shown in the applicable Pricing Supplement.

This Note may be an Installment Note, a Dual Currency Redemption Note, a Partly Paid Note or a combination of any of the foregoing, depending on the Redemption/Payment Basis shown in the applicable Pricing Supplement.

Definitive Bearer Notes are issued with Coupons attached, unless they are Zero Coupon Notes in which case references to Coupons and Couponholders in these Terms and Conditions are not applicable.

Subject as set out below, title to the Bearer Notes, Receipts and Coupons will pass by delivery and title to the Registered Notes will pass upon registration of transfers in accordance with the provisions of the Agency Agreement. The Issuer and the Paying Agents will (except as otherwise required by law) deem and treat the bearer of any Bearer Note, Receipt or Coupon and the registered holder of any Registered Note as the absolute owner thereof (whether or not overdue and notwithstanding any notice of ownership or writing thereon or notice of any previous loss or theft thereof) for all purposes but, in the case of any Global Note, without prejudice to the provisions set out in the next succeeding paragraph.

For so long as any of the Notes is represented by a Global Note held on behalf of Euroclear Bank SA/NV, as operator of the Euroclear System ("Euroclear") and/or Clearstream Banking, S.A. ("Clearstream"), each person (other than Euroclear or Clearstream) who is for the time being shown in the records of Euroclear or of Clearstream as the holder of a particular nominal amount of such Notes (in which regard any certificate or other document issued by Euroclear or Clearstream as to the nominal amount of such Notes standing to the account of any person shall be conclusive and binding for all purposes save in the case of manifest error) shall be treated by the Issuer and the Paying Agents as the holder of such nominal amount of such Notes for all purposes other than with respect to the payment of principal or interest on such nominal amount of such Notes, for which purpose the bearer of the relevant Bearer Global Note and the registered holder of any Registered Note shall be treated by the Issuer and any Paying Agent as the holder of such nominal amount of such Notes in accordance with and subject to the terms of the relevant Global Note and the expressions "Noteholder" and "holder of Notes" and related expressions shall be construed accordingly.

For so long as the Depository Trust Company ("DTC") or its nominee is the registered owner or holder of a Registered 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 Registered Global Note for all purposes under the Agency Agreement and the Notes except to the extent that in accordance with DTC's published rules and procedures any ownership rights may be exercised by its participants or beneficial owners through participants.

Notes that are represented by a Global Note will be transferable only in accordance with the rules and procedures for the time being of DTC, Euroclear and Clearstream, as the case may be. References to DTC, Euroclear and/or Clearstream shall, whenever the context so permits, be deemed to include a reference to any additional or alternative clearing system specified in the applicable Pricing Supplement.

## 2. TRANSFERS OF REGISTERED NOTES

### *(a) Transfers of interests in Registered Global Notes*

Transfers of beneficial interests in Registered Global Notes will be effected by DTC, Euroclear or Clearstream, as the case may be, and, in turn, by other participants and, if appropriate, indirect participants in such clearing systems acting on behalf of beneficial transferors and transferees of such interests. A beneficial interest in a Registered Global Note will, subject to compliance with all applicable legal and regulatory restrictions, be transferable for Notes in definitive form or for a beneficial interest in another Registered Global Note only in the authorized denominations set out in the applicable Pricing Supplement and only in accordance with the rules and operating procedures for the time being of DTC, Euroclear or Clearstream, as the case may be, and in accordance with the terms and conditions specified in the Agency Agreement. Transfers of a Registered Global Note registered in the name of a nominee for DTC shall be limited to transfers of such Registered Global Note, in whole but not in part, to another nominee of DTC or to a successor of DTC or such successor's nominee.

### *(b) Transfers of Registered Notes in definitive form*

Subject as provided in paragraphs (e), (f) and (g) below, upon the terms and subject to the conditions set forth in the Agency Agreement, a Registered Note in definitive form may be transferred in whole or in part (in the authorized denominations set out in the applicable Pricing Supplement). In order to effect any such transfer (i) the holder or holders must (A) surrender the Registered Note for registration of the transfer of the Registered Note (or the relevant part of the Registered Note) at the specified office of the Registrar or any Transfer Agent, with the form of transfer thereon duly executed by the holder or holders thereof or his or their attorney or attorneys duly authorized in writing and (B) complete and deposit such other certifications as may be required by the Registrar or, as the case may be, the relevant Transfer Agent and (ii) the Registrar or, as the case may be, the relevant Transfer Agent must, after due and careful enquiry, be satisfied with the documents of title and the identity of the person making the request. Any such transfer will be subject to such reasonable regulations as the Issuer and the Registrar may from time to time prescribe (the initial such regulations being set out in Schedule 8 to the Agency Agreement). Subject as provided above, the Registrar or, as the case may be, the relevant Transfer Agent will, within three business days (being for this purpose a day on which banks are open for business in the city where the specified office of the Registrar or, as the case may be, the relevant Transfer Agent is located) of the request (or such longer period as may be required to comply with any applicable fiscal or other laws or regulations), authenticate and deliver, or procure the authentication and delivery of, at its specified office to the transferee or (at the risk of the transferee) send by uninsured mail, to such address as the transferee may request, a new Registered Note in definitive form of a like aggregate nominal amount to the Registered Note (or the relevant part of the Registered Note) transferred. In the case of the transfer of part only of a Registered Note in definitive form, a new Registered Note in definitive form in respect of the balance of the Registered Note not transferred will be so authenticated and delivered or (at the risk of the transferor) sent to the transferor.

### *(c) Registration of transfer upon partial redemption*

In the event of a partial redemption of Notes under Condition 8, the Issuer shall not be required to register the transfer of any Registered Note, or part of a Registered Note, called for partial redemption.

### *(d) Costs of registration*

Noteholders will not be required to bear the costs and expenses of effecting any registration of transfer as provided above, except for any costs or expenses of delivery other than by regular uninsured mail and except that the Issuer may require the payment of a sum sufficient to cover any stamp duty, tax or other Governmental charge that may be imposed in relation to the registration.

### *(e) Transfers of interests in Regulation S Global Notes*

Prior to expiry of the applicable Distribution Compliance Period, transfers by the holder of, or of a beneficial interest in, a Regulation S Global Note to a transferee in the United States or who is a U.S. person will only be made:

(i) upon receipt by the Registrar of a written certification substantially in the form set out in Schedule 6 to the Agency Agreement, amended as appropriate (a "Transfer Certificate"), copies of which are available from the specified office of the Registrar or any Transfer Agent, from the transferor of the Note or beneficial interest therein to the effect that such transfer is being made:

(A) to a person whom the transferor reasonably believes is a QIB in a transaction meeting the requirements of Rule 144A; or

(B) to a person who is an Institutional Accredited Investor, subject to delivery of the Registrar of a Transfer Certificate from the transferor to the effect that such transfer is being made to an Institutional Accredited Investor, a duly executed investment letter from the relevant transferee substantially in the form set out in the Agency Agreement (an "IAI Investment Letter"); or

(ii) otherwise pursuant to the Securities Act or an exemption therefrom, subject to receipt by the Issuer of such satisfactory evidence as the Issuer may reasonably require, which may include an opinion of U.S. counsel, that such transfer is in compliance with any applicable securities laws of any State of the United States,

and, in each case, in accordance with any applicable securities laws of any State of the United States or any other jurisdiction.

In the case of (A) above, such transferee may take delivery through a Legended Note in global or definitive form and, in the case of (B) above, such transferee may take delivery only through a Legended Note in definitive form. After expiry of the applicable Distribution Compliance Period (i) beneficial interests in Regulation S Global Notes registered in the name of a nominee for DTC may be held through DTC directly, by a participant in DTC, or indirectly through a participant in DTC and (ii) such certification requirements will no longer apply to such transfers.

### *(f) Transfers of interests in Legended Notes*

Transfers of Legended Notes or beneficial interests therein may be made:

(i) to a transferee who takes delivery of such interest through a Regulation S Global Note, upon receipt by the Registrar of a duly completed Transfer Certificate from the transferor to the effect that such transfer is being made in accordance with Regulation S and that in the case of a Regulation S Global Note registered in the name of a nominee for DTC, if such transfer is being made prior to expiry of the applicable Distribution Compliance Period, the interests in the Notes being transferred will be held immediately thereafter through Euroclear and/or Clearstream; or

(ii) to a transferee who takes delivery of such interest through a Legended Note:

(A) where the transferee is a person whom the transferor reasonably believes is a QIB in a transaction meeting the requirements of Rule 144A, without certification; or

(B) where the transferee is an Institutional Accredited Investor, subject to delivery to the Registrar of a Transfer Certificate from the transferor to the effect that such transfer is being made to an Institutional Accredited Investor, together with a duly executed IAI Investment Letter from the relevant transferee; or

(iii) otherwise pursuant to the Securities Act or an exemption therefrom, subject to receipt by the Issuer of such satisfactory evidence as the Issuer may reasonably require, which may include an opinion of U.S. counsel, that such transfer is in compliance with any applicable securities laws of any State of the United States,

and, in each case, in accordance with any applicable securities laws of any State of the United States or any other jurisdiction.

Notes transferred by Institutional Accredited Investors to QIBs pursuant to Rule 144A or outside the United States pursuant to Regulation S will be eligible to be held by such QIBs or non-U.S. investors through DTC, Euroclear or Clearstream, as appropriate, and the Registrar will arrange for any Notes which are the subject of such a transfer to be represented by the appropriate Registered Global Note, where applicable.

Upon the transfer, exchange or replacement of Legended Notes, or upon specific request for removal of the Legend, the Registrar shall deliver only Legended Notes or refuse to remove the Legend, as the case may be, unless there is delivered to the Issuer such satisfactory evidence as may reasonably be required by the Issuer, which may include an opinion of U.S. counsel, that neither the Legend nor the restrictions on transfer set forth therein are required to ensure compliance with the provisions of the Securities Act.

### *(g) Exchanges and transfers of Registered Notes generally*

Holders of Registered Notes in definitive form, other than Institutional Accredited Investors, may exchange such Notes for interests in a Registered Global Note of the same type at any time.

### *(h) Definitions*

In this Condition 2, the following expressions shall have the following meanings:

"*Distribution Compliance Period*" means the period that ends 40 days after the completion of the distribution of each Tranche of Notes, as certified by the relevant Dealer (in the case of a non-syndicated issue) or the relevant Lead Manager (in the case of a syndicated issue);

"*Institutional Accredited Investor*" means "accredited investors" (as defined in Rule 501(a)(1), (2), (3) or (7) under the Securities Act that are institutions;

"*Legended Note*" means Registered Notes in definitive form that are issued to Institutional Accredited Investors and Registered Notes (whether in definitive form or represented by a Registered Global Note) sold in private transactions to QIBs in accordance with the requirements of Rule 144A;

"*QIB*" means a "qualified institutional buyer" within the meaning of Rule 144A;

"*Regulation S*" means Regulation S under the Securities Act;

"*Regulation S Global Note*" means a Registered Global Note representing Notes sold outside the United States in reliance on Regulation S;

"*Rule 144A*" means Rule 144A under the Securities Act;

"*Rule 144A Global Note*" means a Registered Global Note representing Notes sold in the United States or to QIBs; and

"*Securities Act*" means the United States Securities Act of 1933, as amended.

## 3. STATUS OF THE NOTES

The Notes and any relative Receipts and Coupons are direct, unconditional, unsubordinated and (subject to the provisions of Condition 4) unsecured obligations of the Issuer and rank pari passu among themselves and will rank *pari passu* with all other present and future unsecured and unsubordinated obligations of the Issuer, save for such as may be preferred by mandatory provisions of applicable law.

## 4. CERTAIN COVENANTS

### *(a) Negative Pledge*

So long as any of the Notes of this Series remains outstanding, the Issuer will not itself, and will not permit any Principal Subsidiary (as defined below) to, create or permit to be outstanding any mortgage, charge, lien, pledge or other security interest ("Security") upon the whole or part of its property, assets or revenues, present or future, to secure for the benefit of the holders of any International Investment Securities (as defined below) (i) payment of any sum due in respect of any such International Investment Securities or (ii) any payment under any guarantee of any such International Investment Securities or (iii) any payment under any indemnity or other like obligation relating to any such International Investment Securities, without in any such case at the same time, according to the Notes of this Series and the Receipts and Coupons applicable thereto, either the same security as is granted to or is outstanding in respect of such International Investment Securities, guarantee, indemnity or other like obligation or such other security as shall be approved by an Extraordinary Resolution (as defined in the Agency Agreement) passed at a meeting of the holders of Notes of this Series.

The foregoing shall not operate to restrict or prohibit (i) the existence of any Security for the benefit of the holders of any International Investment Securities created by a Principal Subsidiary prior to it becoming a Principal Subsidiary, *provided* that the same shall not have been created in contemplation thereof or in connection therewith, (ii) the creation or existence of any Security consisting of a security interest solely in Receivables (as defined below) securing payment of interest or principal of, payment under any guarantee of, or payment under any indemnity relating to, any International Investment Securities issued by a wholly-owned Subsidiary (or another Person in which the Issuer or any Principal Subsidiary makes an investment and to which the Issuer or any Principal Subsidiary transfers Receivables and related assets) and (iii) the creation of any Security over the assets of a capital project securing payment of interest or principal of, payment under any guarantee of, or payment under any indemnity relating to, any International Investment Securities issued by the Issuer or that Principal Subsidiary, where the International Investment Securities are issued to finance such capital project and the financier's rights of recovery are limited to the assets of such capital project.

In this Condition 4(a), a "capital project" means a long-term investment project to acquire, develop, improve, and/or maintain oil or gas fields or oil or gas exploration, development and production related equipment.

### *(b) Consolidation, Merger and Sale of Assets*

The Issuer, without the consent of the holders of the Notes, may consolidate with, or merge into, or sell, transfer, lease or convey its assets as an entirety or substantially as an entirety to any corporation; provided that (i) any successor corporation expressly assumes the Issuer's obligations under these Terms and Conditions and the Agency Agreement, (ii) after giving effect to the transaction, with respect to the Issuer or any such successor corporation, no Event of Default and no event which, after notice or lapse of time or both, would become an Event of Default, shall have occurred and be continuing and (iii) the Issuer has delivered to the Principal Paying

Agent a certificate executed by a duly authorized officer of the Issuer and an opinion of counsel as to matters of law stating that such consolidation, merger, sale, transfer, lease or conveyance and, if a supplemental agency agreement is required in connection with such transaction, such supplemental agency agreement comply with the Agency Agreement and the Notes and that all conditions precedent herein provided for relating to such transaction have been complied with.

### *(c) Certain Definitions*

In this Condition 4, the following expressions shall have the following meanings:

"*International Investment Securities*" means notes, debentures, bonds or investment securities of the Issuer which:

(A) either are by their terms payable, or confer a right to receive payment, in any currency other than Won or are denominated in Won and more than 50 per cent. of the aggregate principal amount thereof is initially distributed outside Korea by or with the authorization of the Issuer; and

(B) are for the time being, or are intended to be, quoted, listed, ordinarily dealt in or traded on any stock exchange or over-the-counter or other securities market outside Korea.

"*Person*" means any individual, corporation, company, firm, tribunal, undertaking, association, organization, partnership, joint venture, trust, limited liability company, unincorporated organization or government or any agency, instrumentality or political subdivision thereof; in each case whether or not being a separate legal entity.

"*Principal Subsidiary*" means:

(i) any Subsidiary (as defined below) of the Issuer:

(x) whose net sales, as shown by the then latest audited financial statements or accounts (consolidated where applicable, but without intercompany adjustments for consolidation with the Issuer) of such Subsidiary, constitute at least 10% of the consolidated net sales of the Issuer as shown by the then latest audited consolidated accounts of the Issuer; or

(y) whose total assets, as shown by the then latest audited financial statements or accounts (consolidated where applicable, but without intercompany adjustments for consolidation with the Issuer) of such Subsidiary, constitute at least 10% of the total consolidated assets of the Issuer as shown by the then latest audited consolidated accounts of the Issuer;

*provided that:*

(1) in the case of a Subsidiary acquired, or a company becoming a Subsidiary, after the end of the financial period to which the latest audited consolidated accounts of the Issuer relate, the reference to the then latest audited consolidated accounts of the Issuer for the purposes of the calculation above shall, until audited consolidated accounts of the Issuer for the financial period in which the acquisition is made or, as the case may be, in which the relevant company becomes a Subsidiary are published, be deemed to be a reference to the then latest audited consolidated accounts of the Issuer adjusted to consolidate the last audited accounts (consolidated where applicable) of such Subsidiary in such accounts;

(2) if at any relevant time in relation to the Issuer or any Subsidiary in respect of which financial consolidation is relevant no consolidated accounts are prepared and audited, net sales and total assets of the Issuer and/or any such Subsidiary shall be determined on the basis of pro-forma consolidated accounts prepared for this purpose by the auditors for the time being of the Issuer;

(3) if at any relevant time in relation to any Subsidiary no accounts are audited, its net sales and total assets (consolidated where applicable, but without intercompany adjustments for consolidation with the Issuer) shall be determined on the basis of pro-forma accounts (consolidated where applicable, but without intercompany

adjustments for consolidation with the Issuer) of the relevant Subsidiary prepared for this purpose by the auditors for the time being of the Issuer; and

(4) if the accounts of any Subsidiary (not being a Subsidiary referred to in proviso (1) above) are not consolidated with those of the Issuer, then the determination of whether or not such Subsidiary is a Principal Subsidiary shall be based on a pro-forma consolidation of its accounts (consolidated where applicable, but without intercompany adjustments for consolidation with the Issuer) with the then latest consolidated audited accounts (determined on the basis of the foregoing) of the Issuer; or

(ii) any Subsidiary of the Issuer to which is transferred all or substantially all of the assets of a Subsidiary which immediately prior to such transfer was a Principal Subsidiary, provided that the Principal Subsidiary which so transfers its assets shall forthwith upon such transfer cease to be a Principal Subsidiary.

"*Receivable*" means a right to receive payment arising from a sale or lease of goods (including oil or gas reserves and equipment) or the performance of services by a Person pursuant to an arrangement with another Person pursuant to which such other Person is obligated to pay for such goods or services under terms that permit the purchase of such goods and services on credit.

"*Relevant GAAP*" shall mean such accounting principles which are generally accepted in Korea at the date or time of any computation.

"*Subsidiary*" means, at any particular time, (i) at least 50% of whose issued equity share capital (or equivalent) is then beneficially owned, by the Issuer, (ii) any person which is then directly or indirectly controlled by the Issuer or (iii) any subsidiary subject to consolidation with the Issuer's financial statements under Relevant GAAP. For a person to be "controlled" by another means that the other (whether directly or indirectly and whether by the ownership of share capital, the possession of voting power, contract or otherwise) has the power to appoint and/or remove a majority of the members of the board of directors or other governing body of that person or otherwise controls or has the power to control the affairs and policies of that person.

## 5. REDENOMINATION

### *(a) Redenomination*

Where redenomination is specified in the applicable Pricing Supplement as being applicable, the Issuer may, without the consent of the Noteholders, the Receiptholders and the Couponholders, on giving prior notice to the Principal Paying Agent, Euroclear and Clearstream and at least 30 days' prior notice to the Noteholders in accordance with Condition 15, elect that, with effect from the Redenomination Date specified in the notice, the Notes shall be redenominated in euro.

The election will have effect as follows:

(i) the Notes and the Receipts shall be deemed to be redenominated in euro in the denomination of €0.01 with a nominal amount for each Note and Receipt equal to the nominal amount of that Note or Receipt in the Specified Currency, converted into euro at the Established Rate, provided that, if the Issuer determines, with the agreement of the Principal Paying Agent, that the then market practice in respect of the redenomination in euro of internationally offered securities is different from the provisions specified above, such provisions shall be deemed to be amended so as to comply with such market practice and the Issuer shall promptly notify the Noteholders, the stock exchange (if any) on which the Notes may be listed and the Paying Agents of such deemed amendments;

(ii) save to the extent that an Exchange Notice has been given in accordance with paragraph (iv) below, the amount of interest due in respect of the Notes will be calculated by reference to the aggregate nominal amount of Notes presented (or, as the case may be, in respect of which Coupons are presented) for payment by the relevant holder and the amount of such payment shall be rounded down to the nearest €0.01;

(iii) if definitive Notes are required to be issued after the Redenomination Date, they shall be issued at the expense of the Issuer in the denominations of €1,000, €10,000, €100,000 and (but only to the extent of any remaining amounts less than €1,000 or such smaller denominations as the Principal Paying Agent may approve) €0.01 and such other denominations as the Principal Paying Agent shall determine and notify to the Noteholders;

(iv) if issued prior to the Redenomination Date, all unmatured Coupons denominated in the Specified Currency (whether or not attached to the Notes) will become void with effect from the date on which the Issuer gives notice (the "Exchange Notice") that replacement euro-denominated Notes, Receipts and Coupons are available for exchange (provided that such securities are so available) and no payments will be made in respect of them. The payment obligations contained in any Notes and Receipts so issued will also become void on that date although those Notes and Receipts will continue to constitute valid exchange obligations of the Issuer. New euro-denominated Notes, Receipts and Coupons will be issued in exchange for Notes, Receipts and Coupons denominated in the Specified Currency in such manner as the Principal Paying Agent may specify and as shall be notified to the Noteholders in the Exchange Notice. No Exchange Notice may be given less than 15 days prior to any date for payment of principal or interest on the Notes;

(v) after the Redenomination Date, all payments in respect of the Notes, the Receipts and the Coupons, other than payments of interest in respect of periods commencing before the Redenomination Date, will be made solely in euro as though references in the Notes to the Specified Currency were to euro. Payments will be made in euro by credit or transfer to a euro account (or any other account to which euro may be credited or transferred) specified by the payee or, at the option of the payee, by a euro cheque;

(vi) if the Notes are Fixed Rate Notes and interest for any period ending on or after the Redenomination Date is required to be calculated for a period ending other than on an Interest Payment Date, it will be calculated by applying the Rate of Interest to each Specified Denomination, multiplying such sum by the applicable Day Count Fraction, and rounding the resultant figure to the nearest sub-unit of the relevant Specified Currency, half of any such sub-unit being rounded upwards or otherwise in accordance with applicable market convention;

(vii) if the Notes are Floating Rate Notes, the applicable Pricing Supplement will specify any relevant changes to the provisions relating to interest; and

(viii) such other changes shall be made to this Condition 5 as the Issuer may decide, after consultation with the Principal Paying Agent, and as may be specified in the notice, to conform it to conventions then applicable to instruments denominated in euro.

### *(b) Definitions*

In this Condition 5, the following expressions have the following meanings:

"*Established Rate*" means the rate for the conversion of the Specified Currency (including compliance with rules relating to roundings in accordance with applicable European Community regulations) into euro established by the Council of the European Union pursuant to Article 123 of the Treaty;

"*€*" and "*euro*" means the currency introduced at the start of the third stage of European economic and monetary union pursuant to the Treaty;

"*Redenomination Date*" means (in the case of interest bearing Notes) any date for payment of interest under the Notes or (in the case of Zero Coupon Notes) any date, in each case specified by the Issuer in the notice given to the Noteholders pursuant to paragraph (a) above and which falls on or after the date on which the country of the Specified Currency first participates in the third stage of European economic and monetary union; and

"*Treaty*" means the Treaty establishing the European Community, as amended.

## 6. INTEREST

### *(a) Interest on Fixed Rate Notes*

Each Fixed Rate Note bears interest on its outstanding nominal amount (or, if it is a Partly Paid Note, the amount paid up) from (and including) the Interest Commencement Date at the rate(s) per annum equal to the Rate(s) of Interest. Interest will be payable in arrears on the Interest Payment Date(s) in each year up to (and including) the Maturity Date.

Except as provided in the applicable Pricing Supplement, the amount of interest payable on each Interest Payment Date in respect of the Fixed Interest Period ending on (but excluding) such date will amount to the Fixed Coupon Amount. Payments of interest on any Interest Payment Date will, if so specified in the applicable Pricing Supplement, amount to the Broken Amount so specified.

As used in this Condition 6(a), "Fixed Interest Period" means the period from (and including) an Interest Payment Date (or the Interest Commencement Date) to (but excluding) the next (or first) Interest Payment Date.

If interest is required to be calculated for a period ending other than a Fixed Interest Period, such interest shall be calculated by applying the Rate of Interest to each Specified Denomination, multiplying such sum by the applicable Day Count Fraction, and rounding the resultant figure to the nearest sub-unit of the relevant Specified Currency, half of any such sub-unit being rounded upwards or otherwise in accordance with applicable market convention.

"*Day Count Fraction*" means, in respect of the calculation of an amount of interest in accordance with this Condition 6(a):

(i) if "Actual/Actual (ICMA)" is specified in the applicable Pricing Supplement:

(a) in the case of Notes where the number of days in the relevant period from (and including) the most recent Interest Payment Date (or, if none, the Interest Commencement Date) to (but excluding) the relevant payment date (the "Accrual Period") is equal to or shorter than the Determination Period during which the Accrual Period ends, the number of days in such Accrual Period divided by the product of (1) the number of days in such Determination Period and (2) the number of Determination Dates (as specified in the applicable Pricing Supplement) that would occur in one calendar year; or

(b) in the case of Notes where the Accrual Period is longer than the Determination Period during which the Accrual Period ends, the sum of:

(1) the number of days in such Accrual Period falling in the Determination Period in which the Accrual Period begins divided by the product of (x) the number of days in such Determination Period and (y) the number of Determination Dates that would occur in one calendar year; and

(2) the number of days in such Accrual Period falling in the next Determination Period divided by the product of (x) the number of days in such Determination Period and (y) the number of Determination Dates that would occur in one calendar year; and

(ii) if "30/360" is specified in the applicable Pricing Supplement, the number of days in the period from (and including) the most recent Interest Payment Date (or, if none, the Interest Commencement Date) to (but excluding) the relevant payment date (such number of days being calculated on the basis of a year of 360 days with 12 30-day months) divided by 360.

In this Condition 6(a):

"*Determination Period*" means each period from (and including) a Determination Date to (but excluding) the next Determination Date (including, where either the Interest Commencement Date or the final Interest Payment Date is not a Determination Date, the period commencing on the first Determination Date prior to, and ending on the first Determination Date falling after, such Determination Date); and

"*sub-unit*" means, with respect to any currency other than euro, the lowest amount of such currency that is available as legal tender in the country of such currency and, with respect to euro, means one cent.

### *(b) Interest on Floating Rate Notes and Index Linked Interest Notes*

*(i) Interest Payment Dates*

Each Floating Rate Note and Index Linked Interest Note bears interest on its outstanding nominal amount (or, if it is a Partly Paid Note, the amount paid up) from (and including) the Interest Commencement Date and such interest will be payable in arrears on either:

(A) the Specified Interest Payment Date(s) (each an "Interest Payment Date") in each year specified in the applicable Pricing Supplement; or

(B) if no Specified Interest Payment Date(s) is/are specified in the applicable Pricing Supplement, each date (each an "Interest Payment Date") which falls the number of months or other period specified as the Specified Period in the applicable Pricing Supplement after the preceding Interest Payment Date or, in the case of the first Interest Payment Date, after the Interest Commencement Date.

Such interest will be payable in respect of each Interest Period (which expression shall, in these Terms and Conditions, mean the period from (and including) an Interest Payment Date (or the Interest Commencement Date) to (but excluding) the next (or first) Interest Payment Date).

If a Business Day Convention is specified in the applicable Pricing Supplement and (x) if there is no numerically corresponding day on the calendar month in which an Interest Payment Date should occur or (y) if any Interest Payment Date would otherwise fall on a day that is not a Business Day, then, if the Business Day Convention specified is:

(1) in any case where Specified Periods are specified in accordance with Condition 6(b)(i)(B) above, the Floating Rate Convention, such Interest Payment Date (i) in the case of (x) above, shall be the last day that is a Business Day in the relevant month and the provisions of (B) below shall apply mutatis mutandis or (ii) in the case of (y) above, shall be postponed to the next day which is a Business Day unless it would thereby fall into the next calendar month, in which event (A) such Interest Payment Date shall be brought forward to the immediately preceding Business Day and (B) each subsequent Interest Payment Date shall be the last Business Day in the month which falls the Specified Period after the preceding applicable Interest Payment Date occurred; or

(2) the Following Business Day Convention, such Interest Payment Date shall be postponed to the next day which is a Business Day; or

(3) the Modified Following Business Day Convention, such Interest Payment Date shall be postponed to the next day which is a Business Day unless it would thereby fall into the next calendar month, in which event such Interest Payment Date shall be brought forward to the immediately preceding Business Day; or

(4) the Preceding Business Day Convention, such Interest Payment Date shall be brought forward to the immediately preceding Business Day.

In this Condition 6(b)(i), "Business Day" means a day that is both:

(A) a day on which commercial banks and foreign exchange markets settle payments and are open for general business (including dealing in foreign exchange and foreign currency deposits) in London and any Additional Business Centre specified in the applicable Pricing Supplement; and

(B) either (1) in relation to any sum payable in a Specified Currency other than euro, a day on which commercial banks and foreign exchange markets settle payments and are open for general business (including dealing in foreign exchange and foreign currency deposits) in the principal financial centre of the country of the relevant Specified Currency (if other than London and any Additional Business Centre and which, if the Specified Currency is Australian dollars or New Zealand dollars, shall be Melbourne or Wellington, respectively) or (2) in relation to any sum payable in euro, a day on which the Trans-European Automated Real-Time Gross Settlement Express Transfer (TARGET 2) System (the "TARGET 2 System") is open.

*(ii) Rate of Interest*

The Rate of Interest payable from time to time in respect of Floating Rate Notes and Index Linked Interest Notes will be determined in the manner specified in the applicable Pricing Supplement.

(A) ISDA Determination for Floating Rate Notes

Where ISDA Determination is specified in the applicable Pricing Supplement as the manner in which the Rate of Interest is to be determined, the Rate of Interest for each Interest Period will be the relevant ISDA Rate plus or minus (as indicated in the applicable Pricing Supplement) the Margin (if any). For the purposes of this sub-paragraph (A), "ISDA Rate" for an Interest Period means a rate equal to the Floating Rate that would be determined by the Principal Paying Agent under an interest rate swap transaction if the Principal Paying Agent were acting as Calculation Agent for that swap transaction under the terms of an agreement incorporating the 2006 ISDA Definitions, as published by the International Swaps and Derivatives Association, Inc. and as amended and updated as at the Issue Date of the first Tranche of the Notes (the "ISDA Definitions") and under which:

(1) the Floating Rate Option is as specified in the applicable Pricing Supplement;

(2) the Designated Maturity is a period specified in the applicable Pricing Supplement; and

(3) the relevant Reset Date is either (i) if the applicable Floating Rate Option is based on the London inter-bank offered rate ("LIBOR") or on the Euro-zone inter-bank offered rate ("EURIBOR"), the first day of that Interest Period or (ii) in any other case, as specified in the applicable Pricing Supplement.

For the purposes of this sub-paragraph (A), "Floating Rate," "Calculation Agent," "Floating Rate Option," "Designated Maturity" and "Reset Date" have the meanings given to those terms in the ISDA Definitions.

(B) Screen Rate Determination for Floating Rate Notes

Where Screen Rate Determination is specified in the applicable Pricing Supplement as the manner in which the Rate of Interest is to be determined, the Rate of Interest for each Interest Period will, subject as provided below, be either:

(1) the offered quotation; or

(2) the arithmetic mean (rounded if necessary to the fifth decimal place, with 0.000005 being rounded upwards) of the offered quotations, (expressed as a percentage rate per annum) for the Reference Rate which appears or appear, as the case may be, on the Relevant Screen Page as at 11:00 a.m. (London time, in the case of LIBOR, or Brussels time, in the case of EURIBOR) on the Interest Determination Date in question plus or minus (as indicated in the applicable Pricing Supplement) the Margin (if any), all as determined by the Principal Paying Agent. If five or more of such offered quotations are available on the Relevant Screen Page, the highest (or, if there is more than one such highest quotation, one only of such quotations) and the lowest (or, if there is more than one such lowest quotation, one only of such quotations) shall be disregarded by the Principal Paying Agent for the purpose of determining the arithmetic mean (rounded as provided above) of such offered quotations.

The Agency Agreement contains provisions for determining the Rate of Interest in the event that the Relevant Screen Page is not available or if, in the case of (1) above, no such offered quotation appears or, in the case of (2) above, fewer than three such offered quotations appear, in each case as at the time specified in the preceding paragraph; provided, however, that Condition 6(b)(ii)(C) shall apply if a Benchmark Transition Event (as defined below) has occurred.

If the Reference Rate from time to time in respect of Floating Rate Notes is specified in the applicable Pricing Supplement as being other than LIBOR or EURIBOR, the Rate of Interest in respect of such Notes will be determined as provided in the applicable Pricing Supplement.

(C) Effect of Benchmark Transition Event

*(i) Benchmark Replacement*

If the Issuer or its designee determines that a Benchmark Transition Event (as defined below) and its related Benchmark Replacement Date (as defined below) have occurred prior to the Reference Time (as defined below) in respect of any determination of the Benchmark (as defined below) on any date, the Benchmark Replacement (as defined below) will replace the then-current Benchmark for all purposes relating to the applicable Notes in respect of such determination on such date and all determinations on all subsequent dates.

*(ii) Benchmark Replacement Conforming Changes*

In connection with the implementation of a Benchmark Replacement, the Issuer or its designee will have the right to make Benchmark Replacement Conforming Changes (as defined below) from time to time.

At the request of the Issuer, but subject to receipt by the Agents of a certificate signed by two duly authorized officers of the Issuer pursuant to Condition 6(b)(ii)(C)(iv) and at least five London banking days' prior notice thereof, the Agents shall (at the expense of the Issuer) be obliged to concur with the Issuer in using their reasonable endeavors to effect any Benchmark Replacement Conforming Changes (including, inter alia, by amending or supplementing the Agency Agreement) in the circumstances and as otherwise set out in this Condition 6(b)(ii)(C), without the consent of the Noteholders, Receiptholders and Couponholders, provided that the Agents shall not be obliged so to concur if, in the opinion of any of the Agents, doing so would impose more onerous obligations upon it or expose it to any additional duties, responsibilities or liabilities or reduce or amend the protective provisions afforded to the Agents in these Terms and Conditions or the Agency Agreement (including, for the avoidance of doubt, any supplements thereto) in any way.

In connection with any Benchmark Replacement Conforming Changes in accordance with this Condition 6(b)(ii)(C)(ii), the Issuer shall comply with the rules of any stock exchange on which the applicable Notes are for the time being listed or admitted to trading.

*(iii) Decisions and Determinations*

Any determination, decision or election that may be made by the Issuer or its designee pursuant to this Condition 6(b)(ii)(C), including any determination with respect to a tenor, rate or adjustment or of the occurrence or non-occurrence of an event, circumstance or date and any decision to take or refrain from taking any action or any selection, will be conclusive and binding absent manifest error, may be made in the Issuer's or its designee's sole discretion, and, notwithstanding anything to the contrary in the these Terms and Conditions or the Agency Agreement, shall become effective with respect to the applicable Notes without consent from any other party.

*(iv) Notices, etc.*

Any Benchmark Replacement (including any Benchmark Replacement Adjustment) and the specific terms of any Benchmark Replacement Conforming Changes determined under this Condition 6(b)(ii)(C) will be notified promptly by the Issuer to the Principal Paying Agent and, in accordance with Condition 15, the Noteholders. Such notice shall be irrevocable and shall specify the effective date of the Benchmark Replacement Conforming Changes, if any.

No later than notifying the Principal Paying Agent of the same, the Issuer shall deliver to the Agents a certificate signed by two duly authorized officers of the Issuer:

(A) confirming (1) that a Benchmark Transition Event has occurred and (2) the Benchmark Replacement (including any Benchmark Replacement Adjustment) and the specific terms of any Benchmark Replacement Conforming Changes, in each case as determined in accordance with the provisions of this Condition 6(b)(ii)(C); and

(B) certifying that the Benchmark Replacement Conforming Changes are necessary to ensure the proper operation of the Benchmark Replacement.

The Agents shall be entitled to rely on such certificate (without liability to any person) as sufficient evidence thereof.

*(v) Survival of Original Reference Rate*

Without prejudice to the obligations of the Issuer under Condition 6(b)(ii)(C)(i), (ii), (iii) and (iv), the Benchmark and the fallback provisions provided for in Condition 6(b)(ii)(B) will continue to apply unless and until the Principal Paying Agent has been notified of the Benchmark Replacement (including any Benchmark Replacement Adjustment) and the specific terms of any Benchmark Replacement Conforming Changes, in accordance with Condition 6(b)(ii)(C)(iv).

*(vi) Certain Defined Terms*

As used in this Condition 6(b)(ii)(C):

"*Benchmark*" means, initially, LIBOR (if LIBOR is specified as the Reference Rate in the applicable Pricing Supplement); provided that if a Benchmark Transition Event and its related Benchmark Replacement Date have occurred with respect to LIBOR or the then-current Benchmark, then "Benchmark" means the applicable Benchmark Replacement.

"*Benchmark Replacement*" means the Interpolated Benchmark; provided that if the Issuer or its designee cannot determine the Interpolated Benchmark as of the Benchmark Replacement Date, then "Benchmark Replacement" means the first alternative set forth in the order below that can be determined by the Issuer or its designee as of the Benchmark Replacement Date:

(i) the sum of: (1) Term SOFR and (2) the Benchmark Replacement Adjustment;

(ii) the sum of: (1) Compounded SOFR and (b) the Benchmark Replacement Adjustment;

(iii) the sum of: (1) the alternate rate of interest that has been selected or recommended by the Relevant Governmental Body as the replacement for the then-current Benchmark for the applicable Corresponding Tenor and (2) the Benchmark Replacement Adjustment;

(iv) the sum of: (1) the ISDA Fallback Rate and (2) the Benchmark Replacement Adjustment;

(v) the sum of: (1) the alternate rate of interest that has been selected by the Issuer or its designee as the replacement for the then-current Benchmark for the applicable Corresponding Tenor giving due consideration to any industry-accepted rate of interest as a replacement for the then-current Benchmark for U.S. dollar-denominated floating rate notes at such time and (2) the Benchmark Replacement Adjustment.

"*Benchmark Replacement Adjustment*" means the first alternative set forth in the order below that can be determined by the Issuer or its designee as of the Benchmark Replacement Date:

(i) the spread adjustment, or method for calculating or determining such spread adjustment, (which may be a positive or negative value or zero) that has been selected or recommended by the Relevant Governmental Body for the applicable Unadjusted Benchmark Replacement;

(ii) if the applicable Unadjusted Benchmark Replacement is equivalent to the ISDA Fallback Rate, then the ISDA Fallback Adjustment;

(iii) the spread adjustment (which may be a positive or negative value or zero) that has been selected by the Issuer or its designee giving due consideration to any industry-accepted spread adjustment, or method for calculating or determining such spread adjustment, for the replacement of the then-current Benchmark with the applicable Unadjusted Benchmark Replacement for U.S. dollar-denominated floating rate notes at such time.

"*Benchmark Replacement Conforming Changes*" means, with respect to any Benchmark Replacement, any technical, administrative or operational changes (including changes to the definition of "Interest Period," timing and frequency of determining rates and making payments of interest, changes to the definition of "Corresponding Tenor" solely when such tenor is longer than the Interest Period and other administrative matters) with respect to these Terms and Conditions or the Agency Agreement or otherwise that the Issuer or its designee decides may be appropriate to reflect the adoption of such Benchmark Replacement in a manner substantially consistent with market practice (or, if the Issuer or its designee decides that adoption of any portion of such market practice is not administratively feasible or if the Issuer or its designee determines that no market practice for use of the Benchmark Replacement exists, in such other manner as the Issuer or its designee determines is reasonably necessary).

"*Benchmark Replacement Date*" means the earliest to occur of the following events with respect to the then-current Benchmark:

(i) in the case of clause (i) or (ii) of the definition of "Benchmark Transition Event," the later of (1) the date of the public statement or publication of information referenced therein and (2) the date on which the administrator of the Benchmark permanently or indefinitely ceases to provide the Benchmark; or

(ii) in the case of clause (iii) of the definition of "Benchmark Transition Event," the date of the public statement or publication of information referenced therein.

For the avoidance of doubt, if the event giving rise to the Benchmark Replacement Date occurs on the same day as, but earlier than, the Reference Time in respect of any determination, the Benchmark Replacement Date will be deemed to have occurred prior to the Reference Time for such determination.

"*Benchmark Transition Event*" means the occurrence of one or more of the following events with respect to the then-current Benchmark:

(i) a public statement or publication of information by or on behalf of the administrator of the Benchmark announcing that such administrator has ceased or will cease to provide the Benchmark, permanently or indefinitely, provided that, at the time of such statement or publication, there is no successor administrator that will continue to provide the Benchmark;

(ii) a public statement or publication of information by the regulatory supervisor for the administrator of the Benchmark, the central bank for the currency of the Benchmark, an insolvency official with jurisdiction over the administrator for the Benchmark, a resolution authority with jurisdiction over the administrator for the Benchmark or a court or an entity with similar insolvency or resolution authority over the administrator for the Benchmark, which states that the administrator of the Benchmark has ceased or will cease to provide the Benchmark permanently or indefinitely, provided that, at the time of such statement or publication, there is no successor administrator that will continue to provide the Benchmark; or

(iii) a public statement or publication of information by the regulatory supervisor for the administrator of the Benchmark announcing that the Benchmark is no longer representative.

"*Compounded SOFR*" means the compounded average of SOFRs for the applicable Corresponding Tenor, with the rate, or methodology for this rate, and conventions for this rate (which will be compounded in arrears with a lookback and/or suspension period as a mechanism to determine the interest amount payable prior to the end of each Interest Period) being established by the Issuer or its designee in accordance with:

(i) the rate, or methodology for this rate, and conventions for this rate selected or recommended by the Relevant Governmental Body for determining compounded SOFR; provided that:

(ii) if, and to the extent that, the issuer or its designee determines that Compounded SOFR cannot be determined in accordance with clause (i) above, then the rate, or methodology for this rate, and conventions for this rate that have been selected by the issuer or its designee giving due consideration to any industry-accepted market practice for U.S. dollar-denominated floating rate notes at such time.

Notwithstanding the foregoing, Compounded SOFR will include a describe lookback and/or suspension period as a mechanism to determine the interest amount payable prior to the end of each Interest Period.

"*Corresponding Tenor*" with respect to a Benchmark Replacement means a tenor (including overnight) having approximately the same length (disregarding business day adjustment) as the applicable tenor for the then-current Benchmark.

"*Federal Reserve Bank of New York's Website*" means the website of the Federal Reserve Bank of New York at http://www.newyorkfed.org, or any successor source.

"*Interpolated Benchmark*" with respect to the Benchmark means the rate determined for the Corresponding Tenor by interpolating on a linear basis between: (i) the Benchmark for the longest period (for which the Benchmark is available) that is shorter than the Corresponding Tenor and (ii) the Benchmark for the shortest period (for which the Benchmark is available) that is longer than the Corresponding Tenor.

"*ISDA Definitions*" means the 2006 ISDA Definitions published by the International Swaps and Derivatives Association, Inc. or any successor thereto, as amended or supplemented from time to time, or any successor definitional booklet for interest rate derivatives published from time to time.

"*ISDA Fallback Adjustment*" means the spread adjustment (which may be a positive or negative value or zero) that would apply for derivatives transactions referencing the ISDA Definitions to be determined upon the occurrence of an index cessation event with respect to the Benchmark for the applicable tenor.

"*ISDA Fallback Rate*" means the rate that would apply for derivatives transactions referencing the ISDA Definitions to be effective upon the occurrence of an index cessation date with respect to the Benchmark for the applicable tenor excluding the applicable ISDA Fallback Adjustment.

"*Reference Time*" with respect to any determination of the Benchmark means (i) if the Benchmark is LIBOR, 11:00 a.m. (London time) on the day that is two London banking days preceding the date of such determination, and (ii) if the Benchmark is not LIBOR, the time determined by the Issuer or its designee in accordance with the Benchmark Replacement Conforming Changes.

"*Relevant Governmental Body*" means the Federal Reserve Board and/or the Federal Reserve Bank of New York, or a committee officially endorsed or convened by the Federal Reserve Board and/or the Federal Reserve Bank of New York or any successor thereto.

"*SOFR*" with respect to any day means the secured overnight financing rate published for such day by the Federal Reserve Bank of New York, as the administrator of the benchmark (or a successor administrator) on the Federal Reserve Bank of New York's Website.

"*Term SOFR*" means the forward-looking term rate for the applicable Corresponding Tenor based on SOFR that has been selected or recommended by the Relevant Governmental Body.

"*Unadjusted Benchmark Replacement*" means the Benchmark Replacement excluding the Benchmark Replacement Adjustment.

### *(iii) Minimum Rate of Interest and/or Maximum Rate of Interest*

If the applicable Pricing Supplement specifies a Minimum Rate of Interest for any Interest Period, then, in the event that the Rate of Interest in respect of such Interest Period determined in accordance with the provisions of paragraph (ii) above is less than such Minimum Rate of Interest, the Rate of Interest for such Interest Period shall be such Minimum Rate of Interest.

If the applicable Pricing Supplement specifies a Maximum Rate of Interest for any Interest Period, then, in the event that the Rate of Interest in respect of such Interest Period determined in accordance with the provisions of paragraph (ii) above is greater than such Maximum Rate of Interest, the Rate of Interest for such Interest Period shall be such Maximum Rate of Interest.

### *(iv) Determination of Rate of Interest and calculation of Interest Amounts*

The Principal Paying Agent, in the case of Floating Rate Notes, and the Calculation Agent, in the case of Index Linked Interest Notes, will at or as soon as practicable after each time at which the Rate of Interest is to be determined, determine the Rate of Interest for the relevant Interest Period. In the case of Index Linked Interest Notes, the Calculation Agent will notify the Principal Paying Agent of the Rate of Interest for the relevant Interest Period as soon as practicable after calculating the same.

The Principal Paying Agent will calculate the amount of interest (the "Interest Amount") payable on the Floating Rate Notes or Index Linked Interest Notes in respect of each Specified Denomination for the relevant Interest Period. Each Interest Amount shall be calculated by applying the Rate of Interest to each Specified Denomination, multiplying such sum by the applicable Day Count Fraction, and rounding the resultant figure to the nearest sub-unit of the relevant Specified Currency, half of any such sub-unit being rounded upwards or otherwise in accordance with applicable market convention. For the avoidance of doubt, this Condition 6(b)(iv) shall not apply if a Benchmark Transition Event (as defined below) has occurred and Condition 6(b)(ii)(C) becomes effective.

"*Day Count Fraction*" means, in respect of the calculation of an amount of interest in accordance with this Condition 6(b):

(i) if "Actual/365" or "Actual/Actual" is specified in the applicable Pricing Supplement, the actual number of days in the Interest Period divided by 365 (or, if any portion of that Interest Period falls in a leap year, the sum of (A) the actual number of days in that portion of the Interest Period falling in a leap year divided by 366 and (B) the actual number of days in that portion of the Interest Period falling in a non-leap year divided by 365);

(ii) if "Actual/365 (Fixed)" is specified in the applicable Pricing Supplement, the actual number of days in the Interest Period divided by 365;

(iii) if "Actual/365 (Sterling)" is specified in the applicable Pricing Supplement, the actual number of days in the Interest Period divided by 365 or, in the case of or Interest Payment Date falling in a leap year, 366;

(iv) if "Actual/360" is specified in the applicable Pricing Supplement, the actual number of days in the Interest Period divided by 360;

(v) if "30/360," "360/360" or "Bond Basis" is specified in the applicable Pricing Supplement, the number of days in the Interest Period divided by 360 (the number of days to be calculated on the basis of a year of 360 days with 12 30-day months (unless (a) the last day of the Interest Period is the 31st day of a month but the first day of the Interest Period is a day other than the 30th or 31st day of a month, in which case the month that includes that last day shall not be considered to be shortened to a 30-day month, or (b) the last day of the Interest Period is the last day of the month of February, in which case the month of February shall not be considered to be lengthened to a 30-day month)); and

(vi) if "30E/360" or "Eurobond Basis" is specified in the applicable Pricing Supplement, the number of days in the Interest Period divided by 360 (the number of days to be calculated on the basis of a year of 360 days with 12 30-day months, without regard to the date of the first day or last day of the Interest Period unless, in the case of the final Interest Period, the Maturity Date is the last day of the month of February, in which case the month of February shall not be considered to be lengthened to a 30-day month).

*(v) Notification of Rate of Interest and Interest Amounts*

The Principal Paying Agent will cause the Rate of Interest and each Interest Amount for each Interest Period and the relevant Interest Payment Date to be notified to the Issuer and, upon consultation with the Issuer, to any stock exchange (other than the Singapore Stock Exchange) on which the relevant Floating Rate Notes or Index Linked Interest Notes are for the time being listed and notices to Noteholders will be published in accordance with Condition 15 as soon as possible after their determination but in no event later than the fourth London Business Day thereafter. Each Interest Amount and Interest Payment Date so notified may subsequently be amended (or appropriate alternative arrangements made by way of adjustment) without prior notice in the event of an extension or shortening of the Interest Period. Any such amendment will be promptly notified to each stock exchange on which the relevant Floating Rate Notes or Index Linked Interest Notes are for the time being listed and to the Noteholders in accordance with Condition 15. For the purposes of this paragraph, the expression "London Business Day" means a day (other than a Saturday or a Sunday) on which banks and foreign exchange markets are open for general business (including dealing in foreign exchange and foreign currency deposits) in London. For the avoidance of doubt, this Condition 6(b)(v) shall not apply if a Benchmark Transition Event (as defined below) has occurred and Condition 6(b)(ii)(C) becomes effective.

*(vi) Certificates to be final*

All certificates, communications, opinions, determinations, calculations, quotations and decisions given, expressed, made or obtained for the purposes of the provisions of this Condition 6(b), whether by the Principal Paying Agent or, if applicable, the Calculation Agent, shall (in the absence of willful default, bad faith or manifest error) be binding on the Issuer, the Principal Paying Agent, the Calculation Agent (if applicable), the other Paying Agents and all Noteholders, Receiptholders and Couponholders and (in the absence as aforesaid) no liability to the Issuer, the Noteholders, the Receiptholders or the Couponholders shall attach to the Principal Paying Agent or the Calculation Agent (if applicable) in connection with the exercise or non-exercise by it of its powers, duties and discretions pursuant to such provisions.

### *(c) Interest on Dual Currency Notes*

The rate or amount of interest payable in respect of Dual Currency Interest Notes shall be determined in the manner specified in the applicable Pricing Supplement.

### *(d) Interest on Partly Paid Notes*

In the case of Partly Paid Notes (other than Partly Paid Notes which are Zero Coupon Notes), interest will accrue as aforesaid on the paid-up nominal amount of such Notes and otherwise as specified in the applicable Pricing Supplement.

### *(e) Accrual of interest*

Each Note (or in the case of the redemption of part only of a Note, that part only of such Note) will cease to bear interest (if any) from the date for its redemption unless, upon due presentation thereof, payment of principal is improperly withheld or refused. In such event, interest will continue to accrue until whichever is the earlier of:

(1) the date on which all amounts due in respect of such Note have been paid; and

(2) five days after the date on which the full amount of the moneys payable in respect of such Note has been received by the Principal Paying Agent or the Registrar, as the case may be, and notice to that effect has been given to the Noteholders in accordance with Condition 15.

## 7. PAYMENTS

### *(a) Method of payment*

Subject as provided below:

(i) payments in a Specified Currency other than euro will be made by credit or transfer to an account in the relevant Specified Currency (which, in the case of a payment in Japanese Yen to a non-resident of Japan, shall be a non-resident account) maintained by the payee with, or, at the option of the payee, by a cheque in such Specified Currency drawn on, a bank in the principal financial centre of the country of such Specified Currency (which, if the Specified Currency is Australian dollars or New Zealand dollars, shall be Melbourne or Wellington, respectively); and

(ii) payments in euro will be made by credit or transfer to a euro account (or any other account to which euro may be credited or transferred) specified by the payee or, at the option of the payee, by a euro cheque.

Payments will be subject in all cases to any fiscal or other laws and regulations applicable thereto in the place of payment, but without prejudice to the provisions of Condition 9.

### *(b) Presentation of definitive Bearer Notes, Receipts and Coupons*

Payments of principal in respect of definitive Bearer Notes will (subject as provided below) be made in the manner provided in paragraph (a) above only against presentation and surrender (or, in the case of part payment of any sum due, endorsement) of definitive Bearer Notes, and payments of interest in respect of definitive Bearer Notes will (subject as provided below) be made as aforesaid only against presentation and surrender (or, in the case of part payment of any sum due, endorsement) of Coupons, in each case at the specified office of any Paying Agent outside the United States (which expression, as used herein, means the United States of America (including the States and the District of Columbia, its territories, its possessions and other areas subject to its jurisdiction)).

Payments of installments of principal (if any) in respect of definitive Bearer Notes, other than the final installment, will (subject as provided below) be made in the manner provided in paragraph (a) above against presentation and surrender (or, in the case of part payment of any sum due, endorsement) of the relevant Receipt in accordance with the preceding paragraph. Payment of the final installment will be made in the manner provided in paragraph (a) above only against presentation and surrender (or, in the case of part payment of any sum due, endorsement) of the relevant Bearer Note in accordance with the preceding paragraph. Each Receipt must be presented for payment of the relevant installment together with the definitive Bearer Note to which it appertains. Receipts presented without the definitive Bearer Note to which they appertain do not constitute valid obligations of the Issuer. Upon the date on which any definitive Bearer Note becomes due and repayable, unmatured Receipts (if any) relating thereto (whether or not attached) shall become void and no payment shall be made in respect thereof.

Fixed Rate Notes in definitive bearer form (other than Dual Currency Notes, Index Linked Notes or Long Maturity Notes (as defined below)) should be presented for payment together with all unmatured Coupons appertaining thereto (which expression shall for this purpose include Coupons falling to be issued on exchange of matured Talons), failing which the amount of any missing unmatured Coupon (or, in the case of payment not being made in full, the same proportion of the amount of such missing unmatured Coupon as the sum so paid bears to the sum due) will be deducted from the sum due for payment. Each amount of principal so deducted will be paid in the manner mentioned above against surrender of the relative missing Coupon at any time before the expiry of five years after the Relevant Date (as defined in Condition 9) in respect of such principal (whether or not such Coupon would otherwise have become void under Condition 10) or, if later, two years from the date on which such Coupon would otherwise have become due, but in no event thereafter.

Upon any Fixed Rate Note in definitive bearer form becoming due and repayable prior to its Maturity Date, all unmatured Talons (if any) appertaining thereto will become void and no further Coupons will be issued in respect thereof.

Upon the date on which any Floating Rate Note, Dual Currency Note, Index Linked Interest Note or Long Maturity Note in definitive bearer form becomes due and repayable, unmatured Coupons and Talons (if any) relating thereto (whether or not attached) shall become void and no payment or, as the case may be, exchange for further Coupons shall be made in respect thereof. A "Long Maturity Note" is a Fixed Note (other than a Fixed Rate Note which on issue had a Talon attached) whose nominal amount on issue is less than the aggregate interest payable thereon, *provided that* such Note shall cease to be a Long Maturity Note on the Fixed Interest Date on which the aggregate amount of interest remaining to be paid after that date is less than the nominal amount of such Note.

If the due date for redemption of any definitive Bearer Note is not an Interest Payment Date, interest (if any) accrued in respect of such Note from (and including) the preceding or Interest Payment Date or, as the case may be, the Interest Commencement Date shall be payable only against surrender of the relevant definitive Bearer Note.

### *(c) Payments in respect of Bearer Global Notes*

Payments of principal and interest (if any) in respect of Notes represented by any Global Note in bearer form will (subject as provided below) be made in the manner specified above in relation to definitive Bearer Notes and otherwise in the manner specified in the relevant Global Note against presentation or surrender, as the case may be, of such Global Note at the specified office of any Paying Agent outside the United States. A record of each payment made against presentation or surrender of any Global Note in bearer form, distinguishing between any payment of principal and any payment of interest, will be made on such Global Note by the Paying Agent to which it was presented and such record shall be prima facie evidence that the payment in question has been made.

### *(d) Payments in respect of Registered Notes*

Payments of principal (other than installments of principal prior to the final installment) in respect of each Registered Note (whether or not in global form) will be made against presentation and surrender (or, in the case of part payment of any sum due, endorsement) of the Registered Note at the specified office of the Registrar or any of the Paying Agents. Such payments will be made by transfer to the Designated Account (as defined below) of the holder (or the first named of joint holders) of the Registered Note appearing in the register of holders of the Registered Notes maintained by the Registrar (the "Register") at the close of business on the third business day (being for this purpose a day on which banks are open for business in the city where the specified office of the Registrar is located) before the relevant due date. Notwithstanding the previous sentence, if (i) a holder does not have a Designated Account or (ii) the principal amount of the Notes held by a holder is less than U.S.$250,000 (or its approximate equivalent in any other Specified Currency), payment will instead be made by a cheque in the Specified Currency drawn on a Designated Bank (as defined below) and mailed by uninsured mail as soon as reasonably practicable after the relevant due date to the holder (or the first named of joint holders) of the Registered Note appearing in the Registrar at the close of business on the Record Date (as defined below). For these purposes, "Designated Account" means the account (which, in the case of a payment in Japanese Yen to a non-resident of Japan, shall be a non-resident account) maintained by a holder with a Designated Bank and identified as such in the Register and "Designated Bank" means (in the case of payment in a Specified Currency other than euro) a bank in the principal financial centre of the country of such Specified Currency (which, if the Specified Currency is Australian dollars or New Zealand dollars, shall be Sydney or Auckland, respectively) and (in the case of a payment in euro) any bank which processes payments in euro.

Payments of interest and payments of installments of principal (other than the final installment) in respect of each Registered Note (whether or not in global form) will be made by a cheque in the Specified Currency drawn on a Designated Bank and mailed by uninsured mail on the business day in the city where the specified office of the Registrar is located immediately preceding the relevant due date to the holder (or the first named of joint holders) of the Registered Note appearing in the Register (i) where in global form, at the close of the business day (being for the purpose a day on which DTC and/or Euroclear and Clearstream, as applicable, are open for business) and (ii) where in definitive form, at the close of business on the fifteenth day (whether or not such fifteenth day is a business day) before the relevant due date (the "Record Date") at his address shown in the Register on the Record Date and at his risk. Upon application of the holder to the specified office of the Registrar not less than three business days in the city where the specified office of the Registrar is located before the due date for any payment of interest in respect of a Registered Note, the payment may be made by transfer on the due date in the manner provided in the preceding paragraph. Any such application for transfer shall be deemed to relate to all future payments of interest (other than interest due on redemption) and installments of principal (other than the final installment) in respect of the Registered Notes which become payable to the holder who has made the initial application until such time as the Registrar is notified in writing to the contrary by such holder. Payment of the interest due in respect of each Registered Note on redemption and the final installment of principal will be made in the same manner as payment of the principal amount of such Registered Note.

Holders of Registered Notes will not be entitled to any interest or other payment for any delay in receiving any amount due in respect of any Registered Note as a result of a cheque posted in accordance with this Condition 7(d) arriving after the due date for payment or being lost in the post. No commissions or expenses shall be charged to such holders by the Registrar in respect of any payments of principal or interest in respect of the Registered Notes.

All amounts payable to DTC or its nominee as registered holder of a Registered Global Note in respect of Notes denominated in a Specified Currency other than U.S. dollars shall be paid by transfer by the Registrar to an account in the relevant Specified Currency of the Exchange Agent on behalf of DTC or its nominee for conversion into and payment in U.S. dollars in accordance with the provisions of the Agency Agreement.

None of the Issuer or the Agents will have any responsibility or liability for any aspect of the records relating to, or payments made on account of, beneficial ownership interests in the Registered Global Notes or for maintaining, supervising or reviewing any records relating to such beneficial ownership interests.

### *(e) General provisions applicable to payments*

The holder of a Global Note shall be the only person entitled to receive payments in respect of Notes represented by such Global Note and the Issuer will be discharged by payment to, or to the order of, the holder of such Global Note in respect of each amount so paid. Each of the persons shown in the records of Euroclear or Clearstream as the beneficial holder of a particular nominal amount of Notes represented by such Global Note must look solely to Euroclear or Clearstream, as the case may be, for his share of each payment so made by the Issuer to, or to the order of, the holder of such Global Note.

Notwithstanding the foregoing provisions of this Condition 7, if any amount of principal and/or interest in respect of Bearer Notes is payable in U.S. dollars, such U.S. dollar payments of principal and/or interest in respect of such Notes will be made at the specified office of a Paying Agent in the United States if:

(i) the Issuer has appointed Paying Agents with specified offices outside the United States with the reasonable expectation that such Paying Agents would be able to make payment in U.S. dollars at such specified offices outside the United States of the full amount of principal and interest on the Bearer Notes in the manner provided above when due;

(ii) payment of the full amount of such principal and interest at all such specified offices outside the United States is illegal or effectively precluded by exchange controls or other similar restrictions on the full payment or receipt of principal and interest in U.S. dollars; and

(iii) such payment is then permitted under United States law without involving, in the opinion of the Issuer, adverse tax consequences to the Issuer.

### *(f) Payment Day*

If the date for payment of any amount in respect of any Note, Receipt or Coupon is not a Payment Day, the holder thereof shall not be entitled to payment until the next following Payment Day in the relevant place and shall not be entitled to further interest or other payment in respect of such delay. For these purposes, "Payment Day" means any day that (subject to Condition 9) is:

(i) either (1) in relation to any sum payable in a Specified Currency other than euro, a day on which commercial banks and foreign exchange markets settle payments and are open for general business (including dealing in foreign exchange and foreign currency deposits) in the principal financial centre of the country of the relevant Specified Currency (if other than the place of presentation and any Additional Financial Centre and which if the Specified Currency is Australian dollars or New Zealand dollars shall be Melbourne and Wellington, respectively) or (2) in relation to any sum payable in euro, a day on which the TARGET 2 System is open; and

(ii) a day on which commercial banks and foreign exchange markets settle payments and are open for general business (including dealing in foreign exchange and foreign currency deposits) in:

(A) the relevant place of presentation (in the case of Notes in definitive form); and

(B) London and any Additional Financial Centre specified in the applicable Pricing Supplement.

### *(g) Interpretation of principal and interest*

Any reference in these Terms and Conditions to principal in respect of the Notes shall be deemed to include, as applicable:

(i) any additional amounts which may be payable with respect to principal under Condition 9;

(ii) the Final Redemption Amount of the Notes;

(iii) the Early Redemption Amount of the Notes;

(iv) the Optional Redemption Amount(s) (if any) of the Notes;

(v) in relation to Notes redeemable in installments, the Installment Amounts;

(vi) in relation to Zero Coupon Notes, the Amortized Face Amount (as defined in Condition 8(e)); and

(vii) any premium and any other amounts which may be payable by the Issuer under or in respect of the Notes.

Any reference in these Terms and Conditions to interest in respect of the Notes shall be deemed to include, as applicable, any additional amounts which may be payable with respect to interest under Condition 9.

## 8. REDEMPTION AND PURCHASE

### *(a) Redemption at maturity*

Unless previously redeemed or purchased and cancelled as specified below, each Note (including Dual Currency Notes) will be redeemed by the Issuer at its Final Redemption Amount specified in, or determined in the manner specified in, the applicable Pricing Supplement in the relevant Specified Currency on the Maturity Date.

### *(b) Redemption for tax reasons*

The Notes may be redeemed at the option of the Issuer in whole, but not in part, at any time (if this Note is neither a Floating Rate Note nor an Index Linked Interest Note nor a Dual Currency Interest Note) or on any Interest Payment Date (if this Note is either a Floating Rate Note or an Index Linked Interest Note or a Dual Currency Interest Note), on giving not less than 30 nor more than 60 days' notice to the Principal Paying Agent and, in accordance with Condition 15, the Noteholders (which notice shall be irrevocable), if:

(i) on the occasion of the next payment due under the Notes, the Issuer has or will become obliged to pay additional amounts as provided or referred to in Condition 9 as a result of any change in, expiration of or amendment to the laws or regulations of a Tax Jurisdiction (as defined in Condition 9), or any change in the application or official interpretation of such laws or regulations, which change or amendment becomes effective on or after the date on which agreement is reached to issue the first Tranche of the Notes; and

(ii) such obligation cannot be avoided by the Issuer taking reasonable measures available to it, *provided that* (1) no such notice of redemption shall be given earlier than 60 days prior to the earliest date on which the Issuer would be obliged to pay such additional amounts were a payment in respect of the Notes then due and (2) at the time of such notice of redemption is given, such obligation to pay such additional amounts remains in effect.

Prior to the publication of any notice of redemption pursuant to this Condition 8(b), the Issuer shall deliver to the Principal Paying Agent (1) a certificate signed by an authorized officer of the Issuer stating that the Issuer is entitled to effect such redemption and setting forth a statement of facts showing that the conditions precedent to the right of the Issuer so to redeem have occurred and (2) an opinion of independent legal advisers of recognized standing to the effect that the Issuer has or will become obliged to pay such additional amounts as a result of such change or amendment.

Notes redeemed pursuant to this Condition 8(b) will be redeemed at their Early Redemption Amount referred to in paragraph (e) below together (if appropriate) with interest accrued to (but excluding) the date of redemption.

### *(c) Redemption at the option of the Issuer (Issuer Call)*

If Issuer Call is specified in the applicable Pricing Supplement, the Issuer may, having given:

(i) not less than 15 nor more than 30 days' notice to the Noteholders in accordance with Condition 15; and

(ii) not less than 15 days before the giving of the notice referred to in (i), notice to the Principal Paying Agent and is the case of a redemption of Registered Notes, the Registrar (which notices shall be irrevocable and shall specify the date fixed for redemption),

redeem all or some only of the Notes then outstanding on any Optional Redemption Date and at the Optional Redemption Amount(s) specified in, or determined in the manner specified in, the applicable Pricing Supplement together, if appropriate, with interest accrued to (but excluding) the relevant Optional Redemption Date. Any such redemption must be of a nominal amount not less than the Minimum Redemption Amount and more than the Higher Redemption Amount, in each case as may be specified in the applicable Pricing Supplement. In the case of a partial redemption of Notes, the Notes to be redeemed ("Redeemed Notes") will be selected individually by lot, in the case of Redeemed Notes represented by definitive Notes, and in accordance with the rules of Euroclear, Clearstream and/or DTC in the case of Redeemed Notes represented by a Global Note, not more than 30 days prior to the date fixed for redemption (such date of selection being hereinafter called the "Selection Date"). In the case of Redeemed Notes represented by definitive Notes, a list of the serial numbers of such Redeemed Notes will be published in accordance with Condition 15 not less than 15 days prior to the date fixed for redemption. The aggregate nominal amount of Redeemed Notes represented by definitive Notes shall bear the same proportion to the aggregate nominal amount of all Redeemed Notes as the aggregate nominal amount of definitive Notes outstanding bears to the aggregate nominal amount of the Notes outstanding, in each case on the Selection Date, *provided that* such first mentioned nominal amount shall, if necessary, be rounded downwards to the nearest integral multiple of the Specified Denomination, and the aggregate nominal amount of Redeemed Notes represented by a Global Note shall be equal to the balance of the Redeemed Notes. No exchange of the relevant Global Note will be permitted during the period from (and including) the Selection Date to (and including) the date fixed for redemption pursuant to this paragraph (c) and notice to that effect shall be given by the Issuer to the Noteholders in accordance with Condition 15 at least five days prior to the Selection Date.

### *(d) Change of Control; Redemption of the Notes only at the option of the Noteholders (Investor Put)*

*(i) Change of Control*

Upon the occurrence of a Change of Control (as defined below), each holder of the Notes will have the right to require the Issuer to redeem all or any part of such holder's Notes at a redemption price equal to 100% of the principal amount thereof plus accrued but unpaid interest, if any, to the date of redemption (the "Change of Control Redemption Price"). Within 30 days following a Change of Control, the Issuer shall cause the Principal Paying Agent to deliver a notice to each holder stating that (i) a Change of Control has occurred and that such holder has the right to require the Issuer to redeem such holder's Notes at the Change of Control Redemption Price; (ii) the redemption date (which shall be no earlier than 30 days nor later than 60 days from the date such notice is delivered); and (iii) the procedures determined by the Issuer, consistent with the Notes and the Agency Agreement, that a holder must follow in order to have its Notes redeemed.

"*Change of Control*" means the central government of Korea ceasing to own and control (directly or indirectly or in combination) at least 51% of the Issuer's issued and outstanding capital stock.

*(ii) Redemption of the Notes only at the option of the Noteholders (Investor Put)*

If Investor Put is specified in the applicable Pricing Supplement with respect to any Series of Notes, upon the holder of any Note giving to the Issuer in accordance with Condition 15 not less than 15 nor more than 30 days' notice the Issuer will, upon the expiry of such notice, redeem, subject to, and in accordance with, the terms specified in the applicable Pricing Supplement, in whole (but not in part), such Note on the Optional Redemption Date and at the Optional Redemption Amount together, if appropriate, with interest accrued to (but excluding) the Optional Redemption Date. Registered Notes may be redeemed under this Condition 8(d)(ii) in any multiple of their lowest Specified Denomination.

To exercise the right to require redemption of this Note, the holder of this Note must deliver, at the specified office of any Paying Agent (in the case of Bearer Notes) or the Registrar (in the case of Registered Notes) at any time during normal business hours of such Paying Agent or, as the case may be the Registrar falling within the notice period, a duly completed and signed notice of exercise in the form (for the time being current) obtainable from any specified office of any Paying Agent or, as the case may be the Registrar (a "Put Notice") and in which the holder must specify a bank account (or, if payment is required to be made by cheque, an address) to which payment is to be made under this Condition 8(d)(ii) and, in the case of Registered Notes, the nominal amount thereof to be redeemed and, if less than the full nominal amount of the Registered Notes so surrendered is to be redeemed, an address to which a new Registered Note in respect of the balance of such Registered Notes is to be sent subject to and in accordance with the provisions of Condition 2(b). If this Note is in definitive form, the Put Notice must be accompanied by this Note or evidence satisfactory to the Paying Agent concerned that this Note will, following delivery of the Put Notice, be held to its order or under its control.

Any Put Notice given by a holder of any Note pursuant to this paragraph shall be irrevocable except where prior to the due date of redemption an Event of Default shall have occurred and be continuing in which event such holder, at its option, may elect by notice to the Issuer to withdraw the notice given pursuant to this paragraph and instead to declare such Note forthwith due and payable pursuant to Condition 11.

### *(e) Early Redemption Amounts*

For the purpose of paragraph (b) above and Condition 11, each Note will be redeemed at the Early Redemption Amount calculated as follows:

(i) in the case of a Note with a Final Redemption Amount equal to the Issue Price, at the Final Redemption Amount thereof;

(ii) in the case of a Note (other than a Zero Coupon Note but including an Installment Note) with a Final Redemption Amount which is or may be less or greater than the Issue Price or which is payable in a Specified Currency other than that in which the Notes are denominated, at the amount specified in, or determined in the manner specified in, the applicable Pricing Supplement or, if no such amount or manner is so specified in the applicable Pricing Supplement, at its nominal amount; or

(iii) in the case of a Zero Coupon Note, at an amount (the "Amortized Face Amount") calculated in accordance with the following formula:

$$\text{Early Redemption Amount} = RP \times (1+AY)y$$

where:

| | |
|---|---|
| "RP" | means the Reference Price; |
| "AY" | means the Accrual Yield expressed as a decimal; and |
| "y" | is a fraction the numerator of which is equal to the number of days (calculated on the basis of a 360-day year consisting of 12 months of 30 days each) from (and including) the Issue Date of the first Tranche of the Notes to (but excluding) the date fixed for redemption or (as the case may be) the date upon which such Note becomes due and repayable and the denominator of which is 360, |

or on such other calculation basis as may be specified in the applicable Pricing Supplement.

### *(f) Installments*

Installment Notes will be redeemed in the Installment Amounts and on the Installment Dates. In the case of early redemption, the Early Redemption Amount will be determined pursuant to paragraph (e) above.

### *(g) Partly Paid Notes*

Partly Paid Notes will be redeemed, whether at maturity, early redemption or otherwise, in accordance with the provisions of this Condition 8 and the applicable Pricing Supplement.

### *(h) Purchases*

The Issuer may at any time purchase Notes by tender (available to all holders of the Notes alike) or in the open market at any price. If the Issuer shall acquire any Notes, such acquisition shall not operate as or be deemed for any purpose to be a satisfaction of the indebtedness represented by such Notes unless and until such Notes are delivered to the Principal Paying Agent for cancellation and are cancelled and retired by the Principal Paying Agent. The Issuer will not sell, and will cause its affiliates not to sell, any Notes as to which it or they hold or acquire any beneficial interest; *provided* that affiliates of the Issuer may sell Notes to the Issuer or to other such affiliates. Notes purchased or otherwise acquired by the Issuer may be held, resold or, at its discretion, surrendered to the Principal Paying Agent for cancellation.

### *(i) Cancellation*

All Notes that are redeemed will forthwith be cancelled (together with all unmatured Receipts, Coupons and Talons attached thereto or surrendered therewith at the time of redemption). All Notes so cancelled and the Notes purchased and cancelled pursuant to paragraph (g) above (together with all unmatured Receipts, Coupons and Talons cancelled therewith) shall be forwarded to the Principal Paying Agent and cannot be reissued or resold.

### *(j) Late payment on Zero Coupon Notes*

If the amount payable in respect of any Zero Coupon Note upon redemption of such Zero Coupon Note pursuant to paragraph (a), (b), (c) or (d) above or upon its becoming due and repayable as provided in Condition 11 is improperly withheld or refused, the amount due and repayable in respect of such Zero Coupon Note shall be the amount calculated as provided in paragraph (e)(iii) above as though the references therein to the date fixed for the redemption or the date upon which such Zero Coupon Note becomes due and payable were replaced by references to the date which is the earlier of:

(i) the date on which all amounts due in respect of such Zero Coupon Note have been paid; and

(ii) five days after the date on which the full amount of the moneys payable in respect of such Zero Coupon Notes has been received by the Principal Paying Agent or the Registrar and notice to that effect has been given to the Noteholders in accordance with Condition 15.

## 9. TAXATION

All payments of principal and interest in respect of the Notes, Receipts and Coupons by the Issuer will be made without withholding or deduction for or on account of any present or future taxes, duties, assessments or governmental charges of whatever nature imposed or levied by or on behalf of a Tax Jurisdiction unless such withholding or deduction is required by law. In such event, the Issuer will pay such additional amounts as shall be necessary in order that the net amounts received by the holders of the Notes, Receipts or Coupons after such withholding or deduction will not be less than the respective amounts of principal and interest which would otherwise have been receivable in respect of the Notes, Receipts or Coupons, as the case may be, in the absence of such withholding or deduction; except that no such additional amounts shall be payable with respect to any Note, Receipt or Coupon:

(i) to or on behalf of a holder of such Note, Receipt or Coupon who is subject to such taxes, duties, assessments or governmental charges in respect of such Note by reason of such holder being or having been connected with a Tax Jurisdiction other than merely by holding such Note or receiving principal or interest in respect thereof; or

(ii) to or on behalf of a holder of such Note, Receipt or Coupon who would not be liable for or subject to such deduction or withholding by making a declaration of non-residence or other similar claim for exemption to the relevant tax authority if, after having been requested in writing by the Issuer to make such a declaration or claim, such holder fails to do so; or

(iii) to or on behalf of a holder of such Note, Receipt or Coupon who presents a Note (where presentation is required) more than 30 days after the relevant date except to the extent that the holder thereof would have been entitled to such additional amounts on presenting the same for payment on the last day of such 30-day period; for this purpose the “relevant date” means:

(a) the due date for payment thereof; or

(b) if the full amount of the moneys payable on such date has not been received by the Principal Paying Agent or the Registrar, as the case maybe, on or prior to such due date, the date on which, the full amount of such moneys having been so received, notice to that effect is duly given to the Noteholders in accordance with Condition 15; or

(iv) to or on behalf of a holder of a holder of such Note, Receipt or Coupon who would have been able to avoid the withholding or deduction by the presentation (where presentation is required) of the relevant Note, Receipt or Coupon to, or otherwise accepting payment from, another paying agent in a Member State of the European Union; or

(v) any combination of (i), (ii), (iii), or (iv) above.

The obligation of the Issuer to pay additional amounts in respect of taxes, duties, assessments and governmental charges shall not apply to (i) any estate, inheritance, gift, sales, transfer, personal property or any similar tax, assessment or other governmental charge or (ii) any tax, assessment or other governmental charge which is payable otherwise than by deduction or withholding from payments of principal and interest in respect of the Notes, Receipts and Coupons; *provided that*, except as otherwise set forth in these Terms and Conditions and in the Agency Agreement, the Issuer shall pay all stamp or other similar duties, if any, which may be imposed by a Tax Jurisdiction, the United States or any respective political subdivision thereof or any taxing authority of or in the foregoing, with respect to the Notes or the Agency Agreement or as a consequence of the issuance of the Notes.

As used herein: “Tax Jurisdiction” means Korea or any political subdivision or any authority thereof or therein having power to tax.

## 10. PRESCRIPTION

The Notes (whether in bearer form or registered form), Receipts and Coupons will become void unless presented for payment within a period of five years (in the case of principal) and two years (in the case of interest) after the Relevant Date (as defined in Condition 9) therefor.

There shall not be included in any Coupon sheet issued on exchange of a Talon any Coupon the claim for payment in respect of which would be void pursuant to this Condition 10 or Condition 7(b) or any Talon that would be void pursuant to Condition 7(b).

## 11. EVENTS OF DEFAULT

The occurrence and continuance of any of the following events will constitute an event of default (“Event of Default”):

(i) default in the payment of any installment of interest upon any of the Notes as and when the same shall become due and payable, and continuance of such default for a period of 30 days;

(ii) default in the payment of all or any part of the principal of any of the Notes as and when the same shall become due and payable, whether at maturity, upon redemption or otherwise, and continuance of such default for a period of seven days;

(iii) breach or failure to observe or perform any other of the covenants or agreements on the part of the Issuer contained in these Terms and Conditions for a period of 60 days after the date on which written notice specifying such default or breach, stating that such notice is a “Notice of Default” under these Terms and Conditions and demanding that the Issuer remedy the same, shall have been given to the Issuer, with a copy to the Principal Paying Agent and the Registrar, by the Noteholders of at least 10% in aggregate principal amount of the Notes at the time outstanding;

(iv) any Debt of the Issuer in the aggregate outstanding principal amount of US$35,000,000 or more either (a) becoming due and payable prior to the due date for payment thereof by reason of acceleration thereof following default by the Issuer or (b) not being repaid at, and remaining unpaid after, maturity as extended by the period of grace, if any, applicable thereto, or any guarantee given by the Issuer in respect of Debt of any other person not being honored when, and remaining dishonored after becoming, due and called; *provided* that, in the case of (a) above, if any such default under any such Debt shall be cured or waived, then the default under the Notes by reason thereof shall be deemed to have been cured and waived;

(v) the entry of a decree or order for relief in respect of the Issuer by a court or administrative or other governmental agency or body having jurisdiction in the premises in an involuntary case under any applicable bankruptcy, insolvency, reorganization, rehabilitation, compulsory composition or other similar law in effect on the date of the Notes or thereafter, or appointing a receiver, liquidator, assignee, custodian, trustee or sequestrator (or similar official) of the Issuer or for any substantial part of its property or ordering the winding up, dissolution or liquidation of its affairs, or shall otherwise adjudicate or find the Issuer to be bankrupt or insolvent, and continuance of any such decree or order unstayed and in effect for a period of 60 consecutive days; or

(vi) the commencement by the Issuer of a voluntary case under any applicable bankruptcy, insolvency, reorganization, rehabilitation, compulsory composition or other similar law in effect on the date of the Notes or thereafter, or consent to the entry of an order for relief in an involuntary case under any such law, or consent to the appointment or taking possession by a receiver, liquidator, assignee, custodian, trustee or sequestrator (or similar official) of the Issuer or for any substantial part of its property, or cease to carry on the whole or substantially the whole of its business, or make any general assignment for the benefit of creditors, or enter into any composition with its creditors, or take corporate action in furtherance of any such action.

If an Event of Default with respect to the Notes occurs and is continuing, the Noteholders of not less than 25% in aggregate principal amount of the Notes then outstanding may declare the principal amount (and premium, if any) of, and all accrued but unpaid interest on, all the Notes to be due and payable immediately, by a notice in writing to the Issuer at the office of the Principal Paying Agent, and upon such declaration, any such principal amount (and premium, if any) and interest shall become immediately due and payable. Upon such declaration, the Principal Paying Agent shall give notice thereof to the Issuer and to the Noteholders in writing. If, after any such declaration and before any judgment or decree for the payment of the moneys due shall have been obtained or entered, the Issuer pays or deposits with the Principal Paying Agent all amounts then due with respect to the Notes (other than amounts due solely because of such declaration) and cures all other Events of Default with respect to the Notes, such defaults may be waived and such declaration may be annulled and rescinded by the Noteholders of more than 50% in aggregate principal amount of the Notes then outstanding by written notice thereof to the Issuer at the office of the Principal Paying Agent.

In this Condition 11, "*Debt*" means, with respect to any person as of any date of determination, without duplication, (i) all obligations, contingent or otherwise, of such person for borrowed money, (ii) all obligations of such person evidenced by bonds, notes or other similar instruments, (iii) all obligations of such person in respect of letters of credit or other similar instruments, (iv) all obligations of such person to pay the unpaid purchase price of any property or service, (v) all obligations secured by any mortgage, charge, pledge, encumbrance or other security interest (a "Lien") on any property or asset of such person, whether or not such obligations are assumed by such person and (vi) all obligations of others guaranteed by such person to the extent of such guarantees and, for clauses (i) through (vi), which are denominated in a currency other than the currency of Korea and 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 (v), 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.

## 12. REPLACEMENT OF NOTES, RECEIPTS, COUPONS AND TALONS

Should any Note, Receipt, Coupon or Talon be lost, stolen, mutilated, defaced or destroyed, it may be replaced at the specified office of the Principal Paying Agent (in the case of Bearer Notes, Coupons or Talons) or the Registrar (in the case of Registered Notes) upon payment by the claimant of such costs and expenses as may be incurred in connection therewith and on such terms as to evidence and indemnity as the Issuer may reasonably require. Mutilated or defaced Notes, Receipts, Coupons or Talons must be surrendered before replacements will be issued.

## 13. PAYING AGENTS

The names of the initial Paying Agents and their initial specified offices are set out below.

The Issuer is entitled to vary or terminate the appointment of any Paying Agent and/or appoint additional or other Paying Agents and/or approve any change in the specified office through which any Paying Agent acts, *provided that*:

(a) there will at all times be a Principal Paying Agent;

(b) so long as the Notes are listed on any stock exchange, there will at all times be a Paying Agent (in the case of Bearer Notes) and a Transfer Agent (in the case of Registered Notes) with a specified office in such place as may be required by the rules and regulations of the relevant stock exchange or any other relevant authority;

(c) so long as any of the Registered Global Notes payable in a Specified Currency other than U.S. dollars are held through DTC or its nominee, there will at all times be an Exchange Agent with a specified office in New York City; and

(d) so long as the Notes are listed on the Singapore Exchange Securities Trading Limited (the "Singapore Stock Exchange") and the rules of the Singapore Stock Exchange so require, if the Notes are issued in definitive form, there will at all times be a Paying Agent in Singapore unless the Issuer obtains an exemption from the Singapore Stock Exchange.

In addition, the Issuer shall forthwith appoint a Paying Agent having a specified office in New York City in the circumstances described in Condition 7(e). Any variation, termination, appointment or change with respect to any Paying Agent shall only take effect (other than in the case of insolvency, when it shall be of immediate effect) after not less than 30 nor more than 45 days' prior notice thereof shall have been given to the Noteholders in accordance with Condition 15.

In acting under the Agency Agreement, the Paying Agents act solely as agents of the Issuer and do not assume any obligation to, or relationship of agency or trust with, any Noteholders, Receiptholders or Couponholders. The Agency Agreement contains provisions permitting any entity into which any Paying Agent is merged or converted or with which it is consolidated or to which it transfers all or substantially all of its assets to become the successor paying agent.

## 14. EXCHANGE OF TALONS

On and after the Interest Payment Date on which the final Coupon comprised in any Coupon sheet matures, the Talon (if any) forming part of such Coupon sheet may be surrendered at the specified office of the Principal Paying Agent or any other Paying Agent in exchange for a further Coupon sheet including (if such further Coupon sheet does not include Coupons to (and including) the final date for the payment of interest due in respect of the Note to which it appertains) a further Talon, subject to the provisions of Condition 10.

## 15. NOTICES

All notices regarding the Bearer Notes will be deemed to be validly given if published (i) in a leading English language daily newspaper of general circulation in London and Asia. It is expected that such publication will be made in the Financial Times in London and the Asian Wall Street Journal. The Issuer shall also ensure that notices are duly published in a manner which complies with the rules of any stock exchange or other relevant authority on which the Bearer Notes are for the time being listed or by which they have been admitted to listing. Any such notice will be deemed to have been given on the date of the first publication or, where required to be published in more than one newspaper, on the date of the first publication in all required newspapers.

All notices regarding the Registered Notes will be deemed to be validly given if sent by first class mail or (if posted to an address overseas) by airmail to the holders (or the first named of joint holders) at their respective addresses recorded in the Register and will be deemed to have been given on the fourth day after mailing and, in addition, for so long as any Registered Notes are listed on a stock exchange and the rules of that stock exchange (or any other relevant authority) so require, such notice will be published in a daily newspaper of general circulation in the place or places required by those rules.

Until such time as any definitive Notes are issued, there may, so long as any Global Notes representing the Notes are held in their entirety on behalf of Euroclear, Clearstream and/or DTC, be substituted for such publication in such newspaper(s) the delivery of the relevant notice to Euroclear, Clearstream, and/or DTC for communication by them to the holders of the Notes and, in addition, for so long as any Notes are listed on a stock exchange and the rules of that stock exchange or relevant authority so require, such notice will be published in a daily newspaper of general circulation in the place or places required by those rules. Any such notice shall be deemed to have been given to the holders of the Notes one day after the day on which the said notice was given to Euroclear, Clearstream and/or DTC.

Notices to be given by any Noteholder shall be in writing and given by lodging the same, together (in the case of any Note in definitive form) with the relative Note or Notes, with the Principal Paying Agent (in the case of Bearer Notes) or the Registrar (in the case of Registered Notes). Whilst any of the Notes are represented by a Global Note, such notice may be given by any holder of a Note to the Principal Paying Agent or the Registrar through Euroclear, Clearstream and/or DTC, as the case may be, in such manner as the Principal Paying Agent, the Registrar and Euroclear, Clearstream and/or DTC, as the case may be, may approve for this purpose.

## 16. MEETINGS OF NOTEHOLDERS, MODIFICATION AND WAIVER

The Agency Agreement contains provisions for convening meetings of the Noteholders to consider any matter affecting their interests, including the sanctioning by Extraordinary Resolution of a modification of the Notes, the Receipts, the Coupons or any of the provisions of the Agency Agreement. Such a meeting may be convened by the Issuer or Noteholders holding not less than 10 per cent. in nominal amount of the Notes for the time being remaining outstanding. The quorum at any such meeting for passing an Extraordinary Resolution is one or more persons holding or representing not less than 50 per cent. in nominal amount of the Notes for the time being outstanding, or at any adjourned meeting one or more persons being or representing Noteholders whatever the nominal amount of the Notes so held or represented, except that at any meeting the business of which includes the modification of certain provisions of the Notes, Receipts or Coupons (including modifying the date of maturity of the Notes or any date for payment of interest thereof, reducing or cancelling the amount of principal or the rate of interest payable in respect of the Notes or altering the currency of payment of the Notes, Receipts or Coupons), the quorum shall be one or more persons holding or representing in the aggregate not less than 75 per cent. in nominal amount of the Notes for the time being outstanding, or at any adjourned such meeting one or more persons holding or representing in the aggregate a clear majority, in nominal amount of the Notes for the time being outstanding. An Extraordinary Resolution passed at any meeting of the Noteholders shall be binding on all the Noteholders, whether or not they are present at the meeting, and on all Receiptholders and Couponholders.

The Principal Paying Agent and the Issuer may agree, without the consent of the Noteholders, Receiptholders or Couponholders, to:

(i) any modification (except as mentioned above) of any of the provisions of the Notes, the Receipts, the Coupons, the Terms and Conditions, or the Agency Agreement which is not prejudicial to the interests of the Noteholders; or

(ii) any modification of the Notes, the Receipts, the Coupons, the Terms and Conditions, the Deed of Covenant or the Agency Agreement which is of a formal, minor or technical nature or is made to correct a manifest error or to comply with mandatory provisions of the law of the jurisdiction in which the Issuer is incorporated.

Any such modification shall be binding on the Noteholders, the Receiptholders and the Couponholders and any such modification shall be notified to the Noteholders in accordance with Condition 15 as soon as practicable thereafter.

## 17. FURTHER ISSUES

The Issuer shall be at liberty from time to time without the consent of the Noteholders, the Receiptholders or the Couponholders to create and issue further notes having terms and conditions the same as the Notes or the same in all respects save for the amount and date of the first payment of interest thereon and so that the same shall be consolidated and form a single Series with the outstanding Notes.

## 18. CONTRACTS (RIGHTS OF THIRD PARTIES) ACT 1999

No rights are conferred on any person under the Contracts (Rights of Third Parties) Act 1999 to enforce any term of this Note, but this does not affect any right or remedy of any person which exists or is available apart from that Act.

## 19. GOVERNING LAW AND SUBMISSION TO JURISDICTION

### *(a) Governing law*

The Agency Agreement, the Deed Poll, the Deed of Covenant, the Notes, the Receipts and the Coupons are governed by, and shall be construed in accordance with, English law. Any matter, claim or dispute arising out of or in connection with the Agency Agreement, the Deed Poll, the Deed of Covenant, the Notes, the Receipts and the Coupons, whether contractual or non-contractual, shall be governed by and determined in accordance with English law.

### *(b) Submission to jurisdiction*

The Issuer agrees, for the exclusive benefit of the Noteholders, the Receiptholders and the Couponholders, that the courts of England are to have jurisdiction to settle any disputes which may arise out of or in connection with the Notes, the Receipts and/or the Coupons and that accordingly any suit, action or proceedings (together referred to as "Proceedings") arising out of or in connection with the Notes, the Receipts and the Coupons may be brought in such courts.

The Issuer hereby irrevocably waives any objection which it may have now or hereafter to the laying of the venue of any such Proceedings in any such courts and any claim that any such Proceedings have been brought in an inconvenient forum and hereby further irrevocably agrees that a judgment in any such Proceedings brought in the English courts shall be conclusive and binding upon it and may be enforced in the courts of any other jurisdiction.

Nothing contained in this Condition 19(b) shall limit any right to take Proceedings against the Issuer in any other court of competent jurisdiction, nor shall the taking of Proceedings in one or more jurisdictions preclude the taking of Proceedings in any other jurisdiction, whether concurrently or not.

### *(c) Appointment of Process Agent*

The Issuer appoints Dana Petroleum Limited at its registered office at Kings Close, 62 Huntly Street, Aberdeen AB10 1RS, United Kingdom as its agent for service of process and undertakes that, in the event of Dana Petroleum Limited ceasing so to act or ceasing to be registered in England it will appoint another person as its agent for service of process in England in respect of any Proceedings. Nothing in this clause shall affect the right to serve process in any other manner permitted by law.

### *(d) Waiver of immunity*

The Issuer hereby irrevocably and unconditionally waives with respect to Notes, the Receipts and the Coupons any right to claim sovereign or other immunity from jurisdiction or execution and any similar defense and irrevocably and unconditionally consents to the giving of any relief or the issue of any process, including without limitation, the making, enforcement or execution against any property whatsoever (irrespective of its use or intended use) of any order or judgment made or given in connection with any proceedings.

### *(e) Other documents*

The Issuer has in the Agency Agreement, the Deed Poll and the Deed of Covenant submitted to the jurisdiction of the English courts and has appointed an agent for service of process in terms substantially similar to those set out above.

# USE OF PROCEEDS

The net proceeds from each issue of Notes will be applied by the Issuer for its general corporate purposes, including working capital, financing capital expenditures and repayment of outstanding borrowings.

## EXCHANGE RATES

The table below sets forth, for the periods and dates indicated, information concerning the Market Average Exchange Rate, announced by Seoul Money Brokerage Services, Ltd., between Won and dollars and rounded to the nearest tenth of one Won. No representation is made that the Won or dollar amounts referred to herein could have been or could be converted into dollars or Won, as the case may be, at any particular rate or at all.

| Period | At End of Period | Average Rate[1] | High | Low |
|---|---|---|---|---|
| | (Won per US$1.00) | | | |
| 2015 | 1,172.0 | 1,131.5 | 1,203.1 | 1,068.1 |
| 2016 | 1,208.5 | 1,160.5 | 1,240.9 | 1,093.2 |
| 2017 | 1,071.4 | 1,130.8 | 1,208.5 | 1,071.4 |
| 2018 | 1,118.1 | 1,100.3 | 1,142.5 | 1,057.6 |
| 2019 | 1,157.8 | 1,165.7 | 1,218.9 | 1,111.6 |
| 2020 (through September 17) | 1,177.8 | 1,202.2 | 1,280.1 | 1,153.1 |
| January | 1,183.5 | 1,164.3 | 1,183.5 | 1,153.1 |
| February | 1,215.9 | 1,193.8 | 1,217.7 | 1,179.8 |
| March | 1,222.6 | 1,220.1 | 1,280.1 | 1,185.0 |
| April | 1,225.2 | 1,225.2 | 1,237.6 | 1,212.3 |
| May | 1,239.4 | 1,228.7 | 1,242.0 | 1,217.7 |
| June | 1,200.7 | 1,210.0 | 1,237.6 | 1,192.8 |
| July | 1,191.4 | 1,198.9 | 1,206.4 | 1,191.4 |
| August | 1,185.1 | 1,186.9 | 1,193.7 | 1,182.3 |
| September (through September 17) | 1,177.8 | 1,185.6 | 1,190.2 | 1,177.8 |

---

*Source*: Seoul Money Brokerage Services, Ltd.

(1) The average rate for each year is calculated as the average of the Market Average Exchange Rates on each business day during the relevant year (or portion thereof). The average rate for a month is calculated as the average of the Market Average Exchange Rates on each business day during the relevant month (or portion thereof).

# CAPITALIZATION

The following table sets forth the Company's capitalization (defined as the sum of consolidated long-term debt and total equity) as of June 30, 2020, which is derived from the Company's interim consolidated financial statements as of June 30, 2020. This table should be read in conjunction with the Company's interim consolidated financial statements included in this Offering Circular.

| | As of June 30, 2020(1) | |
|---|---|---|
| | (In billions of Won and in millions of dollars) | |
| Long-term debt: | | |
| Long-term borrowings, net of discounts | ₩ 1,866 | $ 1,554 |
| Bonds payable, net of discounts and including premiums | 9,913 | 8,256 |
| Total long-term debt | ₩ 11,779 | $ 9,810 |
| Owner's equity: | | |
| Share capital | ₩ 10,539 | $ 8,777 |
| Accumulated deficit | (10,543) | (8,781) |
| Other components of equity | (1,264) | (1,053) |
| Non-controlling interests | 711 | 592 |
| Total equity | (557) | (465) |
| Total capitalization(2) | ₩ 11,222 | $ 9,345 |

---

(1) Translated Won and dollar amounts at the Market Average Exchange Rate of Won 1,200.7 to US$1.00 on June 30, 2020.

(2) Except as set forth herein, there has been no material change in the Company's capitalization since June 30, 2020.

## SELECTED FINANCIAL AND OTHER DATA

### Selected Financial Data

The following tables present selected consolidated financial and other data of the Company. This data should be read in conjunction with the consolidated financial statements of the Company and the notes thereto, "Management's Discussion and Analysis of Financial Condition and Results of Operations" and other historical financial information included elsewhere in, or incorporated by reference into, this Offering Circular. The selected audited consolidated financial data as of and for the years ended December 31, 2017, 2018 and 2019 have been derived from the consolidated financial statements of the Company included in this Offering Circular, which have been prepared in accordance with the Government Accounting Standards or K-IFRS, as the case may be. The selected consolidated financial data as of June 30, 2020, and for the six-month periods ended June 30, 2020 and 2019 have been derived from the interim consolidated financial statements of the Company included in this Offering Circular, which have been prepared in accordance with K-IFRS No. 1034, "Interim Financial Reporting." The Company's results of operations for the first six months of 2020 may not be indicative of its results of operations for any subsequent quarter or for the fiscal year 2020. All annual and interim financial data and other data in this Offering Circular regarding the Company's activities, financial condition and results of operations are presented on a consolidated basis.

Following the transfer of the Company's SAER related responsibilities to Korea Energy Agency in July 2017 and the Company's decision to dispose of its drillship, the Doo Sung, in September 2017 pursuant to the June 2016 Government Plan, the Company classified all income and expenses relating to its financing and drillship chartering segments as discontinued operations for the year ended December 31, 2017. See Notes 6 and 7 to the Company's consolidated financial statements as of and for the years ended December 31, 2018 and 2017.

| | As of December 31, | | | As of June 30, |
|---|---|---|---|---|
| | 2017 | 2018 | 2019 | 2020 |
| | (In billions of Won) | | | |
| **Consolidated Statement of Financial Position Data:** | | | | |
| Total assets | ₩19,512 | ₩18,239 | ₩18,662 | ₩18,973 |
| Total liabilities | 17,128 | 17,475 | 18,131 | 19,529 |
| Total equity | 2,384 | 764 | 531 | (557) |
| Share capital | 10,435 | 10,482 | 10,515 | 10,539 |
| Total liabilities and equity | 19,512 | 18,239 | 18,662 | 18,973 |

| | For the Year Ended December 31, | | | For the Six-Month Periods Ended June 30, | |
|---|---|---|---|---|---|
| | 2017 | 2018 | 2019 | 2019 | 2020 |
| | (In billions of Won) | | | | |
| **Consolidated Statement of Comprehensive Loss Data:** | | | | | |
| **Continuing Operations** | | | | | |
| Revenue | ₩ 2,312 | ₩ 3,149 | ₩ 2,930 | ₩1,460 | ₩1,028 |
| Cost of sales | (1,850) | (2,172) | (2,052) | (958) | (932) |
| Gross profit | 462 | 977 | 878 | 502 | 96 |
| Selling and administrative expenses | (286) | (434) | (306) | (166) | (114) |
| Operating profit (loss) | 176 | 543 | 571 | 336 | (18) |
| Other non-operating income | 152 | 76 | 94 | 83 | 25 |
| Other non-operating expenses | (207) | (38) | (8) | (2) | (15) |
| Other gain (loss), net | (463) | (849) | (2) | 20 | (533) |
| Finance income | 305 | 231 | 402 | 187 | 236 |
| Finance costs | (713) | (783) | (731) | (424) | (755) |
| Gain (loss) on investments in associates and joint ventures, net | (128) | (113) | 54 | 39 | (48) |

|  | For the Year Ended December 31, |  |  | For the Six-Month Periods Ended June 30, |  |
|---|---|---|---|---|---|
|  | 2017 | 2018 | 2019 | 2019 | 2020 |
|  | (In billions of Won) |  |  |  |  |
| Profit (loss) before income tax | (879) | (932) | 379 | 240 | (1,110) |
| Income tax benefit (expense) | 194 | (228) | (534) | (132) | (73) |
| Profit (loss) from continuing operations | (684) | (1,160) | (155) | 108 | (1,183) |
| **Discontinued Operations** |  |  |  |  |  |
| Profit (loss) from discontinued operations, net of tax | (52) | 1 | — | — | — |
| Profit (loss) for the period | (737) | (1,160) | (155) | 108 | (1,183) |
| Profit (loss) attributable to: |  |  |  |  |  |
| Owners of the Company | (851) | (1,206) | (173) | 95 | (1,165) |
| Non-controlling interests | 115 | 46 | 19 | 13 | (18) |
| **Other comprehensive income (loss) for the period, net of tax:** |  |  |  |  |  |
| Items that will never be reclassified subsequently to profit or loss: |  |  |  |  |  |
| Actuarial gains (losses) on defined benefit plans | 3 | (2) | (3) | (1) | (1) |
| Retained earnings adjustments in equity method | (0) | (0) | — | — | — |
| Net change in fair value of financial assets measured at fair value through other comprehensive income | — | (177) | (27) | — | — |
| Net change in unrealized fair value of equity instruments | — | — | — | (25) | 0 |
| Items that are or may be reclassified subsequently to profit or loss: |  |  |  |  |  |
| Net change in the unrealized fair value of available-for-sale financial investments, net of tax | (6) | — | — | — | — |
| Net change in fair value of available-for-sale financial assets reclassified to profit or loss, net of tax | (58) | — | — | — | — |
| Equity adjustments arising from investments in equity-method investees, net of tax | 5 | 3 | (2) | (6) | (2) |
| Net change in the unrealized fair value of derivatives using cash flow hedge accounting, net of tax | (48) | 99 | (111) | (127) | (89) |
| Net change in fair value of derivative using cash flow hedge accounting reclassified to profit or loss, net of tax | 1 | — | — | — | — |
| Foreign currency translation differences for foreign operations | (279) | 41 | 34 | 4 | 2 |
| Other comprehensive loss for the period, net of tax | (382) | (36) | (109) | (155) | (89) |
| Total comprehensive loss for the period | ₩(1,119) | ₩(1,195) | ₩ (264) | ₩ (47) | ₩(1,272) |
| Total comprehensive income (loss) attributable to: |  |  |  |  |  |
| Owners of the Company | (1,123) | (1,274) | (299) | (78) | (1,274) |
| Non-controlling interests | 5 | 79 | 36 | 31 | 2 |
| **Consolidated Cash Flow Data:** |  |  |  |  |  |
| Net cash provided by (used in) operating activities | 695 | 1,266 | 1,033 | 489 | (58) |
| Net cash used in investing activities | (783) | (775) | (786) | (208) | (402) |
| Net cash provided by (used in) financing activities | 214 | (519) | 290 | (218) | 635 |

## Selected Reserve, Production and Operating Data

The Company's engineers estimate its proved oil and gas reserve quantities based on its internal surveys and data collected from third-party operators of production facilities in which the Company has a working interest, including those held by the Company's subsidiaries. All information in this Offering Circular relating to oil and gas reserves is net to the Company's interest unless stated otherwise. The following table sets forth the present value and estimated volume of the Company's oil and gas proved reserves, as well as other figures relevant to the Company's operations.

| | As of or for the Year Ended December 31, | | | As of or for the Six-Month Periods Ended |
|---|---|---|---|---|
| | 2017 | 2018 | 2019 | June 30, 2020 |
| **Proved reserves[1]:** | | | | |
| Crude oil (million barrels)[2] | 531.8 | 506.7 | 429.9 | 408.4 |
| Natural gas (billions of cubic feet) | 1,225.0 | 1,171.1 | 944.9 | 903.3 |
| Total (million barrels of oil equivalent) | 739.3 | 705.0 | 590.4 | 561.8 |
| **Oil and gas production[3]:** | | | | |
| Crude oil (million barrels) | 40.7 | 50.2 | 47.5 | 24.2 |
| Natural gas (billions of cubic feet) | 123.6 | 114.9 | 98.4 | 41.6 |
| Total (million barrels of oil equivalent) | 62.0 | 69.9 | 64.5 | 31.3 |
| **Average daily oil and gas production[4]:** | | | | |
| Crude oil (thousands of barrels) | 111.5 | 137.5 | 130.2 | 132.8 |
| Natural gas (millions of cubic feet) | 338.7 | 314.7 | 269.6 | 228.5 |
| Total (thousands of barrels of oil equivalent) | 169.8 | 191.6 | 176.6 | 172.0 |
| **Average sales prices[5]:** | | | | |
| Crude oil (US$/barrel) | 48.32 | 58.59 | 54.86 | 36.19 |
| Natural gas (US$/thousands of cubic feet) | 4.12 | 4.45 | 3.52 | 2.79 |
| **Reserves to production ratio** | 11.9 | 10.1 | 9.2 | 17.9[6] |

---

(1) The reserve data include reserve data of Harvest Operations as estimated under Canadian oil and gas reporting standards, COGEH and NI 51-101, as evaluated by the Independent Reserves Evaluators. If the reserve data of Harvest Operations as estimated under the Securities Act oil and gas reporting standards were included, the proved crude oil reserves, natural gas reserves and combined reserves as of December 31, 2017, 2018 and 2019 and as of June 30, 2020 may differ from the corresponding amounts shown in the table above.

(2) Includes natural gas liquids.

(3) Includes production volume from subsidiaries or assets acquired during the period after their respective acquisition dates.

(4) Calculated by dividing the total oil and gas production by the actual number of days in the period.

(5) Calculated by dividing total consolidated revenue from sale of oil or gas, as applicable, by total amount of oil or gas sold, as applicable. As such, excludes from calculation any production from the Company's affiliates where the Company's interests are accounted for either as available-for-sale securities or by using the equity method.

(6) Calculated using production volume for the six months ended June 30, 2020.

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

*All financial information included below is given on a consolidated K-IFRS basis, unless otherwise specified. The following discussion and analysis should be read in conjunction with the Company's consolidated financial statements, together with the accompanying notes, included elsewhere in this Offering Circular.*

## Overview

The Company is the national oil and gas company of Korea and is wholly owned by the Government. The Company's revenues are derived principally from the sales of crude oil and natural gas produced from 23 production projects located in Korea and abroad. As of June 30, 2020, the Company had a daily crude oil and natural gas production of approximately 172,000 barrels of oil equivalent. In addition, the Company conducts oil and gas exploration activities and had interests in eight exploratory projects across four countries.

As of June 30, 2020, the Company derived its sales from the following four business segments:

***Oil and Gas Sales Segment.*** Included in this segment are revenues from (1) sales of oil and gas produced from the Company's production projects and (2) oil trading activities. The main factors affecting the Company's revenue from this segment are sales volumes and sales prices of oil, gas and refined oil products, and to a lesser extent, the volume of trading transactions undertaken by the Company and the level of profits generated in those transactions.

***Petroleum Distribution Segment.*** Included in this segment are revenues from the wholesale gasoline and gas oil distribution business, and from the operation of approximately 1,207 discount gas stations located throughout Korea as of June 30, 2020.

***Oil Stockpiling Segment.*** Income from this segment consists principally of income from leasing stockpile facilities and lending stockpile oil to domestic refineries. The revenue derived from the lease of stockpile facilities is dependent on the volume of oil stored in the Company's stockpile facilities on behalf of the Company's customers and the level of lease fees received from these customers. The revenues derived from the lending and sale of stockpile oil to domestic refineries are dependent on the price of crude oil and the volume of crude oil lent or sold.

***Others Segment.*** Included in this segment are revenues from the oil information services, other research services and miscellaneous services incidental to the Company's operations.

## Complete Equity Erosion

As of June 30, 2020, the liabilities of the Company exceeded the assets of the Company by Won 557 billion, as the Company incurred a loss for the period of Won 1,183 billion in the first half of 2020. Such net loss was due primarily to significant declines in the prices of crude oil resulting from, among others, the ongoing global COVID-19 pandemic, which has materially and adversely affected the global economy and financial markets in recent months, which in turn has also decreased the global demand for crude oil. See "Risk Factors — Risks Relating to the Company — The Company's operations are affected by the volatility of prices for crude oil, natural gas and petroleum products and price differentials between heavy and light oil, and a substantial or extended decline or fluctuations in such prices or differentials would have a material adverse effect on the Company's business, financial condition and results of operations" and "Risk Factors — Risks Relating to the Company — If future oil and gas prices are forecasted to decline substantially, the Company may be required to write down the book value of its assets, which may have a material adverse effect on the Company's business, financial condition and results of operations." Such volatility has had and will continue to have a significant effect on the Company's business, results of operations and financial condition and the Company expects that it will continue to experience significant losses for at least the near future. See "Risk Factors — Risks Relating to the Company — The Company has experienced complete equity erosion in the first half of 2020 due to a large net loss resulting primarily from significant declines in the prices of crude oil."

## Major Factors Affecting the Company's Results of Operations

The Company's results of operations have been affected primarily by the following factors:

- fluctuations in prices of crude oil and natural gas;
- production volumes of the Company's crude oil and natural gas; and
- the Government's support for the Company.

### *Crude Oil and Natural Gas Prices*

The prices at which the Company's crude oil is sold fluctuate generally in line with fluctuations in international crude oil prices, and natural gas sales prices generally move in line with crude oil prices. Historically, international crude oil prices have demonstrated significant volatility, driven largely by global and regional supply and demand conditions, and expectations regarding future supply and demand for crude oil, natural gas and petroleum products. The Company's average sales prices for crude oil were US$48.32, US$58.59, US$54.86 and US$36.19 per barrel, and its average sales prices for natural gas were US$4.12, US$4.45, US$3.52 and US$2.79 per thousand cubic feet, in 2017, 2018, 2019 and the first six months of 2020, respectively. The Company believes that international oil and gas prices, which are particularly exposed to political, economic and military developments in oil producing regions in the Middle East and elsewhere, are likely to remain volatile. For example, due to a conflict between OPEC led by Saudi Arabia and Russia relating to crude oil production cuts, as well as the decrease in global demand for crude oil due to COVID-19, the market price of crude oil fell to a historical low in April 2020. While the market price of crude oil has partially recovered since then, as the global economic outlook has shown some signs of improvement in parts of the world, and the oil producing nations were able to reach and have since sustained a consensus on reduced production levels, future prospects for crude oil prices remain highly uncertain and volatile. Such volatility has had and will continue to have a significant effect on the Company's business, results of operations and financial condition.

The Company reviews its assets at the end of each reporting period to determine whether there is any indication of impairment. If any such indication exists, the Company estimates the recoverable amount of the relevant assets. The recoverable amount of an asset is the greater of its value in use, which is the estimated future net cash flow expected to be generated by the asset adjusted by a discount rate that reflects current market assessments of the time value of money and the risks specific to the asset, and its fair value less costs to sell. If the book value exceeds the recoverable amount of an asset, an impairment loss will be recognized and the book value of such asset will be adjusted to their recoverable amount.

The Company estimates the future net cash flows of its assets based on long-term forecasts from globally recognized research institutions. If such long-term forecasts estimate that oil and gas prices will decrease substantially, the Company may be required to recognize impairment losses on its assets. Likewise, certain of the entities in which the Company has made equity investments may be required to recognize impairment losses on their assets, which may contribute to the recognition of loss in investments in associates and joint ventures and impairment of available-for-sale financial assets by the Company.

The Company recognized impairment losses on its oil and gas properties, net of reversals, of Won 157 billion in 2017, Won 250 billion in 2018, Won 151 billion in 2019 and Won 474 billion in the first six months of 2020 and impairment losses on intangible assets of Won 315 billion in 2017, Won 609 billion in 2018 and Won 48 billion in the first six months of 2020 due to decreases in forecasted oil prices and probable reserves and the return of mining rights. The Company recognized a net reversal of impairment losses on intangible assets of Won 35 billion in 2019 due to increases in probable reserves and others. Similarly, the Company recognized valuation losses of Won 85 billion, as well as impairment of available-for-sale financial assets of Won 72 billion, in 2017 primarily due to a decrease in the fair value of the Company's equity investment in EP Energy for the year ended December 31, 2017. The Company also recognized valuation losses of financial assets measured at fair value through other comprehensive income of Won 62 billion in 2018 and Won 27 billion in 2019 primarily due to valuation losses of EP Energy. In addition, the Company recognized impairment losses of Won 6 billion in 2017, Won 1 billion in 2018, Won 39 billion in 2019 and Won 53 billion in the first six months of 2020 from

Offshore International Group, Inc. ("OIG"). Such recognition of impairment losses contributed to net losses of Won 737 billion in 2017, Won 1,160 billion in 2018, Won 155 billion in 2019 and Won 1,183 billion in the first six months of 2020.

### *Crude Oil and Natural Gas Production Volumes*

The Company's crude oil and natural gas production volumes depend primarily on the level of the proven and developed reserves in the projects in which it has an interest, as well as other factors such as crude oil and natural gas prices, political and military events in countries where the Company's producing projects are located, and actions by members of OPEC that affect production levels, as discussed above. The level of proven and developed reserves is affected by such factors as:

- the extent to which the Company acquires or disposes of interests in producing reserves or acquires other companies that own producing reserves;
- the rate at which explorations lead to successful discoveries and the speed at which successful exploration and development move to production;
- the speed at which the Company and its joint venture partners deplete the reserves through production of crude oil and natural gas; and
- the expiration and extension of the terms of the concessions under which the Company and its joint venture partners produces crude oil and natural gas.

See "Business — Exploration, Development and Production — Reserves Data" for additional information on the Company's reserves.

### *Plan to Dispose of Assets*

In June 2016, the Ministry of Economy and Finance and the Ministry of Trade, Industry and Energy announced the June 2016 Government Plan, which included broad-based measures to rationalize the overseas natural resource exploration, development and production activities of Government-controlled enterprises, including the Company. The Company will be limited from entering into any new overseas investments other than investments that are in furtherance of important policy objectives of the Government. Pursuant to the June 2016 Government Plan, the Company has developed and is implementing a plan for the sale of its interests in overseas exploration, development and production operations (taking into consideration strategic value and profitability) to third parties with preference given to institutional investors in Korea if possible and with an aim to maximize the returns on such sales. For example, the Company disposed of its (1) headquarters building in 2017, (2) interest in Harvest Operation's Wilson Creek fields in Canada in 2018 and (3) interest in Harvest Operation's Blueberry fields in Canada in 2019 pursuant to the June 2016 Government Plan. See "Business Exploration, Development and Production — Overview" for a discussion of the Company's overseas exploration, development and production operations. The timing of any additional discontinuation and divestitures will be subject to market conditions. The ongoing global COVID-19 pandemic has had a material adverse effect on the global energy markets, including for oil producing assets, which may adversely affect the Company's ability to consummate such disposals.

### *Government Support and Regulation*

The Company is wholly owned by the Government. The Government provides financial support for the Company, primarily in the form of capital contributions used mainly for the acquisition of oil producing assets and stockpile oil and to strengthen the Company's capital base, and in the form of SAER loans provided to the Company to finance its exploration and production activities. While receiving financial support from the Government, the Company is also heavily regulated by a variety of laws and government bodies, including the Ministry of Trade, Industry and Energy and the Ministry of Economy and Finance. The Government, among other things, approves the Company's annual budget, guides the Company's long-term business strategy, and appoints the Company's management, including its President.

While the Government has regularly provided financial support to the Company in the form of capital contributions and is permitted to guarantee Notes issued by the Company pursuant to the KNOC Act, there is no statutory or legal requirement for the Government to do so, and the Government would be prevented from providing additional capital contributions once the Company reaches the amount of its authorized capital unless the Company's authorized capital is increased through an amendment to the KNOC Act, as described in "Risk Factors — Risks Relating to the Company — The Company has experienced complete equity erosion in the first half of 2020 due to a large net loss resulting primarily from significant declines in the prices of crude oil" and "Risk Factors — Risks Relating to the Company — Although the Government has provided and is expected to continue to provide financial support to the Company, the Government is not legally required to do so." The provision of capital contributions and other forms of Government financial support to the Company is subject to prior authorization by the National Assembly of Korea as part of its budget approval process.

Through its control of the Company, the Government has historically influenced, and is likely to continue to influence, the Company's strategy and operations. From time to time, the Company is required to take actions in furtherance of public policy considerations and the Government's broader objectives for the oil and gas industry, which may not necessarily be in the Company's best commercial interests. See "Risk Factors — Risks Relating to the Company — The Company is subject to the control of the Government, and its activities are heavily regulated," and "Business — Relationship with the Government."

## Critical Accounting Policies

The preparation of the Company's financial statements requires the Company's management to select and apply significant accounting policies and to make estimates and judgments that affect the Company's reported financial condition and results of operations. See Note 3 to the Company's financial statements as of and for the years ended December 31, 2018 and 2017, Note 2 to the Company's financial statements as of and for the years ended December 31, 2019 and 2018 and Note 3 of the Company's interim consolidated financial statements included elsewhere in this Offering Circular for a summary of the Company's significant accounting policies that are critical to the portrayal of the Company's financial condition and results of operations.

## Recent Accounting Changes and Pronouncements

The preparation of the Company's financial statements is affected by accounting changes and pronouncements made by the Korea Accounting Standards Board from time to time. See Note 3 to the Company's financial statements as of and for the years ended December 31, 2018 and 2017, Note 2 to the Company's financial statements as of and for the years ended December 31, 2019 and 2018 and Note 3 of the Company's interim consolidated financial statements included elsewhere in this Offering Circular for a summary of recent accounting changes and pronouncements, as well as a summary of accounting standards issued but not yet effective.

### *K-IFRS No. 1109 'Financial Instruments'*

K-IFRS No. 1109 includes revised guidance on the classification and measurement of financial instruments, and the incurred loss model is replaced with an expected credit loss model for calculating impairment on financial assets. It also revises guidance on the general hedge accounting model, which aligns hedge accounting more closely with risk management. Under the new model, more hedging strategies that are used for risk management may qualify for hedge accounting.

The Company has adopted K-IFRS No. 1109 with a date of initial application of January 1, 2018. For further information regarding the impact of the adoption of K-IFRS No. 1109, see Note 3 to the Company's financial statements as of and for the years ended December 31, 2018 and 2017 included elsewhere in this Offering Circular.

### *K-IFRS No. 1115 'Revenue from Contracts with Customers'*

K-IFRS No. 1115, applicable to all contracts with customers, provides a five-step model to determine when to recognize revenue and replaces the previous model based on risk and reward with a new model that is based on transfer of control.

The Company has adopted K-IFRS No. 1115 with a date of initial application of January 1, 2018. For further information regarding the impact of the adoption of K-IFRS No. 1115, see Note 3 to the Company's financial statements as of and for the years ended December 31, 2018 and 2017 included elsewhere in this Offering Circular.

### *K-IFRS No. 1116 'Leases'*

K-IFRS 1116 introduces a single, on-balance sheet accounting model for lessees. Pursuant to K-IFRS 1116, the Company recognizes right-of-use assets representing its rights to use the underlying assets and lease liabilities representing its obligation to make lease payments in relation to substantially all of its operating lease arrangements, except for certain short-term leases and leases of low-value assets.

The Company has adopted K-IFRS 1116 with a date of initial application of January 1, 2019. For further information regarding the impact of the adoption of K-IFRS No. 1116, see Note 2.4 to the Company's financial statements as of and for the years ended December 31, 2019 and 2018 included elsewhere in this Offering Circular.

## Results of Operations — *First Six Months of 2020 Compared to First Six Months of 2019*

The following table presents the Company's consolidated statement of comprehensive income information and changes therein for the first six months of 2019 and 2020.

| | For the Six-Month Periods Ended June 30, | | Changes | |
|---|---|---|---|---|
| | 2019 | 2020 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| **Continuing Operations** | | | | |
| Revenue | ₩1,460 | ₩ 1,028 | ₩ (432) | (29.6)% |
| Cost of sales | (958) | (932) | 26 | (2.7) |
| Gross profit | 502 | 96 | (406) | (80.9) |
| Selling and administrative expenses | (166) | (114) | 52 | (31.3) |
| Operating profit (loss) | 336 | (18) | (354) | N.A.(1) |
| Other income | 83 | 25 | (58) | (69.9) |
| Other expenses | (2) | (15) | (13) | 700.0 |
| Other gains (losses), net | 20 | (533) | (553) | N.A.(1) |
| Finance income | 187 | 236 | 49 | 26.2 |
| Finance costs | (424) | (755) | (331) | 78.1 |
| Profit (loss) on investments in associates and joint ventures, net | 39 | (48) | (87) | N.A.(1) |
| Profit (loss) before income tax | 240 | (1,110) | (1,349) | N.A.(1) |
| Income tax expense | (132) | (73) | 59 | (44.7) |
| Profit (loss) from continuing operations | 108 | (1,183) | (1,291) | N.A.(1) |
| Profit (loss) for the period | ₩ 108 | ₩(1,183) | (1,291) | N.A.(1) |

---

(1) Not Applicable.

***Revenue***

The following table presents a breakdown of the Company's revenue and changes therein for first six months of 2019 and 2020.

| | For the Six-Month Periods Ended June 30, | | Changes | |
|---|---|---|---|---|
| | 2019 | 2020 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Oil and gas sales | ₩1,333 | ₩ 813 | ₩(520) | (39.0)% |
| Petroleum distribution | 29 | 16 | (13) | (44.4) |
| Oil stockpiling | 95 | 197 | 102 | 108.0 |
| Others | 3 | 2 | (2) | (50.9) |
| Revenue | ₩1,460 | ₩1,028 | (432) | (29.6) |

The Company's total revenue decreased by 29.6%, or Won 432 billion, from Won 1,460 billion in the first six months of 2019 to Won 1,028 billion in the first six months of 2020 due to a significant decrease in revenue from the Oil and Gas Sales Segment as well as decreases in revenues from the Petroleum Distribution Segment and the Others Segment, which were offset in part by an increase in revenue from the Oil Stockpiling Segment. Specifically:

***Oil and Gas Sales.*** Revenue of the Oil and Gas Sales Segment decreased by 39.0%, or Won 520 billion, from Won 1,333 billion in the first six months of 2019 to Won 813 billion in the first six months of 2020 primarily due to general decreases in the Company's oil and gas sales prices in the first six months of 2020 compared to the first six months of 2019 reflecting decreases in global crude oil and natural gas prices during such time, which were exacerbated by a decrease in the volume of oil and gas sold. The Company's average oil sales price per barrel decreased by 34.4% from US$55.18 per barrel in the first six months of 2019 to US$36.19 per barrel in the first six months of 2020, and the average gas sales price per thousand cubic feet decreased by 28.3% from US$3.89 in the first six months of 2019 to US$2.79 in the first six months of 2020. The volume of oil and gas sold decreased by 15.4% from 26 million barrels of oil equivalent in the first six months of 2019 to 22 million barrels of oil equivalent in the first six months of 2020 primarily due to reduced production in light of the low oil and gas price environment in the first six months of 2020.

***Petroleum Distribution.*** Revenue from the Petroleum Distribution Segment decreased by 44.4%, or Won 13 billion, from Won 29 billion in the first six months of 2019 to Won 16 billion in the first six months of 2020 primarily due to a decrease in the volume of oil trading in a backwardation market.

***Oil Stockpiling.*** Revenue from the Oil Stockpiling Segment increased by 108.0%, or Won 102 billion, from Won 95 billion in the first six months of 2019 to Won 197 billion in the first six months of 2020 primarily due to an increase in income from lending of the Company's stockpile oil to other companies.

***Others.*** Revenue from the Others Segment decreased by 50.9%, or Won 2 billion, from Won 3 billion in the first six months of 2019 to Won 2 billion in the first six months of 2020.

***Cost of Sales***

The following table presents a breakdown of the Company's cost of sales and changes therein for the first six months of 2019 and 2020.

| | For the Six-Month Periods Ended June 30, | | Changes | |
|---|---|---|---|---|
| | **2019** | **2020** | **Amount** | **%** |
| | **(In billions of Won, except percentages)** | | | |
| Changes in inventories — merchandises | ₩ 6 | ₩ (77) | ₩(83) | N.A.(1) |
| Changes in inventories — finished goods | (2) | (2) | 0 | 0.0 |
| Changes in inventories — other inventories | 3 | 5 | 2 | 66.7 |
| Purchased inventories | 17 | 83 | 66 | 388.2 |
| Salaries | 100 | 103 | 3 | 3.0 |
| Depreciation | 464 | 409 | (55) | (11.9) |
| Amortization | 49 | 30 | (19) | (38.7) |
| Transport | 84 | 80 | (4) | (3.6) |
| Repairs | 60 | 62 | 2 | 3.4 |
| Others | 177 | 239 | 62 | 35.0 |
| Cost of sales | ₩958 | ₩932 | (26) | (2.7) |

---

(1) Not Applicable.

The Company's cost of sales decreased by 2.7%, or Won 26 billion, from Won 958 billion in the first six months of 2019 to Won 932 billion in the first six months of 2020 primarily due to changes in merchandise inventories and a decrease in depreciation expenses, which were offset in part by an increase in purchased inventories. Specifically:

- The Company's cost of sales relating to changes in merchandise inventories, which primarily relate to changes in inventories of crude oil purchased for the Company's oil trading activities and gasoline and gas oil purchased for the Company's discount gas stations (and are calculated by subtracting the inventory amount at the end of the period from the inventory amount at the beginning of the period) changed from a decrease in inventories of Won 6 billion in the first six months of 2019 to an increase in inventories of Won 77 billion in the first six months of 2020 primarily due to an increase in purchases of crude oil for trading activities.

- Depreciation expenses, which relate primarily to depreciation of oil and gas properties and, to a lesser extent, structures and machinery, decreased by 11.9%, or Won 55 billion, from Won 464 billion in the first six months of 2019 to Won 409 billion in the first six months of 2020 primarily due to decreases in production from Dana Petroleum.

- The Company's cost of sales relating to purchased inventories increased by 388.2%, or Won 66 billion, from Won 17 billion in the first six months of 2019 to Won 83 billion in the first six months of 2020 primarily due to an increase in purchases of crude oil for trading activities, as described above.

***Gross Profit***

The following table presents a breakdown of the Company's gross profit and changes therein for the first six months of 2019 and 2020.

| | For the Six-Month Periods Ended June 30, | | Changes | |
|---|---|---|---|---|
| | 2019 | 2020 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Oil and gas sales | ₩495 | ₩ (15) | ₩(510) | N.A.⁽¹⁾ |
| Petroleum distribution | 5 | 0 | (5) | (95.7)% |
| Oil stockpiling | (1) | 110 | 111 | N.A.⁽¹⁾ |
| Others | 2 | 1 | (2) | (77.4) |
| Gross profit | ₩502 | ₩ 96 | (406) | (80.9) |

---

(1) Not Applicable.

The Company's gross profit decreased by 80.9%, or Won 406 billion, from Won 502 billion in the first six months of 2019 to Won 96 billion in the first six months of 2020 primarily due to the Oil and Gas Segment's recognition of gross loss in the first six months of 2020 compared to gross profit in the first six months of 2020, which were offset in part by the Oil Stockpiling Segment's recognition of gross profit in the first six months of 2020 compared to gross loss in the first six months of 2019. The Company's gross profit margin, which represents the ratio of gross profit to revenue, decreased from 34.4% in the first six months of 2019 to 9.3% in the first six months of 2020. Specifically:

- The Oil and Gas Sales Segment recognized gross profit of Won 495 billion in the first six months of 2019 compared to gross loss of Won 15 billion in the first six months of 2020 as the 39.0% decrease in revenue of such segment significantly outpaced the decrease in cost of sales of 1.1%. A substantial portion of the Company's cost of sales, particularly those relating to periodic facility maintenance and labor costs for its oil and gas fields, do not vary significantly based on changes in global oil or gas prices, while revenue is more directly affected by changes in oil and gas prices and the Company's sales volume. The Oil and Gas Sales Segment recorded a gross profit margin of 37.1% in the first six months of 2019 compared to a gross loss margin of 1.9% in the first six months of 2020.

- Gross profit of the Petroleum Distribution Segment decreased by 95.7%, or Won 5 billion, from Won 5 billion in the first six months of 2019 to Won 235 million in the first six months of 2020 as the 44.4% decrease in revenue of such segment outpaced the decrease in cost of sales of 32.6%. The Petroleum Distribution Segment's gross profit margin decreased from 18.7% in the first six months of 2019 to 1.5% in the first six months of 2020.

- The Oil Stockpiling Segment recognized gross loss of Won 1 billion in the first six months of 2019 compared to gross profit of Won 110 billion in the first six months of 2020 primarily due to the 108.0% increase in revenues accompanied by an 8.8% decrease in cost of sales. The Oil Stockpiling Segment recorded a gross loss margin of 0.5% in the first six months of 2019 compared to a gross profit margin of 55.9% in the first six months of 2020.

### *Selling and Administrative Expenses*

The following table presents a breakdown of the Company's selling and administrative expenses and changes therein for the first six months of 2019 and 2020.

| | For the Six-Month Periods Ended June 30, | | Changes | |
|---|---|---|---|---|
| | 2019 | 2020 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Salaries | ₩ 52 | ₩ 49 | ₩ (3) | (4.8)% |
| Severance and retirement benefits | 4 | 4 | (1) | (15.6) |
| Other employee benefits | 7 | 6 | (1) | (10.8) |
| Depreciation | 10 | 8 | (2) | (13.6) |
| Commissions and fees | 11 | 13 | 2 | 21.9 |
| Sales fee | 62 | 16 | (46) | (74.0) |
| Others | 21 | 17 | (4) | (15.5) |
| Selling and administrative expenses | ₩166 | ₩114 | (52) | (31.3) |

Selling and administrative expenses decreased by 31.3%, or Won 52 billion, from Won 166 billion in the first six months of 2019 to Won 114 billion in the first six months of 2020 primarily due to a decrease in sales fees. Sales fees, which primarily consist of fees related to sales of oil and gas by the Company, decreased by 74.0%, or Won 46 billion, from Won 62 billion in the first six months of 2019 to Won 16 billion in the first six months of 2020 primarily due to the decrease in oil and gas sales as discussed above.

### *Operating Profit (Loss)*

The following table presents a breakdown of the Company's operating profit and changes therein for the first six months of 2019 and 2020.

| | For the Six-Month Periods Ended June 30, | | Changes | |
|---|---|---|---|---|
| | 2019 | 2020 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Oil and gas sales | ₩370 | ₩ (94) | ₩(464) | N.A.(1) |
| Petroleum distribution | 5 | 0 | (5) | (99.1)% |
| Oil stockpiling | (1) | 110 | 111 | N.A.(1) |
| Others | 2 | 1 | (1) | (77.4) |
| Reconciling items(2) | (41) | (35) | 6 | (14.6) |
| Operating profit (loss) | ₩336 | ₩ (18) | (354) | N.A.(1) |

---

(1) Not Applicable.

(2) Consists primarily of operating profit (loss), including depreciation and amortization, that is not allocated to the segments.

The Company recognized operating profit of Won 336 billion in the first six months of 2019 compared to an operating loss of Won 18 billion in the first six months of 2020 primarily due to the operating loss of the Oil and Gas Sales Segment in the first six months of 2020 compared to an operating profit in the first six months of 2019, which were offset in part by an operating profit of the Oil Stockpiling Segment in the first six months of 2020 compared to an operating loss in the first six months of 2019. The Company's operating profit margin, which represents the ratio of operating profit to revenue, was 23.0% in the first six months of 2019 compared to an operating loss margin of 1.8% in the first six months of 2020. Specifically:

- The Oil and Gas Sales Segment recognized operating profit of Won 370 billion in the first six months of 2019 compared to operating loss of Won 94 billion in the first six months of 2020 primarily due to the reasons described above. The Oil and Gas Sales Segment recognized an operating profit margin of 27.8% in the first six months of 2019 compared to an operating loss margin of 11.5% in the first six months of 2020.

- The Oil Stockpiling Segment recognized operating loss of Won 1 billion in the first six months of 2019 compared to operating profit of Won 110 billion in the first six months of 2020 primarily due to the reasons described above. The Oil Stockpiling Segment recognized an operating loss margin of 0.5% in the first six months of 2019 compared to an operating profit margin of 55.9% in the first six months of 2020.
- The Petroleum Distribution Segment's operating profit decreased by 99.1%, or Won 5 billion, from Won 5 billion in the first six months of 2019 to Won 48 million in the first six months of 2020 primarily due to the reasons described above. The Petroleum Distribution Segment's operating profit margin decreased from 18.1% in the first six months of 2019 to 0.3% in the first six months of 2020.

### *Other Non-Operating Income*

Other non-operating income decreased by 70.1%, or Won 58 billion, from Won 83 billion in the first six months of 2019 to Won 25 billion in the first six months of 2020 primarily due to gains on exemption of debts of Won 75 billion in the first six months of 2019 compared to no such income in the first six months of 2020. The Company recognized gains on exemption of debts of Won 75 billion in the first six months of 2019 related to the termination of the Company's Nigerian operations and the exemption of SAER loans relating to such termination from the Ministry of Trade, Industry and Energy.

### *Other Non-Operating Expenses*

Other non-operating expenses increased by 730.5%, or Won 14 billion, from Won 2 billion in the first six months of 2019 to Won 15 billion in the first six months of 2020 primarily due to the recognition of other bad debt expenses and settlements of certain lawsuits. The Company recognized other bad debt expenses of Won 7 billion in the first six months of 2020 compared to no such expenses in the first six months of 2019 primarily due to the recognition of bad debt expenses related to outstanding receivables of the Petroleum Distribution Segment. The Company's other expenses within other non-operating expenses increased by 292.9% from Won 2 billion in the first six months of 2019 to Won 6 billion in the first six months of 2020 primarily due to payments of settlement in connection with the Yemen 4 oil field.

***Other Gain (Loss), Net***

The following table presents a breakdown of the Company's net other gain (loss) for first six months of 2019 and 2020.

| | For the Six-Month Periods Ended June 30, | | Changes | |
|---|---|---|---|---|
| | **2019** | **2020** | **Amount** | **%** |
| | **(In billions of Won, except percentages)** | | | |
| Reversal of impairment losses on property, plant and equipment | ₩ 6 | ₩ 3 | ₩ (3) | (57.1)% |
| Reversal of impairment losses on intangible assets other than goodwill | 36 | 13 | (23) | (64.9) |
| Gains on foreign currency translation | 30 | 23 | (7) | (23.0) |
| Gains on foreign currency transactions | 26 | 27 | 1 | 2.3 |
| Other gains | 25 | 1 | (24) | (93.8) |
| Impairment losses on property, plant and equipment | (48) | (477) | (429) | 888.9 |
| Impairment losses on intangible assets other than goodwill | (12) | (48) | (36) | 290.4 |
| Losses on foreign currency translation | (19) | (29) | (10) | 54.1 |
| Losses on foreign currency transactions | (21) | (32) | (11) | 52.5 |
| Other losses | (3) | (13) | (10) | 343.6 |
| Other gains (losses), net | ₩ 20 | ₩(533) | (553) | N.A.(1) |

---

(1) Not Applicable.

The Company recognized net other gains of Won 20 billion in the first six months of 2019 compared to net other losses of Won 533 billion in the first six months of 2020 primarily due to increases in impairment losses on property, plant and equipment and impairment losses on intangible assets other than goodwill. Specifically:

- Impairment losses on property, plant and equipment, which comprise primarily of impairment losses recognized related to the estimated cash flow from the recoverable oil and gas from the Company's oil and gas properties, increased by 888.9%, or Won 428 billion, from Won 48 billion in the first six months of 2019 to Won 477 billion in the first six months of 2020 primarily due to impairment loss on oil and gas properties, due in turn to significantly lower oil and gas prices during the first six months of 2020 and the corresponding reduction in the estimated cash flow from the recoverable oil and gas from the Company's properties which fell below the properties' book value.
- Impairment losses on intangible assets other than goodwill, which comprise primarily of impairment losses recognized in connection with unsuccessful oil or gas exploration projects prior to establishment of technical feasibility and commercial viability, increased by 290.4%, or Won 35 billion, from Won 12 billion in the first six months of 2019 to Won 48 billion in the first six months of 2020. In the first six months of 2020, the Company recognized impairment loss of Won 35 billion related primarily to the impairment of mining rights due to the decrease in oil and gas prices. In the first six months of 2019, there were no such significant returns of exploration rights.

### *Finance Income and Finance Costs*

The following table presents a breakdown of the Company's finance income and costs and changes therein for the first six months of 2019 and 2020.

| | For the Six-Month Periods Ended June 30, | | Changes | |
|---|---|---|---|---|
| | 2019 | 2020 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Interest income | ₩ 13 | ₩ 9 | ₩ (4) | (32.8)% |
| Gains on valuation of fair value financial assets | — | 8 | 8 | N.A.(1) |
| Gains on valuation of fair value financial liabilities | — | 37 | 37 | N.A.(1) |
| Gains on transactions of derivatives | 24 | 95 | 71 | 290.5 |
| Gains on foreign currency translation | 110 | 65 | (45) | (40.5) |
| Gains on foreign currency transactions | 39 | 22 | (17) | (43.7) |
| Other finance income | 0 | 0 | (0) | (40.0) |
| Finance income | ₩187 | ₩236 | 49 | 25.7 |

| | For the Six-Month Periods Ended June 30, | | Changes | |
|---|---|---|---|---|
| | 2019 | 2020 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Interest expenses | ₩232 | ₩245 | ₩ 12 | 5.3% |
| Losses on valuation of financial assets measured at fair value through profit or loss | 79 | 256 | 177 | 224.4 |
| Losses on valuation of financial liabilities measured at fair value through profit or loss | — | 13 | 13 | N.A.(1) |
| Losses on transactions of derivatives | — | 84 | 84 | N.A.(1) |
| Losses on foreign currency translation | 62 | 112 | 50 | 80.3 |
| Losses on foreign currency transactions | 11 | 11 | (0) | (3.3) |
| Other finance costs | 40 | 35 | (5) | (10.3) |
| Finance costs | ₩424 | 755 | 331 | 78.1 |

---

(1) Not Applicable.

The Company recognized a net gain on foreign currency translation of Won 48 billion in the first six months of 2019 compared to a net loss on foreign currency translation of Won 47 billion in the first six months of 2020, and the Company's net gain on foreign currency transactions decreased by 60.3%, or Won 16 billion, from Won 27 billion in the first six months of 2019 to Won 11 billion in the first six months of 2020, due to fluctuations in the average value of the British Pound, Canadian dollar and Kazakhstani Tenge against the U.S. dollar during the first six months of 2019 compared to 2020 in connection with U.S. dollar-denominated indebtedness of our foreign subsidiaries. The Company, in preparing its consolidated financial statements, aggregates the foreign currency gains and losses of itself and its subsidiaries, and as such, the Company's consolidated foreign currency gains and losses are affected by changes in the exchange rates of the U.S. dollar, the functional currency of the Company, as well as the functional currencies of its subsidiaries. Against such fluctuations, the Company's gain on valuation of derivative financial instruments decreased from Won 2 billion in the first six months of 2019 to nil in the first six months of 2020 and the Company's net gain on transactions of derivative financial instruments decreased by 53.0%, or Won 13 billion, from Won 24 billion in the first six months of 2019 to Won 11 billion in the first six months of 2020.

The Company's interest income decreased by 32.8%, or Won 4 billion, from Won 13 billion in the first six months of 2019 to Won 9 billion in the first six months of 2020 primarily due to decreases in the average balance of interest-earning financial assets and interest rates.

The Company's interest expenses increased by 5.3%, or Won 12 billion, from Won 232 billion in the first six months of 2019 to Won 245 billion in the first six months of 2020 primarily due to an increase in the average balance of interest bearing liabilities.

The Company's net loss on valuation of financial assets measured at fair value through profit or loss increased by 224.4%, or Won 177 billion, from Won 79 billion in the first six months of 2019 to Won 256 billion in the first six months of 2020 primarily due to loss on valuation of a promissory note relating to certain agreements guaranteeing mining rights.

### *Profit (Loss) on Investments in Associates and Joint Ventures, Net*

The Company recognized a net profit on investments in associates and joint ventures of Won 39 billion in the first six months of 2019 compared to a net loss on investments in associates and joint ventures of Won 48 billion in the first six months of 2020. In the first six months of 2019, the Company recognized such net profit primarily due to a reversal of loss under the equity method of Won 53 billion relating to reclassification of loans to KADOC Ltd. In the first six months of 2020, the Company recognized such net loss primarily due to its shares of loss of Won 69 billion from Deep Basin Partnership. See Note 7 to the Company's interim consolidated financial statements included in this Offering Circular.

### *Profit (Loss) Before Income Tax*

As a result of the foregoing, the Company recognized profit before income tax of Won 240 billion in the first six months of 2019 compared to loss before income tax of Won 1,110 billion in the first six months of 2020.

### *Income Tax Expense*

Income tax expense decreased by 44.7%, or Won 59 billion, from Won 132 billion in the first six months of 2019 to Won 73 billion in the first six months of 2020 primarily due to the recognition of profit before income tax in the first six months of 2019 compared to loss before income tax in first six months of 2020 and, to a lesser extent, the recognition of tax directly credited to equity of Won 91 billion in the first six months of 2020 compared to tax directly charged to equity of Won 37 billion in the first six months of 2019. See Note 22 to the Company's interim consolidated financial statements included in this Offering Circular.

The Company is subject to Korean income taxes (including resident surtax), as well as income and other taxes in the jurisdictions in which it operates. The statutory tax rates applicable to the Company's overseas subsidiaries in the jurisdictions in which they operate are typically different from the Korean statutory rate applicable to the Company. Therefore, the income tax benefit or expense recognized in the Company's consolidated statement of comprehensive income (loss), which aggregates the tax expense or benefit of the Company and its subsidiaries, are generally different from the amount of income tax benefit or expense calculable by applying the Korean statutory rate to the Company's consolidated income or loss before income tax.

### *Profit (Loss) from Continuing Operations*

As a result of the foregoing, the Company recognized profit from continuing operations of Won 108 billion in the first six months of 2019 compared to loss from continuing operations of Won 1,183 billion in the first six months of 2020.

### *Profit (Loss) for the Period*

As a result of the foregoing, the Company recognized profit for the period of Won 108 billion in the first six months of 2019 compared to loss for the period of Won 1,183 billion in the first six months of 2020. The Company's net profit margin, which represents the ratio of profit for the period to revenue, was 7.4% in the first six months of 2019 compared to a net loss margin of 115.0% in the first six months of 2020.

### Results of Operations — *2019 Compared to 2018*

The following table presents the Company's consolidated statement of comprehensive income information and changes therein for 2018 and 2019.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2018 | 2019 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| **Continuing Operations** | | | | |
| Revenue | ₩ 3,149 | ₩ 2,930 | ₩ (219) | (7.0)% |
| Cost of sales | (2,172) | (2,052) | 120 | (5.5) |
| Gross profit | 977 | 878 | (99) | (10.2) |
| Selling and administrative expenses | (434) | (306) | 128 | (29.5) |
| Operating profit | 543 | 571 | 29 | 5.2 |
| Other non-operating income | 76 | 94 | 18 | 22.4 |
| Other non-operating expenses | (38) | (8) | 30 | (78.1) |
| Other loss, net | (849) | (2) | 847 | (99.8) |
| Finance income | 231 | 402 | 171 | 73.9 |
| Finance costs | (783) | (731) | 52 | (6.6) |
| Gain (loss) on investments in associates and joint ventures, net | (113) | 54 | 167 | N.A.(1) |
| Profit (loss) before income tax | (932) | 379 | 1,311 | N.A.(1) |
| Income tax expense | (228) | (534) | 304 | 133.8 |
| Loss from continuing operations | (1,160) | (155) | 1,005 | (86.7) |
| **Discontinued Operations** | | | | |
| Profit from discontinued operations, net of tax | 1 | — | (1) | (100.0) |
| Loss for the year | ₩(1,160) | ₩ (155) | 1,005 | (86.7) |

---

(1) Not Applicable.

***Revenue***

The following table presents a breakdown of the Company's revenue and changes therein for 2018 and 2019.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2018 | 2019 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Oil and gas sales | ₩2,925 | ₩2,663 | ₩(261) | (9.0)% |
| Petroleum distribution | 42 | 61 | 19 | 46.0 |
| Oil stockpiling | 178 | 200 | 22 | 11.9 |
| Others | 4 | 7 | 3 | 54.2 |
| Revenue | ₩3,149 | ₩2,930 | (219) | (7.0) |

The Company's total revenue decreased by 7.0%, or Won 219 billion, from Won 3,149 billion in 2018 to Won 2,930 billion in 2019 due to a decrease in revenue from the Oil and Gas Sales Segment, which was offset in part by increases in revenue from the Oil Stockpiling Segment, Petroleum Distribution Segment and the Others Segment. Specifically:

***Oil and Gas Sales.*** Revenue of the Oil and Gas Sales Segment decreased by 9.0%, or Won 262 billion, from Won 2,925 billion in 2018 to Won 2,663 billion in 2019 primarily due to general decreases in the Company's oil and gas sales prices in 2019 compared to 2018 reflecting decreases in global crude oil and natural gas prices during such time, which were exacerbated by a decrease in the volume of oil and gas sold. The Company's average oil sales price per barrel decreased by 6.4% from US$58.59 per barrel in 2018 to US$54.86 per barrel in 2019, and the average gas sales price per thousand cubic feet decreased by 20.9% from US$4.45 in 2018 to US$3.52 in 2019. The volume of oil and gas sold decreased by 6.8% from 55.6 million barrels of oil equivalent in 2018 to 51.8 million barrels of oil equivalent in 2019 primarily due to decreases in volume of oil and gas sold from Dana Petroleum and Eagle Ford.

***Petroleum Distribution.*** Revenue from the Petroleum Distribution Segment increased by 46.0%, or Won 19 billion, from Won 42 billion in 2018 to Won 61 billion in 2019 primarily due to certain fixed price sales of the remaining balance of oil and gas from trading contracts entered into 2018.

***Oil Stockpiling.*** Revenue from the Oil Stockpiling Segment increased by 11.9%, or Won 22 billion, from Won 178 billion in 2018 to Won 200 billion in 2019 primarily due to an increase in income from lending of the Company's stockpile facilities to other companies.

***Others.*** Revenue from the Others Segment increased by 54.2%, or Won 3 billion, from Won 4 billion in 2018 to Won 7 billion in 2019.

### *Cost of Sales*

The following table presents a breakdown of the Company's cost of sales and changes therein for 2018 and 2019.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2018 | 2019 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Changes in inventories — merchandise | ₩ (2) | ₩ 5 | ₩ 7 | N.A.[1] |
| Changes in inventories — finished goods | (1) | (5) | (4) | 282.4 |
| Changes in inventories — others | 0 | 2 | 2 | 1,158.9 |
| Purchase of inventories | 34 | 45 | 11 | 31.3 |
| Salaries | 178 | 198 | 20 | 11.1 |
| Depreciation | 1,054 | 947 | (107) | (10.2) |
| Amortization | 62 | 77 | 15 | 24.8 |
| Transport | 75 | 166 | 91 | 122.7 |
| Repairs | 141 | 143 | 2 | 1.8 |
| Others | 631 | 474 | (157) | (24.8) |
| Cost of sales | ₩2,172 | ₩2,052 | (120) | (5.5) |

---

(1) Not Applicable.

The Company's cost of sales decreased by 5.5%, or Won 120 billion, from Won 2,172 billion in 2018 to Won 2,052 billion in 2019 primarily due to decreases in depreciation and miscellaneous costs, which were offset in part by an increase in transport costs. Specifically:

- Depreciation expenses, which relate primarily to depreciation of oil and gas properties and, to a lesser extent, structures and machinery, decreased by 10.2%, or Won 107 billion, from Won 1,054 billion in 2018 to Won 947 billion in 2019 primarily due to decreases in production from Dana Petroleum.
- The Company's miscellaneous cost of sales decreased by 24.8% from Won 631 billion in 2018 to Won 474 billion in 2019 primarily due to a misclassification of costs of Won 107 billion which should have been classified as transport costs but had been classified as "others" in 2018, which was corrected in 2019.
- Transport costs increased by 122.7%, or Won 91 billion, from Won 75 billion in 2018 to Won 166 billion in 2019 primarily due to the classification error described above.

***Gross Profit***

The following table presents a breakdown of the Company's gross profit and changes therein for 2018 and 2019.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | **2018** | **2019** | **Amount** | **%** |
| | **(In billions of Won, except percentages)** | | | |
| Oil and gas sales | ₩967 | ₩861 | ₩(105) | (10.9)% |
| Petroleum distribution | 6 | (10) | (16) | N.A.[1] |
| Oil stockpiling | 3 | 22 | 19 | 718.4 |
| Others | 2 | 4 | 2 | 99.1 |
| Gross profit | ₩977 | ₩878 | (99) | (10.2) |

---

(1) Not Applicable.

The Company's gross profit decreased by 10.2%, or Won 99 billion, from Won 977 billion in 2018 to Won 878 billion in 2019 primarily due to decreases in gross profit of the Oil and Gas Sales Segment and, to a lesser extent, the Petroleum Distribution Segment's recognition of gross loss in 2019 compared to gross profit in 2018, the aggregate impact of which was offset in part by an increase in gross profit of the Oil Stockpiling Segment. The Company's gross profit margin, which represents the ratio of gross profit to revenue, decreased from 31.0% in 2018 to 30.0% in 2019. Specifically:

- Gross profit of the Oil and Gas Sales Segment decreased by 10.9%, or Won 105 billion, from Won 967 billion in 2018 to Won 861 billion in 2019 as the decrease in revenue of such segment outpaced the decrease in its cost of sales. A substantial portion of the Company's cost of sales, particularly those relating to periodic facility maintenance and labor costs for its oil and gas fields, do not vary significantly based on changes in global oil or gas prices, while revenue is more directly affected by changes in oil and gas prices and the Company's sales volume. The Oil and Gas Sales Segment's gross profit margin decreased from 33.0% in 2018 to 32.3% in 2019.
- The Petroleum Distribution Segment recognized gross profit of Won 6 billion in 2018 compared to gross loss of Won 10 billion in 2019 as the increase in revenue of such segment was significantly outpaced by the increase in cost of sales. The Petroleum Distribution Segment recorded a gross profit margin of 13.7% in 2018 compared to a gross loss margin of 16.4% in 2019.
- Gross profit of the Oil Stockpiling Segment increased by 718.4%, or Won 19 billion, from Won 3 billion in 2018 to Won 22 billion in 2019 as the increase in revenue of such segment outpaced the increase in its cost of sales. The Oil Stockpiling Segment's gross profit margin increased from 1.5% in 2018 to 11.1% in 2019.

### *Selling and Administrative Expenses*

The following table presents a breakdown of the Company's selling and administrative expenses and changes therein for 2018 and 2019.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2018 | 2019 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Salaries | ₩ 92 | ₩101 | ₩ 9 | 9.3% |
| Severance and retirement benefits | 7 | 10 | 3 | 46.0 |
| Other employee benefits | 14 | 12 | (2) | (8.9) |
| Depreciation | 15 | 18 | 3 | 26.4 |
| Commission and fees | 24 | 27 | 3 | 15.6 |
| Sales commissions | 240 | 100 | (140) | (58.4) |
| Others | 44 | 38 | (6) | (13.5) |
| Selling and administrative expenses | ₩434 | ₩306 | (128) | (29.5) |

Selling and administrative expenses decreased by 29.5%, or Won 128 billion, from Won 434 billion in 2018 to Won 306 billion in 2019 primarily due to a decrease in sales commissions. Sales commissions, which primarily consist of commissions related to sales of oil and gas by the Company, decreased by 58.4%, or Won 140 billion, from Won 240 billion in 2018 to Won 100 billion in 2019 primarily due to the decrease in oil and gas sales as discussed above.

### *Operating Profit*

The following table presents a breakdown of the Company's operating profit and changes therein for 2018 and 2019.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2018 | 2019 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Oil and gas sales | ₩606 | ₩625 | ₩ 19 | 3.2% |
| Petroleum distribution | 5 | (10) | (16) | N.A.(1) |
| Oil stockpiling | 3 | 22 | 19 | 718.4 |
| Others | 2 | 4 | 2 | 99.1 |
| Reconciling items(2) | (72) | (70) | 3 | (4.2) |
| Operating profit | ₩543 | ₩571 | 28 | 5.2 |

---

(1) Not Applicable.

(2) Consists primarily of operating profit (loss), including depreciation and amortization, that is not allocated to the segments.

The Company's operating profit increased by 5.2%, or Won 28 billion, from Won 543 billion in 2018 to Won 571 billion in 2019 primarily due to increases in operating profit of the Oil and Gas Sales Segment and the Oil Stockpiling Segment, which were offset in part by an operating loss of the Petroleum Distribution Segment in 2019 compared to an operating profit in 2018. The Company's operating profit margin, which represents the ratio of operating profit to revenue, increased from 17.3% in 2018 to 19.5% in 2019. Specifically:

- Operating profit of the Oil and Gas Sales Segment increased by 3.2%, or Won 19 billion, from Won 606 billion in 2018 to Won 625 billion in 2019 primarily due to the reasons described above. The Oil and Gas Sales Segment's operating profit margin increased from 20.7% in 2018 to 23.5% in 2019.
- Operating profit of the Oil Stockpiling Segment increased by 718.4%, or Won 19 billion, from Won 3 billion in 2018 to Won 22 billion in 2019 primarily due to the reasons described above. The Oil Stockpiling Segment's operating profit margin increased from 1.5% in 2018 to 11.1% in 2019.

- The Petroleum Distribution Segment recognized operating profit of Won 5 billion in 2018 compared to operating loss of Won 10 billion in 2019 primarily due to the reasons described above. The Petroleum Distribution Segment recorded an operating profit margin of 12.9% in 2018 compared to an operating loss margin of 17.0% in 2019.

### *Other Non-Operating Income*

Other non-operating income increased by 22.4%, or Won 17 billion, from Won 76 billion in 2018 to Won 94 billion in 2019 primarily due to gains on exemption of debts of Won 76 billion in 2019 compared to no such income in 2018. The Company recognized gains on exemption of debts of Won 76 billion in 2019 related to the termination of the Company's Nigerian operations and the exemption of SAER loans relating to such termination from the Ministry of Trade, Industry and Energy.

### *Other Non-Operating Expenses*

Other non-operating expenses decreased by 78.1%, or Won 30 billion, from Won 38 billion in 2018 to Won 8 billion in 2019 primarily due to decreases in provisions relating to unperformed obligations and transfer to other provisions. The Company's others within other non-operating expenses decreased by 85.7% from Won 21 billion in 2018 to Won 3 billion in 2019 primarily due to a decrease in provisions relating to unperformed obligations in connection with dues received from KNOC Capsian LLP. Transfer to other provisions decreased by 92.3%, or Won 12 billion, from Won 13 billion in 2018 to Won 1 billion in 2019 primarily due to a decrease in provisions in connection with a lawsuit relating to ordinary wages.

### *Other Loss, Net*

The following table presents a breakdown of the Company's net other loss for 2018 and 2019.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2018 | 2019 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Reversal of impairment losses on property, plant and equipment | ₩ 23 | ₩ 25 | ₩ 2 | 9.0% |
| Reversal of impairment losses on intangible assets other than goodwill | — | 53 | 53 | N.A.(1) |
| Gains on disposal of intangible assets other than goodwill | 0 | 87 | 87 | N.M.(2) |
| Gains on foreign currency translation | 27 | 23 | (4) | (13.9) |
| Gains on foreign currency transactions | 33 | 48 | 15 | 44.6 |
| Other gains | 16 | 42 | 26 | 162.8 |
| Impairment losses on property, plant and equipment | (273) | (176) | 97 | (35.4) |
| Impairment losses on intangible assets other than goodwill | (609) | (18) | 591 | (97.0) |
| Losses on foreign currency translation | (20) | (22) | (2) | 9.6 |
| Losses on foreign currency transactions | (41) | (43) | (2) | 4.5 |
| Other losses | (5) | (22) | (17) | 325.3 |
| Other loss, net | ₩(849) | ₩ (2) | 847 | (99.8) |

---

(1) Not Applicable.

(2) Not Meaningful.

Net other loss decreased by 99.8%, or Won 847 billion, from Won 849 billion in 2018 to Won 2 billion in 2019 primarily due to decreases in impairment losses on intangible assets other than goodwill and impairment losses on property, plant and equipment, as well as gains on disposal of intangible assets other than goodwill and a reversal of impairment losses on intangible assets other than goodwill in 2019. Specifically:

- Impairment losses on intangible assets other than goodwill, which comprise primarily of impairment losses recognized in connection with unsuccessful oil or gas exploration projects prior to establishment of technical feasibility and commercial viability, decreased by 97.0%, or Won 591 billion, from Won 609 billion in 2018 to Won 18 billion in 2019. In 2018, the Company recognized impairment loss of Won 537 billion related primarily to return of exploration rights of the Kurdish oil field in Iraq. The Company also recognized additional impairment loss of Won 72 billion in 2018 primarily due to the relinquishment of exploration in the continental shelf as well as a decrease in the estimated reserve amount related to its exploration project in the UK. See Note 18 to the Company's financial statements as of and for the years ended December 31, 2019 and 2018. Whereas in 2019, there were no such significant returns of exploration rights or terminations of exploration projects.

- Impairment losses on property, plant and equipment, which comprise primarily of impairment losses recognized related to the estimated cash flow from the recoverable oil and gas from the Company's oil and gas properties, decreased by 35.4%, or Won 97 billion, from Won 273 billion in 2018 to Won 176 billion in 2019. In 2018, the Company's impairment losses on property, plant and equipment related primarily to impairment loss from the Hawler Area Block in Iraq. In 2019, the Company's impairment losses on property, plant and equipment related primarily to impairment loss from Block 8 in Peru and Dana Petroleum.
- Gains on disposal of intangible assets other than goodwill increased significantly by Won 87 billion from Won 7 million in 2018 to Won 87 billion in 2019 primarily due to gains on disposals of certain mining rights in connection with the Kurdish regional government's Social Overhead Capital in 2019.
- The Company recorded a reversal of impairment losses on intangible assets other than goodwill of Won 53 billion in 2019 primarily related to a reversal of impairment loss in connection with the mining rights of the ANKOR Offshore Project. In 2018, the Company did not record any such reversals.

### *Finance Income and Finance Costs*

The following table presents a breakdown of the Company's finance income and costs and changes therein for 2018 and 2019.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2018 | 2019 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Interest income | ₩ 23 | ₩ 23 | ₩ (0) | (0.6)% |
| Gains on valuation of financial assets measured at fair value through profit or loss | 87 | 168 | 81 | 92.8 |
| Gains on valuation of derivative financial instruments | 23 | 19 | (4) | (19.8) |
| Gains on transactions of derivative financial instruments | 4 | 11 | 7 | 156.5 |
| Gains on foreign currency translation | 55 | 137 | 82 | 146.5 |
| Gains on foreign currency transactions | 38 | 43 | 5 | 12.0 |
| Other income | 0 | 2 | 2 | 20,720.0 |
| Finance income | ₩231 | ₩402 | 171 | 73.9 |

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2018 | 2019 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Interest expenses | ₩426 | ₩475 | ₩ 49 | 11.4% |
| Losses on valuation of financial assets measured at fair value through profit or loss | 5 | 82 | 77 | 1,524.6 |
| Losses on valuation of financial liabilities measured at fair value through profit or loss | — | 16 | 16 | N.A.[1] |
| Losses on valuation of derivative financial instruments | — | 3 | 3 | N.A.[1] |
| Losses on transactions of derivative financial instruments | 1 | — | (1) | (100.0) |
| Losses on foreign currency translation | 209 | 65 | (144) | (68.8) |
| Losses on foreign currency transactions | 27 | 14 | (13) | (48.6) |
| Other financial costs | 115 | 77 | (38) | (32.9) |
| Finance costs | ₩783 | ₩731 | (52) | (6.6) |

---

(1) Not Applicable.

The Company recognized a net loss on foreign currency translation of Won 154 billion in 2018 compared to a net gain on foreign currency translation of Won 71 billion in 2019, and the Company's net gain on foreign currency transactions increased by 146.8%, or Won 17 billion, from Won 12 billion in 2018 to Won 29 billion in 2019, due to fluctuations in the average value of the British Pound and the Canadian dollar against the U.S. dollar during 2019 compared to 2018 in connection with U.S. dollar-denominated indebtedness of our foreign subsidiaries. The Company, in preparing its consolidated financial statements, aggregates the foreign currency gains and losses of itself and its subsidiaries, and as such, the Company's consolidated foreign currency gains and losses are affected by changes in the exchange rates of the U.S. dollar, the functional currency of the Company, as well as the functional currencies of its subsidiaries. Against such fluctuations, the Company's net gain on valuation of derivative financial instruments decreased by 30.6%, or Won 7 billion, from Won 23 billion in 2018 to Won 16 billion in 2019 and the Company's net gain on transactions of derivative financial instruments increased by 240.2%, or Won 8 billion, from Won 3 billion in 2018 to Won 11 billion in 2019.

While the Company's interest income remained relatively constant at Won 23 billion in 2018 and 2019, the Company's interest expenses increased by 11.4%, or Won 49 billion, from Won 426 billion in 2018 to Won 475 billion in 2019 primarily due to increases in interest expenses related to derivative liabilities and long-term borrowings.

The Company's net gain on valuation of financial assets measured at fair value through profit or loss increased by 4.4%, or Won 4 billion, from Won 82 billion in 2018 to Won 86 billion in 2019 primarily due to gains on valuations of bonds relating to certain agreements guaranteeing mining rights in connection with Social Overhead Capital.

### *Gain (Loss) on Investments in Associates and Joint Ventures, Net*

The Company recognized a net loss on investments in associates and joint ventures of Won 113 billion in 2018 compared to a net gain on investments in associates and joint ventures of Won 54 billion in 2019. In 2018, the Company recognized such net loss primarily due to its shares of loss of Won 55 billion from Offshore International Group, Inc., Won 33 billion from Deep Basin Partnership and Won 18 billion from Parallel Petroleum LLC. In 2019, the Company recognized such net gain primarily due to its shares of profit of Won 48 billion from Deep Basin Partnership and Won 9 billion from HKMS Partnership. See Note 15 to the Company's financial statements as of and for the years ended December 31, 2019 and 2018.

### *Profit (Loss) Before Income Tax*

As a result of the foregoing, the Company recognized loss before income tax of Won 932 billion in 2018 compared to profit before income tax of Won 379 billion in 2019.

### *Income Tax Expense*

Income tax expense increased by 133.8%, or Won 305 billion, from Won 228 billion in 2018 to Won 534 billion in 2019 primarily due to the recognition of profit before income tax in 2019 compared to loss before income tax in 2018 and, to a lesser extent, an increase in adjustments related to differences in tax rates in overseas entities from Won 227 billion in 2018 to Won 289 billion in 2019. See Note 39 to the Company's financial statements as of and for the years ended December 31, 2019 and 2018.

The Company is subject to Korean income taxes (including resident surtax), as well as income and other taxes in the jurisdictions in which it operates. The statutory tax rates applicable to the Company's overseas subsidiaries in the jurisdictions in which they operate are typically different from the Korean statutory rate applicable to the Company. Therefore, the income tax benefit or expense recognized in the Company's consolidated statement of comprehensive income (loss), which aggregates the tax expense or benefit of the Company and its subsidiaries, are generally different from the amount of income tax benefit or expense calculable by applying the Korean statutory rate to the Company's consolidated income or loss before income tax.

### *Loss from Continuing Operations*

As a result of the foregoing, the Company's loss from continuing operations decreased by 86.7%, or Won 1,005 billion, from Won 1,160 billion in 2018 to Won 155 billion in 2019.

### *Profit (Loss) from Discontinued Operations, Net of Tax*

Pursuant to the June 2016 Government Plan, the Company discontinued the business of the Drillship Chartering Segment in 2017. The Company committed to a plan to sell the primary assets of the Drillship Chartering Segment in September 2017, and such assets were classified as assets held for sale as of December 31, 2017. In 2018, the Company recognized profit and loss due to its subsequent disposal of the drillship and other related assets of the Drillship Chartering Segment. The Company recorded profit from discontinued operations, net of tax, of Won 0.8 billion in 2018. See Note 4 to the Company's financial statements as of and for the years ended December 31, 2019 and 2018.

### *Loss for the Year*

As a result of the foregoing, the Company's loss for the year decreased by 86.7%, or Won 1,005 billion, from Won 1,160 billion in 2018 to Won 155 billion in 2019. Net loss margin, which represents the ratio of loss for the year to revenue, decreased from 36.8% in 2018 to 5.3% in 2019.

**Results of Operations — *2018 Compared to 2017***

The following table presents the Company's statement of comprehensive income information and changes therein for 2017 and 2018.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2017 | 2018 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| **Continuing Operations** | | | | |
| Revenue | ₩ 2,312 | ₩ 3,149 | ₩ 837 | 36.2% |
| Cost of sales | (1,850) | (2,172) | (322) | 17.4 |
| Gross profit | 462 | 977 | 515 | 111.5 |
| Selling and administrative expenses | (286) | (434) | (148) | 51.6 |
| Operating profit | 176 | 543 | 367 | 209.0 |
| Other non-operating income | 152 | 76 | (76) | (49.8) |
| Other non-operating expenses | (207) | (38) | 169 | (81.8) |
| Other loss, net | (463) | (849) | (386) | 83.4 |
| Finance income | 305 | 231 | (73) | (24.1) |
| Finance costs | (713) | (783) | (70) | 9.9 |
| Loss on investments in associates and joint ventures, net | (128) | (113) | 15 | (11.9) |
| Loss before income tax | (879) | (932) | (53) | 6.1 |
| Income tax benefit (expense) | 194 | (228) | 422 | N.A.(1) |
| Loss from continuing operations | (684) | (1,160) | (476) | 69.5 |
| **Discontinued Operations** | | | | |
| Profit (loss) from discontinued operations, net of tax | (52) | 1 | 53 | N.A.(1) |
| Loss for the year | ₩ (737) | ₩(1,160) | (423) | 57.4 |

---

(1) Not Applicable.

***Revenue***

The following table presents a breakdown of the Company's revenue and changes therein for 2017 and 2018.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2017 | 2018 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Oil and gas sales | ₩2,005 | ₩2,925 | ₩ 920 | 45.9% |
| Petroleum distribution | 188 | 42 | (146) | (77.8) |
| Oil stockpiling | 112 | 178 | 66 | 59.0 |
| Others | 8 | 4 | (3) | (42.5) |
| Revenue | ₩2,312 | ₩3,149 | 837 | 36.2 |

The Company's total revenue increased by 36.2%, or Won 837 billion, from Won 2,312 billion in 2017 to Won 3,149 billion in 2018 due to increases in revenue from the Oil and Gas Sales Segment and the Oil Stockpiling Segment, which were offset in part by a decrease in revenue from the Petroleum Distribution Segment and the Others Segment. Specifically:

***Oil and Gas Sales.*** Revenue of the Oil and Gas Sales Segment increased by 45.9%, or Won 920 billion, from Won 2,005 billion in 2017 to Won 2,925 billion in 2018 primarily due to general increases in the Company's oil and gas sales prices in 2018 compared to 2017 reflecting increases in global crude oil and natural gas prices during such time, which was further enhanced by an increase in the volume of oil and gas sold. The

Company's average oil sales price per barrel increased by 21.3% from US$48.32 per barrel in 2017 to US$58.59 per barrel in 2018, and the average gas sales price per thousand cubic feet increased by 8.0% from US$4.12 in 2017 to US$4.45 in 2018. The volume of oil and gas sold increased by 18.6% from 46.9 million barrels of oil equivalent in 2017 to 55.6 million barrels of oil equivalent in 2018 primarily due to increases in the volume of oil and gas sold from Dana Petroleum.

***Petroleum Distribution.*** Revenue from the Petroleum Distribution Segment decreased by 77.8%, or Won 146 billion, from Won 188 billion in 2017 to Won 42 billion in 2018 primarily due to a decrease in the volume of oil trading in a backwardation market as well as the changes in revenue recognition in connection with the adoption of K-IFRS No. 1115 'Revenue from Contracts with Customers.'

***Oil Stockpiling.*** Revenue from the Oil Stockpiling Segment increased by 59.0%, or Won 66 billion, from Won 112 billion in 2017 to Won 178 billion in 2018 primarily due to an increase in income from lending of the Company's stockpile facilities to other companies.

***Others.*** Revenue from the Others Segment decreased by 42.5%, or Won 3 billion, from Won 8 billion in 2017 to Won 4 billion in 2018.

### *Cost of Sales*

The following table presents a breakdown of the Company's cost of sales and changes therein for 2017 and 2018.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2017 | 2018 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Changes in inventories — merchandise | ₩ 4 | ₩ (2) | ₩ (6) | N.A.(1) |
| Changes in inventories — finished goods | 9 | (1) | (10) | N.A.(1) |
| Changes in inventories — others | 11 | 0 | (11) | (98.7) |
| Purchase of inventories | 170 | 34 | (136) | (79.9) |
| Salaries | 141 | 178 | 37 | 26.2 |
| Depreciation | 786 | 1,054 | 268 | 34.2 |
| Amortization | 93 | 62 | (31) | (33.7) |
| Transport | 140 | 75 | (66) | (46.7) |
| Repairs | 134 | 141 | 7 | 5.0 |
| Others | 361 | 631 | 270 | 74.7 |
| Cost of sales | ₩1,850 | ₩2,172 | 322 | 17.4 |

---

(1) Not Applicable.

The Company's cost of sales increased by 17.4%, or Won 322 billion, from Won 1,850 billion in 2017 to Won 2,172 billion in 2018 primarily due to increases in depreciation and miscellaneous costs, which were offset in part by a decrease in purchase of inventories. Specifically:

- Depreciation expenses, which relate primarily to depreciation of oil and gas properties and, to a lesser extent, structures and machinery, increased by 34.2%, or Won 268 billion, from Won 786 billion in 2017 to Won 1,054 billion in 2018 primarily due to the commencement of production at the Western Isles Projects of Dana Petroleum in 2018.
- The Company's miscellaneous cost of sales increased by 74.7% from Won 361 billion in 2017 to Won 631 billion in 2018 primarily due to a misclassification of costs of Won 107 billion which should have been classified as transport costs but had been classified as "others" in 2018 as described above.
- The Company's purchase of inventories decreased by 79.9%, or Won 136 billion, from Won 170 billion in 2017 to Won 34 billion in 2018 primarily due to changes in revenue recognition in connection with the adoption of K-IFRS No. 1115 'Revenue from Contracts with Customers' regarding the sales transaction

of uncontrolled inventories. See Note 3 to the Company's financial statements as of and for the years ended December 31, 2018 and 2017.

### *Gross Profit*

The following table presents a breakdown of the Company's gross profit and changes therein for 2017 and 2018.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2017 | 2018 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Oil and gas sales | ₩509 | ₩967 | ₩457 | 89.7% |
| Petroleum distribution | 9 | 6 | (3) | (33.5) |
| Oil stockpiling | (60) | 3 | 62 | N.A.(1) |
| Others | 4 | 2 | (2) | (40.4) |
| Gross profit | ₩462 | ₩977 | 515 | 111.5 |

---

(1) Not Applicable.

The Company's gross profit increased by 111.5%, or Won 515 billion, from Won 462 billion in 2017 to Won 977 billion in 2018 primarily due to an increase in gross profit of the Oil and Gas Sales Segment and, to a lesser extent, the Oil Stockpiling Segment's recognition of gross loss in 2017 compared to gross income in 2018. The Company's gross profit margin, which represents the ratio of gross profit to revenue, increased from 20.0% in 2017 to 31.0% in 2018. Specifically:

- Gross profit of the Oil and Gas Sales Segment increased by 89.7%, or Won 457 billion, from Won 509 billion in 2017 to Won 967 billion in 2018 as the increase in revenue of such segment outpaced an increase in its cost of sales. A substantial portion of the Company's cost of sales, particularly those relating to periodic facility maintenance and labor costs for its oil and gas fields, do not vary significantly based on changes in global oil or gas prices, while revenue is more directly affected by changes in oil and gas prices and the Company's sales volume. The Oil and Gas Sales Segment's gross profit margin increased from 25.4% in 2017 to 33.0% in 2018.
- The Oil Stockpiling Segment recognized gross loss of Won 60 billion in 2017 compared to gross income of Won 3 billion in 2018 as the Company recorded an increase in income from lending of the Company's stockpile facilities to other companies in 2018. The Oil Stockpiling Segment recorded gross loss margin of 53.2% in 2017 compared to gross profit margin of 1.5% in 2018.

### *Selling and Administrative Expenses*

The following table presents a breakdown of the Company's selling and administrative expenses and changes therein for 2017 and 2018.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2017 | 2018 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Salaries | ₩ 90 | ₩ 92 | ₩ 3 | 2.8% |
| Severance and retirement benefits | 8 | 7 | (1) | (15.1) |
| Other employee benefits | 14 | 14 | (0) | (0.3) |
| Depreciation | 17 | 15 | (2) | (12.8) |
| Commissions and fees | 22 | 24 | 2 | 8.6 |
| Sales commission | 91 | 240 | 149 | 164.1 |
| Others | 46 | 44 | (2) | (5.1) |
| Selling and administrative expenses | ₩286 | ₩434 | 148 | 51.6 |

Selling and administrative expenses increased by 51.6%, or Won 148 billion, from Won 286 billion in 2017 to Won 434 billion in 2018 primarily due to an increase in sales commission expenses. Sales commission expenses, which primarily consist of commissions related to sales of oil and gas by the Company, increased by 164.1%, or Won 149 billion, from Won 91 billion in 2017 to Won 240 billion in 2018 primarily due to commission expenses related to the Company's unfulfilled obligations in connection with Block 11-2 in Vietnam. See "Business — Exploration, Development and Production — Major Production Projects — Vietnam."

### *Operating Profit*

The following table presents a breakdown of the Company's operating profit and changes therein for 2017 and 2018.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2017 | 2018 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Oil and gas sales | ₩301 | ₩606 | ₩305 | 101.3% |
| Petroleum distribution | 8 | 5 | (3) | (34.7) |
| Oil stockpiling | (60) | 3 | 62 | N.A.[1] |
| Others | 4 | 2 | (2) | (40.4) |
| Reconciling items[2] | (77) | (72) | 5 | (6.5) |
| Operating profit | ₩176 | ₩543 | 367 | 209.0 |

---

(1) Not Applicable.

(2) Consists primarily of operating profit (loss), including depreciation and amortization, that is not allocated to the segments.

The Company's operating profit increased by 209.0%, or Won 367 billion, from Won 176 billion in 2017 to Won 543 billion in 2018 primarily due to an increase in operating profit of the Oil and Gas Sales Segment and, to a lesser extent, the Oil Stockpiling Segment's recognition of operating loss in 2017 compared to operating profit in 2018. The Company's operating profit margin, which represents the ratio of operating profit to revenue, increased from 7.6% in 2017 to 17.3% in 2018. Specifically:

- Operating profit of the Oil and Gas Sales Segment increased by 101.3%, or Won 305 billion, from Won 301 billion in 2017 to Won 606 billion in 2018 primarily due to the reasons described above. The Oil and Gas Sales Segment's operating profit margin increased from 15.0% in 2017 to 20.7% in 2018.
- The Oil Stockpiling Segment recognized operating loss of Won 60 billion in 2017 compared to operating income of Won 3 billion in 2018 primarily due to the reasons described above. The Oil Stockpiling Segment recorded operating loss margin of 53.2% in 2017 compared to operating profit margin of 1.5% in 2018.

### *Other Non-Operating Income*

Other non-operating income decreased by 49.8%, or Won 76 billion, from Won 152 billion in 2017 to Won 76 billion in 2018 primarily due to gains on exemption of debts of Won 77 billion and reversal of other provisions of Won 32 billion in 2017, compared to no such income in 2018. The Company recognized gains on exemption of debts of Won 77 billion in 2017 related to exemptions of debt in connection with KNOC Yemen Ltd. and certain SAER loans for domestic projects. The Company's reversal of other provisions of Won 32 billion in 2017 consisted primarily of its recovery of Won 30 billion that had previously been recognized in connection with a lawsuit with Hyundai Heavy Industries, in which Hyundai Heavy Industries claimed refunds of the acquisition costs and premium paid related to the Yemen 4 oil field.

### *Other Non-Operating Expenses*

Other non-operating expenses decreased by 81.8%, or Won 169 billion, from Won 207 billion in 2017 to Won 38 billion in 2018 primarily due a decrease in other bad debt expense. Other bad debt expense decreased by

99.6%, or Won 179 billion, from Won 180 billion in 2017 to Won 1 billion in 2018 primarily due to bad debt expenses recognized in connection with KNOC Kaz B.V. in 2017 which were not repeated in 2018.

***Other Loss, Net***

The following table presents a breakdown of the Company's net other loss for 2017 and 2018.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2017 | 2018 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Reversal of impairment losses on property, plant and equipment | ₩ 164 | ₩ 23 | ₩(140) | (85.9)% |
| Gains on foreign currency translation | 40 | 27 | (13) | (32.7) |
| Gains on foreign currency transactions | 42 | 33 | (9) | (20.7) |
| Other gains | 21 | 16 | (4) | (21.2) |
| Impairment losses on property, plant and equipment | (320) | (273) | 47 | (14.8) |
| Impairment losses on intangible assets | (315) | (609) | (295) | 93.7 |
| Losses on foreign currency translation | (45) | (20) | 25 | (56.5) |
| Losses on foreign currency transactions | (40) | (41) | (1) | 3.0 |
| Other losses | (8) | (5) | 3 | (39.6) |
| Other loss, net | ₩(463) | ₩(849) | (386) | 83.4 |

Net other loss increased by 83.4%, or Won 386 billion, from Won 463 billion in 2017 to Won 849 billion in 2018 primarily due to an increase in impairment losses on intangible assets as well as a decrease in reversal of impairment losses on property, plant and equipment, which were partially offset by a decrease in impairment losses on property, plant and equipment. Specifically:

- Impairment losses on intangible assets, which comprise primarily of impairment losses recognized in connection with unsuccessful oil or gas exploration projects prior to establishment of technical feasibility and commercial viability as well as impairment losses on goodwill, increased by 93.7%, or Won 295 billion, from Won 315 billion in 2017 to Won 609 billion in 2018. In 2017, the Company's impairment losses on intangible assets other than goodwill related primarily to the relinquishment of exploration in the continental shelf as well as a decrease in the estimated reserve amount related to its exploration project in the UK. In addition, the Company recognized impairment on goodwill of Harvest Operations Corp. of Won 87 billion in 2017. In 2018, the Company recognized impairment loss of Won 537 billion related primarily to return of exploration rights of the Kurdish oil field in Iraq. The Company also recognized additional impairment loss of Won 72 billion in 2018 primarily due to the relinquishment of exploration in the continental shelf as well as a decrease in the estimated reserve amount related to its exploration project in the UK. See Note 22 to the Company's financial statements as of and for the years ended December 31, 2018 and 2017.

- Reversal of impairment losses on property, plant and equipment, which comprise primarily of reversal of impairment losses recognized related to the estimated cash flow from the recoverable oil and gas from the Company's oil and gas properties, decreased by 85.9%, or Won 140 billion, from Won 164 billion in 2017 to Won 23 billion in 2018. In 2017, the Company's reversal of impairment losses on property, plant and equipment related primarily to the increase in reserves of Dana Petroleum. In 2018, the Company's reversal of impairment losses on property, plant and equipment related primarily to the increase in reserves of the ANKOR Offshore Projects.

- Impairment losses on property, plant and equipment, which comprise primarily of impairment losses recognized related to the estimated cash flow from the recoverable oil and gas from the Company's oil and gas properties, decreased by 14.8%, or Won 47 billion, from Won 320 billion in 2017 to Won 273 billion in 2018. In 2017, the Company's impairment losses on property, plant and equipment related primarily to impairment loss on oil and gas properties, due in turn to decreases in reserves and declines in oil and gas prices. In 2018, the Company's impairment losses on property, plant and equipment related primarily to impairment from the Hawler Area Block in Iraq.

### *Finance Income and Finance Costs*

The following table presents a breakdown of the Company's finance income and costs and changes therein for 2017 and 2018.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2017 | 2018 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Interest income | ₩ 51 | ₩ 23 | ₩(28) | (55.2)% |
| Gains on valuation of financial assets measured at fair value through profit or loss | — | 87 | 87 | N.A.[1] |
| Gains on valuation of derivative financial instruments | — | 23 | 23 | N.A.[1] |
| Gains on transactions of derivative financial instruments | 1 | 4 | 3 | 278.5 |
| Gains on foreign currency translation | 144 | 55 | (88) | (61.4) |
| Gains on foreign currency transactions | 108 | 38 | (69) | (64.2) |
| Other finance income | 2 | 0 | (2) | (99.4) |
| Finance income | ₩305 | ₩231 | (73) | (24.1) |

---

(1) Not Applicable.

| | For the Year Ended December 31, | | Changes | |
|---|---|---|---|---|
| | 2017 | 2018 | Amount | % |
| | (In billions of Won, except percentages) | | | |
| Interest expenses | ₩401 | ₩426 | ₩ 25 | 6.2% |
| Impairment losses on available-for-sale financial instruments | 72 | — | (72) | (100.0) |
| Losses on valuation of derivative financial instruments | 25 | — | (25) | (100.0) |
| Losses on transactions of derivative financial instruments | 15 | 1 | (14) | (92.9) |
| Losses on foreign currency translation | 93 | 209 | 116 | 124.9 |
| Losses on foreign currency transactions | 4 | 27 | 22 | 530.4 |
| Other finance costs | 103 | 120 | 17 | 16.5 |
| Finance costs | ₩713 | ₩783 | 70 | 9.9 |

The Company recognized a net gain on foreign currency translation of Won 51 billion in 2017 compared to a net loss on foreign currency translation of Won 154 billion in 2018, and the Company's net gain on foreign currency transactions decreased by 88.5%, or Won 91 billion, from Won 103 billion in 2017 to Won 12 billion in 2018, due to fluctuations in the average value of British pounds, Canadian dollar and Kazakhstani Tenge against the U.S. dollar during 2018 compared to 2017 in connection with U.S. dollar-denominated indebtedness of our foreign subsidiaries. The Company, in preparing its consolidated financial statements, aggregates the foreign currency gains and losses of itself and its subsidiaries, and as such, the Company's consolidated foreign currency gains and losses are affected by changes in the exchange rates of the U.S. dollar, the functional currency of the Company, as well as the functional currencies of its subsidiaries. Against such fluctuations, the Company recognized a net loss on valuation of derivative financial instruments of Won 25 billion in 2017 compared to a net gain on valuation of derivative financial instruments of Won 23 billion in 2018, as well as a net loss on transactions of derivative financial instruments of Won 14 billion in 2017 compared to a net gain on transactions of derivative financial instruments of Won 3 billion in 2018.

The Company's interest income decreased by 55.2%, or Won 28 billion, from Won 51 billion in 2017 to Won 23 billion in 2018 primarily due to a decrease in the average balance of interest-earning financial assets.

The Company's interest expenses increased by 6.2%, or Won 25 billion, from Won 401 billion in 2017 to Won 426 billion in 2018 primarily due to an increase in the average balance of interest-bearing financial liabilities, which was offset in part by a general decrease in interest rates applicable to such liabilities in 2018.

The Company did not recognize any gain on valuation of financial assets measured at fair value through profit or loss in 2017. However, the Company recognized gains on valuation of financial assets measured at fair value through profit or loss of Won 87 billion in 2018 that related primarily to the reclassification of certain loans to affiliates as financial assets measured at fair value through profit or loss.

The Company recognized impairment losses on available-for-sale financial instruments of Won 72 billion in 2017 compared to no such impairment in 2018 due to the introduction of K-IFRS No. 1109 'Financial Instruments.' See Note 3 to the Company's financial statements as of and for the years ended December 31, 2018 and 2017. The Company's impairment losses in 2017 related primarily to impairment loss from EP Energy. See Note 12 to the Company's financial statements as of and for the years ended December 31, 2018 and 2017.

### *Loss on Investments in Associates and Joint Ventures, Net*

Net loss on investments in associates and joint ventures decreased by 11.9%, or Won 15 billion, from Won 128 billion in 2017 to Won 113 billion in 2018. In 2017, the Company recognized net loss of Won 128 billion primarily due to its shares of loss of Won 47 billion from Deep Basin Partnership and Won 33 billion from Offshore International Group, Inc., as well as a provision of Won 35 billion related to the Company's additional obligation for Deep Basic Partnership. In 2018, the Company recognized net loss of Won 113 billion primarily due to its shares of loss of Won 55 billion from Offshore International Group, Inc., Won 33 billion from Deep Basin Partnership and Won 18 billion from Parallel Petroleum LLC. See Note 19 to the Company's financial statements as of and for the years ended December 31, 2018 and 2017.

### *Loss Before Income Tax*

As a result of the foregoing, the Company's loss before income tax increased by 6.1%, or Won 53 billion, from Won 879 billion in 2017 to Won 932 billion in 2018.

### *Income Tax Expense (Benefit)*

The Company recognized income tax benefit of Won 194 billion in 2017 compared to income tax expense of Won 228 billion in 2018. Loss before income tax increased by 6.1%, or Won 53 billion, from Won 879 billion in 2017 to Won 932 billion in 2018. However, the Company recognized income tax benefit in 2017 compared to income tax expense in 2018 primarily due to an increase in adjustments related to temporary differences not recognized in deferred tax assets from Won 44 billion in 2017 to Won 310 billion in 2018 as well as an increase in adjustments related to differences in tax rates in overseas entities from Won 46 billion in 2017 to Won 227 billion in 2018. See Note 39 to the Company's financial statements as of and for the years ended December 31, 2018 and 2017.

The Company is subject to Korean income taxes (including resident surtax), as well as income and other taxes in the jurisdictions in which it operates. The statutory tax rates applicable to the Company's overseas subsidiaries in the jurisdictions in which they operate are typically different from the Korean statutory rate applicable to the Company. Therefore, the income tax benefit or expense recognized in the Company's consolidated statement of comprehensive income (loss), which aggregates the tax expense or benefit of the Company and its subsidiaries, are generally different from the amount of income tax benefit or expense calculable by applying the Korean statutory rate to the Company's consolidated income or loss before income tax.

### *Loss from Continuing Operations*

As a result of the foregoing, the Company's loss from continuing operations increased by 69.5%, or Won 476 billion, from Won 684 billion in 2017 to Won 1,160 billion in 2018.

### *Profit (Loss) from Discontinued Operations, Net of Tax*

Pursuant to the June 2016 Government Plan, the Company discontinued the businesses of the Financing Segment and the Drillship Chartering Segment in 2017 as follows:

- ***Financing.*** The Company transferred its former SAER related responsibilities related to financings provided to companies engaged in energy and natural resources development activities to Korea Energy Agency in July 2017.

- ***Drillship Chartering.*** The Company committed to a plan to sell the primary assets of the Drillship Chartering Segment in September 2017, and such assets were classified as assets held for sale as of December 31, 2017. In 2018, the Company recognized profit and loss due to its subsequent disposal of the drillship and other related assets of the Drillship Chartering Segment.

The Company recorded loss from discontinued operations, net of tax, of Won 52 billion in 2017 compared to profit from discontinued operations, net of tax, of Won 0.8 billion in 2018. In 2017, the Company's loss from discontinued operations, net of tax, consisted primarily of Won 43 billion of impairment loss on property, plant and equipment and Won 7 billion loss from valuation of supplies, in each case relating to the Drillship Chartering Segment. See Notes 6 and 7 to the Company's financial statements as of and for the years ended December 31, 2018 and 2017.

### *Loss for the Year*

As a result of the foregoing, the Company's loss for the year increased by 57.4%, or Won 423 billion, from Won 737 billion in 2017 to Won 1,160 billion in 2018. Net loss margin, which represents the ratio of loss for the year to revenue, increased from 31.9% in 2017 to 36.8% in 2018.

## Financial Condition, Liquidity and Capital Resources

### *Cash Flows*

The following table sets forth a summary of the Company's consolidated cash flows for the periods indicated.

| | For the Year Ended December 31, | | | For the Six Months Ended June 30, | |
|---|---|---|---|---|---|
| | 2017 | 2018 | 2019 | 2019 | 2020 |
| | (In billions of Won) | | | | |
| Net cash provided by (used in) operating activities | ₩ 695 | ₩1,266 | ₩1,033 | ₩ 489 | ₩ (58) |
| Net cash used in investing activities | (783) | (775) | (786) | (208) | (402) |
| Net cash provided by (used in) financing activities | 214 | (519) | (290) | (218) | 635 |
| Effect of exchange rate fluctuations on cash held | (153) | 15 | (10) | (10) | 30 |
| Net increase (decrease) in cash and cash equivalents | (26) | (13) | (53) | 52 | 204 |
| Cash and cash equivalents as of January 1 | 817 | 791 | 778 | 778 | 725 |
| Cash and cash equivalents at the end of the period | 791 | 778 | 725 | 830 | 929 |

### *Capital Requirements*

Historically, uses of cash have consisted principally of purchases of property, plant and equipment (including investing in oil and gas properties and construction and maintenance of stockpile facilities and other structures), provision of loans to related parties, repayments of outstanding debt, investments in associate and joint ventures engaged in exploration, development and production activities and payments of dividends. The Company anticipates that such expenditures will represent the most significant uses of funds for the next several years.

Net cash used in investing activities was Won 783 billion in 2017, Won 775 billion in 2018, Won 786 billion in 2019 and Won 402 billion in the first six months of 2020. These amounts included cash used for acquisitions of property, plant and equipment of Won 802 billion in 2017, Won 598 billion in 2018, Won

503 billion in 2019 and Won 188 billion in the first six months of 2020. The Company plans to spend approximately Won 1,305 billion in capital expenditures in 2020 (including amounts expended through June 30, 2020), which the Company may adjust on an on-going basis subject to market demand for oil and gas, the production outlook of the global oil and gas industry and global economic conditions in general. The Company may delay or not implement some or all of its current capital expenditure plans based on its assessment of such market conditions. Net cash used for increase of short-term and long-term loans (after adjusting for proceeds from repayments) was Won 36 billion in 2017, Won 93 billion in 2018, while the Company had net cash provided from net decrease of long-term loans of Won 9 billion 2019 and net cash provided from collection of loans of Won 1 billion in the first six months of 2020. Net cash used for investments in associates and joint ventures was Won 20 billion in 2017, Won 44 billion in 2018 and Won 9 billion in 2019. The Company used cash for investments in associates and joint ventures of Won 325 billion in the first six months of 2020 primarily for the acquisition of its interest in the ADNOC Onshore project from Korea GS E&P.

In the Company's financing activities, the Company used cash of Won 1,947 billion in 2017, Won 2,381 billion in 2018, Won 1,491 billion in 2019 and nil in the first six months of 2020 for repayment of bonds, cash of Won 802 billion in 2017, Won 410 billion in 2018, Won 189 billion in 2019 and Won 587 billion in the first six months of 2020 for repayments of short-term borrowings, and cash of Won 243 billion in 2017, Won 277 billion in 2018, Won 164 billion in 2019 and Won 5 billion in the first six months of 2020 for repayments of long-term borrowings. The Company also paid dividends of Won 35 billion in 2017, Won 37 billion in 2018 and Won 42 billion in the first six months of 2020. The Company did not pay any dividends in 2019.

Payments of contractual obligations and commitments will also require considerable resources. In the Company's ordinary course of business, it routinely enters into commercial commitments for various aspects of its operations, as well as issue guarantees for indebtedness of its related parties and others. For the Company's contingent liabilities, see Note 28 to the Company's interim consolidated financial statements included in this Offering Circular.

The following table sets forth contractual maturities of the Company's financial liabilities (excluding financial guarantee liabilities), significant contractual obligations and estimated commitments as of June 30, 2020.

| | Payments Due by Period | | | | |
|---|---|---|---|---|---|
| **Financial Liabilities** | **Contractual Cash Flows(1)** | **Less than 1 Year** | **1 to 2 Year** | **2 to 5 Years** | **After 5 Years** |
| | (In billions of Won) | | | | |
| Bonds payable | ₩12,515 | ₩1,741 | ₩2,402 | ₩5,076 | ₩3,296 |
| Borrowings | 3,658 | 1,787 | 893 | 766 | 212 |
| Trade and other payables | 858 | 699 | — | 3 | 157 |
| Derivative liabilities | 239 | 41 | 41 | 157 | — |
| Total | ₩17,270 | ₩4,268 | ₩3,336 | ₩6,002 | ₩3,665 |
| **Contractual Obligations and Estimated Commitments** | | | | | |
| Purchase commitments(2) | ₩ 28 | ₩ 10 | ₩ 9 | ₩ 8 | ₩ — |
| Decommissioning and environmental liabilities | 2,616 | 51 | 145 | 431 | 1,989 |
| Others | 132 | 31 | 25 | 62 | 13 |
| Total | ₩ 2,776 | ₩ 92 | ₩ 179 | ₩ 501 | ₩2,002 |

---

(1) Includes interest payments, but excludes the effect of offsetting contracts.

(2) Includes drilling commitments and others.

### *Liquidity and Capital Resources*

The Company has traditionally met its working capital and other capital requirements principally from cash provided by operations and capital contributions from the Government, while raising the remainder of its requirements primarily through long-term debt and short-term borrowings. The Company plans to fund a portion of its investments in exploration, development and production projects with loans from the SAER. For SAER loans, in the event the exploration project does not result in successful production of oil or gas, the Company may apply to have such loans forgiven after satisfying certain criteria set by the Ministry of Trade, Industry and Energy. The Company expects that these sources will continue to be its principal sources of cash in the future.

The Company's net cash provided by operating activities increased by 82.1%, or Won 571 billion, from Won 695 billion in 2017 to Won 1,266 billion in 2018. The Company's gross cash flow from its sales activities increased as discussed above. In addition, the Company's outstanding trade and other receivables as well as other receivables from operating activities decreased in 2018, as the Company shortened payment terms of some of its customers, which further enhanced the Company's net cash provided by operating activities. However, the Company's trade and other payables also decreased in 2018, as some of its key suppliers shortened payment terms, which in turn negatively impacted the Company's net cash provided by operating activities.

The Company's net cash provided by operating activities decreased by 18.1%, or Won 228 billion, from Won 1,266 billion in 2018 to Won 1,033 billion in 2019. The Company's gross cash flow from its sales activities decreased as discussed above. In addition, the Company's outstanding trade and other receivables as well as other receivables from operating activities increased in 2019, which in turn negatively impacted the Company's net cash provided by operating activities. Moreover, the Company's outstanding trade and other payables decreased in 2019, which also negatively impacted the Company's net cash provided by operating activities.

The Company recognized net cash provided by operating activities of Won 489 billion in the first six months of 2019 compared to net cash used in operating activities of Won 58 billion in the first six months of 2020. The Company's gross cash flow from its sales activities decreased as discussed above. In addition, the Company's trade and other payables increased in the first six months of 2020, which in turn increased the Company's net cash used in operating activities. On the other hand, the Company's outstanding trade and other receivables as well as other receivables from operating activities decreased in the first six months of 2020.

The Company had net proceeds from long-term borrowings, after adjusting for repayment of long-term borrowings, of Won 559 billion in 2017, Won 252 billion in 2018 and Won 119 billion in 2019, and net repayment of long-term borrowings, after adjusting for proceeds from long-term borrowings, of Won 5 billion in the first six months of 2020. The Company had net proceeds from issuance of bonds, after adjusting for repayment of bonds, of Won 263 billion in 2017, net repayment of issuance of bonds, after adjusting for proceeds from bonds, of Won 560 billion in 2018 and Won 220 billion in 2019, and net proceeds from issuance of bonds, after adjusting for repayment of bonds, of Won 372 billion in the first six months of 2020. In addition, the Company had net repayment of short-term borrowings, after adjusting for proceeds from short-term borrowings, of Won 649 billion in 2017 and Won 209 billion in 2018, and net proceeds from short-term borrowings, after adjusting for repayment of short-term borrowings, of Won 44 billion in 2019 and Won 1,180 billion in the first six months of 2020. For borrowings and bond payables, the Company recorded current liabilities of Won 3,159 billion as of December 31, 2017, Won 1,439 billion as of December 31, 2018, Won 1,542 billion as of December 31, 2019 and Won 3,209 billion as of June 30, 2020 and total non-current liabilities of Won 10,048 billion as of December 31, 2017, Won 12,122 billion as of December 31, 2018, Won 12,297 billion as of December 31, 2019 and Won 11,778 billion as of June 30, 2020.

The Company also had proceeds from increase in share capital of Won 88 billion in 2017, Won 47 billion in 2018, Won 34 billion in 2019 and Won 24 billion in the first six months of 2020. The Company's share capital is allowed to be invested solely by the Government in accordance with the KNOC Act. The Company's total equity was Won 2,384 billion as of December 31, 2017, Won 764 billion as of December 31, 2018, Won 531 billion as of December 31, 2019 and Won (557) billion as of June 30, 2020. Net borrowings and debt securities-to-total invested capital ratio, which is calculated by (i) deducting cash and cash equivalents from total borrowings and debt securities and (ii) dividing the net amount with the Company's total invested capital (consisting of net borrowings and debt securities plus total equity), was 83.89% as of December 31, 2017, 94.36% as of December 31, 2018, 96.11% as of December 31, 2019 and 104.12% as of June 30, 2020. See Note 25 to the Company's interim consolidated financial statements, Note 43 to the Company's financial statements as of and for the years ended December 31, 2019 and 2018 and Note 43 to the Company's financial statements as of and for the years ended December 31, 2018 and 2017.

The Company currently anticipates that the cash flow that the Company generates from its operation, the incurrence of borrowings and issuance of bonds, and periodic future capital contributions from the Government, together with its existing cash and cash equivalents and credit sources (including its credit facilities), will be sufficient to meet its currently anticipated needs for working capital, capital expenditures and investments in the near future. The Company has established a contingency plan to minimize the impact of changes in global oil and gas prices on the Company's liquidity, and to maintain a stable cash flow. The Company plans to undertake selective exploration activities based on projected cash flows from the project, as part of its efforts to reduce capital expenditures. The Company is also continually evaluating overall lifting costs from each of its producing fields, to achieve an optimal level of production and to reduce its operating expenses. However, the Company may need to raise additional capital sooner than it expects among others in order to respond to changes in Government policies and respond to changes in the global crude oil and natural gas market conditions. The Company's ability to rely on additional financing could be affected by factors such as the liquidity of the Korean and the global financial markets, prevailing interest rates, its credit rating and the Government's policies regarding Won currency and foreign currency borrowings.

The Company had a working capital (current assets minus current liabilities) deficit of Won 2,644 billion as of December 31, 2017, Won 901 billion as of December 31, 2018, Won 896 billion as of December 31, 2019 and Won 2,279 billion as of June 30, 2020. The Company's holdings of cash and cash equivalents were Won 791 billion as of December 31, 2017, Won 778 billion as of December 31, 2018, Won 725 billion as of December 31, 2019 and Won 929 billion as of June 30, 2020. The Company's holdings of current financial assets were Won 27 billion as of December 31, 2017, Won 87 billion as of December 31, 2018, Won 312 billion as of December 31, 2019 and Won 321 billion as of June 30, 2020. The Company had total available credit lines of Won 1,380 billion as of June 30, 2020, Won 503 billion of which was used as of such date.

In addition to such current assets, the Company believes that it has a variety of alternatives available to it to satisfy its liquidity requirements to the extent that they are not met by funds generated by operations, including the incurrence of borrowings and issuance of bonds denominated in Won and various foreign currencies as well as additional capital contributions from the Government.

## Market Risks

In the ordinary course of business, the Company is exposed to certain financial and market risks, including primarily risks arising from fluctuations in oil and gas prices and the exchange rate between the dollar and the Won.

### *Commodity Price Risk*

The Company is exposed to fluctuations in prices of crude oil and natural gas, which are commodities whose prices are determined by reference to international market prices. International oil and gas prices are volatile and are influenced by global as well as regional supply and demand conditions. This volatility has a significant effect on the Company's sales and profit.

Historically, prices for oil have fluctuated widely for many reasons, including:

- global and regional supply and demand, and expectations regarding future supply and demand for crude oil and petroleum products;
- political, economic and military developments in oil producing regions, particularly the Middle East;
- access to pipelines, railways and other means of transporting crude oil, gas and petroleum products;
- prices and availability of alternative fuels and energy technologies;
- the ability of the members of OPEC and other crude oil producing nations, to set and maintain specified levels of production and prices;
- domestic and foreign governmental regulations and actions, including export restrictions and taxes; and
- global and regional economic conditions, weather, natural disasters, major oil spills and epidemics and pandemics.

International gas prices typically follow changes in international oil prices, although movements in sale prices of natural gas are not always directly proportional to those of crude oil prices. The Company and its subsidiaries use forward commodity contracts to hedge market risks resulting from fluctuations in oil and gas prices for its oil and gas productions, and the effective portion of gains or losses arising from changes in fair value in cashflow on such derivatives are recognized directly in other comprehensive income, as the Company classifies such hedging activities as a cash flow hedge. A 10.0% increase in crude oil prices as of December 31, 2017, 2018 and 2019 and June 30, 2020, with all other variables held constant, would have increased the Company's profit before tax by Won 148 billion in 2017, Won 243 billion in 2018, Won 240 billion in 2019 and Won 81 billion in the first six months of 2020, with a 10.0% decrease in crude oil prices having the opposite effect.

### *Foreign Currency Risk*

The Company's foreign exchange exposure gives rise to market risk associated with exchange rate movements, which primarily relate to the Company's operating activities and its investments in foreign subsidiaries. Foreign exchange gain/loss resulting from sales of crude oil and natural gas is determined by the exchange rates as of the dates on which the sales are recorded during the period. The Company enters into currency forward contracts and cross currency swaps to hedge the risks from changes in foreign currency exchange rates.

The Company and its subsidiaries use various functional currencies depending on their primary economic environment in which the entities operate. As of December 31, 2017, 2018 and 2019 and June 30, 2020, the impact of a 5.0% increase or decrease in exchange rates in each functional currency exchange rate on the Company's profit before tax, assuming all other variables held are constant, is as follows:

| | **For the Year Ended December 31,** | | | | | | **For the Six Months Ended June 30,** | |
|---|---|---|---|---|---|---|---|---|
| | **2017** | | **2018** | | **2019** | | **2020** | |
| | **Increase by 5%** | **Decrease by 5%** | **Increase by 5%** | **Decrease by 5%** | **Increase by 5%** | **Decrease by 5%** | **Increase by 5%** | **Decrease by 5%** |
| | **(In billions of Won, except percentages)** | | | | | | | |
| Korean Won | ₩(12) | ₩12 | ₩ (9) | ₩ 9 | ₩(46) | ₩46 | ₩(44) | ₩44 |
| Hong Kong Dollar | (18) | 18 | (14) | 14 | (15) | 15 | (15) | 15 |
| Swiss Franc | (14) | 14 | (28) | 28 | (48) | 48 | (66) | 66 |
| Euro | (24) | 24 | (24) | 24 | (27) | 27 | (30) | 30 |
| Australian Dollar | (32) | 32 | (26) | 26 | — | — | — | — |
| Japanese Yen | — | — | — | — | (37) | 37 | — | — |
| Singapore Dollar | — | — | (16) | 16 | (17) | 17 | — | — |
| Others | (1) | 1 | (1) | 1 | (0) | 0 | (59) | 59 |

### *Interest Rate Risk*

The Company is exposed to interest rate risks arising from its borrowings. Upward fluctuations in interest rates increase the cost of new borrowings and the interest cost of outstanding floating rate borrowings. The Company uses interest rate swaps to hedge against its interest rate exposure. A 100 basis point increase in interest rates as of December 31, 2017, 2018 and 2019 and June 30, 2020, with all other variables held constant, would have decreased the Company's profit before tax by Won 34 billion in 2017, Won 20 billion in 2018, Won 20 billion in 2019 and Won 10 billion in the first six months of 2020, with a 100 basis point decrease in interest rates having the opposite effect.

### *Inflation*

Inflation in Korea was 1.9% in 2017, 1.5% in 2018 and 0.4% in 2019. Based on preliminary data, GDP in the second quarter of 2020 contracted by 2.7% at chained 2015 year prices primarily as a result of the ongoing global outbreak of the COVID-19 pandemic. The effects of inflation in Korea on the Company's financial condition and results of operations are reflected primarily in salary and selling and administration expenses. Inflation in Korea has not had a significant impact on the Company's results of operations to date.

# BUSINESS

## Overview

The Company is the national oil and gas company of Korea and is wholly owned by the Government. The Company was incorporated in 1979 under the KNOC Act to serve as the executing body for oil-related policies of the Government. The Company engages in a wide range of oil and gas activities, including:

- exploration, development and production of crude oil and natural gas in Korea and abroad;
- stockpiling of oil in furtherance of the Government's energy policies, as well as engaging in wholesale gasoline, gas oil and kerosene distribution and economical gas station businesses and construction of related stockpile facilities; and
- performance of other activities related to its business purpose, such as the collection and publication of oil-related information, and conducting research and development related to oil and natural gas.

Until September 2017, the Company also engaged in the operation of a semi-submersible drillship.

The Company carries out the Government's oil policy objectives by engaging in exploration and production activities and managing the nation's oil stockpile pursuant to master plans announced by the Government. The Company receives substantial financial support from the Government in the form of capital contributions and SAER loans to undertake these activities. The Ministry of Trade, Industry and Energy directs and supervises the Company's business activities, as well as appointing its standing directors and the President pursuant to the KNOC Act and other laws applicable to the Company. The Company is audited from time to time by the Board of Audit and Inspection and is required to regularly report its business activities and plans to the Government.

As of June 30, 2020, the Company had a daily crude oil and natural gas production of approximately 172,000 barrels of oil equivalent, and had interests in 23 production projects and eight exploratory projects, located across 16 countries. The Company is seeking to maintain its production level at approximately 156,000 barrels of oil equivalent per day until the end of 2020, and hopes to increase the Company's production level further in the near future through continued exploration activities and production optimization, which would provide the basis for the Company to compete with larger global oil companies engaged in oil and gas exploration, development and production. For example, the Company acquired a 0.9% interest in the ADNOC Onshore project in February 2020 and an 20% interest in Block UDO in the Republic of Senegal in July 2020.

In June 2016, the Ministry of Economy and Finance and the Ministry of Trade, Industry and Energy announced the June 2016 Government Plan, which included broad-based measures to rationalize the overseas natural resource exploration, development and production activities of government-controlled enterprises, including the Company. Pursuant to the June 2016 Government Plan, the Company has developed and is implementing a plan for the sale of its interests in overseas exploration, development and production operations (taking into consideration strategic value and profitability) to third parties with preference given to institutional investors in Korea if possible and with an aim to maximize the returns on such sales. For example, the Company disposed of its (1) headquarters building in 2017, (2) interest in Harvest Operation's Wilson Creek fields in Canada in 2018 and (3) interest in Harvest Operation's Blueberry fields in Canada in 2019 pursuant to the June 2016 Government Plan. The timing of any such sales will be subject to market conditions and the Company will be limited from entering into any new overseas investments other than any such investments that are in furtherance of important policy objectives.

Since 1980, the Company has also been operating and managing Korea's national oil stockpile facilities and reserves in response to the global oil shocks during the 1970s. Aiming to further strengthen Korea's ability to cope with market disruptions caused by short-term oil shortages, the Government announced the Fourth Stockpiling Master Plan in December 2014, which was amended in November 2018. Pursuant to such Fourth Stockpiling Master Plan, the Company is required to maintain its stockpiling capacity at 147 million barrels until the end of 2025. The Company had reserve levels of approximately 97 million barrels as of June 30, 2020, and the Company is seeking to reach a stockpile reserve level of 101 million barrels by 2025 pursuant to the Fourth Stockpiling Master Plan. The Company also generates income from the stockpiling program by leasing a part of its storage facilities to foreign oil producing companies and domestic refineries, as well as by engaging in lending activities with respect to part of its stockpile reserves. In furtherance of the Government's policy to control increases in gasoline prices, the Company engages in a wholesale gasoline, gas oil and kerosene distribution business, and also operates 1,207 economical gas stations or "Altteul Gas Stations" located throughout Korea with Korea Expressway Corporation and National Agricultural Cooperative Federation, as of June 30, 2020. To support the Company's stockpiling projects, the Company also constructs stockpiling facilities.

To ensure a stable supply of energy and natural resources for the Korean economy and to promote the development of new energy resources, the Government established the SAER in 1995 which combines six energy-related funds that the Government had been operating previously. Pursuant to the SAER Act, the Minister of Trade, Industry and Energy oversees the management and operation of the SAER, and had delegated to the Company the administrative tasks related to the day-to-day operation of SAER and the administration of the SAER loans for oil-related projects. However, pursuant to the June 2016 Government Plan, the responsibilities relating to SAER, other than the administration of taxes and dues, were transferred from the Company to the Korea Energy Agency in July 2017. The Company also borrows a portion of the SAER funds to further expand its exploration and other oil-related activities.

The Company also performs various other functions related to its status as Korea's largest oil and gas developer and the Government's policy-executing arm for matters related to oil. The Company collects, compiles and publishes both domestic and international oil-related statistics, in addition to conducting research related to the exploration, development and production of oil and natural gas. In addition, in July 2019, the Company, in consortium with Korea East-West Power Co., Ltd. and Equinor ASA, agreed to develop a 200MW floating offshore wind farm near its Donghae project. The Company is also planning to participate in carbon capture storage projects.

For the year ended December 31, 2019, the Company had revenue of Won 2,930 billion, operating profit of Won 571 billion and loss for the year of Won 155 billion. The Company had total assets of Won 18,662 billion and total equity of Won 531 billion as of December 31, 2019. For the six month period ended June 30, 2020, the Company had revenue of Won 1,028 billion, operating loss of Won 18 billion and loss for the period of Won 1,183 billion. The Company had total assets of Won 18,973 billion and total equity of Won (557) billion as of June 30, 2020.

### Relationship with the Government

The Company was established as a statutory juridical entity in 1979 under the KNOC Act to ensure a stable supply of oil and to support the development of the Korean economy by developing oil fields in Korea and abroad, stockpiling petroleum reserves and engaging in other oil-related activities.

The Company is wholly owned by the Government and the Government is required under the KNOC Act to contribute all of the Company's authorized capital of up to Won 13 trillion. The Company may only be privatized through an amendment of Article 4 of the KNOC Act by the National Assembly, which states that the Government shall fund the Company's authorized capital. Pursuant to the KNOC Act, the Government may also guarantee the repayment of the Company's bonds and its other loans, and provide financial subsidies for the Company's business activities, although it is not obligated to do so.

The Government, through the Ministry of Trade, Industry and Energy, directs and supervises the Company's activities relating to the exploration, development and production of oil resources in Korea and abroad, the purchase and stockpiling of oil reserves, the construction and management of stockpile facilities, the collection, processing and publication of oil trading information and the enhancement of oil distribution channels. Pursuant to the KNOC Act and the Act on the Management of Public Institutions, the President of Korea appoints, and has the authority to remove, the Company's President and the standing member of the Audit Committee, while the Minister of Economy and Finance appoints the Company's non-standing directors. Furthermore, the Company is required to publicly disclose certain information relating to its operation and management, including, among other matters, its management objectives, budget and business plan, financial statements, personnel data, articles of incorporation, bond register and the minutes of the board of directors (other than certain confidential information) and the audit reports of its Audit Committee.

The Board of Audit and Inspection, which is an independent Government agency that audits all Governmental agencies and Government-controlled entities, audits the Company from time to time. The audit includes a review of the Company's financial statements and an inspection of the Company's business operations and performance. The Board of Audit and Inspection reports its audit results to the President of Korea. The Company must report any issues identified by the Board of Audit and Inspection during the audit, as well as plans to remedy such issues, to the relevant standing committee of the National Assembly of Korea. The Company must also present mid- to long-term management objectives covering five fiscal years to the Minister of Trade, Industry and Energy and the Minister of Economy and Finance on an annual basis. The Company is further subject to unscheduled inspections and investigations from time to time by the National Assembly under the Act on Inspection and Investigation of Government Administration of 1988, as amended.

### *Energy Master Plan*

Under the Low Carbon Green Growth Act and the Energy Act (the "Energy Act"), the Government must establish 20-year master plans, revised every five years, for the development, distribution, research and management of energy resources both domestic and abroad. The First Energy Master Plan, issued in 2008, sought to improve Korea's energy security, use efficiency and the environment. The Third Energy Master Plan was announced in June 2019 and its objectives include the following:

- to transform the energy policy paradigm by innovating its consumption structure;
- to innovate buildings and industries with improved energy efficiency at the systematic and community levels;
- to improve energy efficiency in the transportation sector by promoting eco-friendly transportation and intelligent traffic systems;
- to create new businesses and markets and advance the electricity, gas and heat market systems;
- to develop a sustainable energy mix by increasing the share of renewable energy and through energy transition;
- to strengthen energy security through global cooperation;
- to strengthen safety features of energy facilities by prioritizing public safety;
- to enhance regional energy independence through distributed generation and smart grids; and
- to develop the energy industry as a new growth engine including as a source for quality jobs.

To further develop Korea's energy industry, the Third Energy Master Plan seeks to enhance the competitiveness of the conventional energy industry through innovation. In furtherance of the Third Energy Master Plan, the Company plans to develop processes and new business models using fourth industrial revolution technologies, such as artificial intelligence, the internet of things and blockchain.

The Third Energy Master Plan also recommends the diversification of import routes of crude oil and natural gas in order to prepare for possible geopolitical risks and to help decrease Korea's reliance on specific regions. Specifically, the Third Energy Master Plan suggests an increase in imports from non-Middle Eastern countries while continually securing new suppliers. The Third Energy Master Plan also discusses the laying of a foundation for public and private enterprises to jointly take part in overseas resource development projects.

### *Resources Development Base Plan*

Under the Overseas Resources Development Business Act of 1983, as last amended on July 24, 2015 and effective as of October 25, 2015 (the "Overseas Resources Development Act"), the Government must establish 10-year master plans, revised every five years, for the development of overseas natural resources. Under the Overseas Resources Development Act, if a Korean resident plans to develop overseas natural resources, such person must report his or her plans to the Minister of Trade, Industry and Energy.

Pursuant to the Overseas Resources Development Act, the Government is authorized to provide funds to a Korean resident to conduct necessary research and analysis for an overseas resources development business and to acquire the rights to develop such resources. The Government may also provide funds for the installation and operation of facilities required for the development, and funds for leasing or buying the necessary land for the development.

To ensure the proper use of Government funds, the Ministry of Trade, Industry and Energy delegated to the Company the authority to inspect the books, documents and materials of oil-related businesses to which the Government has provided financial support and to evaluate the feasibility of the Government's financial support for the costs being incurred by such businesses.

In May 2020, the Ministry of Trade, Industry and Energy issued the Resources Development Base Plan, which integrated the Sixth Overseas Resources Development Master Plan and the Third Seabed Mineral Development Master Plan, covering the period from 2020 to 2029 pursuant to the Overseas Resources Development Act. Objectives of the Resources Development Base Plan include the following:

- to recover the Company's function and role as a national corporation by focusing its business in high risk regions with market entrance barriers, such as the Middle East and Eurasia;
- to attract participation from domestic companies, including private capital, by creating platforms that provide access to business information and personnel networks, while cooperating with the government;
- to activate multilateral cooperation channels and selectively develop oil and gas businesses in four strategic regions (North America, the Middle East, Eurasia and ASEAN);
- to expand investments in exploration activities in the East Sea continental shelf, specifically, the Company's Block 8 and 6-1, to reduce exploration risks in foreign fields;
- to build a resource security infrastructure by balancing the development of problem solving technology and future strategic technology; and
- to encourage research and development, big data sharing, domestic products and services when promoting resource development businesses.

### *Stockpiling Master Plan*

The Company operates and manages Korea's national oil stockpile facilities and reserves, which began in 1980 in response to the global oil shocks of the 1970s. Pursuant to the Petroleum and Petroleum Substitute Fuel Business Act (the "Petroleum Business Act"), the Ministry of Trade, Industry and Energy sets goals for the national oil stockpile program and announces a master plan to implement these goals. The stockpiling master plan must include matters relating to the oil stockpile target level, the types and amount of oil to be stockpiled and the management of stockpile facilities.

Pursuant to the Petroleum Business Act, the Government announced the Fourth Stockpiling Master Plan in December 2014 which was amended in November 2018. Under the Fourth Stockpiling Master Plan, the Company is required to maintain its stockpiling capacity at 147 million barrels until the end of 2025. The Company had reserve levels of approximately 97 million barrels as of June 30, 2020, and the Company is seeking to reach a stockpile reserve level of 101 million barrels by 2025 pursuant to the Fourth Stockpiling Master Plan. Under the Fourth Stockpiling Master Plan, the estimated budget for achieving the Company's stockpiling capacity target is Won 100 billion and the budget for achieving the Company's reserve level target is Won 424 billion.

Under the Petroleum and Petroleum Substitute Fuel Business Enforcement Regulation, the Ministry of Trade, Industry and Energy has the authority to require the Company to give priority to financing the purchase of a portion of the target stockpile reserves and the construction and expansion of the stockpiling facilities with the revenue generated from the Company's stockpiling activity. To support the Fourth Stockpiling Master Plan, the Company expects to generate income from the stockpiling program by leasing a part of its storage facilities to foreign oil producing companies and domestic refineries, and by engaging in trading activities with respect to part of its stockpile reserves.

### *Special Accounts for Energy and Resources*

In 1995, the Government established the SAER pursuant to the SAER Act, which combines six energy-related funds that were previously operated by the Government. Prior to 1995, to ensure a stable supply of energy and natural resources for the Korean economy and to promote the development of new energy resources, the Government operated six energy and resources related funds, namely the Oil Business Fund, the Coal Industry Support Fund, the Coal Industry Stabilization Fund, the Overseas Mineral Resources Development Fund, the Energy Use Rationalization Fund and the Natural Gas Safety Management Fund. These funds were designed to support a variety of public and private projects, including those relating to the exploration and development of energy resources both domestically and abroad, the stockpiling of energy resources, the restructuring of the coal and other energy-related industries, the safe distribution of natural gas, the development of alternative energy sources and research activities related to the foregoing.

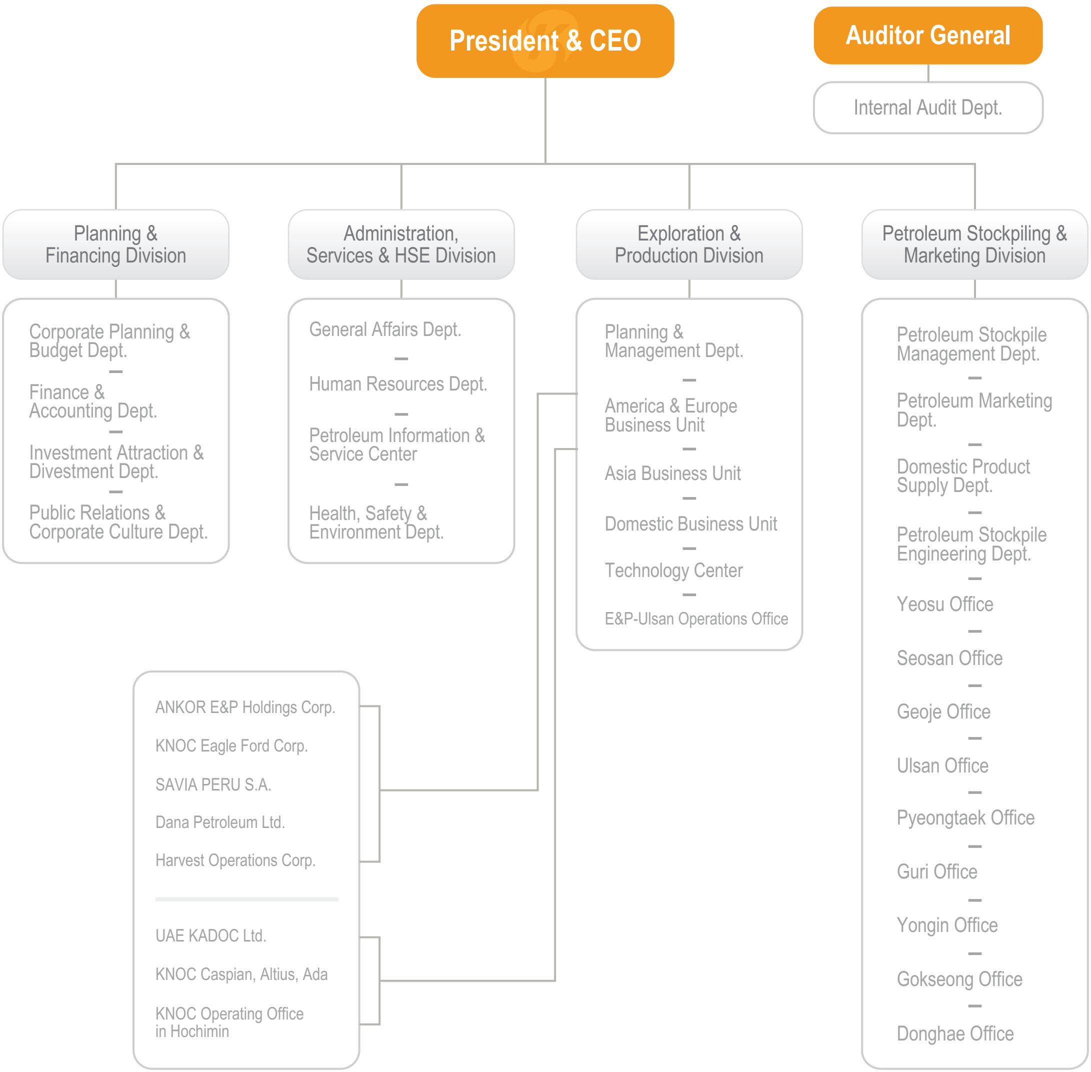
The Government's annual budget for the SAER is prepared with input from Government-controlled and private entities engaged in the energy and natural resources business, the Ministry of Trade, Industry and Energy and the Ministry of Economy and Finance, and approved by the National Assembly. The SAER budget in 2017, 2018 and 2019 amounted to Won 5,231 billion, Won 4,897 billion and Won 6,021 billion, respectively, and has been set at Won 5,536 billion for 2020.

Pursuant to the SAER Act, the Minister of Trade, Industry and Energy oversees the management and operation of the SAER. A significant portion of the SAER budget consists of loans to be made for various energy- and resource-related projects. There are generally two types of SAER loans for the oil industry: loans for domestic and international oil exploration and production projects and loans to support general oil-related projects, such as the construction of oil pipelines. The loans for the oil industry are available for use by the Company and by certain qualifying third-party borrowers engaging in oil-related businesses.

The SAER loans used by the Company that were outstanding as of June 30, 2020 equaled Won 212 billion (after excluding loans relating to exploration fields which failed to discover commercially viable oil reserves, as payment obligations for such loans will be relieved). Under the SAER Act, loans used to fund exploration projects that do not result in discoveries are exempted from repayment of all or part of the principal amount of the loan and interest if they meet established criteria set by the Ministry of Trade, Industry and Energy.

## Organizational Structure

The following diagram illustrates the Company's organizational structure as of the date hereof.



The Company has broadly organized its divisions by function and has an integrated exploration and development structure whereby separate divisions specialize in, and are responsible for, individual stages of exploration, development and production. The Exploration & Production Group oversees all exploration- and production-related activities and includes regional Business Departments and the Technology Department, which focuses on establishing the Company's mid-to-long-term research and development strategy and conducting research and development to enhance the Company's technological competitiveness. The Petroleum Stockpile Group oversees all activities relating to the operations of stockpiling facilities, as well as the Company's oil trading business.

## Exploration, Development and Production

### *Overview*

The Company engages in crude oil and natural gas exploration, development and production in Korea and abroad. The Company's operations include projects that the Company operates with a 100.00% ownership interest or a shared ownership with joint venture partners.

Contractual arrangements among participants in a joint venture are usually governed by an operating agreement, which usually provides that costs, entitlements to production, and liabilities are to be shared according to each party's percentage interest in the joint venture. Upon completion of the initial exploration phase, and if the Company and its joint venture partners determine that a project has commercially viable development potential, the project will enter the development phase and join the production and development portfolio.

A major element of the Company's past business strategy had been to achieve organic growth through exploration activities and pursue selective acquisitions to optimize its asset portfolio to provide the basis for the Company to compete with larger global oil companies engaged in oil and gas exploration, development and production. In pursuit of this strategy, the Company made substantial acquisitions in the past.

As of June 30, 2020, the Company had interests in 32 projects, and it was the operator in 16 projects.

### *Reserves Data*

The Company's estimated proved reserves of crude oil and natural gas as of June 30, 2020 totaled approximately 334 million barrels of crude oil, approximately 74 million barrels of natural gas liquids and approximately 903 billion cubic feet of natural gas, respectively. As of June 30, 2020, proved developed reserves accounted for approximately 56% and 61% of the Company's total proved crude oil and natural gas reserves, respectively.

The following table sets forth the Company's estimated proved reserves (including proved developed reserves and proved undeveloped reserves) and proved developed reserves of crude oil and natural gas as of December 31, 2017, 2018 and 2019 and June 30, 2020. The reserve data presented below and elsewhere in this Offering Circular are based on the Company's valuation of the reserves as of the date hereof, and are therefore subject to changes if further valuations of the reserves are conducted which revises the prior estimates.

| | Crude Oil(1) | Natural Gas | Combined |
|---|---|---|---|
| | (Millions of barrels) | (Billions of cubic feet) | (Barrel of oil equivalent, in millions) |
| **Proved developed and undeveloped reserves** | | | |
| Reserves as of December 31, 2017(2) | 531.8 | 1,225.0 | 739.3 |
| Revisions of previous estimates | 21.7 | 46.2 | 29.7 |
| Extensions and discoveries | 2.9 | 12.8 | 5.0 |
| Improved recovery | 0.0 | 0.0 | 0.0 |
| Acquisitions | 0.5 | 2.0 | 0.9 |
| Disposals | 0.0 | 0.0 | 0.0 |
| Production for the year | (50.2) | (114.9) | (69.9) |
| Reserves as of December 31, 2018(2) | 506.7 | 1,171.1 | 705.0 |
| Revisions of previous estimates | 3.1 | (53.1) | (5.4) |
| Extensions and discoveries | 15.0 | 13.9 | 17.4 |
| Improved recovery | 0 | 0 | 0 |
| Acquisitions | 0 | 0 | 0 |
| Disposals | (47.4) | (88.6) | (62.1) |
| Production for the year | (47.5) | (98.4) | (64.5) |
| Reserves as of December 31, 2019(2) | 429.9 | 944.9 | 590.4 |
| Revisions of previous estimates | 0 | 0 | 0 |
| Extensions and discoveries | 0 | 0 | 0 |
| Improved recovery | 0 | 0 | 0 |
| Acquisitions | 2.7 | 0 | 2.7 |
| Disposals | 0 | 0 | 0 |
| Production for the year | (24.2) | (41.6) | (31.3) |
| Reserves as of June 30, 2020(1) | 408.4 | 903.3 | 561.8 |
| **Proved developed reserves(1)** | | | |
| As of December 31, 2017 | 329.1 | 807.6 | 466.1 |
| As of December 31, 2018 | 266.2 | 701.6 | 385.4 |
| As of December 31, 2019 | 245.5 | 595.9 | 347.1 |
| As of June 30, 2020 | 230.1 | 554.4 | 324.5 |

---

(1) Includes natural gas liquids.

(2) The reserve data include reserve data of Harvest Operations, as estimated under Canadian oil and gas reporting standards, COGEH and NI 51-101, as evaluated by the Independent Reserves Evaluator. If the reserve data of Harvest Operations as estimated under the Securities Act oil and gas reporting standards were included, the proved developed and undeveloped crude oil reserves, natural gas reserves and combined reserves as of December 31, 2017, 2018 and 2019 and June 30, 2020 may differ from the corresponding amounts shown in the tables above.

In general, the Company's engineers estimate its proved crude oil and natural gas reserve quantities based on its internal surveys, external reserve reports and data collected from third-party operators of production facilities in which the Company has a working interest.

The following tables set forth the Company's crude oil and natural gas proved reserves (including proved developed and proved undeveloped reserves) and proved developed reserves by country as of December 31, 2017, 2018 and 2019 and June 30, 2020.

| | As of December 31, | | | | | | As of June 30, | |
|---|---|---|---|---|---|---|---|---|
| | 2017 | | 2018 | | 2019 | | 2020 | |
| | Proved Developed and Undeveloped | Proved Developed | Proved Developed and Undeveloped | Proved Developed | Proved Developed and Undeveloped | Proved Developed | Proved Developed and Undeveloped | Proved Developed |
| | (millions of barrels) | | | | | | | |
| **Crude oil reserves(1)** | | | | | | | | |
| *Canada(2)* | 141.0 | 31.1 | 149.2 | 61.5 | 137.5 | 54.3 | 134.3 | 51.0 |
| *Iraq* | 12.9 | 1.5 | 12.5 | 1.1 | — | — | — | — |
| *Kazakhstan* | 38.9 | 28.0 | 44.2 | 29.3 | 41.0 | 29.4 | 38.5 | 26.9 |
| *Korea* | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 |
| *Libya* | 6.0 | 6.0 | 4.9 | 4.9 | 4.3 | 4.3 | 4.3 | 4.3 |
| *Peru* | 12.2 | 11.6 | 9.9 | 9.6 | 7.3 | 7.3 | 6.5 | 6.5 |
| *United Arab Emirates* | 45.6 | 45.6 | 47.4 | 0.0 | 59.2 | 15.6 | 57.7 | 20.1 |
| *United Kingdom(3)* | 62.9 | 52.3 | 48.7 | 38.6 | 52.9 | 39.3 | 44.8 | 31.3 |
| *United States of America* | 202.6 | 143.3 | 184.1 | 115.4 | 120.6 | 88.2 | 116.2 | 83.9 |
| *Venezuela* | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 |
| *Vietnam* | 6.9 | 6.9 | 3.0 | 3.0 | 4.3 | 4.4 | 3.4 | 3.4 |
| | 531.8 | 329.1 | 506.7 | 266.2 | 429.9 | 245.5 | 408.4 | 230.1 |
| | (billions of cubic feet) | | | | | | | |
| **Natural gas reserves** | | | | | | | | |
| *Canada(1)* | 317.6 | 178.5 | 337.6 | 169.6 | 284.5 | 150.3 | 272.2 | 138.0 |
| *Kazakhstan* | 7.9 | 4.5 | 10.1 | 4.9 | 9.6 | 5.4 | 8.9 | 4.8 |
| *Korea* | 9.8 | 9.8 | 9.9 | 9.9 | 12.5 | 12.5 | 8.8 | 8.8 |
| *Peru* | 6.2 | 6.2 | 7.8 | 7.8 | 8.3 | 8.3 | 6.9 | 6.9 |
| *United Kingdom(3)* | 153.1 | 27.5 | 157.9 | 26.6 | 158.5 | 25.9 | 150.4 | 17.8 |
| *United States of America* | 566.9 | 417.6 | 492.1 | 327.1 | 326.5 | 248.5 | 313.6 | 235.6 |
| *Venezuela* | 14.8 | 14.8 | 14.7 | 14.7 | 14.4 | 14.4 | 14.5 | 14.5 |
| *Vietnam* | 72.1 | 72.1 | 64.3 | 64.3 | 53.9 | 53.9 | 51.2 | 51.2 |
| *Yemen* | 76.6 | 76.6 | 76.7 | 76.7 | 76.7 | 76.7 | 76.8 | 76.8 |
| Total | 1,225.0 | 807.6 | 1,171.1 | 701.6 | 944.9 | 595.9 | 903.3 | 554.4 |

---

(1) Includes natural gas liquids.

(2) The reserve data of Harvest Operations are as estimated under Canadian oil and gas reporting standards, COGEH and NI 51-101, as evaluated by the Independent Reserves Evaluators. The reserves of Harvest Operations as estimated under the Securities Act oil and gas reporting standards as of December 31, 2017, 2018 and 2019 and June 30, 2020 may differ from the amounts shown in the tables above.

(3) Indicates the reserve data of Dana Petroleum, whose headquarters are located in the UK. However, Dana Petroleum's production sites are located throughout Europe and Africa, including the Netherlands, Norway and Egypt.

Estimation and evaluation of reserves naturally involve multiple uncertainties. The accuracy of any reserve evaluation depends on the quality of available information and engineering and geological interpretation. Based on the results of drilling, testing and production after the date of this Offering Circular, reserves may be significantly restated upwards or downwards. Changes in the price of crude oil and natural gas may also affect the Company's reserve estimates as well as estimates of the Company's discounted future net cash flows because those reserves are evaluated, and the discounted future net cash flows are estimated, based on prices and costs as of the date of the evaluation. A relative decrease in the amount of the Company's estimated proved reserves and future discounted net cash flows could, if material, affect the amount of the Company's depreciation and depletion expenses, impairment charges or certain other financial information derived from or relating to such information reported in the Company's financial statements in future periods. Significant changes in these amounts could have a material adverse effect on the Company's financial condition and results of operations and cause future results to differ materially from those reported in this Offering Circular. See "Risk Factors — Risks Relating to the Company — The crude oil and natural gas reserve estimates in this Offering Circular are only estimates, and may require substantial revisions as a result of future drilling, testing and production, and as such, the Company's actual production, revenues and expenditures may also differ materially from estimates."

### *Production and Development*

The Company is the largest producer of oil and gas in Korea, contributing 100.0% of Korea's total oil and natural gas production for the six months ended June 30, 2020. The Company currently has 23 projects in production and one project under development.

As of June 30, 2020, the Company's daily average production was approximately 172,000 barrels of oil equivalent. Oil producing projects owned by Dana Petroleum, oil producing projects owned by Harvest Operations in Canada and oil producing projects located in the Eagle Ford shale oil formation in the United States owned by KNOC Eagle Ford Corporation are the Company's most economically significant operating oil producing projects, accounting for approximately 33%, 16% and 13%, respectively, of the Company's oil production for the six months ended June 30, 2020. Gas producing projects located in the Eagle Ford shale oil formation in the United States owned by KNOC Eagle Ford Corporation, gas producing projects owned by Harvest Operations in Canada and gas producing projects owned by Dana Petroleum are the Company's most economically significant operating gas producing projects, accounting for approximately 30%, 28% and 19%, respectively, of the Company's natural gas production for the six months ended June 30, 2020. The following is a summary of the Company's current production activities by country and region.

| Country | Project Name | Type of Project | KNOC Share | Investment as of June 30, 2020 | Operated by | Arrangement Type | Participation Year |
|---|---|---|---|---|---|---|---|
| | | | | (In thousands) | | | |
| **Production Projects** | | | | | | | |
| Canada | Harvest | Oil & Gas | 100.00% | US$4,079,678(1) | KNOC | Lease | 2009 |
| Kazakhstan | ADA | Oil | 40.00% | US$81,501 | KNOC | Concession Agreement | 2005 |
| | Altius | Oil | 95.00% | US$516,826 | KNOC | Concession agreement | 2011 |
| | KNOC Caspian | Oil & Gas | 85.00% | US$424,201 | KNOC | Concession agreement | 2009 |
| Korea | Donghae-1 | Gas | 100.00% | US$849,352 | KNOC | Concession agreement | 1998 |
| | Donghae-2 | Gas | 70.00% | US$141,898 | KNOC | Concession agreement | 2016 |
| Libya | Elephant | Oil | 2.00% | US$216,477 | Third Party | Production sharing agreement ("PSA") | 1990 |
| Peru | Block 8 | Oil | 20.00% | US$1,123,449 | Third Party | Concession agreement | 1995 |
| | Savia Peru (Block Z-2B) | Oil | 50.00% | US$702,964 | Joint | Service agreement | 2009 |
| United Kingdom (three projects) | Dana Petroleum | Oil & gas | 100.00% | US$4,957,086(2) | KNOC | Concession agreement | 2010 |
| USA | ANKOR Offshore | Oil | 51.00% | US$897,944 | KNOC | Lease | 2008 |
| | Eagle Ford | Shale Oil | 23.70% | US$1,926,932 | Third Party | Lease | 2011 |
| | EP Energy | Oil & gas | 12.82% | US$500,300 | Third Party | Lease | 2012 |
| Venezuela | Onado | Oil | 5.64% | US$34,197 | Third Party | Available for Sale | 1997 |
| Vietnam | 11-2 | Gas | 39.75% | US$755,981 | KNOC | PSA | 1992 |

| Country | Project Name | Type of Project | KNOC Share | Investment as of June 30, 2020 | Operated by | Arrangement Type | Participation Year |
|---|---|---|---|---|---|---|---|
| | | | | (In thousands) | | | |
| Vietnam | 15-1 | Oil | 14.25% | US$2,311,257 | Joint | PSA | 1998 |
| Yemen | LNG | Gas | 1.06% | US$32,858 | Third Party | Gas Development Agreement | 1997 |
| UAE | Al Dhafra | Oil | 30.00% | US$451,872 | Joint | Concession agreement | 2012 |
| | ADNOC Onshore | Oil | 0.90% | US$244,054 | Third Party | Concession agreement | 2020 |

---

(1) Interests in these projects are held through Harvest Operations. US$4,079,678,000 represents the total amount of investment made by the Company in Harvest Operations, which was acquired by a subsidiary of the Company in December 2009.

(2) Interests in these projects are held through Dana Petroleum. US$4,957,086,000 represents US$3,496,454,000 of investment made by the Company in Dana Petroleum, which was acquired through a hostile tender offer in October 2010, and US$1,460,632,000 of investments made by the Company in Korea Captain Company Limited, which the Company transferred entirely to Dana Petroleum in October 2011, in consideration for additional shares issued by Dana Petroleum to the Company.

### *Major Production Projects*

#### *Canada*

*Harvest Conventional Projects*. The Company's interests in production fields located in Canada are owned through Harvest Operations, a wholly owned subsidiary of the Company acquired in December 2009. Harvest Operations' operations are principally located in the western Canadian sedimentary basin. Harvest Operations has a high degree of operational control as it is the operator on properties that generate the majority of its production. Harvest Operations' core and strategic conventional production areas include Cecil/Royce, Deep Basin (including its equity investment in Deep Basin Partnership), Loon, Hay River and Rocky Mountain House, which are located throughout Alberta and British Columbia. Harvest Operations had net interests in approximately 1,693 gross producing oil wells and approximately 1,335 net producing oil wells, and in approximately 1,114 gross producing gas wells and approximately 397 net producing gas wells, located throughout Alberta and British Columbia as of June 30, 2020, and had a daily crude oil and natural gas production of approximately 29,245 barrels of oil equivalent for the year ended June 30, 2020 (including its equity share of Deep Basin Partnership production).

Oil and gas produced from these fields are sometimes processed at nearby processing facilities and transported to sales points through pipelines or other infrastructures, both of which may be owned by Harvest Operations or other third parties.

*BlackGold Oil Sands Project*. The Company acquired a 100.00% interest in an oil sands lease for the BlackGold area in August 2006. The BlackGold area is located 140 kilometers southeast of Fort McMurray within the Athabasca Oil Sands region of northern Alberta. Oil sands contain crude bitumen, which is a heavy and thick form of crude oil that does not flow unless it is heated or diluted with lighter hydrocarbons. In August 2010, the Company transferred its interest in the BlackGold project to Harvest Operations for approximately CAD 374 million, which was funded by Harvest Operations through the issuance of additional capital stock to the Company. To help Harvest Operations fund BlackGold project's initial capital, the Company has also injected approximately CAD 86 million of capital through the subsequent issuance of additional capital stock by Harvest Operations in 2010.

The initial phase of the project commenced production of approximately 8,000 to 9,000 barrels per day in September 2018. The expansion phase of the BlackGold project, which is targeted to expand production to 30,000 barrels per day, was approved by provincial regulators in 2013.

### *Kazakhstan*

*ADA Block*. The Company acquired a 22.50% interest pursuant to a share purchase agreement with LGI Corporation in the ADA Block in November 2005. The Company purchased an additional 17.50% interest in the ADA Block in June 2009 and currently owns a total 40.00% interest. The ADA Block, covering an area of 31.2 square kilometers, is located in the northeastern part of Kazakhstan. The Company's exploratory drilling in the Bashenkol prospect resulted in the discovery of a well with proved oil reserves of approximately 19 million barrels, test production of which was approved by Kazakhstan authorities in 2009. The contract for commercial production was entered into in April 2013 between ADA Oil LLP, the operator, and the Kazakhstan government. Since the commencement of commercial production, the Company has produced approximately 10.5 million barrels of crude oil from this block. As of June 30, 2020, the Bashenkol field holds estimated reserves of 8.7 million barrels and has daily oil production of approximately 2,426 barrels.

*Akzhar, Besbolek, Karataikyz and Alimbai Blocks*. The Company acquired a 95.00% interest in Altius, a Canadian company listed on the Kazakhstan Stock Exchange, for US$515 million in March 2011. A local partner of the Company acquired the remaining 5.00%. Altius owns the Akzhar, Besbolek, Karataikyz and Alimbai blocks in western Kazakhstan, which hold estimated reserves of 15.6 million barrels, 0.5 million barrels, 0.2 million barrels and 0.3 million barrels of oil, respectively. The four fields Altius owns are in the production stage. The Akzhar, Besbolek, Karataikyz and Alimbai fields have daily oil production of approximately 4,151 barrels, 940 barrels, 86 barrels, and 197 barrels, respectively, from 339 production wells as of June 30, 2020.

*Arystan and Kulzhan projects.* In December 2009, KNOC Kaz B.V., a wholly owned subsidiary of the Company located in Kazakhstan, acquired an 85.00% ownership interest in KNOC Caspian LLP (formerly known as Sumbe JSC) in Kazakhstan, which owns the Arystan and Kulzhan projects located in western Kazakhstan. The Arystan project has daily production of approximately 7,366 barrels of oil equivalent as of June 30, 2020, and holds estimated reserves of 45 million barrels as of June 30, 2020. The Kulzhan project has daily production of approximately 2,440 barrels of oil equivalent as of June 30, 2020 and holds estimated reserves of 4 million barrels as of June 30, 2020.

### *Korea*

*Donghae-1 Gas Project*. In 1998, the Company discovered a commercially viable gas field located under the sea near the southeastern coast of Korea, and named it "Donghae-1." Located about 60 kilometers southeast of Ulsan city, the Donghae-1 gas project is estimated to hold recoverable reserves of about 4.5 billion cubic feet of natural gas with approximately 63,329 barrels of condensate as of June 30, 2020. The Donghae-1 gas project was the first commercially productive gas field within Korean boundaries, and it allowed the Company to advance its knowledge and skill in gas field development and production. The Company owns 100.00% of the Donghae-1 gas project, and expects to deliver natural gas from the project daily to domestic consumers by about 2022.

*Donghae-2 Gas Project*. In 2005, the Company discovered a commercially viable gas field located about 5.4 kilometers southwest of Donghae-1, and named it "Donghae-2." The Company owns a 70.00% interest in the Donghae-2 gas project and POSCO International Corporation ("POSCO International") owns a 30.00% interest. In March 2014, the Company started to explore the Donghae-2 gas project and drilled one production well named DH 2-1P in December 2015. The Donghae-2 gas project is estimated to hold recoverable reserves of about 9.8 billion cubic feet of natural gas with approximately 130,803 barrels of condensate as of June 30, 2020.

### *Libya*

*Elephant Project*. The Company owns a 2.00% interest in the Elephant project pursuant to an exploration PSA entered into in October 1990, the term of which was extended from 2015 to 2033 in 2008. The Elephant project is located in the Murzuk Basin, 850 kilometers south of Tripoli, and covers an area of approximately 139 square kilometers. Mellitah Oil & Gas B.V. is the operator of the Elephant project. The Elephant project had proved and probable reserves of approximately 6.1 million barrels of crude oil as of June 30, 2020. The operator of the project had ceased production from April 2015 to April 2017 due to security concerns around the region, but production has been resumed since the end of April 2017. As of June 30, 2020, the Elephant project has produced approximately 1.2 million barrels of oil since resuming production.

### *Peru*

*Block 8.* The Company acquired a 20.00% interest in Block 8 in 1996 through a competitive bidding process. The three other equity holders in Block 8 are POSCO International, SK Innovation Co., Ltd. and Pluspetrol Norte S.A., which own an 11.67%, 8.33% and 60.00% interest, respectively. Block 8 is located in Maranon Basin in northern Peru, covering an area of approximately 1,800 square kilometers. Block 8 consists of four oil fields, Corrientes, Pavayacu, Yanayacu and Chambira. As of June 30, 2020, Block 8 has produced a cumulative total of 140 million barrels of oil since the Company acquired an equity interest. Block 8 has been shut down since April 2020 due to the country-wide lockdown announced by the President of Peru. While the Company is currently following recommendations of the Peruvian government to minimize exposure risk for the employees at the project, the impact of COVID-19, and the duration of the business disruptions and related financial impacts cannot be reasonably estimated at this time.

*Block Z-2B.* In February 2009, the Company acquired a 50.00% interest in OIG, whose subsidiary, Savia Peru S.A. ("Savia Peru", formerly Petro-Tech Peruana S.A.), has an operation service contract for a producing field in Block Z-2B in the Talara Basin off the northwestern coast of Peru. Ecopetrol S.A., the national oil company of Colombia, acquired the other 50.00% interest in OIG. For the six months ended June 30, 2020, Savia Peru produced approximately 6,300 barrels of crude oil per day and 16 million cubic feet of gas per day in its field in Block Z-2B, which covers an area of approximately 1,303 square kilometers.

### *United Arab Emirates*

*Al Dhafra.* The Company acquired a 30.00% interest in Area 1 in Abu Dhabi through a Joint Venture Field Entry Agreement ("JVFEA") entered into with Abu Dhabi National Oil Corporation in March 2012, in consideration of cash payments and a commitment to engage in exploration and appraisal activities. Area 1 is an on-shore field. Al Dhafra Petroleum Operations Company Ltd. ("Al Dhafra"), serving as the co-operator, was established in December 2013. Haliba field in Area 1 is evaluated to have 227 million barrels of oil reserves and Al Dhafra established the Haliba Field Development Plan to develop three reservoirs and is updating the Haliba Field Development Plan to optimize and accommodate the increased reserves. Area 1 achieved first oil production on June 2019.

*ADNOC Onshore.* The Company acquired a 0.9% interest in the ADNOC Onshore project from Korea GS E&P in February 2020. ADNOC Onshore, a subsidiary of the Abu Dhabi National Oil Corporation, serves as the operator of the project which consists of twelve oil fields. As of June 30, 2020, the ADNOC Onshore project had total crude oil reserves of approximately 24 billion barrels and average daily production of 1.7 million barrels of oil equivalent.

### *United Kingdom*

*Dana Petroleum Projects.* In January 2011, the Company acquired a 100.00% interest in Dana Petroleum through a hostile tender offer. Dana Petroleum is an oil and gas exploration and production company incorporated in the UK and headquartered in Aberdeen, UK, with a significant portion of its production and exploration assets located in the North Sea and Egypt. In March 2011, Dana Petroleum added six new offshore production fields through acquisition of production assets from Petro-Canada UK Limited. In October 2011, the Company transferred its entire interest in the KCCL to Dana Petroleum in consideration for additional shares issued by Dana Petroleum to the Company. In September 2012, the Company, through Dana Petroleum, acquired a 28.30% additional stake in the Bittern oilfields located in the North Sea from Hess Corp. for approximately US$135 million, raising its total interest in the field to 33.00%, together with the 4.70% interest that Dana Petroleum had already owned. In October 2013, the Company, through Dana Petroleum, sold a 19.00% stake in the Otter oilfield located in the North Sea to Abu Dhabi National Energy Company PJSC for approximately US$4.28 million. Dana Petroleum had proved and probable oil and gas reserves of approximately 130 million barrels of oil equivalent as of June 30, 2020, and had average daily oil and gas production of approximately 52,000 barrels of oil equivalent in the first six months of 2020. As of June 30, 2020, Dana Petroleum had interests in 52 production fields, which included 23 fields in the UK, eight fields in Egypt and 21 fields in the Netherlands. The most significant contributions in terms of production are associated with participation in the fields of Greater Guillemot Area, Greater Kittiwake Area, Hudson and Bittern in the UK, East Zeit in Egypt and De Ruyter & Hanze in the Netherlands. As of June 30, 2020, the Company has provided guarantees to creditors for certain obligations of Dana Petroleum. See "Related Party Transactions."

*Western Isles Project.* Dana Petroleum has a 76.92% interest in the development of the Western Isles region. Dana Petroleum discovered oil fields in the North Sea and these fields are estimated to hold proved and probable reserves of approximately 19.8 million barrels of oil equivalent of crude oil and gas. Production commenced in November 2017 with a maximum daily production 13,238 barrels of oil equivalent of crude oil and gas in the first six months of June 30, 2020.

*Tolmount Project.* Dana Petroleum has a 50.00% interest as a non-operator in the development of the Greater Tolmount Area, which is located in the Southern North Sea in Block 42/28d (License P1330), 47 kilometers off the coast of East Yorkshire. The Tolmount gas field was discovered in 2011 and is estimated to hold proved and probable reserves of approximately 44.1 million barrels of oil equivalent. Initial production of gas is anticipated in June 2021 with peak average daily production of 23,000 barrels of oil equivalent during 2022.

In addition, following the development of the Tolmount gas field, an exploration well was drilled in Tolmount East nearby the Tolmount gas field and gas was discovered in October 2019. The development of the Tolmount East gas field is targeting approval in 2021 and initial gas production is anticipated in 2023.

### *United States of America*

*ANKOR Offshore Project.* In March 2008, the Company and Samsung C&T Corporation each acquired an 80.00% and a 20.00% interest, respectively, in the ANKOR Offshore Project located on the shelf of the Gulf of Mexico. ANKOR Offshore Project contains several significant producing fields. In February 2012, the Company sold a 29.00% interest in the ANKOR Offshore Project to a consortium of Korean companies for approximately US$308 million, as part of an effort to increase Korean private sector involvement in resource development and to enhance the Company's liquidity. As a result of the sale, the Company's interest in the ANKOR Project was reduced from 80.00% to 51.00%. ANKOR E&P Holdings Corporation, a wholly-owned subsidiary of the Company that holds the Company's interests in the ANKOR Offshore Project, formed ANKOR Energy to manage the ANKOR Offshore Project. ANKOR Energy began its operations in March 2008, and currently produces approximately 7,044 barrels of oil equivalent per day. It has estimated oil and gas reserves of approximately 41.5 million barrels of oil equivalent.

*Eagle Ford.* In March 2011, KNOC Eagle Ford Corporation, a wholly owned subsidiary of the Company, entered into a joint venture agreement with Anadarko. Under the joint venture agreement, the Company, through KNOC Eagle Ford Corporation, acquired a 23.70% interest in Anadarko's Maverick Basin assets, located in southwest Texas, which is mainly comprised of the liquids-rich Eagle Ford shale assets. In exchange, the Company funded approximately US$1.55 billion of Anadarko's 3-year capital costs from 2011 to 2013 in the Maverick Basin, and reimbursed Anadarko for net cash outflows relative to the Company's interests. In addition, as part of the arrangement with Anadarko, the Company acquired a 24.90% working interest in midstream (gathering, processing, treating and transporting) systems and facilities associated with the Maverick Basin assets for approximately US$27 million. In December 2012 and January 2013, KNOC Eagle Ford Corporation sold 4.74% interests in each of the upstream asset and midstream asset to Vogo Eagle Ford LLC, for US$321 million and US$32 million, respectively. In March 2017, Anadarko sold its interest in the Maverick Basin assets to Mesquite Energy Inc. (formerly known as Sanchez Energy Corporation). Mesquite Energy Inc. holds approximately 288,046 net acres with an average working interest of 71.00% in the Maverick Basin, of which the Company is entitled to interests in 80,000 net acres in Eagle Ford shale and approximately 16,000 additional prospective net acres for the deeper dry-gas Pearsall shale, as well as Pearsall opportunities underlying the Eagle Ford shale. Mesquite Energy Inc. produces approximately 133,379 barrels of oil equivalent per day.

*Northstar Project*. In December 2011, the Company, through ANKOR E&P Holdings Corporation and in consortium with GS E&R Co. Ltd. (formerly known as STX Energy E&P Offshore Management, LLC) and SCL Resources, LLC, jointly acquired a 100.00% interest in an offshore oil field located in the Gulf of Mexico region for approximately US$201 million from Northstar. The Company has a 67.00% interest in the field. The field produces approximately 568 barrels of oil equivalent of crude oil and gas per day, and has estimated oil and gas reserves of approximately 7.9 million barrels of oil equivalent.

*Parallel Projects*. In December 2011, the Company, in consortium with Samsung C&T Corp., jointly acquired a 100.00% interest in Parallel Petroleum Corp. (with the Company's share being 10.00%) from PLLL Holdings, LLC, an affiliate of Apollo Global Management LLC, for approximately US$722 million. Parallel Petroleum Corp. holds eight onshore producing oil fields and two onshore producing gas fields located throughout Texas and New Mexico in the United States. The fields on a combined basis produce approximately 8,497 barrels of oil equivalent of oil and gas per day, and have a combined estimated oil and gas reserves of approximately 30.4 million barrels of oil equivalent.

*EPE Global Projects*. In February 2012, the Company, as part of a consortium led by Apollo Global Management, LLC, signed a definitive agreement with El Paso to acquire a 100.00% interest in EPE Global (with the Company's share being 14.99%) for approximately US$7.15 billion. EPE Global held several conventional and unconventional oil and gas exploration and production assets located throughout primarily in the United States as well as Brazil. In January 2014, EP Energy, which now holds the interest in assets previously held by EPE Global, completed its initial public offering of 35,200,000 shares of its common stock at a public offering price of US$20.00 per share. EP Energy's common stock commenced trading on the New York Stock Exchange on January 17, 2014 under the ticker symbol "EPE." As the IPO has increased the total number of EP Energy's common stock, the Company's share has decreased from 14.99% to 12.82%. EPE Global holds approximately one million net acres of oil and gas properties located throughout the United States. In October 2019, EP Energy filed for Chapter 11 reorganization in the U.S. Bankruptcy Court for the Southern District of Texas. In August 2020, EP Energy announced that the U.S. Bankruptcy Court for the Southern District of Texas had confirmed its plan of reorganization and it expects to complete its financial restructuring process and emerge from Chapter 11 bankruptcy protection by October 2020. The Company is currently in the process of disposing of its interest in the project.

*River Bend*. In November 2011, the Company, in consortium with GS E&R Co., Ltd., acquired a 15.00% interest (with the Company's share being 7.50%) in the River Bend field in Alabama, United States. The operators attempted 13 exploratory drillings from 2013 to 2015 and discovered commercially viable oil and gas from seven wells. The field began active production in December 2013 and produces approximately 287 barrels of oil equivalent of oil and gas per day.

### *Venezuela*

*Onado Project*. The Company currently owns a 5.64% interest in the Onado Project, after initially acquiring a 12.00% interest in 1997 and undergoing ownership changes in 1998, 2002 and 2006. Other owners are Corporación Venezolana del Petróleo, S.A., Compañía General de Combustibles S.A. and EP Petroecuador, which own 60.00%, 26.00% and 8.36% interest, respectively. The Onado Project is located near Maturin in the center of Venezuela, and covers an area of approximately 160 square kilometers. Petronado Empresa Mixta S.A. is the current operator of the Onado Project. Hydrocarbon in the Onado Project was first discovered in 1971, and the Onado Project currently produces crude oil and natural gas in an amount of approximately 300 barrels of oil equivalent per day.

### *Vietnam*

*Block 11-2*. The Company first obtained operatorship of Block 11-2 in May 1992, and discovered the Rong Doi and Rong Doi Tay gas fields in May 1998. The Company entered into a gas sales purchase agreement with PetroVietnam, and commenced development construction, with gas production in the fields beginning in December 2006. The Company is the sole operator and carries out exploration, development and production activities within Block 11-2, which is located 320 kilometers offshore of Vietnam and covers an area of 691 square kilometers. The Company owns a 39.75% interest in Block 11-2 and holds a 35.25% interest on behalf of a Korean consortium, which is comprised of LG International Corp., Daesung Industrial Company, POSCO International, Hyundai Corp. and Seoul City Gas Co., Ltd. PetroVietnam Exploration and Production Company holds the remaining 25.00% participating interest in Block 11-2. Eight production wells in Block 11-2 are producing natural gas and condensate at an average of 21 million cubic feet per day and approximately 411 barrels per day as of June 30, 2020. Block 11-2 has produced 118 million barrels of oil equivalent since initial production and has estimated proved and probable reserves of 10 million barrels of oil equivalent as of June 30, 2020.

Due to reduced production in Block 11-2, the Company has been unable to satisfy its obligations under certain transportation and sales contracts relating to guaranteed minimum levels of transportation and production volume. As a result, the Company expects to pay for damages related to such unfulfilled obligations.

*Block 15-1*. The Company entered into a PSA for a 14.25% interest in Block 15-1 with PetroVietnam Exploration and Production Company (which owns 50.00%), Perenco (which owns 23.25%), SK Innovation (which owns 9.00%) and Geopetrol (which owns 3.50%) in September 1998. Block 15-1 is located 50 kilometers offshore of Vietnam, and covers an area of 800 square meters. Cuu Long Joint Operating Company is the operating company for Block 15-1. The Company performed a leading role in the exploration stage and discovered a large, high-quality oil field in Su Tu Den field in September 2000, which was selected as “One of the World’s Top Discoveries of 2000” by the American Association of Petroleum Geologists. Oil production in Su Tu Den field began in October 2003.

Following the discovery at Su Tu Den field, Cuu Long Joint Operating Company successfully discovered oil in Su Tu Vang field in October 2001, natural gas and condensate in Su Tu Trang field in November 2003, and oil in Su Tu Nau field in September 2005. In Su Tu Den Southwest and Northeast fields, 38 production wells are producing oil and gas at an average of 14,202 barrels of oil equivalent per day as of June 30, 2020. In the Su Tu Vang field, 15 production wells are producing oil and gas at an average of 3,651 barrels of oil equivalent per day as of June 30, 2020. The Su Tu Trang field also commenced production in 2012 and produces approximately 21,617 barrels of oil equivalent of oil and gas per day. In the Su Tu Nau field, eleven production wells are producing approximately 5,687 barrels of oil equivalent of oil and gas per day as of June 30, 2020. The Company is also currently in the process of developing phase 2 production of the Su Tu Trang field, which is targeted to expand production to 44,500 barrels per day, and was approved by provincial regulators in 2019.

### *Yemen*

*LNG Project*. The Company began participation in the Yemen LNG Project as part of the SK consortium in 1997 and currently owns a 1.06% interest in the project. The project launched an LNG liquefaction plant in 2005, which was completed in 2010. The reserves within the Marib area which are currently dedicated to the project include 7.2 trillion cubic feet of proven gas reserves and an additional 0.7 trillion cubic feet of probable gas reserves. The plant and terminal are located in Balhaf, Yemen. First shipment was in November 2009. The operator of the project ceased production in April 2015 due to security concerns around the region. The Company and other participants of the project are continually monitoring the situation to re-start production as soon as practicable.

*Block 4-Production*. The Company owns a 50.00% interest in Block 4 pursuant to a PSA entered into with the Yemeni government in 2007, and the subsequent dissolution of the consortium which initially purchased the interest in the block. Block 4 is located in the Sabatayn (Marib – Shabwa) basin, in the southeastern part of Yemen, covering an area of approximately 2,000 square kilometers. In July 2013, the board of directors of the Company approved a withdrawal plan from the field due to the failure to discover viable oil reserves and the political instability in the region and in September 2013, the Company notified the Yemeni government of the withdrawal and the return of the Company’s interests. The Company is currently in the process of carrying out the withdrawal plan.

***Production Volume and Pricing***

The following table sets forth the Company's historical annual crude oil and natural gas production by country and the Company's average sales price for the years ended December 31, 2017, 2018 and 2019 and June 30, 2020.

| | For the Year Ended December 31, | | | For the Six Month Period Ended June 30, |
|---|---|---|---|---|
| | 2017 | 2018 | 2019 | 2020 |
| **Crude oil production**[(1)(2)(3)] | | | | |
| (thousands of barrels, except percentages or otherwise indicated) | | | | |
| *Canada* | 5,739 | 5,771 | 7,850 | 3,175 |
| *Iraq* | 180 | 356 | 463 | — |
| *Kazakhstan* | 4,574 | 5,325 | 5,521 | 2,485 |
| *Korea* | 175 | 147 | 119 | 58 |
| *Libya* | 291 | 323 | 554 | 32 |
| *Peru* | 2,114 | 2,097 | 1,893 | 805 |
| *United Arab Emirates* | — | — | 836 | 4,183 |
| *United Kingdom* | 10,047 | 18,715 | 17,856 | 8,055 |
| *United States of America* | 14,667 | 15,092 | 10,148 | 4,396 |
| *Venezuela* | 12 | 6 | 4 | 1 |
| *Vietnam* | 2,890 | 2,339 | 2,286 | 980 |
| **Total** | 40,689 | 50,171 | 47,530 | 24,170 |
| Average sales price[(4)] (US$ per barrel) | 48.32 | 58.59 | 54.86 | 36.19 |
| **Natural gas production**[(1)(2)(3)] | | | | |
| (millions of cubic feet, except percentages or otherwise indicated) | | | | |
| *Canada* | 33,730 | 29,575 | 29,033 | 12,254 |
| *Kazakhstan* | 748 | 948 | 1,370 | 633 |
| *Korea* | 10,105 | 8,905 | 7,543 | 3,741 |
| *Peru* | 3,506 | 3,457 | 3,480 | 1,335 |
| *United Kingdom* | 18,336 | 17,511 | 17,629 | 8,026 |
| *United States of America* | 41,208 | 40,687 | 28,478 | 12,895 |
| *Venezuela* | 33 | 22 | 14 | 3 |
| *Vietnam* | 15,963 | 13,777 | 10,849 | 2,705 |
| *Yemen* | — | — | — | — |
| **Total** | 123,630 | 114,882 | 98,396 | 41,592 |
| Average sales price[(4)] (US$ per thousand cubic feet) | 4.12 | 4.45 | 3.52 | 2.79 |

---

(1) Production volumes for regions where the Company does not own 100.00% interest consist of the Company's share of the production from all of the Company's cooperative projects with other companies in that region.

(2) Includes production volume from subsidiaries or assets acquired during the period after their respective acquisition dates.

(3) Includes natural gas liquids.

(4) Calculated by dividing total consolidated revenue from sale of oil or gas, as applicable, by total amount of oil or gas sold, as applicable. As such, excludes from calculation any production from the Company's affiliates where the Company's interests are accounted for either as available-for-sale securities or by using the equity method.

***Major Exploration Projects***

The Company undertakes a number of projects to expand its commercially viable production facilities and fields. As exploring for oil and gas is a time-consuming and capital-intensive process, the Company's New Ventures and Exploration Group carefully analyzes each prospective location along with its partners and third party technical experts to determine the proper scope of each project, as well as consult an internal committee composed of heads of other departments and technical experts before making investment decisions. The Company is currently conducting exploratory activities in eight projects. The following is a summary of the Company's major exploration projects as of June 30, 2020.

| Exploration Projects | Company Ownership | Arrangement Type | Status | Operated By |
|---|---|---|---|---|
| Korea (Block VI-1 Central, East) . . . . | 100.00% | Exploration Right | Application for joint development in progress/preparing | KNOC |
| Korea (Block VI-1 North/VIII) . . . . . | 50.00% | Exploration Right | Progress/preparing for 3D seismic data acquisition | Joint |
| Uzbekistan West Ferghana & Chinabad . . . . . . . . . . . . . . . . . . . | 65.00% | Exploration Agreement | Geological and geophysical evaluation | KNOC |
| Yemen Block 70 . . . . . . . . . . . . . . . . . | 12.35% | PSA | Exploration suspended due to force majeure | Third party |
| Senegal UDO Block . . . . . . . . . . . . . . | 20.00% | PSA | Progress/preparing for 3D seismic data acquisition | Third party |

***Korea***

Korea is surrounded by extensive continental shelves with an area of approximately 300,000 square kilometers, which contain potential for oil and gas reserves. Between 1972 and 1982, oil and gas exploration in Korea was led by western oil companies. In 1983, the Company began its own exploration projects within Korea, and has conducted significant 2D seismic surveys and drilled many exploratory wells since then.

There are currently three offshore sedimentary basins (Jeju Basin, Ulleung Basin and Yellow Sea Basin (West Sea Basin)) around the Korean peninsula.

*Jeju Basin.* The Jeju Basin is in the northeastern part of the East China Sea Shelf Basin, which is the largest Mesozoic-Cenozoic basin in the continental margin of China. The Jeju Basin is sub-divided into three sub-basins, the Ieodo sub-basin including Block IV and Block V, the Domi sub-basin including Block VI-2 and the Jeju sub-basin spanning Block V and situated on the western part of the Joint Development Zone (the "JDZ") between Korea and Japan. Exploration at these blocks began in the 1960s by foreign oil companies, and there are 57,133 L-kilometers of 2D seismic data and 563 square kilometers of 3D seismic data as well as 15 exploratory wells in the region. The Company and several Japanese oil companies also conducted joint studies on petroleum potential throughout the JDZ from 2004 to 2009. The exploration and studies in the region have resulted in only a few oil and gas showings and have yet to reveal reserves substantial enough for commercial development. As a result, the Company discontinued its exploration activities in JDZ subzone-1 in June 2017. However, the Company believes there is significant potential for petroleum reserves in the production fields and has acquired concession of the JDZ subzones-2 and 4 for exploration of hydrocarbon. Currently, geophysical and geological evaluation, including 3D seismic reprocessing and prospect evaluation, is in progress in the JDZ subzones-2 and 4 to identify potential reserve areas.

*Ulleung Basin.* The Ulleung Basin is located in the southwestern part of the East Sea, and contains Block VI-1 and Block VIII, each covering an area of 12,917 square kilometers and 8,481 square kilometers, respectively. Initial exploration efforts in Block VI-1 began in 1970 by the Royal Dutch Shell Oil Company, resulting in 5,193 L-kilometers of 2D seismic survey data and one exploratory well. Although not tested, the exploratory well encountered numerous gas shows. Since 1983, the Company and other oil companies have conducted 23,589 L-kilometers of 2D seismic survey and 4,587 square kilometers of 3D seismic survey and drilled 26 exploratory wells, most of which are focused on the shelf area and found 12 minor gas deposits. These efforts led to the eventual discovery of Donghae-1 gas project in 1998. Additional gas reservoirs around Donghae-1 gas project were confirmed in 2005 and 2006, and were further developed between 2008 and 2009.

Starting in 2003, the Company expanded its exploration efforts to the continental slope and the deep-sea area of the Ulleung Basin. In February 2007, Woodside Energy (Korea) Pte. Ltd. ("Woodside") and the Company agreed to explore 8/6-1N. Pursuant to a Joint Operating Agreement, the Company and Woodside each holds a 50.00% interest in 8/6-1N. The exploration rights in 8/6-1N had expired in December 2016 and the Company discontinued its exploration activities in 8/6-1N in November 2017. In April 2019, the Company acquired new exploration rights in the deep-sea area. The Company and Woodside conducted a 2D seismic survey of approximately 5,107 L-kilometers in 2008 and drilled an exploratory well named Jujak-1 in 2012. The Company and Woodside conducted 504 square kilometers of 3D marine seismic survey and drilled an exploratory well named Hongge-1 in September 2015 which was tested to produce gas. The Company and Woodside are preparing to acquire additional 3D marine seismic surveys for the blocks in 2021. POSCO International, holding a 70.00% interest and serving as the operator, started the exploration of 6-1S in 2011. POSCO International and the Company conducted a 3D seismic survey of 1,086 square kilometers and drilled one appraisal well in 6-1S. The Company discontinued its exploration activities in 6-1S in December 2016. In September 2011, the Company obtained the right to explore underwater resources at Block VI-1 ("6-1C") pursuant to an agreement entered into with the Korean government. In March 2014, the Company started to explore the Donghae-2 gas project (within 6-1C) located approximately 5.4 kilometers away from the Donghae-1 gas project, and drilled one production well named DH 2-1P in December 2015. In April 2016, the Company and POSCO International conducted a 3D marine seismic survey of 612 square kilometers for further exploration in 6-1C. The Company acquired the right to explore the eastern part of Block VI-1 ("6-1E") from the Korean government in 2013, and conducted a technical review of 6-1E during 2014 as part of the overall evaluation of the Company's projects in Korea. The Company conducted a 3D seismic survey of 224 square kilometers in 2015. The Company's exploration rights to 6-1C and 6-1E had expired in 2018 and 2019, respectively. However, in February 2020, the Company acquired new exploration rights for 6-1C and 6-1E, which were combined, and the Company holds 100.00% interest in the combined blocks.

*Yellow Sea Basin.* The Yellow Sea Basin is composed of three exploration blocks containing numerous sub-basins that are relatively less explored than the other sedimentary basins in offshore Korea. The Company and several foreign companies conducted seismic data acquisition and offshore drilling, totaling 35,827 L-kilometers of 2D seismic data, 298 square kilometers of 3D seismic data and six exploratory wells. Although exploration results have not been successful, the Company has been trying to make hydrocarbon discoveries in the region. Based on studies conducted by the Industry-University-Institute Cooperation in 2013, the Company identified several potential areas in the West Sea Basin. The Company and China National Offshore Oil Corporation ("CNOOC") have been conducting joint studies to better understand the geologic information on the South Yellow Sea Basin ("SYSB") since 2002. The Company and CNOOC will also conduct further studies to identify hydrocarbon potential areas in the SYSB.

### ***The Republic of Senegal***

*UDO Block.* In July 2020, the Company acquired 20% of Total S.A.'s interest in Block UDO in the Republic of Senegal. As a result, the Company holds an 20% interest in Block UDO, Total S.A. holds a 70% interest and Petrosen, Senegal's state-owned oil company, holds the remaining 10% interest in Block UDO. Total S.A. is the operator for the block. Block UDO is located in Senegal's Atlantic coast, and covers an area of 10,016 square kilometers. Exploration commenced in March 2019 and is expected to continue until 2028.

### ***Uzbekistan***

*West Ferghana & Chinabad.* The Company signed an Exploration Agreement in February 2010 with Uzbekistan's state-owned energy firm Uzbekneftegaz for a 65.00% interest in West Ferghana and Chinabad.

POSCO holds a 20.00% interest and Samchully holds the remaining 15.00% interest in the project. West Ferghana and Chinabad are onshore blocks with the combined size of approximately 6,170 square kilometers, located in the eastern part of Uzbekistan bordering Kyrgyzstan and Tajikistan. Exploration started in August 2011 and the Company acquired 1,324 L-kilometers of 2D seismic data through 2014. However, the Company decided to withdraw from the West Ferghana and Chinabad blocks in November 2017 due to economic infeasibility.

After negotiations with the Uzbekistan government, the Company signed another Exploration Agreement for the exploration of alternative fields, the Tashkurgan and Dekhkanabad blocks. The Tashkurgan and Dekhkanabad blocks are located in the southern part of Uzbekistan (Amudariya basin) with a combined size of approximately 2,260 square kilometers. This new Exploration Agreement took effect on May 2018 and exploration, including 2D seismic data acquisition and interpretation, is currently in process.

### *Yemen*

*Block 70.* The Company entered into a PSA with the Yemeni government for a 61.75% interest in Block 70 as part of a Korean consortium through direct negotiation in April 2005. In July 2008, the Company sold a 30.88% interest in Block 70 to Total E&P Yemen, and again sold a portion of its interest to Total E&P Yemen and OMV Exploration & Production GMBH in February 2010, which reduced the Company's interest in Block 70 to 12.35%. Total E&P Yemen is the operator for the block. Block 70 is located in the Sab'atayn basin in the middle onshore area of Yemen, and covers an area of 1,367 square kilometers. The Company and its partners collected new 2D seismic survey data from February 2007 to April 2007 and finished processing and interpreting the data in August 2007. Total E&P Yemen, the operator of the project, declared force majeure and suspended exploration activity in April 2015 due to internal military conflict within Yemen.

## Types of Exploration, Development and Production Agreements Entered into by the Company

The Company participates in the exploration, development and production of crude oil and natural gas ("E&P project") in a number of countries and geographic regions and is therefore subject to a broad range of rules and regulations which cover many aspects of exploration, development and production activities, including lease tenure, production sharing rates, royalties, pricing, environmental protection, export taxes and foreign exchange. The Company enters into a wide range of contractual arrangements governing the Company's E&P projects and its interest in oil and natural gas from those projects. Depending on the type of E&P project, the Company holds its interest in a project or an area through a PSA, concession agreement or service contract, or permits and licenses from a government-controlled entity or a national oil company of the country in which such E&P project is located. After acquiring its interest in an E&P project, the Company also enters into joint operating agreements to designate an operator of the E&P project and to determine the operational details of the exploration, development and production process.

The terms of different contractual arrangements vary substantially among different countries and geographic regions, project types and the time the agreements were entered into. To evaluate geological, geophysical, engineering and transportation issues involved in exploration and production, the Company also may enter into a technical evaluation agreement prior to entering into a PSA, which contains terms similar to a PSA.

### *Production Sharing Agreements*

Most of the Company's exploration, development and production arrangements are governed by PSAs. Under a typical PSA, the government or the national oil company owning rights over the particular block at issue is the licensee and the Company and its partners, if any, assume the role of a contractor engaged in the exploration and development of the specific block, usually on the condition that the host government does not directly participate in the E&P project. The contractor is typically required to provide all the financing and bear all exploration and development costs and the associated risks. To compensate for these investments and the risks, upon the successful development and production of oil or natural gas in the relevant block, the contractor recovers its costs and receives the economic benefit of a portion of the produced oil and natural gas in accordance with a production sharing formula set out in the PSA.

A typical PSA has a term of two to six years for the exploration period, renewable upon the parties' agreement. During the exploration period, the contractor may be required to relinquish a portion of the original contract block to the government or the national oil company, excluding the areas in which oil or natural gas has been discovered. Moreover, the contractor is usually required to complete a minimum amount of survey and drilling during the exploration period.

### *Concession Agreements, Permits and Licenses*

In addition to PSAs, the Company also enters into concession agreements. In a concession agreement, the government grants to the contractor an exclusive right to explore for, develop, produce, transport and dispose of crude oil and natural gas within a specified block. Thus the contractor bears the risk of exploration, development and production activities as well as the related costs, including financing for the operations. In principle, the contractor has the right to all of the production, less any production related fees, royalties or taxes that are payable in cash or in kind. The contractor recovers its investments and associated operating, exploration and development costs from the sale proceeds of the oil or natural gas produced, after such deductions.

A concession agreement usually requires the contractor to undertake a minimum amount of exploratory work as scheduled in the agreement. From the commencement date, the contractor is usually required to pay the host governmental entity an annual fixed sum for its exploration and development rights. Once crude oil and natural gas are produced in commercial quantities, the contractor is required to pay a royalty in lieu of the annual fixed payment. The amount of royalty payment is usually higher than that of the annual fixed payment. In addition, the contractor is required to pay the governmental entity bonuses when the production volume reaches the thresholds specified in the agreement, and production taxes to the host country's government. The contractor may also be obligated to grant to the host country's government a right to purchase certain amounts of crude oil at discounted prices.

The Company and its partners, if any, also enter into arrangements similar to concession agreements called "permits", "licenses", or "exploration and production contracts" granted by the relevant governmental authority to explore and develop specified areas. Under permits, licenses or exploration and production contracts, the contractor bears the risk of exploration, development and production activities and is responsible for the related financing. The contractor has the right to all of the production less any royalties that are payable in kind or cash whereby it can recover all of its investments and associated operating, exploration and development costs from the sale proceeds of the oil or natural gas produced. The Company is generally required to pay production taxes, bonuses or royalties, the amount of which may be in proportion to the actual volume of the produced oil or natural gas. Moreover, similar to the concession arrangements in the Middle East or typical PSAs, the contractor is also obligated to complete a minimum amount of exploration work as specified in the applicable agreement.

### *Service Contract*

A service contract is a particular exploration, development and production arrangement entered into in countries where local laws restrict the ownership by foreign investors over domestic oil and natural gas. A foreign company, as a contractor, enters into a service contract with the host government or the national oil company, which delineates certain exploration, development and production targets that the contractor is obligated to meet within a specified period. Upon completion of the exploration and development stages and the commencement of oil and natural gas production, the ownership of certain facilities, such as exploration and developmental wells along with operational facilities, are transferred to the relevant host government or the national oil company, which then assumes the production activities.

Pursuant to a compensation agreement entered into with the host government or the national oil company together with a service contract, the contractor under the service contract recovers all investments and financing costs associated with the project from the produced crude oil and natural gas. In addition, the contractor receives compensation for its services, typically a predetermined percentage of the proceeds from the sale of the produced oil and natural gas received by the host government or the national oil company for a certain period, either in cash or in kind. Certain countries allow the contractors to purchase the produced oil or natural gas themselves.

### *Joint Operating Agreements*

When the Company participates in exploration, development and production projects together with other companies, it enters into joint operating agreements ("JOAs"). Under a typical JOA, a joint venture is formed and each joint venture partner holds its respective undivided proportionate interest in the underlying contractual arrangement and the rights and obligations under such arrangement. The JOA typically designates an operator who is exclusively in charge of all petroleum-related operations, which usually includes preparing work programs and budgets, procuring equipment and materials relating to operations, establishing insurance programs, and issuing cash call notices to the joint venture partners. The operator is also responsible for determining and executing operation and budget plans and managing all day-to-day operational matters.

The operational activities conducted by the operator are generally funded by monthly cash calls based on the annual work program and budget approved by the operating committee, which is usually composed of representatives from each of the joint venture partners. If the operational costs exceed the approved operational budget, the operator is usually required to obtain an additional approval of the operating committee. The operating committee has the authority to make all material decisions concerning the joint operating project.

Representatives of each joint venture partner review joint venture accounts and records and provide reports before they are sent to the relevant government entities. Liabilities with respect to uninsured operations are generally borne by all joint venture partners in proportion to their respective interests in the project. The JOAs generally specify that the operator will acquire insurance on behalf of the joint venture partners, unless such joint venture partner or partners choose to acquire insurance individually, or self-insure their risks.

The JOAs generally terminate on the earlier of an agreement by the parties to terminate the joint venture or the termination of the underlying contractual arrangements. In addition, the ability of the joint venture partners (including the operator) to transfer or assign their rights under the JOA or otherwise withdraw from the joint venture is generally subject to pre-emptive or first refusal rights in favor of the remaining joint venture partners as set forth in the relevant JOA.

## Exploratory and Development Wells

The following table sets forth the number of net exploratory and development wells the Company drilled, or in which the Company participated, and the results thereof, for the periods indicated.

### *Exploratory and Development Wells*

| Year | | Total |
|---|---|---|
| 2017 | **Net exploratory wells drilled**[1] | 1.90 |
| | Crude oil | 1.90 |
| | Natural gas | — |
| | Dry[2] | — |
| | **Net development wells drilled**[1] | 29.40 |
| | Crude oil | 24.23 |
| | Natural gas | 5.03 |
| | Dry[2] | 0.14 |
| 2018 | **Net exploratory wells drilled**[1] | 2.48 |
| | Crude oil | 1.80 |
| | Natural gas | — |
| | Dry[2] | 0.68 |
| | **Net development wells drilled**[1] | 45.89 |
| | Crude oil | 37.36 |
| | Natural gas | 8.53 |
| | Dry[2] | — |
| 2019 | **Net exploratory wells drilled**[1] | 1.10 |
| | Crude oil | 0.60 |
| | Natural gas | 0.50 |
| | Dry[2] | — |
| | **Net development wells drilled**[1] | 31.53 |
| | Crude oil | 30.89 |
| | Natural gas | 0.64 |
| | Dry[2] | — |

---

(1) "Net" wells refer to the wells after deducting interests of others.

(2) "Dry" wells are wells with insufficient reserves to sustain commercial production.

### *Sales and Marketing*

The Company sells all of its domestically produced natural gas to Korea Gas Corporation. Natural gas produced in other countries, such as Vietnam and Indonesia, is sold directly to customers worldwide, including energy companies and trading companies. Most of the Company's crude oil and natural gas produced outside of Korea is sold to major domestic and international refineries, and energy and resource trading companies.

#### *Sales of Crude Oil*

The Company sells various types of crude oil with different gradations of quality and chemical content. The Company generally sells its crude oil and condensate oil to oil refineries, trading companies and petrochemical companies worldwide. The Company estimates the demand for crude oil from potential buyers and uses such estimates to determine the volume of crude oil to supply.

The price of crude oil is directly correlated to the global market price because it is a publicly traded commodity. The contract price of crude oil is determined through negotiations or tenders with buyers based upon the pricing standards adopted by each oil-producing country. For example, the price of oil produced in Indonesia is determined based on the Indonesian Crude Oil Price, which is based on price assessments announced by three private oil-rating companies in Indonesia. Prices of oil produced in other regions are typically determined based on the prevailing international oil price in the region. Spot oil prices are determined by either adding a premium or providing a discount to the public crude oil prices discussed above.

The crude oil and condensates are generally sold under free on board terms directly or through trading companies to oil refineries, power companies and petrochemical companies. Generally, there are two types of oil sales contracts — term contracts and spot contracts. A term contract is typically an annual contract usually lasting from January to December of the same year or from April to March of the following year (each such period, a "term year"). The Company determines the sales volume for the term year based on the estimated production for such term year estimated by the project operator at the end of the year before the beginning of the corresponding term year.

The Company decides when and to whom it sells its products taking market conditions into consideration. The Company also maintains favorable business relationships with major domestic refineries to ensure stable energy supply into Korea. The Company partially conducts its crude oil marketing and sales activities through its Petroleum Marketing Department, usually pursuant to term contracts. The Company hedges a portion of its crude oil sales through swap or option contracts and such hedging decisions are recommended by its Risk Management Department and decided on by the relevant subsidiaries.

Harvest Operations markets its crude oil and natural gas liquids ("NGLs") production to a diverse portfolio of intermediaries and end users with the majority of oil contracts continually renewing on a 30 day basis and the NGL contracts on one year terms with the prices of both commodities derived from the prevailing monthly market prices. Harvest Operations has a small number of condensate purchase contracts, required for blending heavy oil to meet pipeline specifications, that are a combination of one year and monthly spot contracts, both with prices derived from the prevailing monthly market prices.

#### *Sales of Natural Gas*

The Company sells and supplies natural gas to Korea Gas Corporation, as well as various customers around the world. The Company's revenues derived from natural gas sales accounted for approximately 11% and 13% of its total sales for the year ended December 31, 2019 and the six months ended June 30, 2020, respectively. Due to its gaseous state, natural gas must be transported to the market either through pipelines or by a tanker after liquefaction into liquefied natural gas ("LNG"). Petroleum gas or propane and butane are also liquefied for transportation. Such liquefying facilities and pipelines require significant capital investment. In order to recover the high cost of investment, suppliers of LNG or natural gas seek buyers to whom they can sell a steady volume of gas over a long period of time to ensure consistent flow of future revenue. Moreover, upstream natural gas suppliers, such as the Company, have commonly sold gas products jointly with other companies instead of individually. For example, in Vietnam, the Company and other oil and gas companies supply most of their natural gas to Vietnam Oil and Gas Corporation, Vietnam's state-owned oil and gas corporation pursuant to long-term gas supply agreements. Vietnam Oil and Gas Corporation, in turn, sells the natural gas to various purchasers, including power companies, gas companies, petrochemical companies, trading companies and oil refineries within Vietnam and worldwide pursuant to long-term sales contracts and purchase agreements. The Company supplies 100% of the natural gas produced at the domestic Donghae-1 gas project to Korea Gas Corporation pursuant to a long-term supply contract.

The majority of Harvest Operations' natural gas production is currently being sold at the monthly average price of Alberta Energy Company ("AECO"), the benchmark price for natural gas in Western Canada.

## **Petroleum Stockpiling**

### ***Overview and Strategy***

Korea was the world's eighth largest consumer of petroleum in 2019 according to the 2020 Statistical Review of World Energy by BP p.l.c. and meets substantially all of its oil needs from imports. To mitigate the risks to the Korean economy posed by disruptions in oil supply or fluctuations in oil prices, the Government has adopted a series of oil stockpiling plans that have been implemented by the Company. The Company currently owns and operates nine stockpiling facilities, with a total storage capacity of 136 million barrels. The Company stockpiles crude oil, refined oil products (including kerosene, gasoline and diesel) and liquefied petroleum gas ("LPG"). The Company's stockpile facilities are located in Donghae, Geoje, Gokseong, Guri, Pyeongtaek, Seosan, Ulsan, Yeosu and Yongin.

Under the Government's Fourth Stockpiling Master Plan, which was announced in December 2014 and amended in November 2018, the Company is required to maintain its stockpiling capacity at 147 million barrels until the end of 2025. Pursuant to the Fourth Stockpiling Master Plan, the Company is seeking to reach a stockpile reserve level of 101 million barrels by 2025. Korea's stockpile reserve level as of June 30, 2020, which includes the reserves held by the Company and companies in private industry, is approximately 185 days of net oil imports based on calculation standards of the International Energy Agency (the "IEA"). Korea joined the IEA as a member in 2002 and became a party to the Agreement on an International Energy Program, which requires that participating countries maintain oil reserve levels of at least 90 days of net oil imports. The Government contributed a total of approximately Won 5.3 trillion to the Company for execution of the Stockpiling Master Plans as of June 30, 2020, of which approximately Won 2.5 trillion was used to construct stockpile facilities and Won 2.8 trillion was used to purchase additional stockpile oil reserves.

The Company's stockpiling strategy prior to 1999 consisted mainly of purchasing and storing oil supplies and providing oil to domestic refineries when anticipated deliveries of crude oil do not arrive on time or when there is a shortage of crude oil due to other emergencies. The Company also leases excess storage facilities to domestic oil companies. Since 1999, the Company has sought to increase its stockpile level and generate more income from its stockpiling activities by participating in international stockpile arrangements and engaging in oil trading activity.

*International Stockpiling*. As a means of increasing the Company's stockpile level, the Company enters into contracts with national oil companies of oil-producing countries, major international oil companies and oil trading companies to store their petroleum in the Company's stockpile facilities as part of these companies' distribution network for markets in northeast Asia. The Company receives a fee for allowing these companies to use its stockpile facilities, and as part of the arrangement, these companies are obligated to supply petroleum to the Company at the market price up to the volume of the leased storage space during periods of oil shortage or other emergencies. Participation in international stockpiling arrangements has allowed the Company to increase its oil reserve levels, generate revenue from its stockpile facilities and create opportunities to purchase crude oil for domestic use in emergencies.

*Oil Trading*. Since 2000, the Company has been engaging in swap trading for a portion of its oil reserves to supplement its revenues and increase its oil reserves, but only at levels that would not compromise its oil reserve maintenance objectives. The Company uses its oil reserves as well as its storage facilities to enter into oil trading transactions with oil and commodities trading companies. The Company fixes its buy or sell price using hedging financial products before entering into the trading transactions to minimize its risks.

*Gasoline and Gas Oil Wholesale and Economical Gas Stations*. In order to reform the oil product distribution landscape in Korea and to minimize price increase, the Company began engaging in gasoline and gas oil wholesale and operation of economical gas stations with the opening of the first economical gas station in December 2011. The Company purchases gasoline and gas oil at wholesale prices from refineries and overseas sources utilizing its stockpile facilities, and delivers such oil to the economical gas stations. As of June 30, 2020, the Company, along with Korea Expressway Corporation and National Agricultural Cooperative Federation, operated 1,207 such economical gas stations located throughout Korea. The Company believes that the economical gas stations provide reasonably priced petroleum products to Korean consumers and expects the business to stabilize at its current level.

### *Operation of Stockpile Facilities*

The Company's stockpile facilities are located throughout Korea. The following table is a summary of the Company's stockpile facilities as of June 30, 2020:

| Stockpile Facility | Location | Surface Area (in square kilometers) | Operation Since | Aboveground/ Underground | Total Storage Capacity |
|---|---|---|---|---|---|
| Donghae | Gangwon Province | 0.1 | 2000 | Aboveground | 1.1 million barrels (refined oil products) |
| Geoje | South Gyeongsang Province | 2.9 | 1985 | Aboveground and underground | 47.5 million barrels (crude oil) |
| Gokseong | South Jeolla Province | 0.4 | 1999 | Aboveground | 2.1 million barrels (refined oil products) |
| Guri | Gyeonggi Province | 0.6 | 1981 | Underground | 3.0 million barrels (refined oil products) |
| Pyeongtaek | Gyeonggi Province | 0.7 | 1989 | Aboveground and underground | 4.4 million barrels (LPG); 1.8 million barrels (refined oil products) |
| Seosan | South Chungcheong Province | 0.9 | 2005 | Aboveground | 11.0 million barrels (crude oil);<br>3.6 million barrels (refined oil products) |
| Ulsan | Ulsan Metropolitan City | 0.7 | 1981 | Underground(1) | 6.5 million barrels (crude oil) |
| Yeosu | South Jeolla Province | 3.9 | 1998 | Aboveground and underground | 52.2 million barrels (crude oil); |
| Yongin | Gyeonggi Province | 0.3 | 1998 | Aboveground | 2.5 million barrels (refined oil products) |

---

(1) Aboveground storage facilities are being replaced by underground storage facilities with total capacity of 10.3 million barrels of crude oil, which are currently under construction and expected to be completed by June 2021.

### *Engineering and Construction*

#### *Overview*

In support of the Company's stockpiling and exploration and production business, the Company is also engaged in the construction of crude oil and gas storage facilities throughout Korea, as well as the construction of production facilities. The Company constructed nine stockpile facilities that it currently operates pursuant to the Stockpiling Master Plans, as well as the production facilities used in the Donghae-1 gas project and the Vietnam Block 11-2 gas project. The Company is also working to expand its construction business overseas and assisting domestic construction companies to increase their competitiveness in overseas construction markets by providing technological support.

#### *Construction of Petroleum and LPG Stockpile Facilities*

Stockpile facilities consist of aboveground tank facilities or underground cavern facilities. Aboveground facilities are easier to construct, and thus require a shorter construction period, usually from three to five years, are easier to maintain initially, and are not restricted in where they can be built or in the types of product that can be stored there. However, aboveground facilities are also more vulnerable to external threats such as theft, terrorist attacks or fires, more expensive to construct, and have a shorter life cycle, usually lasting from 15 to 20 years. Underground facilities provide higher security and safety, have a semi-permanent life cycle, are more environmentally friendly and require lower construction and maintenance costs. However, they also take longer to build, usually from five to eight years, may be built only on sites that meet specific geological requirements, and are limited in the types of petroleum products that can be stored in them. The Company currently has seven aboveground tank facilities and five underground facilities.

In 2018, the Company completed updating the repair system at its Geoje underground storage facilities to further upgrade and enhance its existing storage capacity and transferred the Ulsan storage facility's offshore loading platform to another location as part of the Government's plan to develop a new seaport in Ulsan.

The Company is currently constructing new underground storage facilities at its Ulsan site to replace certain aboveground storage facilities, which is expected to be completed by 2021, and has also completed building additional aboveground storage facilities at its Yeosu site in October 2017.

### *Construction of Production Facilities*

The Company also supports its exploration and development projects by constructing production facilities used at some of its oil and gas fields. The Company constructed the offshore platform, onshore terminal, subsea production system, and the subsea and onshore pipeline at the Donghae-1 gas project. The Company also constructed the natural gas production facilities at the Vietnam Block 11-2 gas project in Rong Doi, consisting of two offshore platforms, a subsea pipeline and a floating storage and offloading unit. The Company also provides construction support for construction of production platforms or pipelines at several of its production or exploration sites, including Vietnam Block 15-1, Western Isle block, BlackGold Project and Arystan block.

## Other Businesses

### *Petroleum Information and Publication*

Due to Korea's heavy dependence on foreign oil, efficient and accurate collection of information related to the global oil market is essential to Korea's ability to promptly respond to international market developments. In furtherance of its position as the execution arm of Korea's oil-related policies and operations, the Company, through its Oil Research & Information Center, also engages in the collection, compilation, analysis and publication of domestic and international oil-related information. The information provided by the Company is used widely not only in the oil industry, but also in the decision-making process for oil policies by the Government. The Company is currently certified by the Government to provide the official domestic oil usage and pricing data.

The Company currently publishes oil-related information through the following media:

| Publication Title | Content | Medium | Language |
|---|---|---|---|
| Petronet | Multimedia internet website with comprehensive oil information service network, consisting of an extensive database on all Korean oil-related information. Both paid and free subscriptions are available. | Internet | Korean/ English |
| Korea Monthly Oil Statistics | Provides historical and up-to-date statistics on Korean oil supply and demand, including export, import, throughput, consumption and inventories, as well as analysis of Korean oil statistics. | Internet | Korean/ English |
| Daily Petroleum Status | Provides key international oil prices and indices, major news related to the domestic and international oil market, and prices of domestic oil (crude and refined) products. | Internet | Korean |

| Publication Title | Content | Medium | Language |
|---|---|---|---|
| Weekly International Oil Price Status | Provides weekly price status of international crude oil, oil products, as well as an update on the status of the Singapore oil market. | Internet | Korean |
| Weekly Domestic Oil Price Status | Provides weekly price status of domestic oil products, classified by gas stations, refineries and distributors. | Internet | Korean |
| Annual Oil Supply Statistics | Compilation of annual statistics relating to domestic oil imports, refineries and distributors. | Printed | Korean |
| Opinet | Publishes real-time product prices for domestic gas stations, as well as oil sale prices for all domestic oil distributors and refineries, both through www.opinet.co.kr(1) and other devices such as Global Positioning System navigators and mobile phones. | Internet | Korean |

---

(1) Website addresses in this Offering Circular are included for reference only, and the contents of such websites are not incorporated by reference into this Offering Circular and should not be considered a part of this Offering Circular.

**Affiliates**

Certain information with regard to affiliates of the Company that are accounted for using the equity method as of such date are set forth in the table below.

| | As of or for the year ended December 31, 2019 | | | | | |
|---|---|---|---|---|---|---|
| Entity | Country of Incorporation | Equity Interest | Total Assets | Total Liabilities | Revenue | Net Income (Loss) |
| | (In billions of Won, except for percentages) | | | | | |
| Kernhem B. V. | Netherlands | 37% | 179 | 260 | 32 | 9 |
| Oilhub Korea Yeosu Co., Ltd. | Korea | 29% | 531 | 329 | 75 | 23 |
| Parallel Petroleum LLC | United States | 10% | 313 | 334 | 67 | (13) |
| ADA OIL LLP(1) | Kazakhstan | 13% | 74 | 163 | 43 | 14 |
| KNOC EF Star LLC | United States | 100% | 485 | 0.005 | 14 | (16) |
| Offshore International Group Inc. | United States | 50% | 737 | 398 | 189 | (14) |
| KADOC Ltd. | Malaysia | 75% | 757 | 861 | 61 | (34) |
| Korea Energy Terminal Ltd | Korea | 95% | 13 | 14 | — | (0.5) |
| Deep Basin Partnership | Canada | 83% | 249 | 233 | 35 | 48 |
| HKMS Partnership | Canada | 68% | 91 | 83 | 23 | 4 |
| KNOC-VOGO Eagle Ford LLC | United States | 50% | 1,007 | 600 | — | 30 |

---

(1) As ADA OIL LLP is an affiliate of Kernhem B.V., equity method for ADA OIL LLP was applied considering the indirect ownership interest held by Kernhem B.V.

| Entity | Country of Incorporation | Equity Interest | Total Assets | Total Liabilities | Revenue | Net Income (Loss) |
|---|---|---|---|---|---|---|
| | As of or for the year ended June 30, 2020 | | | | | |
| | (In billions of Won, except for percentages) | | | | | |
| Kernhem B. V. | Netherlands | 37% | 183 | 285 | 3 | (23) |
| Oilhub Korea Yeosu Co., Ltd. | Korea | 29% | 506 | 292 | 77 | 12 |
| Parallel Petroleum LLC | United States | 10% | 1,298 | 638 | 19 | (9) |
| ADA OIL LLP(1) | Kazakhstan | 13% | 69 | 185 | 4 | (30) |
| KNOC EF Star LLC | United States | 100% | 487 | 0 | 7 | (10) |
| KOREA GS E&P Pte. Ltd. | Singapore | 30% | 1,722 | 592 | 433 | 14 |
| Offshore International Group Inc. | United States | 50% | 729 | 397 | 60 | (16) |
| Korea Energy Terminal Ltd | Korea | 51% | 65 | 2 | — | (4) |
| Deep Basin Partnership | Canada | 83% | 174 | 227 | 11 | (69) |
| HKMS Partnership | Canada | 68% | 92 | 82 | 11 | 3 |
| KNOC-VOGO Eagle Ford LLC | United States | 50% | 1,134 | 623 | — | (0) |

---

(1) As ADA OIL LLP is an affiliate of Kernhem B.V., equity method for ADA OIL LLP was applied considering the indirect ownership interest held by Kernhem B.V.

## Employees and Labor Relations

As of June 30, 2020, the Company had 1,311 employees on a separate basis. The following table describes the total number of employees by department as of the period indicated.

| Department | As of June 30, 2020 |
|---|---|
| Strategy & Planning | 148 |
| Administration (inclusive of HSE Dept.) | 203 |
| E&P Business | 317 |
| Petroleum Stockpile & Business | 133 |
| Stockpile Offices | 327 |
| Legal & Secretariat | 14 |
| E&P Support (inclusive of Technology Dept.) | 104 |
| Auditing | 24 |
| Others (Task force, Training, Labor union, etc.) | 41 |
| **Total** | 1,311 |

Most of the Company's eligible employees are members of the labor union. The Company has not experienced any strikes, work stoppages, labor disputes or actions which affected the operation of any of the Company's businesses, and the Company considers its relations with its workforce to be generally good. The Company re-negotiated its collective bargaining agreement with the labor union in November 2018, which is scheduled to expire in November 2020. The negotiation for a new collective bargaining agreement will begin upon expiration of the current agreement. The collective bargaining agreement provides for, among other things, various employment benefits, the scope of union activities and negotiation procedures.

The Company, like most Korean companies, grants its employees annual increases in basic wages and pays periodic bonuses. Employees and directors with more than one year of service are entitled to receive a lump-sum payment upon termination of their service with the Company, based on their length of service and rate of pay at the time of termination.

## Safety and Environmental Matters

### *Safety*

Safety standards and regulations in the domestic oil industry are issued, and compliance is monitored, by the Ministry of Trade, Industry and Energy and the Korea Occupational Safety and Health Agency, a Government body under the control of the Ministry of Employment and Labor.

Because a number of the Company's stockpile facilities are located in industrial areas, the Company has established a series of preventative measures to improve the safety of its employees and surrounding communities and minimize disruptions or other adverse effects on its business, such as providing each individual member of the communities in areas surrounding its stockpile facilities with printed materials to explain and illustrate safety and protection knowledge and skills.

The Company has also undertaken various measures including improving its automatic control systems, increasing safety and maintenance training for employees and improving the Company's monitoring equipment (used to detect crude oil and petroleum product leaks, fire and other defects in pipes and stockpile facilities). The Company believes that its safety standards are at least comparable to domestic and international safety standards relating to the oil industry. In addition, the Company has been operating its safety system in compliance with international safety standards such as Process Safety Management since 1996 and Korea Occupational Safety and Health Agency 18001 since 2000.

The Government from time to time conducts spot-checks of the Company's facilities to ensure that they are in compliance with occupational health and safety regulations. These spot-checks have never identified any major violations or resulted in monetary fines or other penalties.

To further enhance its management of such safety and other operational risks, which may increase as the Company follows its expansion plans, the Company implemented a comprehensive enterprise risk management ("ERM") system in November 2010. The ERM system allows the Company to centralize the detection, analysis and management of various safety, financial and other operational risks related to its business.

### *Environmental Matters*

The Company is subject to numerous international, national, regional and local environmental laws and regulations concerning its oil and gas exploration and production operations, stockpiling operation and other activities. In particular, these laws and regulations:

- require an environmental impact assessment report to be submitted and approved prior to the commencement of exploration, development and production activities;
- restrict the type, quantities and concentration of various substances that can be released into the environment in connection with oil and gas exploration and production activities;
- limit or prohibit drilling activities on certain lands lying within protected areas and certain other areas; and
- impose penalties for pollution resulting from oil, natural gas and petrochemical operations, including criminal and civil liabilities for serious pollution.

These laws and regulations may also restrict air emissions and discharge to surface and subsurface water resulting from the operation of oil and natural gas processing plants, pipeline transportation systems and other facilities that the Company and its joint venture partners own or operate. In addition, the Company's operations may be subject to laws and regulations relating to the generation, handling, storage, transportation, disposal and treatment of waste materials. Moreover, since exploration and production activities may take place on sites that are ecologically sensitive (tropical forest, marine environment, etc.), each site may require a specific approach to minimize the impact on the related ecosystem, biodiversity and human health.

The Company anticipates that the environmental laws and regulations to which it is subject will become increasingly more strict and therefore likely to have an increasing impact on its operations. It is impossible, however, to predict accurately the effect of future developments in such laws and regulations on the Company's future earnings and operations. Some risk of environmental costs and liabilities is inherent in certain of the Company's operations and products, as it is with other companies engaged in similar businesses, and there can be no assurance that material costs and liabilities will not be incurred. The Company does not currently expect any material adverse effect on its financial conditions or results of operations as a result of compliance with such laws and regulations. In addition to complying with laws, regulations and standards to which the Company is subject, it is the Company's policy to exercise maximum due care with respect to environmental matters in the course of its operations, and to maintain adequate insurance coverage.

The Company also has been conducting regular environmental audits on its operations and facilities by a third-party auditors, pursuant to the ISO 14001:2015 since 1998, to identify any potential areas of problem and to assess ways of improving its compliance with environmental laws.

### Insurance

The Company's operations are subject to hazards and risks inherent in the drilling, production and storage of petroleum products. As protection against these operations risks, the Company maintains insurance coverage against some, but not all, potential losses, including the loss of wells, as well as liabilities related to costs of pollution control and environmental compliance. In some cases, the agreement under which the Company operates its fields and sells the petroleum products require it to carry insurance, while in other cases, the Company's management exercises its discretion and determines the fields for which to purchase insurance coverage, taking into account the costs of such insurance and related risks. The Company's insurance coverage includes property damage insurance for certain of its oil and gas fields and its stockpile facilities and business interruption insurance for its production activities. The Company also has insurance against damage from terrorism for all of its stockpile and offshore facilities. The Company is not delinquent on any of its insurance payments. The Company believes that its insurance coverage is comparable to that of other companies engaged in similar businesses.

### Legal Matters

From time to time the Company is involved in litigations or proceedings that have arisen in the ordinary course of its business, including disputes with respect to its exploration, development and production rights.

In June 2015, the Seoul Central District Prosecutor's Office arrested Mr. Young Won Kang, former chief executive officer of the Company who left the Company in June 2012, and in July 2015 indicted him on charges of breach of fiduciary duty, for allegedly wasting corporate funds by making financially unsound acquisitions during his tenure, including North Atlantic Refining Limited. The Seoul District Court and, on appeal, the Seoul High Court ruled in favor of Mr. Kang. The case has been appealed to the Supreme Court of Korea in September 2016, where it is currently pending. The Company believes that this court proceeding will not have a material effect on its financial liability, based on the current status of the trial, but it can make no assurances with respect thereto.

In February 2020, the Courts of England issued an interim charging order on all of Dana Petroleum's issued shares, which are owned by the Company, in connection with a dispute filed by Mohammad Reza Dayyani and others against the Government, which owns all of the Company's shares. Neither the Company nor Dana Petroleum is party to the aforementioned dispute. The Company understands that the Government is preparing an appeal to set aside the charging order.

In February 2020, the Busan Regional Office of the National Tax Service commenced a tax audit of the Company. As a result of the tax audit, the Company received a notification in July 2020 assessing additional taxes of Won 69 billion and the Company has requested a re-evaluation of such assessment in August 2020.

As of the date of this Offering Circular, it is the Company's view that other than as disclosed above and in "Risk Factors — Risks Relating to the Company — The Company's business may be materially and adversely affected by legal claims and regulatory actions against it," there are no other current or expected litigation or governmental proceedings involving the Company or any of its affiliates the outcome of which may have a material adverse effect on the results of operations or financial condition of the Company.

## Intellectual Property and Research & Development

The Company's general policy is to seek intellectual property protection for those inventions and improvements likely to be utilized by its activities or to give it a competitive advantage compared to other fuel sources. The Company relies on a variety of patents, copyrights, trade secrets, trademarks and proprietary information to maintain and enhance its competitive position. The Company's principal brand names are registered trademarks in Korea.

The Company held 16 patents and 23 trademarks as of June 30, 2020. The Company does not believe that any individual property right or related group of intellectual property rights is of such importance that its expiration or termination would materially affect the business of the Company.

As of June 30, 2020, the Company employed 83 researchers (including 16 with doctorate degrees and 27 with master's degrees). The Company incurred research and development costs of approximately Won 2.8 billion in the first six months of 2020.

## Properties

The Company's headquarters and principal offices are located in Ulsan, at 305, Jongga-ro, Jung-gu, Ulsan, 44538, Korea. On January 31, 2017, the Company disposed of its headquarters building and entered into a lease contract for the same premises. The Company has title over nine stockpile branch offices and the stockpile facilities at Ulsan, Yeosu, Pyeongtaek, Geoje, Seosan, Guri, Yongin, Gokseong and Donghae, as well as the production office for the Donghae-1 gas project.

# MANAGEMENT

The Company's Articles of Incorporation provide that the board of directors shall be made up of no more than seven standing directors (including the President, who also serves as the Chief Executive Officer of the Company) and eight non-standing directors. The Articles of Incorporation also requires the Company to establish an Audit Committee as a committee of the board of directors. All non-standing directors are independent. The directors have terms of two years (with the exception of the President, whose term is for three years). The activities within the discretion of the board of directors are subject to the Act on the Management of Public Institutions, the KNOC Act, the Company's Articles of Incorporation and its internal regulations, and include establishing the budget, issuing debentures and amending the Company's Articles of Incorporation when necessary.

Under the KNOC Act, the Act on the Management of Public Institutions and the Articles of Incorporation of the Company, the President, who serves as the Company's chief executive, is nominated by the Company's Officer and Executive Recommending Committee. The Officer and Executive Recommendation Committee recommends a pool of candidates, which is then deliberated by the Committee for Management of Public Institutions established pursuant to the Act on Management of Public Institutions. After such deliberations, the President is appointed by the President of Korea upon the recommendation of the Minister of Trade, Industry and Energy.

The President is deemed to have the capacity of a representative director where the Korean Commercial Code applies and thus administers most of the day-to-day business that is not specifically designated as a responsibility of the board of directors. The President must enter into a management contract with the Ministry of Trade, Industry and Energy pursuant to which the President must meet a certain minimum level of performance each year. Under the current management contract with the President and the Articles of Incorporation of the Company, if the board of directors of the Company determines that the President's ability to perform its duties has been seriously impaired (due to reasons such as the President's violation of applicable laws or the Company's Articles of Incorporation, or the President's failure to diligently perform its duties), the board of directors may pass a resolution to propose dismissal of the President to the Minister of Trade, Industry and Energy.

Standing directors other than the President and the standing member of the Audit Committee are appointed by the President. The standing directors assist the President and act on his or her behalf when the President is unable to act.

The non-standing directors are appointed by the Minister of Economy and Finance, after being selected by the Committee for Management of Public Institutions from a pool of candidates recommended by the Officer and Executive Recommendation Committee.

Pursuant to the Articles of Incorporation of the Company or, if applicable, as mandated by applicable laws, the board of directors may establish by resolution committees to facilitate its efficient operation in carrying out various management functions. The Audit Committee and the Officer and Executive Recommendation Committee have been established pursuant to applicable laws.

The Audit Committee is comprised of three members, of whom two members are non-standing directors. The Audit Committee has at least one member who is an accounting or financial expert, and its chairperson is a non-standing director. The principal function of the Audit Committee is to conduct internal review of the Company's operations and accounting, and to present its opinion to the board of directors, thereby ensuring the independence and professionalism of the Company.

The Officer and Executive Recommendation Committee is comprised of non-standing directors and private citizens appointed by the board of directors, and is chaired by one of the non-standing directors elected by the members of the Committee to serve as chairperson. The Officer and Executive Recommendation Committee is responsible for the selection and recommendation of candidates to serve as President, standing member of the Audit Committee or non-standing directors.

In addition to the Audit Committee and the Officer and Executive Recommendation Committee, the Risk Management Committee and the Evaluation Committee, as well as various other committees, have been established to advise the president or the board of directors.

The Risk Management Committee is comprised of seven members, including three internal and three external experts as well as the standing director in charge of risk management. The Risk Management Committee reviews and makes recommendations to the board of directors with respect to the Company's new projects, acquisitions or disposals of equity interests and other investment activities of the Company, including issues relating to risks associated with the liquidity of the Company, but excluding issues reviewed by the Evaluation Committee and other committees.

The Evaluation Committee is comprised of seven members, including two internal experts, four external experts and the head of the investment deliberation division. The Evaluation Committee deliberates, among others, on the Company's change of business, financial soundness and the economic effects resulting from changes in assets.

The Company's address is 305, Jongga-ro, Jung-gu, Ulsan, 44538, Korea. Summary biographical information regarding the Company's directors is set out below.

## Standing Directors

The Company's standing directors are as follows:

| Name | Age | Position | Director Since | Date Term Ends |
|---|---|---|---|---|
| Su Yeong Yang . . . . . . . . . . | 63 | President and Chief Executive Officer | March 2018 | March 2021 |
| Eui Sik Yoon . . . . . . . . . . . . | 62 | Auditor General/ Standing Member of the Audit Committee | December 2018 | December 2020 |
| Gyu Jung Ko . . . . . . . . . . . . | 58 | Senior Executive Vice President of the Planning and Financing Division | June 2018 | June 2021 |

*Su Yeong Yang* has served as a standing director, president and chief executive officer of the Company since March 22, 2018. Mr. Yang previously served as a senior executive vice president and head of the Petroleum E&P division of POSCO International. He holds a bachelor's degree in earth science education from Seoul National University, a master's degree in natural science from Seoul National University and a doctorate in geophysics from Texas A&M University.

*Eui Sik Yoon* has served as the auditor general and standing member of the Audit Committee of the Company since December 24, 2018. Prior to joining the Company, Mr. Yoon held various positions at the Board of Audit and Inspection of Korea, including as a division head in the Public Institution Audit Bureau. He holds a bachelor's degree in business administration from Dankook University.

*Gyu Jung Ko* has served as a standing director and senior executive vice president for the Planning and Financing division since June 26, 2018. Mr. Ko previously served as an executive vice president for the Company's Administration Group. He holds a bachelor's degree in business administration from Chonnam National University.

### Non-Standing Directors

The Company's non-standing directors are as follows:

| Name | Age | Position | Director Since | Date Term Ends |
|---|---|---|---|---|
| Taek Hwan Kim . . . | 53 | Auditor, Neostory Inc. | July 2018 | July 2021 |
| Ho Sung Chung . . . | 45 | Managing Director, Law, Sein LLP | July 2018 | July 2021 |
| Young Gwa Kim . . | 64 | — | May 2020 | May 2022 |
| Byoung Su Kim . . . | 51 | Lawyer, Samsung Law | September 2020 | August 2022 |

*Taek Hwan Kim* has served as a non-standing director since July 16, 2018. Mr. Kim currently serves as an auditor of Neostory Inc. He holds a bachelor's degree in Russian from Hankuk University of Foreign Studies.

*Ho Sung Chung* has served as a non-standing director since July 16, 2018. Mr. Chung is currently a managing attorney at Sein LLP. He holds a bachelor's degree in law from Korea University.

*Young Gwa Kim* has served as a non-standing director since May 7, 2020. Mr. Kim holds a bachelor's degree in economics from Seoul National University and a doctorate in economics from the University of Hawaii.

*Byoung Su Kim* has served as a non-standing director since September 1, 2020. Mr. Kim holds a bachelor's degree in law from Pusan National University.

## RELATED PARTY TRANSACTIONS

The Company engages in a variety of transactions with related parties in its ordinary course of business, including providing long-term loans to its affiliates from time to time. The following table sets forth the amount of long-term loans outstanding with respect to loans made to affiliates as of December 31, 2017, 2018 and 2019 and June 30, 2020. See Note 26 to the Company's interim consolidated financial statements, Note 45 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018 and Note 44 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2018 and 2017 included elsewhere in this Offering Circular for further information about the Company's related party transactions.

| | As of December 31, | | | As of June 30, |
|---|---|---|---|---|
| **Related Parties** | **2017** | **2018** | **2019** | **2020** |
| | (In millions of Won) | | | |
| KNOC Nigerian West Oil Company Ltd. | ₩ 27,977 | ₩ 48,554 | ₩ 118 | ₩ 267 |
| KNOC Nigerian East Oil Company Ltd | 31,280 | 55,842 | 107 | 219 |
| Offshore International Group, Inc. | 52,967 | 39,483 | 32,708 | 33,920 |
| KADOC Ltd | 200,563 | 302,849 | 514,707 | — |
| Parallel Petroleum LLC | 5,814 | — | — | — |
| Korea Energy Terminal Co., Ltd. | — | — | 2,587 | 108 |

The Company also provides payment and performance guarantees for Harvest Operations, Dana Petroleum and ANKOR E&P Holdings Corporation. For Harvest Operations, the Company provided, as of June 30, 2020, guarantees of US$196 million for bonds issued in June 2016, CAD 500 million for a credit facility renewed in February 2017, CAD 500 million for a term loan issued in February 2017, US$285 million for bonds issued in September 2017, US$200 million for bonds issued in November 2017, US$398 million for bonds issued in May 2018, CAD 300 million for a credit facility entered into in May 2018 and CAD 150 million for a term loan issued in April 2020. For Dana Petroleum, the Company provided, as of June 30, 2020, performance guarantees of GBP 127 million for expenses in restoring, decommissioning, dismantling and removing facilities and structures in the field and NOK 38 million for transferring restoring obligations. For ANKOR E&P Holdings Corporation, the Company provided, as of June 30, 2020, a payment guarantee up to US$80 million for borrowings and a performance guarantee of US$121 million for restoration of oil and gas sites held by the affiliate. See Note 28 to the Company's interim consolidated financial statements included in this Offering Circular.

## REGULATION

The Company was established as a juridical entity under the KNOC Act and is subject to the rules and regulations of the KNOC Act. The Company is also subject to all general rules and regulations applicable to corporations under the Act on the Management of Public Institutions, unless otherwise provided for in the KNOC Act.

### The KNOC Act

Under the KNOC Act, the Company is established as a statutory juridical entity for the purpose of efficient performance of businesses relating to development of oil resources, oil stockpile and enhancement of oil distribution channels. In order to achieve these objectives, the KNOC Act allows the Company to undertake, among others, the following activities:

- Exploration and development of oil resources;
- Export and import, stockpiling, transportation, lease and sales of crude oil and oil products;
- Construction, maintenance, management and lease of oil stockpile facilities;
- Enhancement of oil distribution channels;
- Investment, financing, guarantee of debt and materials lease for corporations engaged in businesses relating to energy and resources; and
- Technology support, research and development and provision of information for businesses set forth above.

The Company's authorized capital is Won 13 trillion which is to be funded solely by the Government. Under the KNOC Act, the Ministry of Trade, Industry and Energy is granted the power to direct and supervise the Company's activities relating to its business of exploration, development and production of oil resources inside and outside of Korea, purchase and operation of the oil stockpile, construction and management of oil stockpile facilities, collection, processing and production of oil trading information, and enhancement of oil distribution channels.

In addition, the Company may issue bonds for its business to the extent not exceeding 200% of the sum of the Company's capital and reserve, by a resolution of its board of directors in accordance with the KNOC Act. The Company may also incur indebtedness (such as loans) for its operations. The Government may guarantee the repayment of the Company's bonds and the principal and interest amount of its loans, and provide subsidies in respect of the Company's business activities. However, the Notes are not guaranteed by the Government.

### Petroleum and Petroleum Substitute Fuel Business Act

Under the Petroleum Business Act, the Ministry of Trade, Industry and Energy is required to set goals for oil stockpiling to stabilize the supply and demand of oil as well as its prices, and develop a master plan each year to implement these goals. The stockpiling master plan must include matters relating to the oil stockpile target level, categories of oil to be stockpiled and stockpiling facilities. Under the Government's Fourth Stockpiling Master Plan, the Company is required to implement the Government's goal of maintaining the stockpile capacity at 147 million barrels and achieve stockpile oil reserves of 101 million barrels.

Persons who intend to operate an oil export-import business are required to have their business registered with the Minister of Trade, Industry and Energy. However, this requirement does not apply to exports and imports of oil undertaken by the Company to implement the oil stockpile plan under the KNOC Act.

### Overseas Resources Development Business Act

Under the Overseas Resource Development Business Act, the development of overseas resources may be conducted in one of the following manners:

- a Korean national developing overseas resources individually or jointly with foreigners (including development through local companies established overseas);

- a Korean national providing technical services to foreigners that are developing overseas resources; or
- a Korean national providing funding to foreigners that are developing overseas resources and importing all or part of the overseas resources they develop.

The Government must establish and execute a master plan for the development of overseas resources. If a Korean national desires to operate an overseas resources development business, such person must report the plan for overseas resources development to the Minister of Trade, Industry and Energy.

The Government may provide funds to an overseas resource developer to conduct the necessary research and analysis for starting an overseas resources development business and to acquire the right to develop such resources. The Government may also provide funds for the installation and operation of facilities required for an overseas resources development business, and funds for leasing or buying land necessary to conduct an overseas resources development business.

If the stability and normal functioning of the national economy are harmed or feared to be harmed when a serious disruption to the supply and demand of resources occurs due to an imbalance of supply and demand of resources in Korea and abroad, or there are concerns over such occurrence, the Minister of Trade, Industry and Energy may order overseas resources developers to bring to Korea the whole or part of the overseas resources developed by such developer to stabilize the supply and demand of resources, and the overseas resources developers subject to such an order must comply with the order in the absence of special circumstances.

The Company has been delegated by the Ministry of Trade, Industry and Energy to inspect or investigate matters necessary for the operation of overseas oil development businesses.

## Submarine Mineral Resources Development Act

The Submarine Mineral Resources Development Act aims to contribute to the growth of the Korean industry by developing, in a reasonable manner, submarine resources in (i) the Korean peninsula, (ii) the ocean adjacent to the coastlines of islands belonging to Korea, and (iii) the continental shelf under Korea's control to the greatest extent possible. Submarine mining rights are the rights authorized by the Ministry of Trade, Industry and Energy to explore, gather and acquire submarine resources from submarine resource areas owned by Korea, and such rights are categorized into exploration rights and production rights. The exploration rights cannot be granted for a period greater than 10 years from the date of the issuance unless there are special circumstances. The production rights cannot be granted for a period exceeding 30 years from the date of the issuance. A holder of a submarine mining right must pay a mining fee to the Ministry of Trade, Industry and Energy in accordance with the standard stipulated in the Presidential Decree when producing submarine resources in the submarine resource areas. If the submarine resource produced by the holder of production rights is natural gas, the natural gas may be sold to gas wholesalers pursuant to the Urban Gas Business Act or to installers of gas supply facilities other than urban gas businesses. In such cases, there is no need to obtain a permit under the Urban Gas Business Act relating to the gas wholesale business.

## Legislation Relating to the Operation and Management of the Company

### *Act on the Management of Public Institutions*

The KNOC Act prescribes that the affairs regarding the Company's structure and management must be governed by the Act on the Management of Public Institutions. Under the Act on the Management of Public Institutions, the Company is required to make public many aspects of its affairs including, among others, the objectives of management, its budget and business plan, its financial statements and supplementary documents, status of personnel including directors and officers, its articles of incorporation, its bond register and the minutes of the board of directors (but confidential information on the management provided for in the minutes of board of directors need not be disclosed to the public) and the audit report of its Audit Committee. Full-time officers and employees may not be engaged in activities having purposes of commercial advantage. The Company's fiscal year must be the same as the Korean government's fiscal year. The Company must present mid- to long-term management objectives covering five fiscal years to the Minister of Trade, Industry and Energy and the Minister of Economy and Finance on an annual basis. The Company may be audited by the Board of Audit and Inspection of Korea based on its business activities and accounting.

### *Act on the Special Accounts for Energy and Resources*

The SAER Act has been enacted to implement certain special accounts for energy and resources-related projects so as to supply energy, stabilize prices and efficiently promote resources-related projects. The SAER Act is managed and supervised by the Ministry of Trade, Industry and Energy. Those accounts may be categorized into investment accounts and loan accounts.

Revenue from the investment account is primarily composed of surcharges and additional charges arising out of the Petroleum Business Act, the Urban Gas Business Act and the Mining Industry Act. Expenditure from the investment account is primarily composed of operating expenses needed for energy and resources related businesses and contributions or subsidies for such businesses as well as contributions or investments to institutions or groups engaged in the energy and resources-related businesses.

Revenue from the loan account is primarily composed of income from the principal and interest amount arising out of the loan amount. Expenditure is primarily composed of loans to the subject institutions to support energy and resources-related businesses.

If there are insufficient funds to meet the expenditure, long term loans may be arranged within the limits set by the resolution of the National Assembly. Temporary loans may also be arranged if there is a temporary shortage of funds, provided that repayment on the principal amount of the temporary loan must be made within the relevant accounting year. Any expenditure not made within the relevant accounting year may be carried over to the following accounting year notwithstanding any provisions in the State Finance Act.

The Ministry of Trade, Industry and Energy may commission the Company to manage finances such as the receipt of revenue, payment and settlement of the budget relating to this account (excluding management of coal stockpiling facilities and coal reserves) and to manage the reserve funds.

### *Regulations on Contractual Business of Public Enterprises and Semi-Government Institutions*

Contracts entered into by the Company must conform to Regulations on Contractual Business of Public Enterprises and Semi-Governmental Institutions (“Regulations on Contractual Business”) determined by the Ministry of Economy and Finance in accordance with the Act on the Management of Public Institutions. According to the Regulations on Contractual Business, if it is deemed necessary for the business characteristics of public enterprises and semi-government entities or for fairness and transparency, or if there are any other inevitable reasons, a standard or procedure different from those set forth in the Regulations on Contractual Business may be newly established. For those matters not specified in the Regulations on Contractual Business, the Act on Contracts to which the Government Is a Party will be applied. In principle, contracts must be made through open bids, but if it is deemed necessary, nominated competitive bids or private contracts may also be made.

## Environmental Legislation

### *Air Environment Preservation Act*

The purpose of the Air Environment Preservation Act is to protect public health and prevent environmental damage arising from air pollution. The Air Environment Preservation Act provides for the Ministry of Environment to determine standards for the sulphur content of fuel. The Ministry of Environment can determine the supply area and range of facilities to use the respective fuels and may in some circumstances prohibit or restrict the production, sale or use of certain fuels. According to the Air Environment Preservation Act, the Minister of Environment or mayor or provincial governor may prohibit the use of fuels other than gaseous fuel such as LNG and LPG which release relatively smaller amounts of pollutants in an area or facility designated by the Enforcement Decree of the Air Environment Preservation Act as a place where these permitted fuels should be used, regardless of the restriction measures on the use of fuel under the Air Environment Preservation Act.

### *Marine Environment Management Act*

The purpose of the Marine Environment Management Act is to prevent dangers arising from marine life damage or marine pollution, and create a clean and safe marine environment. Under the Marine Environment Management Act, no one may discharge pollutants from a ship, marine facility or marine space to the ocean or discharge waste generated from land unless otherwise permitted pursuant to the Marine Environment Management Act. Any person who owns a marine facility must prepare and keep a log of noxious liquid substances in the facility, including the volume of use and matters relating to the carrying in and out of such noxious liquid substances. The owner of a marine facility must equip the marine facility with the materials and chemicals used for the prevention and control of pollutants.

### *Soil Environment Conservation Act*

The purpose of the Soil Environment Conservation Act is to prevent potential danger or injury to public health and the environment due to soil contamination and to conserve the soil ecosystem by properly maintaining and preserving soil, including by restoring contaminated soil.

The level of soil contamination is determined by the ordinance of the Ministry of Environment. A person who causes soil contamination must, where any damages occur due to such soil contamination, compensate for the damages caused and restore the contaminated soil. Where there exist two or more persons who cause soil contamination, and it is impossible to determine which one has caused the damages, each of them must jointly and severally compensate for such damages and restore the contaminated soil.

If anyone who produces, transports, stores, handles, processes or treats soil contaminants discharges or leaks them in the process, such person must report such fact without delay to the competent administrative agency. The competent administrative agency that receives such a report may survey the cause and the level of soil contamination. If the competent administrative agency determines that the soil has been contaminated, then the person who causes such soil contamination may be ordered to restore the contaminated soil and, if such order is not complied with, such person will become subject to criminal liabilities.

### *Environmental Impact Assessment Act*

The purpose of the Environmental Impact Assessment Act is to promote the environmentally friendly and sustainable development of business by assessing in advance the impact on the environment of the business which is subject to the environmental impact assessment when the business plan is established and implemented and, thus, promoting the comfortable and secure lives of citizens. Anyone who desires to operate a business that is subject to the environmental impact assessment must prepare such assessment which will be reviewed by the Minister of Environment. The Minister of Environment may supplement or adjust the business plan according to its review.

To avoid damage to the environment from of the operation of a business, its impact on the environment must be investigated according to the assessment items agreed in advance and the result must be notified to the approval institution or the Minister of Environment ("Post Investigation of Impact on the Environment"). An energy development business is one of the businesses that are subject to the environmental impact assessment and the Post Investigation of Impact on the Environment. Among other things, the following businesses are subject to the environmental impact assessment and the Post Investigation of Impact on the Environment:

- Businesses in the development of underwater mining under the Submarine Mineral Resources Development Act which have the objective of energy development;
- Businesses in the mining industry under the Mining Industry Act having the objective of energy development (limited to those equal to or exceeding 300,000 square meters of mining area); and
- Oil business operator's installation of (i) oil storage facilities under the Petroleum Business Act and (ii) oil stockpile facilities under the KNOC Act (limited to those equal to or exceeding 100,000 kilo liters of storage volume).

# TAXATION

## Certain U.S. Federal Income Tax Considerations

The following is a summary of certain U.S. federal income tax considerations that may be relevant to a beneficial owner of a Note that is a citizen or resident of the United States or a domestic corporation or that otherwise is subject to U.S. federal income taxation on a net income basis in respect of the Note (a "United States holder"). A "non-United States holder" is a beneficial owner of a Note that is an individual, corporation, foreign estate, or foreign trust, that is not a United States holder. This summary is based on laws, regulations, rulings and decisions now in effect, all of which are subject to change (possibly with retroactive effect). This summary deals only with United States holders that will hold Notes as capital assets, and does not address tax considerations applicable to investors that may be subject to special tax rules, such as financial institutions, real estate investment trusts, tax-exempt entities, entities taxed as partnerships and partners therein, insurance companies, regulated investment companies, dealers in securities or currencies, traders in securities electing to mark to market, persons liable for alternative minimum tax, United States expatriates, nonresident alien individuals present in the United States for more than 182 days in a taxable year, persons that will hold Notes as a position in a "straddle" or conversion transaction, or as part of a "synthetic security" or other integrated financial transaction or persons that have a "functional currency" other than the U.S. dollar. Except as specifically set forth below, any special U.S. federal income tax considerations relevant to a particular issue of Notes, including any Floating Rate Notes, Index Linked Notes, Dual Currency Notes, Zero Coupon Notes, Notes that may not be properly characterized as indebtedness for U.S. federal income tax purposes or Notes having a term to maturity of more than 30 years will be provided in the applicable Pricing Supplement.

This summary does not discuss tax considerations relevant to the ownership and disposal of Notes in bearer form. In addition, this summary does not address the tax consequences of a redenomination. If the Issuer effects a redenomination, investors should consult their own advisors regarding the tax consequences to them, including the possibility that an investor will recognize foreign currency gain or loss as a result of the redenomination.

Further, this summary addresses only U.S. federal income tax consequences, and does not address the effects of the Medicare contribution tax on net investment income, the alternative minimum tax or foreign, state, local or other tax considerations that may be relevant to United States holders in light of their particular circumstances. Investors should consult their own tax advisors in determining the tax consequences to them of holding Notes, including the application to their particular situation of the U.S. federal income tax considerations discussed below, as well as the application of state, local, foreign or other tax laws.

United States holders that use an accrual method of accounting for tax purposes ("Accrual Method Holders") generally are required to include certain amounts in income no later than the time such amounts are reflected on certain financial statements (the "Book/Tax Conformity Rule"). The application of the Book/Tax Conformity Rule thus may require the accrual of income earlier than would be the case under the general tax rules described below. It is not entirely clear to what types of income the Book/Tax Conformity Rule applies, or, in some cases, how the rule is to be applied if it is applicable. However, proposed regulations generally would exclude, among other items, original issue discount and market discount (in either case, whether or not *de minimis*) from the applicability of the book/tax conformity rule. Although the proposed regulations generally will not be effective until taxable years beginning after the date on which they are issued in final form, taxpayers generally are permitted to elect to rely on their provisions currently. Accrual method holders should consult with their tax advisors regarding the potential applicability of the book/tax conformity rule to their particular situation. Accrual Method Holders should consult with their own tax advisors regarding the potential applicability of the Book/Tax Conformity Rule to their particular situation.

### *Payments or Accruals of Interest*

Payments or accruals of "qualified stated interest" (as defined below under "—Original Issue Discount") on a Note, but excluding any pre-issuance accrued interest, will be taxable to a United States holder as ordinary interest income at the time that such payments are accrued or are received (in accordance with the United States holder's method of tax accounting). Interest income on a Note, including any additional amounts and any taxes withheld in respect thereof, generally will constitute foreign source income and generally will be considered "passive category income" in computing the foreign tax credit allowable to a United States holder under U.S. federal income tax laws.

If such payments of interest are made with respect to a Note denominated in a single currency other than the U.S. dollar (a "Foreign Currency Note"), the amount of interest income realized by a United States holder that uses the cash method of tax accounting will be the U.S. dollar value of the Specified Currency payment based on the exchange rate in effect on the date of receipt regardless of whether the payment in fact is converted into U.S. dollars. A United States holder that uses the accrual method of accounting for tax purposes will accrue interest income on the Note in the Specified Currency and translate the amount accrued into U.S. dollars based on the average exchange rate in effect during the interest accrual period (or portion thereof within the United States holder's taxable year), or, at the accrual basis United States holder's election, at the spot rate of exchange on the last day of the accrual period (or the last day of the taxable year within such accrual period if the accrual period spans more than one taxable year), or at the spot rate of exchange on the date of receipt, if such date is within five business days of the last day of the accrual period. A United States holder that makes such election must apply it consistently to all debt instruments from year to year and cannot change the election without the consent of the Internal Revenue Service (the "IRS"). A United States holder that uses the accrual method of accounting for tax purposes will recognize foreign currency gain or loss, as the case may be, on the receipt of an interest payment made with respect to a Foreign Currency Note if the exchange rate in effect on the date the payment is received differs from the rate applicable to a previous accrual of that interest income regardless of whether the payment is in fact converted into U.S. dollars. Amounts attributable to pre-issuance accrued interest will generally not be includable in income, except to the extent of foreign currency gain or loss attributable to any changes in exchange rates during the period between the date the United States holder acquired the Note and the first Interest Payment Date. This foreign currency gain or loss will be treated as U.S. source ordinary income or loss but generally will not be treated as an adjustment to interest income received on the Note.

### *Additional Amounts*

Although interest payments to a United States holder are generally currently exempt from Korean taxation unless such United States holder has a permanent establishment in Korea, (see "— Korean Taxation — Tax on Interest" below) if the Korean law providing for the exemption is repealed or otherwise limited with respect to the Notes held by such United States holder, then in addition to interest on the Notes, such United States holder would be required to include in income any additional amounts received and any tax withheld from interest payments, notwithstanding that such tax withheld is not in fact received by such United States holder. As noted above, a United States holder may be entitled to deduct or credit such tax, subject to applicable limitations and conditions under U.S. federal income tax laws. However, the election to deduct or credit foreign taxes applies to all of the United States holder's foreign taxes for a particular taxable year. A United States holder will generally be denied a foreign tax credit for foreign taxes imposed with respect to the Notes where it does not meet a minimum holding period requirement during which it is not protected from risk of loss. The rules governing the foreign tax credit and deduction are complex. Investors are urged to consult their own tax advisors regarding the availability of the foreign tax credit and deduction and the treatment of additional amounts under their particular circumstances.

### *Purchase, Sale and Retirement of Notes*

A United States holder's adjusted tax basis in a Note generally will equal the cost of such Note to such holder, increased by any amounts includible in income by the holder as original issue discount and market discount and reduced by any amortized premium (each as described below) and any payments other than payments of qualified stated interest made on such Note. In the case of a Foreign Currency Note, the cost of such Note to a United States holder generally will be the U.S. dollar value of the foreign currency purchase price calculated at the exchange rate in effect on the date of purchase. However, in the case of a Foreign Currency Note that is traded on an established securities market, a cash basis United States holder (and, if it so elects, an accrual basis United States holder) will determine the U.S. dollar value of the cost of such Note by translating the amount paid at the spot rate of exchange on the settlement date of the purchase. The amount of any subsequent adjustments to a United States holder's adjusted tax basis in a Note in respect of original issue discount, market discount and premium denominated in a Specified Currency will be determined in the manner described under "— Original Issue Discount" and "— Premium and Market Discount" below. The conversion of U.S. dollars to the Specified Currency and the immediate use of the Specified Currency to purchase a Foreign Currency Note generally will not result in taxable gain or loss for a United States holder.

Upon the sale, exchange or retirement of a Note, a United States holder generally will recognize gain or loss equal to the difference between the amount realized on the sale, exchange or retirement (less any accrued qualified stated interest, which will be taxable as such) and the United States holder's adjusted tax basis in such Note. If a United States holder receives a currency other than the U.S. dollar in respect of the sale, exchange or retirement of a Note, the amount realized generally will be the U.S. dollar value of the Specified Currency received calculated at the exchange rate in effect on the date the instrument is disposed of or retired. However, in the case of a Foreign Currency Note that is traded on an established securities market, a cash basis United States holder, and if it so elects, an accrual basis United States holder will determine the U.S. dollar value of the amount realized by translating such amount at the spot rate on the settlement date of the sale, exchange or retirement. Furthermore, regardless of which of the foregoing methods applies, if Korean tax is withheld on the sale, exchange or retirement of a Note, the amount realized by a United States holder will include the gross amount of the proceeds of that sale, exchange or retirement before deduction of the Korean tax. The election available to accrual basis United States holders in respect of the purchase and sale of Foreign Currency Notes traded on an established securities market, discussed above, must be applied consistently to all debt instruments from year to year and cannot be changed without the consent of the IRS.

Except as described below with respect to market discount, Short-Term Notes (as defined below) and foreign currency gain or loss, gain or loss recognized by a United States holder on the sale, exchange or retirement of a Note generally will be U.S. source long-term capital gain or loss if the United States holder has held the Note for more than one year at the time of disposition. Long-term capital gains recognized by a non-corporate holder (including an individual holder) generally are subject to tax at a lower rate than short-term capital gains or ordinary income. The deductibility of capital losses is subject to limitations.

Any gain or loss recognized by a United States holder on the sale, exchange, redemption or retirement of a Note generally will be treated as United States source income. Consequently, United States holders may not be able to claim credit for any Korean tax imposed upon the sale, exchange, redemption or retirement of a Note unless such credit can be applied (subject to applicable limitations) against tax due on other income treated as derived from foreign sources. In addition, taxes are only eligible for foreign tax credit if they are compulsory. United States holders who may be eligible for an exemption from Korean taxation in respect of any gain realized on a disposition or sale of Notes due to an applicable treaty or other exemption, as described below under "— Korean Taxation — Tax on Capital Gains," should consult their own tax advisors with respect to their eligibility for benefits under such applicable tax treaty or other exemption and, if they are not eligible, their ability to credit any Korean tax withheld upon sale of Notes against their United States federal income tax liability.

A United States holder will recognize foreign currency gain or loss, generally taxable as U.S. source ordinary income or loss, on the sale, exchange or retirement of a Note equal to the difference, if any, between the U.S. dollar values of the United States holder's purchase price for the Note (as adjusted for amortized bond premium, if any) (i) on the date of sale or retirement and (ii) the date on which the United States holder acquired the Note. However, any such foreign currency gain or loss (including any foreign currency gain or loss with respect to the receipt of accrued but unpaid interest) will be realized only to the extent of total gain or loss realized on the sale or retirement. This foreign currency gain or loss will not be treated as an adjustment to interest income received on the Notes.

### *Original Issue Discount*

If the Issuer issues Notes at a discount from their stated redemption price at maturity (as defined below), and the discount is equal to or more than the product of one-fourth of one percent (0.25%) of the stated redemption price at maturity of the Notes multiplied by the number of full years to their maturity (the "*de minimis* threshold"), the Notes will be "Original Issue Discount Notes." The difference between the issue price and the stated redemption price at maturity of the Notes will be the "original issue discount" ("OID"). The "issue price" of the Notes will be the first price at which a substantial amount of the notes are sold to the public (i.e., excluding sales of Notes to underwriters, placement agents, wholesalers, or similar persons). The "stated redemption price at maturity" will include all payments under the Notes other than payments of "qualified stated interest" (as determined below).

United States holders of Original Issue Discount Notes generally will be subject to the special tax accounting rules for obligations issued with OID provided by the Internal Revenue Code of 1986, as amended, and certain regulations promulgated thereunder (the "OID Regulations"). United States holders of such Notes should be aware that, as described in greater detail below, they generally must include OID in ordinary gross income for U.S. federal income tax purposes as it accrues, in advance of the receipt of cash attributable to that income.

In general, each United States holder of an Original Issue Discount Note, whether such holder uses the cash or the accrual method of tax accounting, will be required to include in ordinary gross income the sum of the "daily portions" of OID on the Note for all days during the taxable year that the United States holder owns the Note. The daily portions of OID on an Original Issue Discount Note are determined by allocating to each day in any accrual period a ratable portion of the OID allocable to that accrual period. Accrual periods may be of any length and may vary in length over the term of an Original Issue Discount Note, provided that no accrual period is longer than one year and each scheduled payment of principal or interest occurs on either the final day or the first day of an accrual period. In the case of an initial holder, the amount of OID on an Original Issue Discount Note allocable to each accrual period is determined by (a) multiplying the "adjusted issue price" (as defined below) of the Original Issue Discount Note at the beginning of the accrual period by the yield to maturity of such Original Issue Discount Note (appropriately adjusted to reflect the length of the accrual period) and (b) subtracting from that product the amount (if any) of qualified stated interest (as defined below) allocable to that accrual period. The "yield to maturity" of a Note is the discount rate that causes the present value of all payments on the Note as of its original issue date to equal the issue price of such Note. The "adjusted issue price" of an Original Issue Discount Note at the beginning of any accrual period will generally be the sum of its issue price (generally including accrued interest, if any) and the amount of OID allocable to all prior accrual periods, reduced by the amount of all payments other than payments of qualified stated interest (if any) made with respect to such Note in all prior accrual periods. The term "qualified stated interest" generally means stated interest that is unconditionally payable in cash or property (other than debt instruments of the issuer) at least annually during the entire term of an Original Issue Discount Note at a single fixed rate of interest or, subject to certain conditions, based on one or more interest indices. In the case of an Original Issue Discount Note that is a Floating Rate Note, both the "yield to maturity" and "qualified stated interest" will generally be determined for these purposes as though the Original Issue Discount Note will bear interest in all periods at a fixed rate generally equal to the rate that would be applicable to the interest payments on the Note on its date of issue or, in the case of certain Floating Rate Notes, the rate that reflects the yield that is reasonably expected for the Note. (Additional rules may apply if interest on a Floating Rate Note is based on more than one interest index.) As a result of this "constant yield" method of including OID in income, the amounts includible in income by a United States holder in respect of an Original Issue Discount Note denominated in U.S. dollars generally are lesser in the early years, and greater in the later years, than the amounts that would be includible on a straight-line basis.

A United States holder generally may make an irrevocable election to include in its income its entire return on a Note (i.e., the excess of all remaining payments to be received on the Note, including payments of qualified stated interest, over the amount paid by such United States holder for such Note) under the constant-yield method described above. For Notes purchased at a premium or bearing market discount in the hands of the United States holder, the United States holder making such election will also be deemed to have made the election (discussed below in "— Premium and Market Discount") to amortize premium or to accrue market discount in income currently on a constant-yield basis.

In the case of an Original Issue Discount Note that is also a Foreign Currency Note, a United States holder should determine the U.S. dollar amount includible in income as OID for each accrual period by (a) calculating the amount of OID allocable to each accrual period in the Specified Currency using the constant-yield method described above, and (b) translating the amount of the Specified Currency so derived at the average exchange rate in effect during that accrual period (or portion thereof within a United States holder's taxable year) or, at the United States holder's election (as described above under "—Payments of Interest"), at the spot rate of exchange on the last day of the accrual period (or the last day of the taxable year within such accrual period if the accrual period spans more than one taxable year), or at the spot rate of exchange on the date of receipt, if such date is within five business days of the last day of the accrual period. Because exchange rates may fluctuate, a United States holder of an Original Issue Discount Note that is also a Foreign Currency Note may recognize a different amount of OID income in each accrual period than would the holder of an otherwise similar Original Issue Discount Note denominated in U.S. dollars. All payments on an Original Issue Discount Note (other than payments of qualified stated interest) will generally be viewed first as payments of previously-accrued OID (to the extent thereof), with payments attributed first to the earliest-accrued OID, and then as payments of principal. Upon the receipt of an amount attributable to OID (whether in connection with a payment of an amount that is not qualified stated interest or the sale or retirement of the Original Issue Discount Note), a United States holder will recognize ordinary income or loss measured by the difference between the amount received (translated into U.S. dollars at the exchange rate in effect on the date of receipt or on the date of disposition of the Original Issue Discount Note, as the case may be) and the amount accrued (using the exchange rate applicable to such previous accrual).

A subsequent United States holder of an Original Issue Discount Note that purchases the Note at a cost less than its remaining redemption amount (as defined below), or an initial United States holder that purchases an Original Issue Discount Note at a price other than the Note's issue price, also generally will be required to include in gross income the daily portions of OID, calculated as described above. However, if the United States holder acquires the Original Issue Discount Note at a price greater than its adjusted issue price, such holder is required to reduce its periodic inclusions of OID income to reflect the premium paid over the adjusted issue price. The "remaining redemption amount" for a Note is the total of all future payments to be made on the Note other than payments of qualified stated interest.

Floating Rate Notes generally will be treated as "variable rate debt instruments" under the OID Regulations. Accordingly, the stated interest on a Floating Rate Note generally will be treated as "qualified stated interest" and such a Note will not have OID solely as a result of the fact that it provides for interest at a variable rate. If a Floating Rate Note qualifying as a "variable rate debt instrument" is an Original Issue Discount Note, for purposes of determining the amount of OID allocable to each accrual period under the rules above, the Note's "yield to maturity" and "qualified stated interest" will generally be determined as though the Note bore interest in all periods at a fixed rate determined at the time of issuance of the Note. Additional rules may apply if interest on a Floating Rate Note is based on more than one interest index. If a Floating Rate Note does not qualify as a "variable rate debt instrument," such Note will be subject to special rules (the "Contingent Payment Regulations") that govern the tax treatment of debt obligations that provide for contingent payments ("Contingent Debt Obligations"). A detailed description of the tax considerations relevant to United States holders of any such Notes will be provided in the applicable Pricing Supplement.

Certain of the Notes may be subject to special redemption, repayment or interest rate reset features, as indicated in the applicable Pricing Supplement. Notes containing such features, in particular Original Issue Discount Notes, may be subject to special rules that differ from the general rules discussed above. Purchasers of Notes with such features should carefully examine the applicable Pricing Supplement and should consult their own tax advisors with respect to such Notes since the tax consequences with respect to such features, and especially with respect to OID, will depend, in part, on the particular terms of the purchased Notes.

If a Note provides for a scheduled Accrual Period that is longer than one year (for example, as a result of a long initial period on a Note with interest that is generally paid on an annual basis), then stated interest on the Note will not qualify as "qualified stated interest" under the OID Regulations. As a result, the Note would be an Original Issue Discount Note. In that event, among other things, cash-method United States holders will be required to accrue stated interest on the Note under the rules for OID described above, and all United States holders will be required to accrue OID that would otherwise fall under the *de minimis* threshold.

### *Premium and Market Discount*

A United States holder of a Note that purchases the Note at a cost greater than its remaining redemption amount (as defined in the fourth preceding paragraph) will be considered to have purchased the Note at a premium, and may elect to amortize such premium (as an offset to interest income), using a constant-yield method, over the remaining term of the Note. Such election, once made, generally applies to all bonds held or subsequently acquired by the United States holder on or after the first day of the first taxable year to which the election applies and may not be revoked without the consent of the IRS. A United States holder that elects to amortize such premium must reduce its tax basis in a Note by the amount of the premium amortized during its holding period. Original Issue Discount Notes purchased at a premium will not be subject to the OID rules described above. In the case of premium in respect of a Foreign Currency Note, a United States holder should calculate the amortization of such premium in the Specified Currency. Amortization deductions attributable to a period reduce interest payments in respect of that period and therefore are translated into U.S. dollars at the exchange rate used by the United States holder for such interest payments. Exchange gain or loss will be realized with respect to amortized bond premium on such a Note based on the difference between the exchange rate on the date or dates such premium is recovered through interest payments on the Note and the exchange rate on the date on which the United States holder acquired the Note. With respect to a United States holder that does not elect to amortize bond premium, the amount of bond premium will be included in the United States holder's adjusted tax basis when the Note matures or is disposed of by the United States holder. Therefore, a United States holder that does not elect to amortize such premium and that holds the Note to maturity generally will be required to treat the premium as capital loss when the Note matures.

If a United States holder of a Note purchases the Note at a price that is lower than its remaining redemption amount, or in the case of an Original Issue Discount Note, a price that is lower than its adjusted issue price, by at least 0.25% of its remaining redemption amount multiplied by the number of remaining whole years to maturity, the Note will be considered to have "market discount" in the hands of such United States holder. In such case, gain realized by the United States holder on the disposition of the Note generally will be treated as ordinary income to the extent of the market discount that accrued on the Note while held by such United States holder. In addition, the United States holder could be required to defer the deduction of a portion of the interest paid on any indebtedness incurred or maintained to purchase or carry the Note. In general terms, market discount on a Note will be treated as accruing ratably over the term of such Note, or, at the election of the holder, under a constant-yield method. Market discount on a Foreign Currency Note will be accrued by a United States holder in the Specified Currency. The amount includible in income by a United States holder in respect of such accrued market discount will be the U.S. dollar value of the amount accrued, generally calculated at the exchange rate in effect on the date that the Note is disposed of by the United States holder.

A United States holder may elect to include market discount in income on a current basis as it accrues (on either a ratable or constant-yield basis), in lieu of treating a portion of any gain realized on a sale of a Note as ordinary income. If a United States holder elects to include market discount on a current basis, the interest deduction deferral rule described above will not apply. Any accrued market discount on a Foreign Currency Note that is currently includible in income will be translated into U.S. dollars at the average exchange rate for the accrual period (or portion thereof within the United States holder's taxable year). Any such election, if made, applies to all market discount bonds acquired by the taxpayer on or after the first day of the first taxable year to which such election applies and is revocable only with the consent of the IRS.

### *Short-Term Notes*

The rules set forth above will also generally apply to Notes having maturities of not more than one year ("Short-Term Notes"), but with certain modifications.

The OID Regulations treat none of the interest on a Short-Term Note as qualified stated interest. Thus, all Short-Term Notes will be Original Issue Discount Notes. OID will be treated as accruing on a Short-Term Note ratably, or at the election of a United States holder, under a constant yield method.

A United States holder of a Short-Term Note that uses the cash method of tax accounting and is not a bank, securities dealer, regulated investment company or common trust fund, and does not identify the Short-Term

Note as part of a hedging transaction, will generally not be required to include OID in income on a current basis. Such a United States holder may not be allowed to deduct all of the interest paid or accrued on any indebtedness incurred or maintained to purchase or carry such Note until the maturity of the Note or its earlier disposition in a taxable transaction. In addition, such a United States holder will be required to treat any gain realized on a sale, exchange or retirement of the Note as ordinary income to the extent such gain does not exceed the OID accrued with respect to the Note during the period the United States holder held the Note. Notwithstanding the foregoing, a cash-basis United States holder of a Short-Term Note may elect to accrue OID into income on a current basis or to accrue the "acquisition discount" on the Note under the rules described below. If the United States holder elects to accrue OID or acquisition discount, the limitation on the deductibility of interest described above will not apply.

A United States holder using the accrual method of tax accounting and certain cash-basis United States holders (including banks, securities dealers, regulated investment companies and common trust funds) generally will be required to include original issue discount on a Short-Term Note in income on a current basis. Alternatively, a United States holder of a Short-Term Note can elect to accrue the "acquisition discount," if any, with respect to the Note on a current basis. If such an election is made, the OID rules will not apply to the Note. Acquisition discount is the excess of the Short-Term Note's stated redemption price at maturity (i.e., all amounts payable on the Short-Term Note) over the purchase price. Acquisition discount will be treated as accruing ratably or, at the election of the United States holder, under a constant-yield method based on daily compounding. The market discount rules will not apply to a Short-Term Note.

### *Index Linked Notes and Other Notes Providing for Contingent Payments*

The Contingent Payment Regulations, which govern the tax treatment of Contingent Debt Obligations, generally require accrual of interest income on a constant-yield basis in respect of such obligations at a yield determined at the time of their issuance, and may require adjustments to such accruals when any contingent payments are made. A detailed description of the tax considerations relevant to United States holders of any Contingent Debt Obligations will be provided in the applicable Pricing Supplement.

### *Estate and Gift Taxation*

As discussed in "— Korean Taxation — Inheritance Tax and Gift Tax," Korea imposes an inheritance tax on (a) all assets (wherever located) of the deceased if at the time of death the deceased was a resident of Korea and (b) property located in Korea (including the Notes) that passes on death, even if the decedent was not a resident of Korea. Korean gift tax is imposed in similar circumstances to the above. Subject to certain conditions and limitations, the amount of any inheritance tax paid to Korea may be eligible for credit against the amount of U.S. federal estate tax imposed on the estate of a United States holder. The Korean gift tax generally will not be treated as a creditable foreign tax for U.S. tax purposes. Prospective purchasers should consult their own tax advisors regarding the consequences of the imposition of the Korean inheritance or gift tax on their U.S. federal income tax liability.

### *Information Reporting and Backup Withholding*

Information returns will be filed with the IRS in connection with payments on the Notes made to, and the proceeds of dispositions of Notes effected by, certain United States taxpayers. In addition, certain United States taxpayers may be subject to backup withholding tax in respect of such payments if they do not provide their taxpayer identification numbers or certifications of exempt status to the applicable withholding agent or fail to report all interest and dividends required to be shown on their U.S. federal income tax returns. Persons holding Notes who are not United States taxpayers may be required to comply with applicable certification procedures to establish that they are not United States taxpayers in order to avoid the application of such information reporting requirements and backup withholding tax. The amount of any backup withholding from a payment to a United States or non-United States taxpayer will be allowed as a credit against the holder's U.S. federal income tax liability and may entitle the holder to a refund, provided that the required information is timely furnished to the IRS.

### *Information with Respect to Foreign Financial Assets*

Certain United States holders that own "specified foreign financial assets" with an aggregate value in excess of US$50,000 on the last day of the taxable year or US$75,000 at any time during the taxable year are generally required to file an information statement along with their tax returns, currently on IRS Form 8938, with respect to such assets. "Specified foreign financial assets" include any financial accounts held at a non-U.S. financial institution, as well as securities issued by a non-U.S. issuer (which would include the Notes) that are not held in accounts maintained by financial institutions. Higher reporting thresholds apply to certain individuals living abroad and to certain married individuals. Regulations extend this reporting requirement to certain entities that are treated as formed or availed of to hold direct or indirect interests in specified foreign financial assets based on certain objective criteria. United States holders who fail to report the required information could be subject to substantial penalties. In addition, the statute of limitations for assessment of tax would be suspended, in whole or part. Prospective investors should consult their own tax advisors concerning the application of these rules to their investment in the Notes, including the application of the rules to their particular circumstances.

### *Reportable Transactions*

A U.S. taxpayer that participates in a "reportable transaction" will be required to disclose its participation to the IRS. The scope and application of these rules is not entirely clear. A United States holder may be required to treat a foreign currency exchange loss from the Foreign Currency Notes as a reportable transaction if the loss exceeds US$50,000 in a single taxable year if the United States holder is an individual or trust, or higher amounts for other United States holders. In the event the acquisition, ownership or disposition of the Foreign Currency Notes constitutes participation in a "reportable transaction" for purposes of these rules, a United States holder will be required to disclose its investment to the IRS, currently on IRS Form 8886. A penalty in the amount of US$10,000 in the case of a natural person and US$50,000 in all other cases is generally imposed on any taxpayer that fails to timely file an information return with the IRS with respect to a transaction resulting in a loss that is treated as a reportable transaction. Prospective investors should consult their own tax advisors regarding the application of these rules to the acquisition, ownership or disposition of the Foreign Currency Notes.

## Korean Taxation

The information provided below does not purport to be a complete summary of Korean tax law and practice currently applicable. Prospective investors who are in any doubt as to their tax position should consult with their own professional advisors.

The taxation of non-resident individuals and non-Korean corporations ("Non-Residents") depends on whether they have a "permanent establishment" (as defined under Korean law and applicable tax treaty) in Korea to which the relevant Korean source income is attributable or with which such income is effectively connected. Non-Residents without a permanent establishment in Korea are taxed in the manner described below. Non-Residents with permanent establishments in Korea are taxed in accordance with different rules.

### *Tax on Interest*

Interest on the Notes paid to Non-Residents (except for their permanent establishments in Korea), being foreign currency denominated bonds issued outside Korea, is exempt from income tax and corporation tax (whether payable by withholding or otherwise) pursuant to the Special Tax Treatment Control Law (the "STTCL"). The term "foreign currency denominated bonds" in this context is not defined under the STTCL. In this regard, the Korean tax authority issued a ruling on September 1, 1990 to the effect that "a notes issuance facility, commercial paper issued in U.S. dollars or euros or a banker's acceptance" are not treated as "foreign currency denominated bonds."

If the tax exemption under the STTCL referred to above were to cease to be in effect, the rate of income tax or corporation tax applicable to interest on the Notes for a Non-Resident without a permanent establishment in Korea, would be 14% of income. In addition, a tax surcharge called a local income tax would be imposed at the rate of 10% of the income tax or corporation tax (raising the total tax rate to 15.4%).

The tax rates may be reduced by an applicable tax treaty, convention or agreement between Korea and the country of the recipient of the income. The relevant tax treaties are discussed below.

### *Index Linked Notes*

A detailed description of the tax considerations relevant to Index Linked Notes will be provided in the applicable Pricing Supplement.

### *Tax on Capital Gains*

Korean tax laws currently exclude from Korean taxation gains made by a Non-Resident without a permanent establishment in Korea from the sale of the Notes to other Non-Residents (other than to their permanent establishments in Korea). In addition, capital gains earned by Non-Residents with or without permanent establishments in Korea from the transfer taking place outside Korea of the Notes are currently exempt from taxation by virtue of the STTCL, provided that the issuance of the Notes is deemed to be an overseas issuance denominated in foreign currency under the STTCL.

If the exclusion or exemption from Korean taxation referred to above were to cease to be in effect, in the absence of an applicable tax treaty reducing or eliminating tax on capital gains, the applicable rate of tax would be the lower of 11% (including local income tax) of the gross realization proceeds or (subject to the production of satisfactory evidence of the acquisition cost and certain direct transaction costs of the relevant Note 22% (including local income tax) of the realized gain (i.e., the excess of the gross realization proceeds over the acquisition cost and certain direct transaction costs) made. If such evidence shows that no gain (or a loss) was made on the sale, no Korean tax is payable. There is no provision under relevant Korean law to allow offsetting of gains and losses or otherwise aggregating transactions for the purpose of computing the net gain attributable to sales of the Notes issued by Korean companies. The purchaser or any other designated withholding agent of the Notes is obliged under Korean law to withhold the applicable amount of Korean tax and make payment thereof to the relevant Korean tax authority. Unless the seller can claim the benefit of an exemption from tax under an applicable tax treaty or on the failure of the seller to produce satisfactory evidence of his acquisition cost and certain direct transaction costs in relation to the instruments being sold, the purchaser or such withholding agent must withhold an amount equal to 11% of the gross realization proceeds. Any amounts withheld by the purchaser or such withholding agent must be paid to the competent Korean tax office. The purchaser or withholding agent must pay any withholding tax no later than the tenth day of the month following the month in which the payment for the purchase of the relevant instruments occurred. Failure to transmit the withheld tax to the Korean tax authorities in time subjects the purchaser or such withholding agent to penalties under Korean tax laws. The Korean tax authorities may attempt to collect such tax from a Non-Resident who is liable for payment of any Korean tax on gains, as a purchaser or withholding agent who is obliged to withhold such tax, through proceedings against payments due to the Non-Resident from its Korean investments and the assets or revenues of any of the Non-Resident's branch or representative offices in Korea.

### *Inheritance Tax and Gift Tax*

Korean inheritance tax is imposed upon (a) all assets (wherever located) of the deceased if at the time of his death he was domiciled in Korea or had resided in Korea for at least 183 days immediately prior to his death and (b) all property located in Korea that passes on death (irrespective of the domicile or residence of the deceased). Gift tax is imposed in similar circumstances to the above. The taxes are imposed if the value of the relevant property is above a certain limit and the rate varies from 10% to 50%. At present, Korea has not entered into any tax treaties regarding its inheritance or gift taxes.

Under Korean inheritance and gift tax laws, bonds issued by Korean corporations are deemed located in Korea irrespective of where they are physically located or by whom they are owned, and, consequently, the Korean inheritance and gift taxes may be imposed on transfers of the Notes by inheritance or gift. Prospective purchasers should consult their personal tax advisors regarding the consequences of the imposition of the Korean inheritance or gift tax.

### *Stamp Duty and Securities Transaction Tax*

No stamp, issue or registration duties will be payable in Korea by the holders of the Notes in connection with the issue of the Notes except for a nominal amount of stamp duty on certain documents executed in Korea which will be paid by the Issuer. No securities transaction tax will be imposed upon the transfer of the Notes.

### *Tax Treaties*

At the date of this Offering Circular, Korea has tax treaties with, inter alia, Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Luxembourg, The Netherlands, New Zealand, Norway, Singapore, Sweden, Switzerland, the UK and the United States of America, under which the rate of withholding tax on interest is reduced, generally to between 5 and 16.5% (including local income tax), and the tax on capital gains is often eliminated.

Each holder of the Notes should inquire whether he is entitled to the benefit of a tax treaty with respect to any transaction involving the Notes. It is the responsibility of the party claiming the benefits of a tax treaty in respect of interest payments to file with the payer or the Issuer a certificate as to his residence. In the absence of sufficient proof, the payer or the Issuer must withhold taxes in accordance with the above discussion.

In order to claim the benefit of a tax rate reduction or tax exemption available under the applicable tax treaties, a non-resident holder should submit to the payer of such Korean source income an application (for a reduced withholding tax rate, the “application for entitlement to reduced tax rate,” and for an exemption from withholding tax, the “application for exemption” under a tax treaty along with a certificate of the non-resident holder’s tax residence issued by a competent authority of the non-resident holder’s residence country) as the beneficial owner of such Korean source income (“BO Application”). Such application should be submitted to the withholding agent prior to the payment date of the relevant income. Subject to certain exceptions, where the relevant income is paid to an overseas investment vehicle (which is not the beneficial owner of such income) (“OIV”), a beneficial owner claiming the benefit of an applicable tax treaty with respect to such income must submit its BO Application to such OIV, which must submit an OIV report and a schedule of beneficial owners to the withholding agent prior to the payment date of such income. In the case of a tax exemption application, the withholding agent is required to submit such application (together with the applicable OIV report in the case of income paid to an OIV) to the relevant district tax office by the ninth day of the month following the date of the payment of such income.

### *Withholding and Gross Up*

As mentioned above, interest paid on the Notes is exempt from any withholding or deduction on account of income tax or corporation tax pursuant to the STTCL. However, in the event that the payer or the Issuer is required by law to make any withholding or deduction for or on account of any Korean taxes (as more fully described in “Terms and Conditions of the Notes—Taxation”) the Issuer has agreed to pay (subject to the customary exceptions as set out in “Terms and Conditions of the Notes—Taxation”) such additional amounts as may be necessary in order that the net amounts received by the Holder of any Note after such withholding or deduction shall equal the respective amounts which would have been received by such holder in the absence of such withholding or deduction.

## The Proposed Financial Transaction Tax

The European Commission has published a proposal (the “Commission’s Proposal”) for a Directive for a common financial transaction tax (“FTT”) in Austria, Belgium, Estonia, France, Germany, Greece, Italy, Portugal, Slovakia, Slovenia and Spain (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 in its current form, apply to certain dealings in the Notes 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 remains subject to negotiation between participating Member States and the legality of the proposal is uncertain. It may therefore be altered prior to any implementation, the timing of which remains unclear. Additional EU Member States may decide to participate and/or certain of the participating Member States may decide to withdraw.

Prospective holders of the Notes are advised to seek their own professional advice in relation to the FTT.

## INDEPENDENT AUDITORS

The consolidated financial statements of the Issuer as of and for the years ended December 31, 2018 and 2017, included in this Offering Circular, have been audited by KPMG Samjong Accounting Corp., independent auditors, as stated in their reports appearing herein. KPMG Samjong Accounting Corp.'s report on the consolidated financial statements of the Issuer as of and for the years ended December 31, 2018 and 2017 contains emphasis-of-matter paragraphs regarding (1) uncertainty of deterioration in operating condition of oil market, (2) correction of errors and (3) basis of preparation.

The consolidated financial statements of the Issuer as of and for the years ended December 31, 2019, included in this Offering Circular, have been audited by Ernst & Young Han Young, independent auditors, as stated in their reports appearing herein.

With respect to the interim consolidated financial statements of the Issuer as of June 30, 2020 and for the six months ended June 30, 2020 and 2019, included in this Offering Circular, Ernst & Young Han Young have reported that they applied limited procedures in accordance with professional standards for a review of such information. However, their separate report appearing herein states that they did not audit and they do not express an opinion on such interim financial information. Accordingly, the degree of reliance on their separate report on such information should be restricted in light of the limited nature of the review procedures applied.

# SUBSCRIPTION AND SALE AND TRANSFER AND SELLING RESTRICTIONS

The Dealers have, in an amended and restated program agreement dated September 21, 2015 as further amended and/or supplemented from time to time (the "Program Agreement"), agreed with the Issuer a basis upon which they or any of them may from time to time agree to purchase Notes. Any such agreement will extend to those matters stated under "Form of the Notes" and "Terms and Conditions of the Notes." In the Program Agreement, the Issuer has agreed to reimburse the Dealers for certain of their expenses reasonably and properly incurred in protecting or enforcing any of their rights under the Program Agreement and to indemnify the Dealers against certain liabilities incurred by them.

In order to facilitate the offering of any Tranche of the Notes, certain persons participating in the offering of the Tranche may to the extent permitted by applicable laws and regulations engage in transactions that stabilize, maintain or otherwise affect the market price of the relevant Notes for a limited period after the issue date. Specifically such persons may overallot or create a short position in the Notes for their own account by selling more Notes than have been sold to them by the Issuer. Such persons may also elect to cover any such short position by purchasing Notes in the open market. In addition, such persons may stabilize or maintain the price of the Notes by bidding for or purchasing Notes in the open market and may impose penalty bids, under which selling concessions allowed to syndicate members or other broker-dealers participating in the offering of the Notes are reclaimed if Notes previously distributed in the offering are repurchased in connection with stabilization transactions or otherwise. The effect of these transactions may be to stabilize or maintain the market price of the Notes at a level above that which might otherwise prevail in the open market. The imposition of a penalty bid may also affect the price of the Notes to the extent that it discourages resales thereof. No representation is made as to the magnitude or effect of any such stabilizing or other transactions. Such transactions, if commenced, may be discontinued at any time and must be brought to an end after a limited period.

If a jurisdiction requires that any offering of Notes under the Program be made by a licensed broker or dealer and the Dealers or any affiliate of the Dealers is a licensed broker or dealer in that jurisdiction, the offering shall be deemed to be made by that Dealer or its affiliate on behalf of the Issuer in such jurisdiction.

## Certain Relationships

The Dealers and certain of their respective affiliates may have performed certain investment banking, commercial banking and advisory services for the Issuer and its affiliates from time to time for which they have received customary fees and expenses and may, from time to time, engage in transactions with and perform services for the Issuer and its affiliates in the ordinary course of their business. The Dealers or certain of their respective affiliates may purchase the Notes and be allocated the Notes for asset management and/or proprietary purposes but not with a view to distribution.

The Dealers or their respective affiliates may purchase the Notes for 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 Issuer 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 the Notes to which this Offering Circular relates (notwithstanding that such selected counterparties may also be purchasers of the Notes).

In addition, in the ordinary course of their business activities, the Dealers 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. Such investments and securities activities may involve securities and/or instruments of the Issuer or its affiliates. The Dealers and their respective affiliates may also make investment recommendations and/or publish or express independent research views with respect to such securities or financial instruments and may hold, or recommend to clients that they acquire long and/or short positions in such securities and instruments.

## Transfer Restrictions

As a result of the following restrictions, purchasers of Notes in the United States are advised to consult legal counsel prior to making any purchase, offer, sale, resale or other transfer of such Notes.

Each purchaser of Registered Notes (other than a person purchasing an interest in a Registered Global Note with a view to holding it in the form of an interest in the same Global Note) or person wishing to transfer an interest from one Registered Global Note to another or from global to definitive form or vice versa, will be required to acknowledge, represent and agree as follows (terms used in this paragraph that are defined in Rule 144A or in Regulation S are used herein as defined therein):

(a) that either: (i) it is a QIB, purchasing (or holding) the Notes for its own account or for the account of one or more QIBs and it is aware that any sale to it is being made in reliance on Rule 144A or (ii) it is an Institutional Accredited Investor which has delivered an IAI Investment Letter or (iii) it is outside the United States and is not a U.S. person;

(b) that the Notes are being offered and sold in a transaction not involving a public offering in the United States within the meaning of the Securities Act, and that the Notes have not been and will not be registered under the Securities Act or any other applicable U.S. state securities laws and may not be offered or sold within the United States or to, or for the account or benefit of, U.S. persons except as set forth below;

(c) that, unless it holds an interest in a Regulation S Global Note and either is a person located outside the United States or is not a U.S. person, if in the future it decides to resell, pledge or otherwise transfer the Notes or any beneficial interests in the Notes, it will do so, prior to the date which is one year after the later of the last Issue Date for the Series and the last date on which the Issuer or an affiliate of the Issuer was the owner of such Notes, only (i) to the Issuer or any affiliate thereof, (ii) inside the United States to a person whom the seller reasonably believes is a QIB purchasing for its own account or for the account of a QIB in a transaction meeting the requirements of Rule 144A, (iii) outside the United States in compliance with Rule 903 or Rule 904 under the Securities Act, (iv) pursuant to the exemption from registration provided by Rule 144 under the Securities Act (if available) or (v) pursuant to an effective registration statement under the Securities Act, in each case in accordance with all applicable U.S. state securities laws;

(d) it will, and will require each subsequent holder to, notify any purchaser of the Notes from it of the resale restrictions referred to in paragraph (c) above, if then applicable;

(e) that Notes initially offered in the United States to QIBs will be represented by one or more Rule 144A Global Notes, that Notes offered to Institutional Accredited Investors will be in the form of Definitive IAI Registered Notes and that Notes offered outside the United States in reliance on Regulation S will be represented by one or more Regulation S Global Notes;

(f) that the Notes, other than the Regulation S Global Notes, will bear a legend to the following effect unless otherwise agreed to by the Issuer:

> "THIS SECURITY HAS NOT BEEN REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR ANY OTHER APPLICABLE U.S. STATE SECURITIES LAWS AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD WITHIN THE UNITED STATES OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, U.S. PERSONS EXCEPT AS SET FORTH IN THE FOLLOWING SENTENCE. BY ITS ACQUISITION HEREOF, THE HOLDER (A) REPRESENTS THAT (I) IT IS A "QUALIFIED INSTITUTIONAL BUYER" (AS DEFINED IN RULE 144A UNDER THE SECURITIES ACT) PURCHASING THE SECURITIES FOR ITS OWN ACCOUNT OR FOR THE ACCOUNT OF ONE OR MORE QUALIFIED INSTITUTIONAL BUYERS OR (II) IT IS AN INSTITUTIONAL "ACCREDITED INVESTOR" (AS DEFINED IN RULE 501(A)(1), (2), (3) OR (7) UNDER THE SECURITIES ACT) (AN "INSTITUTIONAL ACCREDITED INVESTOR"); (B) AGREES THAT IT WILL NOT RESELL OR OTHERWISE TRANSFER THE SECURITIES EXCEPT IN ACCORDANCE WITH THE AGENCY AGREEMENT AND, PRIOR TO THE DATE WHICH IS ONE YEAR AFTER THE LATER OF THE

> LAST ISSUE DATE FOR THE SERIES AND THE LAST DATE ON WHICH THE ISSUER OR AN AFFILIATE OF THE ISSUER WAS THE OWNER OF SUCH SECURITIES OTHER THAN (I) TO THE ISSUER OR ANY AFFILIATE THEREOF, (II) INSIDE THE UNITED STATES TO A PERSON WHOM THE SELLER REASONABLY BELIEVES IS A QUALIFIED INSTITUTIONAL BUYER WITHIN THE MEANING OF RULE 144A UNDER THE SECURITIES ACT PURCHASING FOR ITS OWN ACCOUNT OR FOR THE ACCOUNT OF A QUALIFIED INSTITUTIONAL BUYER IN A TRANSACTION MEETING THE REQUIREMENTS OF RULE 144A, (III) OUTSIDE THE UNITED STATES IN COMPLIANCE WITH RULE 903 OR RULE 904 UNDER THE SECURITIES ACT, (IV) PURSUANT TO THE EXEMPTION FROM REGISTRATION PROVIDED BY RULE 144 UNDER THE SECURITIES ACT (IF AVAILABLE) OR (V) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT, IN EACH CASE IN ACCORDANCE WITH ALL APPLICABLE SECURITIES LAWS OF THE STATES OF THE UNITED STATES AND ANY OTHER JURISDICTION; AND (C) IT AGREES THAT IT WILL DELIVER TO EACH PERSON TO WHOM THIS SECURITY IS TRANSFERRED A NOTICE SUBSTANTIALLY TO THE EFFECT OF THIS LEGEND.
>
> THIS SECURITY AND RELATED DOCUMENTATION (INCLUDING, WITHOUT LIMITATION, THE AGENCY AGREEMENT REFERRED TO HEREIN) MAY BE AMENDED OR SUPPLEMENTED FROM TIME TO TIME, WITHOUT THE CONSENT OF, BUT UPON NOTICE TO, THE HOLDERS OF SUCH SECURITIES SENT TO THEIR REGISTERED ADDRESSES, TO MODIFY THE RESTRICTIONS ON AND PROCEDURES FOR RESALES AND OTHER TRANSFERS OF THIS SECURITY TO REFLECT ANY CHANGE IN APPLICABLE LAW OR REGULATION (OR THE INTERPRETATION THEREOF) OR IN PRACTICES RELATING TO RESALES OR OTHER TRANSFERS OF RESTRICTED SECURITIES GENERALLY. THE HOLDER OF THIS SECURITY SHALL BE DEEMED, BY ITS ACCEPTANCE OR PURCHASE HEREOF, TO HAVE AGREED TO ANY SUCH AMENDMENT OR SUPPLEMENT (EACH OF WHICH SHALL BE CONCLUSIVE AND BINDING ON THE HOLDER HEREOF AND ALL FUTURE HOLDERS OF THIS SECURITY AND ANY SECURITIES ISSUED IN EXCHANGE OR SUBSTITUTION THEREFOR, WHETHER OR NOT ANY NOTATION THEREOF IS MADE HEREON).";

(g) if it is outside the United States and is not a U.S. person, that if it should resell or otherwise transfer the Notes prior to the expiration of the distribution compliance period (defined as 40 days after the later of the commencement of the offering and the closing date with respect to the original issuance of the Notes), it will do so only (i)(A) outside the United States in compliance with Rule 903 or 904 under the Securities Act or (B) to a QIB in compliance with Rule 144A and (ii) in accordance with all applicable U.S. state securities laws; and it acknowledges that the Regulation S Global Notes will bear a legend to the following effect unless otherwise agreed to by the Issuer:

> "THIS SECURITY HAS NOT BEEN AND WILL NOT BE REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR ANY OTHER APPLICABLE U.S. STATE SECURITIES LAWS AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD WITHIN THE UNITED STATES OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, U.S. PERSONS EXCEPT IN ACCORDANCE WITH THE AGENCY AGREEMENT AND PURSUANT TO AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OR PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT. THIS LEGEND SHALL CEASE TO APPLY UPON THE EXPIRY OF THE PERIOD OF 40 DAYS AFTER THE COMPLETION OF THE DISTRIBUTION OF ALL THE NOTES OF THE TRANCHE OF WHICH THIS NOTE FORMS PART."; and

(h) that the Issuer and others will rely upon the truth and accuracy of the foregoing acknowledgements, representations and agreements and agrees that if any of such acknowledgements, representations or agreements made by it are no longer accurate, it shall promptly notify the Issuer; and if it is acquiring any Notes as a fiduciary or agent for one or more accounts it represents that it has sole investment discretion with respect to each such account and that it has full power to make the foregoing acknowledgements, representations and agreements on behalf of each such account.

Institutional Accredited Investors who purchase Registered Notes in definitive form offered and sold in the United States in reliance upon the exemption from registration provided by Regulation D of the Securities Act are required to execute and deliver to the Registrar an IAI Investment Letter. Upon execution and delivery of an IAI Investment Letter by an Institutional Accredited Investor, Notes will be issued in definitive registered form, see "Form of the Notes."

The IAI Investment Letter will state, among other things, the following:

(a) that the Institutional Accredited Investor has received a copy of the Offering Circular and such other information as it deems necessary in order to make its investment decision;

(b) that the Institutional Accredited Investor understands that any subsequent transfer of the Notes is subject to certain restrictions and conditions set forth in the Offering Circular and the Notes (including those set out above) and that it agrees to be bound by, and not to resell, pledge or otherwise transfer the Notes except in compliance with, such restrictions and conditions and the Securities Act;

(c) that, in the normal course of its business, the Institutional Accredited Investor invests in or purchases securities similar to the Notes;

(d) that the Institutional Accredited Investor is an Institutional Accredited Investor within the meaning of Rule 501(a)(1), (2), (3) or (7) of Regulation D under the Securities Act and has such knowledge and experience in financial and business matters as to be capable of evaluating the merits and risks of its investment in the Notes, and it and any accounts for which it is acting are each able to bear the economic risk of its or any such accounts' investment for an indefinite period of time;

(e) that the Institutional Accredited Investor is acquiring the Notes purchased by it for its own account or for one or more accounts (each of which is an Institutional Accredited Investor) as to each of which it exercises sole investment discretion and not with a view to any distribution of the Notes, subject, nevertheless, to the understanding that the disposition of its property shall at all times be and remain within its control; and

(f) that, in the event that the Institutional Accredited Investor purchases Notes, it will acquire Notes having a minimum purchase price of at least U.S.$250,000 (or the approximate equivalent in another Specified Currency).

No sale of Legended Notes in the United States to any one purchaser will be for less than U.S.$100,000 (or its foreign currency equivalent) principal amount or, in the case of sales to Institutional Accredited Investors, U.S.$250,000 (or its foreign currency equivalent) principal amount and no Legended Note will be issued in connection with such a sale in a smaller principal amount. If the purchaser is a non-bank fiduciary acting on behalf of others, each person for whom it is acting must purchase at least U.S.$100,000 (or its foreign currency equivalent) or, in the case of sales to Institutional Accredited Investors, U.S.$250,000 (or its foreign currency equivalent) principal amount of Registered Notes.

## Selling Restrictions

### *United States of America*

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 or to, or for the account or benefit of, U.S. persons except in certain transactions exempt from the registration requirements of the Securities Act.

The Notes in bearer form are subject to U.S. tax law requirements and may not be offered, sold or delivered within the United States or its possessions or to a United States person, except in certain transactions permitted by U.S. tax regulations. Terms used in this paragraph have the meanings given to them by the U.S. Internal Revenue Code of 1986 and regulations thereunder.

In connection with any Notes which are offered or sold outside the United States in reliance on an exemption from the registration requirements of the Securities Act provided under Regulation S ("Regulation S Notes"), each Dealer has represented, warranted and agreed, and each further Dealer appointed under the Program will be required to represent, warrant and agree, that it will not offer, sell or deliver such Notes (i) as part of their distribution at any time or (ii) otherwise until 40 days after the completion of the distribution, as determined and certified by the relevant Dealer or, in the case of an issue of Notes on a syndicated basis, the relevant lead manager, of all Notes of the Tranche of which such Regulation S Notes are a part, within the United States or to, or for the account or benefit of, U.S. persons. Each Dealer has further agreed, and each further Dealer appointed under the Program will be required to agree, that it will send to each dealer to which it sells any Regulation S Notes during the distribution compliance period a confirmation or other notice setting forth the restrictions on offers and sales of the Regulation S Notes within the United States or to, or for the account or benefit of, U.S. persons.

Until 40 days after the commencement of the offering of any Series of Notes, an offer or sale of such Notes within the United States by any dealer (whether or not participating in the offering) may violate the registration requirements of the Securities Act if such offer or sale is made otherwise than in accordance with an available exemption from registration under the Securities Act.

Dealers may arrange for the resale of Notes to QIBs pursuant to Rule 144A and each such purchaser of Notes is hereby notified that the Dealers may be relying on the exemption from the registration requirements of the Securities Act provided by Rule 144A. The minimum aggregate principal amount of Notes that may be purchased by a QIB pursuant to Rule 144A is U.S.$100,000 (or the approximate equivalent thereof in any other currency). To the extent that the Issuer is not subject to or does not comply with the reporting requirements of Section 13 or 15(d) of the Exchange Act or the information furnishing requirements of Rule 12g3-2(b) thereunder, the Issuer has agreed to furnish to holders of Notes and to prospective purchasers designated by such holders, upon request, such information as may be required by Rule 144A(d)(4).

Each issuance of Index Linked Notes or Dual Currency Notes shall be subject to such additional U.S. selling restrictions as the Issuer and the relevant Dealer may agree as a term of the issuance and purchase of such Notes, which additional selling restrictions shall be set out in the applicable Pricing Supplement.

### *European Economic Area and United Kingdom*

The final terms (or Pricing Supplement, as the case may be) in respect of any Series of Notes may include information entitled "MiFID II Product Governance," which will outline the target market assessment in respect of the Notes of any such Series and which channels for distribution of the Notes are appropriate. If such information is included, any person subsequently offering, selling or recommending the Notes (a "distributor") should take into consideration the target market assessment; however, a distributor subject to MiFID II will be responsible for undertaking its own target market assessment in respect of the Notes (by either adopting or refining the target market assessment) and determining the appropriate distribution channels.

A determination will be made in relation to each issue of Notes about whether, for the purpose of the MiFID Product Governance Rules, each of the Arranger and Dealers subscribing for any Notes is a manufacturer in respect of such Notes, but otherwise neither the Arranger nor the Dealers nor any of their respective affiliates will be a manufacturer for the purpose of the MiFID Product Governance Rules.

Unless the final terms (or Pricing Supplement, as the case may be) in respect of any Series of Notes specifies "Prohibition of Sales to EEA or UK Retail Investors" as "Not Applicable", each Dealer has represented and agreed, and each further Dealer appointed under the Program will be required to represent and agree, that it has not offered, sold or otherwise made available and will not offer, sell or otherwise make available any Notes which are the subject of the offering contemplated by this Offering Circular as completed by the final terms (or Pricing Supplement, as the case may be) in relation thereto to any retail investor in the EEA or in the UK. For the purposes of this provision: (a) the expression "retail investor" means a person who is one (or more) of the following: (i) a retail client as defined in point (11) of Article 4(1) of MiFID II; (ii) a customer within the meaning of Directive (EU) 2016/97 (the "Insurance Distribution Directive"), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (iii) not a qualified investor as defined in the Prospectus Regulation; and (b) the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes.

If the final terms (or Pricing Supplement, as the case may be) in respect of any Notes specifies the "Prohibition of sales to EEA and UK retail investors" as "Not Applicable", in relation to each Member State of the EEA and the UK (each, a "Relevant State"), each Dealer has represented and agreed, and each further Dealer appointed under the Program will be required to represent and agree, that it has not made and will not make an offer of Notes which are the subject of the offering contemplated by this Offering Circular, as completed by the final terms in relation thereto, to the public in that Relevant State except that it may make an offer of such Notes to the public in that Relevant State:

(a) if the final terms in relation to the Notes specify that an offer of those Notes may be made other than pursuant to Article 1(4) of the Prospectus Regulation in that Relevant State (a "Non-exempt Offer"), following the date of publication of a prospectus in relation to such Notes which has been approved by the competent authority in that Relevant State or, where appropriate, approved in another Relevant State and notified to the competent authority in that Relevant State, provided that any such prospectus has subsequently been completed by the final terms contemplating such Non-exempt Offer, in accordance with the Prospectus Regulation in the period beginning and ending on the dates specified in such prospectus or final terms, as applicable, and the Issuer has consented in writing to its use for the purpose of that Non-exempt Offer;

(b) at any time to any legal entity which is a qualified investor as defined in the Prospectus Regulation;

(c) subject to any other restriction and obtaining the prior consent of the relevant Dealer or Dealers nominated by the Issuer for any such offer, at any time to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Regulation); or

(d) at any time in any other circumstances falling within Article 1(4) of the Prospectus Regulation;

provided that no such offer of Notes referred to in (b) to (d) above shall require the Issuer or any Dealer to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation.

For the purposes of this provision, the expression an "offer of Notes to the public" in relation to any Notes in any Relevant State means the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes, and the expression "Prospectus Regulation" means Regulation (EU) 2017/1129.

Each Dealer has represented, warranted and agreed, and each further Dealer appointed under the Program will be required to represent, warrant and agree that:

(a) in relation to any Notes having a maturity of less than one year, (i) it is a person whose ordinary activities involve it in acquiring, holding, managing or disposing of investments (as principal or agent) for the purposes of its business and (ii) it has not offered or sold and will not offer or sell any Notes other than to persons whose ordinary activities involve them in acquiring, holding, managing or disposing of investments (as principal or as agent) for the purposes of their businesses or who it is reasonable to expect will acquire, hold, manage or dispose of investments (as principal or agent) for the purposes of their businesses where the issue of the Notes would otherwise constitute a contravention of Section 19 of the Financial Services and Markets Act 2000 (the "FSMA") by the Issuer; and

(b) 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 FSMA) received by it in connection with the issue or sale of any Notes in circumstances in which Section 21(1) of the FSMA would not, if the Issuer was not an authorised person, apply to the Issuer; and

(c) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to any Notes in, from or otherwise involving the UK.

The EEA and UK selling restrictions described above are in addition to any other applicable selling restriction set out below.

### *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.

### *Hong Kong*

Each Dealer has represented, warranted and agreed and each further Dealer appointed under the Program will be required to represent, warrant and agree that:

(a) it has not offered or sold and will not offer or sell in Hong Kong, by means of any document, any Notes other than (i) 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 (ii) 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"); and

(b) 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, whether in Hong Kong or elsewhere, any advertisement, invitation or document relating to the Notes, 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 the 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.

### *Singapore*

Each Dealer has acknowledged, and each further Dealer appointed under the Program will be required to acknowledge, that this Offering Circular has not been and will not be registered as a prospectus with the Monetary Authority of Singapore under the Securities and Futures Act, Chapter 289 of Singapore (the "SFA"). Accordingly, each Dealer has 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 Circular 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 under Section 274 of the SFA; (ii) to a relevant person 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 of Singapore; 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 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 defined in Section 275(2) of the SFA 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 of Singapore.

### *Korea*

Each Dealer has represented, warranted and agreed, and each further Dealer appointed under the Program will be required to represent, warrant and agree, that Notes have not been offered, sold or delivered, and will not be offered, sold or delivered, directly or indirectly, to, or for the account or benefit of, any resident of Korea (as defined under the Foreign Exchange Transactions Law of Korea and the regulations thereunder), or to others for re-offering or resale directly or indirectly in Korea, to, or for the account or benefit of, any resident of Korea, except as otherwise permitted under applicable Korean laws and regulations.

### *Switzerland*

This Offering Circular is not intended to constitute an offer or solicitation to purchase or invest in the Notes described herein. The Notes may not be publicly offered, sold or advertised, directly or indirectly, in, into or from Switzerland, and will not be listed on SIX Swiss Exchange ("SIX") or on any other exchange or regulated trading facility in Switzerland. Neither this Offering Circular nor any other offering or marketing material relating to the Notes constitutes a prospectus as such term is understood pursuant to article 652a or article 1156 of the Swiss Code of Obligations or a listing prospectus within the meaning of the listing rules of the SIX or any other regulated trading facility in Switzerland or a simplified prospectus or a prospectus as such term is defined in the Swiss Collective Investment Scheme Act, and neither this offering circular nor any other offering or marketing material relating to the Notes may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this offering circular nor any other offering or marketing material relating to the offering, nor the Company or the Notes have been or will be filed with or approved by any Swiss regulatory authority. The Notes are not subject to the supervision by any Swiss regulatory authority, e.g., the Swiss Financial Markets Supervisory Authority ("FINMA"), and investors in the Notes will not benefit from protection or supervision by such authority.

### *General*

Each Dealer has agreed and each further Dealer appointed under the Program will be required to agree that it will (to the best of its knowledge and belief) comply with all applicable securities laws and regulations in force in any jurisdiction in which it purchases, offers, sells or delivers Notes or possesses or distributes the Offering Circular and will obtain any consent, approval or permission required by it for the purchase, offer, sale or delivery by it of Notes under the laws and regulations in force in any jurisdiction to which it is subject or in which it makes such purchases, offers, sales or deliveries and neither the Issuer nor any other Dealer shall have any responsibility therefor.

Neither the Issuer nor any of the Dealers represents that Notes may at any time lawfully be sold in compliance with any applicable registration or other requirements in any jurisdiction, or pursuant to any exemption available thereunder, or assumes any responsibility for facilitating any such sale.

With regard to each Tranche, the relevant Dealer will be required to comply with such other additional restrictions as the Issuer and the relevant Dealer shall agree and as shall be set out in the applicable Pricing Supplement.

# BOOK-ENTRY CLEARANCE SYSTEMS

*The information set out below is subject to any change in or reinterpretation of the rules, regulations and procedures of DTC, Euroclear or Clearstream (together, the "Clearing Systems") currently in effect. The information in this section concerning the Clearing Systems has been obtained from sources that the Issuer believes to be reliable, but none of the Issuer nor any Dealer takes any responsibility for the accuracy thereof. Investors wishing to use the facilities of any of the Clearing Systems are advised to confirm the continued applicability of the rules, regulations and procedures of the relevant Clearing System. None of the Issuer nor any other party to the Agency Agreement will have any responsibility or liability for any aspect of the records relating to, or payments made on account of, beneficial ownership interests in the Notes held through the facilities of any Clearing System or for maintaining, supervising or reviewing any records relating to such beneficial ownership interests.*

## Book-entry Systems

### *DTC*

DTC has advised the Issuer that it is a limited purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a "clearing corporation" within the meaning of the New York Uniform Commercial Code and a "clearing agency" registered pursuant to Section 17A of the Exchange Act. DTC holds securities that its participants ("Participants") deposit with DTC. DTC also facilitates the settlement among Participants of securities transactions, such as transfers and pledges, in deposited securities through electronic computerized book-entry changes in Participants' accounts, thereby eliminating the need for physical movement of securities certificates. Direct Participants include securities brokers and dealers, banks, trust companies, clearing corporations and certain other organizations. Access to the DTC System is also available to others such as securities brokers and dealers, banks and trust companies that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly ("Indirect Participants").

Under the rules, regulations and procedures creating and affecting DTC and its operations (the "Rules"), DTC makes book-entry transfers of Registered Notes among Direct Participants on whose behalf it acts with respect to Notes accepted into DTC's book-entry settlement system ("DTC Notes") as described below and receives and transmits distributions of principal and interest on DTC Notes. The Rules are on file with the Securities and Exchange Commission. Direct Participants and Indirect Participants with which beneficial owners of DTC Notes ("Owners") have accounts with respect to the DTC Notes similarly are required to make book-entry transfers and receive and transmit such payments on behalf of their respective Owners. Accordingly, although Owners who hold DTC Notes through Direct Participants or Indirect Participants will not possess Registered Notes, the Rules, by virtue of the requirements described above, provide a mechanism by which Direct Participants will receive payments and will be able to transfer their interest in respect of the DTC Notes.

Purchases of DTC Notes under the DTC system must be made by or through Direct Participants, which will receive a credit for the DTC Notes on DTC's records. The ownership interest of each actual purchaser of each DTC Note ("Beneficial Owner") is in turn to be recorded on the Direct and Indirect Participant's records. Beneficial Owners will not receive written confirmation from DTC of their purchase, but Beneficial Owners are expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owner entered into the transaction. Transfers of ownership interests in the DTC Notes are to be accomplished by entries made on the books of Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in DTC Notes, except in the event that use of the book-entry system for the DTC Notes is discontinued.

To facilitate subsequent transfers, all DTC Notes deposited by Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co. The deposit of DTC Notes with DTC and their registration in the name of Cede & Co. effect no change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the DTC Notes; DTC's records reflect only the identity of the Direct Participants to whose accounts such DTC Notes are credited, which may or may not be the Beneficial Owners. The Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time.

Redemption notices shall be sent to Cede & Co. If less than all of the DTC Notes within an issue are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such issue to be redeemed.

Neither DTC nor Cede & Co. will consent or vote with respect to DTC Notes. Under its usual procedures, DTC mails an Omnibus Proxy to the Issuer as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the DTC Notes are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal and interest payments on the DTC Notes will be made to DTC. DTC's practice is to credit Direct Participants' accounts on the due date for payment in accordance with their respective holdings shown on DTC's records unless DTC has reason to believe that it will not receive payment on the due date. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participant and not of DTC or the Issuer, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of principal and interest to DTC is the responsibility of the Issuer, disbursement of such payments to Direct Participants is the responsibility of DTC, and disbursement of such payments to the Beneficial Owners is the responsibility of Direct and Indirect Participants.

Under certain circumstances, including if there is an Event of Default under the Notes, DTC will exchange the DTC Notes for definitive Registered Notes, which it will distribute to its Participants in accordance with their proportionate entitlements and which, if representing interests in a Rule 144A Global Note, will be legended as set forth under "Subscription and Sale and Transfer and Selling Restrictions."

Since DTC may only act on behalf of Direct Participants, who in turn act on behalf of Indirect Participants, any Owner desiring to pledge DTC Notes to persons or entities that do not participate in DTC, or otherwise take actions with respect to such DTC Notes, will be required to withdraw its Registered Notes from DTC as described below.

### *Euroclear and Clearstream*

Euroclear and Clearstream each holds securities for its customers and facilitates the clearance and settlement of securities transactions by electronic book-entry transfer between their respective account holders. Euroclear and Clearstream provide various services including safekeeping, administration, clearance and settlement of internationally traded securities and securities lending and borrowing. Euroclear and Clearstream also deal with domestic securities markets in several countries through established depository and custodial relationships. Euroclear and Clearstream have established an electronic bridge between their two systems across which their respective participants may settle trades with each other. Euroclear and Clearstream customers are worldwide financial institutions, including underwriters, securities brokers and dealers, banks, trust companies and clearing corporations. Indirect access to Euroclear and Clearstream is available to other institutions that clear through or maintain a custodial relationship with an account holder of either system.

### *Book-entry Ownership of and Payments in respect of DTC Notes*

The Issuer may apply to DTC in order to have any Tranche of Notes represented by a Registered Global Note accepted in its book-entry settlement system. Upon the issue of any such Registered Global Note, DTC or its custodian will credit, on its internal book-entry system, the respective nominal amounts of the individual beneficial interests represented by such Registered Global Note to the accounts of persons who have accounts with DTC. Such accounts initially will be designated by or on behalf of the relevant Dealer. Ownership of beneficial interests in such a Registered Global Note will be limited to Direct Participants or Indirect Participants, including, in the case of any Regulation S Global Note, the respective depositaries of Euroclear and Clearstream. Ownership of beneficial interests in a Registered Global Note accepted by DTC will be shown on, and the transfer of such ownership will be effected only through, records maintained by DTC or its nominee (with respect to the interests of Direct Participants) and the records of Direct Participants (with respect to interests of Indirect Participants).

Payments in U.S. dollars of principal and interest in respect of a Registered Global Note accepted by DTC will be made to the order of DTC or its nominee as the registered holder of such Note. In the case of any payment in a currency other than U.S. dollars, payment will be made to the Exchange Agent on behalf of DTC or its nominee and the Exchange Agent will (in accordance with instructions received by it) remit all or a portion of such payment for credit directly to the beneficial holders of interests in the Registered Global Note in the currency in which such payment was made and/or cause all or a portion of such payment to be converted into U.S. dollars and credited to the applicable Participants' account.

The Issuer expects DTC to credit accounts of Direct Participants on the applicable payment date in accordance with their respective holdings as shown in the records of DTC unless DTC has reason to believe that it will not receive payment on such payment date. The Issuer also expects that payments by Participants to beneficial owners of Notes will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers, and will be the responsibility of such Participant and not the responsibility of DTC, the Principal Paying Agent, the Registrar or the Issuer. Payment of principal, premium, if any, and interest, if any, on Notes to DTC are the responsibility of the Issuer.

### *Transfers of Notes Represented by Registered Global Notes*

Transfers of any interests in Notes represented by a Registered Global Note within DTC, Euroclear and Clearstream will be effected in accordance with the customary rules and operating procedures of the relevant clearing system. The laws in some States within the United States require that certain persons take physical delivery of securities in definitive form. Consequently, the ability to transfer Notes represented by a Registered Global Note to such persons may depend upon the ability to exchange such Notes for Notes in definitive form. Similarly, because DTC can only act on behalf of Direct Participants in the DTC system who in turn act on behalf of Indirect Participants, the ability of a person having an interest in Notes represented by a Registered Global Note accepted by DTC to pledge such Notes to persons or entities that do not participate in the DTC system or otherwise to take action in respect of such Notes may depend upon the ability to exchange such Notes for Notes in definitive form. The ability of any holder of Notes represented by a Registered Global Note accepted by DTC to resell, pledge or otherwise transfer such Notes may be impaired if the proposed transferee of such Notes is not eligible to hold such Notes through a direct or indirect participant in the DTC system.

Subject to compliance with the transfer restrictions applicable to the Registered Notes described under "Subscription and Sale and Transfer and Selling Restrictions," cross-market transfers between DTC, on the one hand, and directly or indirectly through Clearstream or Euroclear accountholders, on the other, will be effected by the relevant clearing system in accordance with its rules and through action taken by the Registrar, the Principal Paying Agent and any custodian ("Custodian") with whom the relevant Registered Global Notes have been deposited.

On or after the Issue Date for any Series, transfers of Notes of such Series between accountholders in Clearstream and Euroclear and transfers of Notes of such Series between participants in DTC will generally have a settlement date three business days after the trade date (T+3). The customary arrangements for delivery versus payment will apply to such transfers.

Cross-market transfers between accountholders in Clearstream or Euroclear and DTC participants will need to have an agreed settlement date between the parties to such transfer. Because there is no direct link between DTC, on the one hand, and Clearstream and Euroclear, on the other, transfers of interests in the relevant Registered Global Notes will be effected through the Registrar, the Principal Paying Agent and the Custodian receiving instructions (and, where appropriate, certification) from the transferor and arranging for delivery of the interests being transferred to the credit of the designated account for the transferee. In the case of cross-market transfers, settlement between Euroclear or Clearstream accountholders and DTC participants cannot be made on a delivery versus payment basis. The securities will be delivered on a free delivery basis and arrangements for payment must be made separately.

DTC, Clearstream and Euroclear have each published rules and operating procedures designed to facilitate transfers of beneficial interests in Registered Global Notes among participants and accountholders of DTC, Clearstream and Euroclear. However, they are under no obligation to perform or continue to perform such procedures, and such procedures may be discontinued or changed at any time. None of the Issuer, the Agents or any Dealer will be responsible for any performance by DTC, Clearstream or Euroclear or their respective direct or indirect participants or accountholders of their respective obligations under the rules and procedures governing their operations and none of them will have any liability for any aspect of the records relating to or payments made on account of beneficial interests in the Notes represented by Registered Global Notes or for maintaining, supervising or reviewing any records relating to such beneficial interests.

# GENERAL INFORMATION

## Authorization and Regulatory Issues

The establishment of the Program and the issue of the Notes hereunder has been duly authorized by a resolution of the Board of Directors of the Issuer dated August 26, 2010. Each issue of Notes under the Program will be authorized by the Board of Directors of the Issuer at the time of issuance.

## Documents Available

So long as Notes are capable of being issued under the Program, copies of the following documents will, when published, be available free of charge from the registered office of the Issuer and from the principal office of the Principal Paying Agent for the time being in London.

(i) the constitutional documents (with an English translation thereof) of the Issuer;

(ii) the consolidated audited financial statements of the Issuer in respect of the years ended December 31, 2017, 2018 and 2019 (in English);

(iii) the most recently published audited annual consolidated financial statements of the Issuer and the most recently published interim consolidated financial statements of the Issuer;

(iv) the Program Agreement, the Agency Agreement, the Deed Poll, the Deed of Covenant and the forms of the Global Notes, the Notes in definitive form, the Receipts, the Coupons and the Talons;

(v) a copy of this Offering Circular; and

(vi) any future offering circulars, prospectuses, information memoranda and supplements including Pricing Supplements (save that a Pricing Supplement relating to an unlisted Note will only be available for inspection by a holder of such Note and such holder must produce evidence satisfactory to the Paying Agent as to its holding of Notes and identity) to this Offering Circular and any other documents incorporated herein or therein by reference.

## Clearing Systems

The Notes have been accepted for clearance through Euroclear and Clearstream. The appropriate Common Code and ISIN for each Tranche of Notes allocated by Euroclear and Clearstream will be specified in the applicable Pricing Supplement. If the Notes are to clear through an additional or alternative clearing system the appropriate information will be specified in the applicable Pricing Supplement.

## Significant or Material Change

Save as disclosed in the Offering Circular, there has been no significant change in the financial or trading position of the Issuer and its subsidiaries taken as a whole since June 30, 2020 and there has been no material adverse change in the financial position or prospects of the Issuer and its subsidiaries taken as a whole since June 30, 2020.

## Litigation

The Issuer is not involved in any legal, arbitration, administrative or other proceedings (including any proceedings which are pending or threatened of which the Issuer is aware) which may have or have had in the 12 months preceding the date of this document a significant effect on the financial position of the Issuer and its subsidiaries taken as a whole.

# INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

## INTERIM FINANCIAL STATEMENTS

Report on the review of interim consolidated financial statements . . . . . . . . . . F-2
Interim consolidated statements of financial position as of June 30, 2020 . . . . . . . . . . F-4
Interim consolidated statements of comprehensive loss for the six months ended June 30, 2020 and 2019 . . . . . . . . . . F-6
Interim consolidated statements of changes in equity for the six months ended June 30, 2020 and 2019 . . F-7
Interim consolidated statements of cash flows for the six months ended June 30, 2020 and 2019 . . . . . . . . F-8
Notes to the interim consolidated financial statements . . . . . . . . . . F-11

## ANNUAL FINANCIAL STATEMENTS

Independent auditors' report . . . . . . . . . . F-59
Consolidated statements of financial position as of December 31, 2019 and 2018 . . . . . . . . . . F-62
Consolidated statements of comprehensive loss for the years ended December 31, 2019 and 2018 . . . . . . F-63
Consolidated statements of changes in equity for the years ended December 31, 2019 and 2018 . . . . . . . . F-64
Consolidated statements of cash flows for the years ended December 31, 2019 and 2018 . . . . . . . . . . F-65
Notes to the consolidated financial statements . . . . . . . . . . F-67

## ANNUAL FINANCIAL STATEMENTS

Independent auditors' report . . . . . . . . . . F-185
Consolidated statements of financial position as of December 31, 2018 and 2017 . . . . . . . . . . F-188
Consolidated statements of comprehensive loss for the years ended December 31, 2018 and 2017 . . . . . . F-190
Consolidated statements of changes in equity for the years ended December 31, 2018 and 2017 . . . . . . . . F-191
Consolidated statements of cash flows for the years ended December 31, 2018 and 2017 . . . . . . . . . . F-193
Notes to the consolidated financial statements . . . . . . . . . . F-196

Building a better
working world

한영회계법인
서울특별시 영등포구 여의공원로 111, 태영빌딩 3-8F
07241

Tel: 02 3787 6600
Fax: 02 783 5890
ey.com/kr

Ernst & Young Han Young
Taeyoung Building, 111, Yeouigongwon-ro,
Yeongdeungpo-gu, Seoul 07241 Korea

Tel: +82 2 3787 6600
Fax: +82 2 783 5890
ey.com/kr

# Report on review of interim consolidated financial statements

**The Stockholder and Board of Directors**
**Korea National Oil Corporation**

We have reviewed the accompanying interim consolidated financial statements of Korea National Oil Corporation and its subsidiaries (collectively referred to as the "Group"), which comprise the interim consolidated statement of financial position as of June 30, 2020, and the related interim consolidated statements of comprehensive loss, interim consolidated statements of changes in equity and interim consolidated statements of cash flows for the six-month periods ended June 30, 2020 and 2019, and a summary of significant accounting policies and other explanatory information.

## Management's responsibility for the interim consolidated financial statements

Management is responsible for the preparation and fair presentation of these interim consolidated financial statements in accordance with Korean International Financial Reporting Standard ("KIFRS") 1034, *Interim Financial Reporting* and for such internal control as management determines is necessary to enable the preparation of interim consolidated financial statements that are free from material misstatement, whether due to fraud or error.

## Auditor's review responsibility

Our responsibility is to express a conclusion on these interim consolidated financial statements based on our review.

We conducted our review in accordance with the review standards for interim financial statements in the Republic of Korea. A review of interim financial information consists of making inquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures. A review is substantially less in scope than an audit conducted in accordance with Korean Auditing Standards ("KGAAS"). Consequently, it does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

## Conclusion

Based on our review, nothing has come to our attention that causes us to believe that the accompanying interim consolidated financial statements are not prepared, in all material respects, in accordance with KIFRS 1034 *Interim Financial Reporting*.

**Other matter**

We have audited the consolidated statement of financial position of the Group as of December 31, 2019, and the consolidated statement of comprehensive loss, consolidated statement of changes in equity and consolidated statement of cash flows for the year then ended (not presented herein) in accordance with KGAAS, and our report dated July 28, 2020 (for items not related to prior period error corrections, refer to auditor's report of the consolidated financial statements dated March 3, 2020) expressed an unqualified opinion thereon. The accompanying consolidated statement of financial position as of December 31, 2019, presented for comparative purposes, is not different, in all material respects, from the above audited consolidated statement of financial position.

Ernst & Young Han Young

August 28, 2020

This review report is effective as of August 28, 2020, the independent auditor's review report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the date of the independent auditor's report to the time this review report is used. Such events and circumstances could significantly affect the accompanying interim consolidated financial statements and may result in modifications to this review report.

# KOREA NATIONAL OIL CORPORATION AND ITS SUBSIDIARIES

## Interim Consolidated Statements of Financial Position

As of June 30, 2020 and December 31, 2019

| *In thousands of Korean won* | ***Notes*** | **June 30, 2020 (Unaudited)** | **December 31, 2019 (Audited)** |
|---|---|---|---|
| **Assets** | | | |
| Cash and cash equivalents | 24,25,29 | ₩ 928,661,450 | 725,056,411 |
| Current financial assets | 24,25,29 | 320,772,890 | 312,477,148 |
| Trade and other receivables, net | 24,25,29 | 447,622,294 | 484,674,617 |
| Inventories, net | 29 | 178,276,223 | 98,001,120 |
| Current income tax assets | | 6,217,506 | 5,467,562 |
| Current non-financial assets | 5,29 | 95,906,640 | 87,677,367 |
| **Current assets** | | 1,977,457,003 | 1,713,354,225 |
| Non-current financial assets, net | 24,25,29 | 866,117,909 | 1,684,920,064 |
| Long-term trade and other receivables, net | 24,25,29 | 45,750,517 | 44,162,826 |
| Property, plant and equipment, net | 4,8,13,29 | 8,755,843,772 | 8,717,719,482 |
| Goodwill | 9,29 | 264,493,270 | 152,975,920 |
| Intangible assets other than goodwill, net | 4,10,29 | 1,677,781,170 | 1,406,826,476 |
| Investments in associates and joint ventures | 7,29 | 544,738,457 | 239,920,503 |
| Deferred tax assets | 29 | 773,926,231 | 784,338,424 |
| Non-current non-financial assets | 5,29 | 4,066,551,363 | 3,917,584,915 |
| **Non-current assets** | | 16,995,202,689 | 16,948,448,610 |
| **Total assets** | | ₩ 18,972,659,692 | 18,661,802,835 |

- Continued -

# KOREA NATIONAL OIL CORPORATION AND ITS SUBSIDIARIES

## Interim Consolidated Statements of Financial Position (cont'd)

As of June 30, 2020 and December 31, 2019

| *In thousands of Korean won* | *Notes* | | June 30, 2020 (Unaudited) | December 31, 2019 (Audited) |
|---|---|---|---|---|
| **Liabilities** | | | | |
| Trade and other payables | 11, 24, 25, 29 | ₩ | 698,962,517 | 771,657,312 |
| Current financial liabilities | 12, 24, 25 | | 3,260,890,804 | 1,575,772,271 |
| Current income tax liabilities | 29 | | 107,280,283 | 50,950,396 |
| Current non-financial liabilities | | | 116,302,916 | 150,381,118 |
| Current provisions | 14 | | 73,041,562 | 60,382,895 |
| **Current liabilities** | | | 4,256,478,082 | 2,609,143,992 |
| Long-term trade and other payables | 11, 24, 25 | | 562,754,201 | 549,409,821 |
| Non-current financial liabilities | 12, 24, 25, 26 | | 12,021,756,945 | 12,443,241,330 |
| Non-current non-financial liabilities | | | 58,320,638 | 57,746,729 |
| Employee benefits, net | 29 | | 19,474,686 | 13,453,938 |
| Deferred tax liabilities | 29 | | 330,560,960 | 221,647,767 |
| Non-current provisions | 14, 29 | | 2,279,957,725 | 2,236,312,863 |
| **Non-current liabilities** | | | 15,272,825,155 | 15,521,812,448 |
| **Total liabilities** | | | 19,529,303,237 | 18,130,956,440 |
| **Equity** | | | | |
| Share capital | 1, 15 | | 10,539,072,780 | 10,515,105,780 |
| Accumulated deficit | 16 | | (10,542,962,728) | (9,377,447,616) |
| Other components of equity | 17 | | (1,264,081,307) | (1,155,757,806) |
| **Equity attributable to the owner of the Company** | | | (1,267,971,255) | (18,099,642) |
| **Non-controlling interests** | 29 | | 711,327,710 | 548,946,037 |
| **Total equity** | | | (556,643,545) | 530,846,395 |
| **Total equity and liabilities** | | ₩ | 18,972,659,692 | 18,661,802,835 |

The accompanying notes are an integral part of the interim consolidated financial statements.

# KOREA NATIONAL OIL CORPORATION AND ITS SUBSIDIARIES

## Interim Consolidated Statements of Comprehensive Loss

For the six-month periods ended June 30, 2020 and 2019

| *In thousands of Korean won* | *Notes* | | 2020<br>(Unaudited) | 2019<br>(Unaudited) |
|---|---|---|---|---|
| Revenue | 4, 18, 26 | ₩ | 1,028,130,776 | 1,459,971,473 |
| Cost of sales | 4, 23, 26 | | (932,458,190) | (957,981,352) |
| **Gross profit** | 4 | | 95,672,586 | 501,990,121 |
| Selling and administrative expenses | 4, 23 | | (113,770,400) | (165,651,831) |
| **Operating profit (loss)** | 4 | | (18,097,814) | 336,338,290 |
| Other income | 4, 19 | | 24,788,074 | 82,937,322 |
| Other expenses | 4, 19 | | (15,407,737) | (1,855,135) |
| Other gains (losses), net | 4, 20 | | (532,783,659) | 20,204,832 |
| Finance income | 4, 21 | | 235,649,738 | 187,478,582 |
| Finance costs | 4, 21 | | (755,458,262) | (424,074,228) |
| Profit (loss) on investments in associates and joint ventures, net | 4, 7 | | (48,476,479) | 38,639,864 |
| **Profit (loss) before income tax** | 4 | | (1,109,786,139) | 239,669,527 |
| Income tax expense | 22 | | (73,049,339) | (132,089,202) |
| **Profit (loss) from continuing operations** | | | (1,182,835,478) | 107,580,325 |
| **Profit (loss) for the period** | | | (1,182,835,478) | 107,580,325 |
| **Other comprehensive income (loss)** | | | | |
| **Items that will not be reclassified subsequently to profit or loss** | | | | |
| Actuarial losses on defined benefit plans, net of tax | | | (660,915) | (733,022) |
| Net change in the unrealized fair value of equity instruments | | | 343,562 | (24,732,363) |
| | | | (317,353) | (25,465,385) |
| **Items that may be reclassified subsequently to profit or loss** | | | | |
| Equity adjustments arising from equity-method Investments, net of tax | | | (1,787,887) | (5,955,906) |
| Net change in the unrealized fair value of derivatives using cash flow hedge accounting, net of tax | | | (89,015,828) | (126,930,460) |
| Foreign currency translation of foreign operations, net of tax | | | 2,164,064 | 3,542,865 |
| | | | (88,639,651) | (129,343,501) |
| **Other comprehensive loss for the period** | | | (88,957,004) | (154,808,886) |
| **Total comprehensive loss for the period** | | ₩ | (1,271,792,482) | (47,228,561) |
| **Profit (loss) attributable to** | | | | |
| Owners of the Company | | ₩ | (1,164,840,677) | 94,795,716 |
| Non-controlling interests | | | (17,994,801) | 12,784,609 |
| **Profit (loss) for the period** | | ₩ | (1,182,835,478) | 107,580,325 |
| **Total comprehensive income (loss) attributable to** | | | | |
| Owners of the Company | | ₩ | (1,273,825,093) | (78,252,892) |
| Non-controlling interests | | | 2,032,611 | 31,024,331 |
| **Total comprehensive loss for the period** | | ₩ | (1,271,792,482) | (47,228,561) |

The accompanying notes are an integral part of the interim consolidated financial statements.

# KOREA NATIONAL OIL CORPORATION AND ITS SUBSIDIARIES

## Interim Consolidated Statements of Changes in Equity

For the six-month periods ended June 30, 2020 and 2019

|  | **Attributable to owners of the Company** |  |  |  |  |  |
|---|---|---|---|---|---|---|
| *In thousands of Korean won* | **Share capital** | **Accumulated deficit** | **Other components of equity** | **Subtotal** | **Non-controlling interests** | **Total equity** |
| **Balance at January 1, 2019** | ₩10,481,533,780 | (9,201,495,689) | (1,032,764,256) | 247,273,835 | 516,791,144 | 764,064,979 |
| **Total comprehensive income (loss) for the period** |  |  |  |  |  |  |
| Profit for the period | - | 94,795,716 | - | 94,795,716 | 12,784,609 | 107,580,325 |
| Other comprehensive income (loss) | - | (733,022) | (172,315,586) | (173,048,608) | 18,239,722 | (154,808,886) |
| **Total comprehensive income (loss)** | - | 94,062,694 | (172,315,586) | (78,252,892) | 31,024,331 | (47,228,561) |
| **Transactions with owners of the Company, recognized directly in equity** |  |  |  |  |  |  |
| Issuance of share capital (Note 15) | 26,062,000 | - | - | 26,062,000 | - | 26,062,000 |
| Decrease through changes in ownership interests in subsidiaries that do not result in loss of control | - | (14,210) | - | (14,210) | (14,210) | (28,420) |
| **Total transactions with owners of the Company** | 26,062,000 | (14,210) | - | 26,047,790 | (14,210) | 26,033,580 |
| **Balance at June 30, 2019 (Unaudited)** | ₩10,507,595,780 | (9,107,447,205) | (1,205,079,842) | 195,068,733 | 547,801,265 | 742,869,998 |
| **Balance at January 1, 2020** | ₩10,515,105,780 | (9,377,447,616) | (1,155,757,806) | (18,099,642) | 548,946,037 | 530,846,395 |
| **Total comprehensive income (loss) for the period** |  |  |  |  |  |  |
| Loss for the period | - | (1,164,840,677) | - | (1,164,840,677) | (17,994,801) | (1,182,835,478)) |
| Other comprehensive income (loss) | - | (660,915) | (108,323,501) | (108,984,416) | 20,027,412 | (88,957,004) |
| **Total comprehensive income (loss)** | - | (1,165,501,592) | (108,323,501) | (1,273,825,093) | 2,032,611 | (1,271,792,482) |
| **Transactions with owners of the Company, recognized directly in equity** |  |  |  |  |  |  |
| Issuance of share capital (Note 15) | 23,967,000 | - | - | 23,967,000 | - | 23,967,000 |
| Decrease through changes in ownership interests in subsidiaries that do not result in loss of control | - | (13,520) | - | (13,520) | (42,262,020) | (42,275,540) |
| Change in the scope of consolidation | - | - | - | - | 202,611,082 | 202,611,082 |
| **Total transactions with owners of the Company** | 23,967,000 | (13,520) | - | 23,953,480 | 160,349,062 | 184,302,542 |
| **Balance at June 30, 2020 (Unaudited)** | ₩10,539,072,780 | (10,542,962,728) | (1,264,081,307) | (1,267,971,255) | 711,327,710 | (556,643,545) |

The accompanying notes are an integral part of the interim consolidated financial statements.

# KOREA NATIONAL OIL CORPORATION AND ITS SUBSIDIARIES
## Interim Consolidated Statements of Cash Flows
For the six-month periods ended June 30, 2020 and 2019

| *In thousands of Korean won* | | 2020 (Unaudited) | 2019 (Unaudited) |
|---|---|---|---|
| **Cash flows from operating activities** | | | |
| Profit (loss) for the period | ₩ | (1,182,835,478) | 107,580,325 |
| Non-cash adjustments: | | | |
| Depreciation of property, plant and equipment | | 417,923,290 | 474,361,113 |
| Amortization of intangible assets other than goodwill | | 31,140,612 | 51,052,707 |
| Impairment losses on intangible assets other than goodwill | | 47,647,129 | 12,205,298 |
| Impairment losses on property, plant and equipment | | 476,617,559 | 48,195,681 |
| Reversal of impairment losses on property, plant and equipment | | (2,596,088) | (6,056,526) |
| Losses on disposal of property, plant and equipment | | 5,765,735 | 167,583 |
| Other bad debt expense | | 7,444,596 | - |
| Losses on valuation of inventories | | 892,452 | 58,957 |
| Impairment losses on investments in associates and joint ventures | | 97,580,250 | - |
| Net pension plan costs | | 5,082,762 | 6,748,598 |
| Salaries | | 13,561,372 | 6,351,312 |
| Interest expense | | 244,765,566 | 232,401,327 |
| Losses on valuation of financial assets measured at fair value through profit or loss | | 255,996,034 | 78,907,562 |
| Accretion expense of other provisions | | 563,823 | 653,948 |
| Other finance cost | | 35,445,780 | 38,858,511 |
| Losses on valuation of derivatives (finance costs) | | 83,746,163 | - |
| Losses on foreign currency translation (finance costs) | | 111,808,612 | 62,028,407 |
| Losses on foreign currency translation (other gains or losses) | | 29,263,354 | 18,989,038 |
| Income tax expense | | 73,049,340 | 132,089,202 |
| Reversal of impairment losses on intangible assets other than goodwill | | (12,675,798) | (36,087,457) |
| Gains on disposal of property, plant and equipment | | (122,773) | (4,783,733) |
| Gains on disposal of intangible assets other than goodwill | | (12,946) | (23,956) |
| Gains on disposal of investments in associates and joint ventures | | (136,765,303) | - |
| Reversal on provision for decommissioning costs | | - | (2,256,828) |
| Interest income | | (8,825,842) | (13,133,638) |
| Gains on valuation of financial asset measured at fair value through profit or loss | | (7,917,899) | - |
| Dividend income | | (5,974) | (10,060) |
| Gains on valuation of derivatives (finance income) | | - | (1,807,400) |
| Gains on transactions of derivatives (finance income) | | (95,204,240) | (24,382,319) |
| Gains on foreign currency translation (finance income) | | (65,272,766) | (109,634,025) |
| Gains on foreign currency transactions (finance income) | | (74,180) | - |
| Gains on foreign currency translation (other profit or loss) | | (23,013,483) | (29,890,539) |
| Reversal of sales commission | | (21,417,376) | - |
| Reversal of other provisions | | (2,069,253) | - |
| Gain on exemption of debts | | - | (74,938,801) |
| Other income | | (130,612) | (1,582,329) |
| Other costs | | 166,302 | - |
| Losses from equity method investments | | 93,946,130 | 20,851,505 |
| Profits from equity method investments | | (6,284,598) | (59,491,369) |
| Losses on valuation of financial liabilities measured at fair value through profit or loss | | 12,847,282 | - |
| Gains on valuation of financial liabilities measured at fair value through profit or loss | | (36,735,990) | - |
| | | 1,626,129,022 | 819,841,769 |
| Changes in working capital: | | | |
| Inventories | | (79,505,072) | 6,481,058 |

- Continued -

# KOREA NATIONAL OIL CORPORATION AND ITS SUBSIDIARIES

## Interim Consolidated Statements of Cash Flows (cont'd)

For the six-month periods ended June 30, 2020 and 2019

| *In thousands of Korean won* | **2020 (Unaudited)** | **2019 (Unaudited)** |
|---|---:|---:|
| Trade and other receivables | 58,526,580 | (131,444,719) |
| Other receivables relating to operating activities | (22,148,729) | (4,943,856) |
| Trade and other payables | (152,120,777) | (19,980,892) |
| Other payables relating to operating activities | (38,805,218) | (18,373,973) |
| Defined benefit liability | - | (2,243,712) |
| Provisions | (19,828,532) | (10,637,801) |
| | (253,881,749) | (181,143,895) |
| **Cash generated from operating activities** | 189,411,795 | 746,278,199 |
| Dividends received | 7,253,798 | 7,466,709 |
| Interest paid | (228,560,492) | (252,296,574) |
| Interest received | 7,107,366 | 26,448,980 |
| Income tax paid | (33,537,744) | (39,318,151) |
| **Net cash provided by (used in) operating activities** | (58,325,277) | 488,579,163 |
| **Cash flows from investing activities** | | |
| Proceeds from disposal of investments in associates and joint ventures | 3,979,945 | - |
| Acquisition of investments in associates and joint ventures | (328,936,220) | (8,226,338) |
| Proceeds from disposal of property, plant and equipment | 701,956 | 7,629,988 |
| Acquisition of property, plant and equipment | (187,868,851) | (228,036,554) |
| Proceeds from disposal of intangible assets other than goodwill | 35,691 | - |
| Acquisition of intangible assets other than goodwill | (1,770,614) | 230,907 |
| Acquisition of other non-current non-financial assets | - | (18,182,867) |
| Increase in leasehold deposits provided | (15,637) | (2,872,247) |
| Decrease in leasehold deposits provided | 19,270 | (819,477) |
| Increase in financial assets measured at fair value through profit or loss | (30,541,415) | - |
| Increase in long-term and short-term financial assets | - | (6,768,918) |
| Decrease in long-term and short-term financial assets | - | 6,762,032 |
| Increase in loans | (10,222,859) | (17,362,052) |
| Collection of loans | 11,264,569 | 63,115,647 |
| Increase in leasehold deposits received | - | 128,854 |
| Decrease in leasehold deposits received | (19,387) | (7,470) |
| Decrease in financial liability measured at fair value through profit or loss | - | (3,566,830) |
| Cash flows from obtaining control of subsidiaries | 141,009,363 | - |
| **Net cash used in investing activities** | (402,364,189) | (207,975,325) |
| **Cash flows from financing activities** | | |
| Proceeds from increase in share capital | 23,967,000 | 26,062,000 |
| Proceeds from short-term borrowings | 1,767,062,767 | - |
| Repayments of short-term borrowings | (587,310,337) | (13,752,120) |
| Proceeds from issuance of bonds | 371,708,554 | 901,679,569 |
| Repayment of bonds | - | (1,117,765,961) |

- Continued -

# KOREA NATIONAL OIL CORPORATION AND ITS SUBSIDIARIES

## Interim Consolidated Statements of Cash Flows (cont'd)

For the six-month periods ended June 30, 2020 and 2019

| *In thousands of Korean won* | | **2020 (Unaudited)** | **2019 (Unaudited)** |
|---|---|---|---|
| Repayments of current portion of long-term borrowings | | (868,326,265) | - |
| Proceeds from long-term borrowings | | - | 171,279,566 |
| Repayments of long-term borrowings | | (4,626,983) | (163,622,638) |
| Repayments of finance lease liability | | (25,674,279) | (21,925,641) |
| Payment of dividends | | (42,275,540) | (28,420) |
| **Net cash provided by (used in) financing activities** | | 634,524,917 | (218,073,645) |
| **Net increase (decrease) in cash and cash equivalents before net effect of foreign exchange differences** | | 173,835,451 | 62,530,193 |
| Effect of exchange rate fluctuations on cash held | | 29,769,588 | (10,348,604) |
| **Net increase in cash and cash equivalents** | | 203,605,039 | 52,181,589 |
| **Cash and cash equivalents as of January 1** | | 725,056,411 | 778,120,149 |
| **Cash and cash equivalents as of June 30** | ₩ | 928,661,450 | 830,301,738 |

The accompanying notes are an integral part of the interim consolidated financial statements.

## 1. Reporting Entity

Korea National Oil Corporation (the "Company" or the "Parent Company") was incorporated on March 3, 1979 to engage in the development of oil fields, distribution of crude oil, maintenance of petroleum reserve stock and improvement of the petroleum distribution infrastructure under the Korea National Oil Corporation Act. The Company's head office is located at 305, Jongga-Ro, Jung-Gu, Ulsan in Korea. The Company also has 9 petroleum stockpile sites, 1 domestic gas field management office and many other overseas subsidiaries and affiliates.

As of June 30, 2020, the Company's share capital is ₩10,539,073million, which is wholly owned by the government of the Republic of Korea.

The list of subsidiaries as of June 30, 2020 and December 31, 2019 are disclosed in Note 6.

## 2. Basis of Preparation

### (a) Statement of compliance

The interim consolidated financial statements of the Korea National Oil Corporation and its subsidiaries (collectively referred to as the "Group") have been prepared in accordance with Korean International Financial Reporting Standards ("K-IFRS") No. 1034, 'Interim Financial Reporting'. The interim consolidated financial statements do not include all the information and disclosures required in the annual financial statements, and should be read in conjunction with the Group's annual consolidated financial statements as of December 31, 2019.

The Group's interim consolidated financial statements are consolidated financial statements in accordance with K-IFRS No. 1110, 'Consolidated Financial Statements', where investors with joint control or significant influence on the investor of the parent, associates or joint ventures presents financial statements as an accounting treatment based on the investee's reported performance and net assets. Dividends from subsidiaries, associates and joint ventures are accounted for by removing the dividend income recognized by the parent as internal transactions when the right to receive dividends is established.

The accompanying interim consolidated financial statements have been translated into English from the Korean language financial statements. In the event of any differences in interpreting the financial statements or the independent auditor's review report thereon, the Korean version, which is used for regulatory reporting purposes, shall prevail.

### (b) Basis of measurement

The interim consolidated financial statements have been prepared on the historical cost basis, except for derivatives, financial assets measured at fair value through profit or loss, financial assets measured at fair value through other comprehensive income and liabilities for defined benefit plans.

### (c) 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 accompanying interim consolidated financial statements are prepared in the Company's functional currency, the United States dollar, and presented in Korean won, the Group's presentation currency, for financial reporting purposes.

### (d) Use of estimates and judgments

The preparation of the interim consolidated financial statements in conformity with K-IFRS requires management to make judgments, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

## 2. Basis of Preparation (cont'd)

With the spread of COVID-19 around the world, governments are implementing measures such as factory closure, self-isolation, access restrictions, and travel bans. The ultimate impact of the COVID-19 pandemic on the Group's operations is still unknown and is expected to be dependent on future developments. The duration and severity of COVID-19 is highly uncertain and unpredictable, and protective measures by the government or the Group may result in significant business disruption and reduction in operating scale. Although we are unable to reasonably estimate the financial impact of this, management expects that most of the regions and operating segments in which the Group operates will be affected to some extent. The extent and duration of the impact of COVID-19 on the Group's operations is still unknown, the impact of these uncertainties are not reflected in the consolidated interim financial statements.

## 3. Changes in Accounting Policies

(a) Accounting policies

The accounting policies adopted in the preparation of the interim consolidated financial statements are consistent with those followed in the preparation of the Group's annual consolidated financial statements for the year ended December 31, 2019, except for the adoption of the following new standards effective as of January 1, 2020.

(i) K-IFRS No.1103 "Business Combinations"

The amendment to K-IFRS No. 1103 clarifies that to be considered a business, an integrated set of activities and assets must include, at a minimum, an input and a substantive process that together significantly contribute to the ability to create output. Furthermore, it clarified that a business can exist without including all of the inputs and processes needed to create outputs. These amendments had no impact on the interim consolidated financial statements of the Group.

(ii) K-IFRS No.1107 "Financial Instruments: Disclosures", K-IFRS No.1109 "Financial Instruments", K-IFRS No.1039 "Financial Instruments: Recognition and Measurement" (Amendment) - Interest Rate Benchmark Reform

These amendments to K-IFRS No. 1109 and 1039 provide exceptions to apply to all hedging relationships that are directly affected by the interest rate benchmark reform. If interest rate benchmark reform creates uncertainty about the timing or amount of cash flows based on the interest rate benchmark of the hedged item or hedging instrument, it will affect the hedging relationship. There is no material impact of this amendment on the interim consolidated financial statements of the Group.

(iii) K-IFRS No.1001 "Presentation of Financial Statements", K-IFRS No.1008 "Accounting Policies, Changes in Accounting Estimates and Errors" (Amendment) - Definition of Material

This amendment provides a new definition of materiality. According to the new definition, information is material if omitting, misstating or obscuring it could reasonably be expected to influence decisions that the primary users of general purpose financial statements make on the basis of those financial statements, which provide financial information about a specific reporting entity.

This amendment clarifies that materiality is determined by the nature or size of the information, individually or in combination with other information, in the context of the financial statements. The information is material if it is reasonably expected that the misrepresentation of the information will influence the decision-making of the main users. There is no material impact of this amendment on the interim consolidated financial statements of the Group.

## 3. Changes in Accounting Policies (cont'd)

(iv) K-IFRS No.1116 “Lease” (Amendment) - Discount on rent related to COVID-19 (' rent concessions ')

The amendments to K-IFRS No. 1116 provide a practical expedient not to assess whether a rent concession occurring as a direct consequence of the COVID-19 pandemic is a lease modification. These rent concessions must meet the application requirements of the practical expedient and the lessee that makes this election shall account for any change in lease payments resulting from the rent concession the same way it would account for the change applying K-IFRS No. 1116 if the change were not a lease modification. These amendments are applied retrospectively from the first fiscal year beginning on or after June 1, 2020, but may be applied earlier. As the Group did not incur any rent concession related to COVID-19, the amendment has no impact on the Group's interim consolidated financial statements.

(v) Amendments to Conceptual Framework for Financial Reporting (Conceptual Framework) (2018)

The Conceptual Framework is not a Standard, and nothing in the Conceptual Framework overrides any Standard or any requirement in a Standard. The purpose of the Conceptual Framework is to:

(a) assist the Accounting Standards Committee to develop K-IFRS Standards;
(b) assist preparers to develop consistent accounting policies when no Standard applies to a particular transaction or other event; and
(c) assist all parties to understand and interpret the Standards.

This Conceptual Framework revision contains some new concepts, represents a change in the definition and recognition criteria for assets and liabilities, and clarifies some important concepts. There is no material impact of this amendment on the interim consolidated financial statements of the Group.

## 4. Segment and Other Information

(a) For management purposes, the Group is organized into business units based on their goods and services. The Group's operating segments are as follows:

| Segments | Goods and services | Location of business |
|---|---|---|
| Oil and gas | Exploration, development and production of domestic and overseas resources and sales of crude oil | Domestic and overseas |
| Petroleum distribution | Distribution business of gasoline and gas oil and oil trading | Domestic and overseas |
| Oil stockpiling | Purchase and lending of oil stockpiles, management, operation and lending of oil stockpiling facilities | Domestic |
| Others | Oil information services, other research services, etc. | Domestic and overseas |

(b) Segment results for the period

(i) For the six-month period ended June 30, 2020:

*In millions of Korean won*

| | Oil and gas | Petroleum distribution | Oil stockpiling | Others | Reportable segment total | Reconciling items (*) | Group total |
|---|---|---|---|---|---|---|---|
| Revenue | ₩ 812,921 | 16,206 | 197,368 | 1,635 | 1,028,130 | - | 1,028,130 |
| Cost of sales | 828,396 | 15,971 | 87,008 | 1,083 | 932,458 | - | 932,458 |
| Gross profit (loss) | (15,475) | 235 | 110,360 | 552 | 95,672 | - | 95,672 |
| Selling and administrative expenses | 78,181 | 187 | - | - | 78,368 | 35,402 | 113,770 |
| Reportable segment operating profit (loss) | (93,656) | 48 | 110,360 | 552 | 17,304 | (35,402) | (18,098) |
| Other income | - | - | - | - | 24,788 | - | 24,788 |
| Other expenses | - | - | - | - | 15,408 | - | 15,408 |
| Other gains (losses), net | - | - | - | - | (532,784) | - | (532,784) |
| Finance income | - | - | - | - | 235,650 | - | 235,650 |
| Finance costs | - | - | - | - | 755,458 | - | 755,458 |
| Profit on investments in associates and joint ventures, net | - | - | - | - | (48,476) | - | (48,476) |
| Profit (loss) before income tax | ₩ - | - | - | - | (1,074,384) | (35,402) | (1,109,786) |
| Depreciation and amortization | ₩ 397,578 | 191 | 48,018 | 2,797 | 448,584 | - | 448,584 |
| Impairment of property, plant, and equipment | 476,618 | - | - | - | 476,618 | - | 476,618 |
| Impairment of intangible assets other than goodwill | 2,596 | - | - | - | 2,596 | - | 2,596 |
| Reversal of impairment losses on property, plant and equipment | 47,647 | - | - | - | 47,647 | - | 47,647 |
| Reversal of impairment losses on intangible assets other than goodwill | 12,676 | - | - | - | 12,676 | - | 12,676 |

(*) Primarily consists of operating profit (loss) including depreciation and amortization that are not allocated to the segments.

## 4. Segment and Other Information (cont'd)

(b) Segment results for the period (cont'd)

(ii) For the six-month period ended June 30, 2019:

*In millions of Korean won*

| | Oil and gas | Petroleum distribution | Oil stockpiling | Others | Reportable segment total | Reconciling items (*) | Group total |
|---|---|---|---|---|---|---|---|
| Revenue | ₩ 1,332,591 | 29,147 | 94,905 | 3,328 | 1,459,971 | - | 1,459,971 |
| Cost of sales | 837,991 | 23,683 | 95,424 | 883 | 957,981 | - | 957,981 |
| Gross profit (loss) | 494,600 | 5,464 | (519) | 2,445 | 501,990 | - | 501,990 |
| Selling and administrative expenses | 124,606 | 182 | - | - | 124,788 | 40,864 | 165,652 |
| Reportable segment operating profit (loss) | 369,994 | 5,282 | (519) | 2,445 | 377,202 | (40,864) | 336,338 |
| Other income | - | - | - | - | 82,937 | - | 82,937 |
| Other expenses | - | - | - | - | 1,855 | - | 1,855 |
| Other gains (losses), net | - | - | - | - | 20,205 | - | 20,205 |
| Finance income | - | - | - | - | 187,479 | - | 187,479 |
| Finance costs | - | - | - | - | 424,074 | - | 424,074 |
| Profit on investments in associates and joint ventures, net | - | - | - | - | 38,640 | - | 38,640 |
| Profit (loss) before income tax | ₩ - | - | - | - | 280,534 | (40,864) | 239,670 |
| Depreciation and amortization | ₩ 465,590 | - | 52,575 | - | 518,165 | 6,764 | 524,929 |
| Impairment of property, plant, and equipment | 48,196 | - | - | - | 48,196 | - | 48,196 |
| Impairment of intangible assets other than goodwill | 12,205 | - | - | - | 12,205 | - | 12,205 |
| Reversal of impairment losses on property, plant and equipment | 6,057 | - | - | - | 6,057 | - | 6,057 |
| Reversal of impairment losses on intangible assets other than goodwill | 36,087 | - | - | - | 36,087 | - | 36,087 |

(*) Primarily consists of operating profit (loss) including depreciation and amortization that are not allocated to the segments.

## 5. Non-financial Assets

Details of non-financial assets as of June 30, 2020 and December 31, 2019 are as follows:

| *In millions of Korean won* | | June 30, 2020 | | December 31, 2019 | |
|---|---|---|---|---|---|
| | | **Current** | **Non-current** | **Current** | **Non-current** |
| Advanced payments | ₩ | 56,436 | - | 56,315 | - |
| Prepaid expenses | | 39,471 | 544 | 31,362 | 326 |
| Oil stockpiles | | - | 4,060,263 | - | 3,910,638 |
| Others | | - | 5,744 | - | 6,621 |
| **Total** | ₩ | 95,907 | 4,066,551 | 87,677 | 3,917,585 |

## 6. Subsidiaries

(a) The lists of its subsidiaries as of June 30, 2020 and December 31, 2019 are as follows:

| Subsidiary name (*) | Principal activity | Country of incorporation | Ownership (%) June 30, 2020 | Ownership (%) December 31, 2019 |
|---|---|---|---|---|
| ANKOR E&P Holdings Corp. | Exploration and production (E&P) | United States | 100.00 | 100.00 |
| Dana Petroleum Limited | E&P | United Kingdom | 100.00 | 100.00 |
| KNOC Eagle Ford Corporation | E&P | United States | 100.00 | 100.00 |
| Harvest Operations Corp. | E&P | Canada | 100.00 | 100.00 |
| KNOC Kaz B.V. | E&P | Netherlands | 100.00 | 100.00 |
| KNOC Sumatra Ltd. (*1) | E&P | Indonesia | 100.00 | 100.00 |
| KNOC Yemen Ltd. (*1) | E&P | Yemen | 60.00 | 60.00 |
| KNOC Trading Singapore Pte. Ltd. | Trading and Marketing | Singapore | 100.00 | 100.00 |
| KNOC Service Ltd. (*2) | Facility Management | Republic of Korea | 100.00 | 100.00 |
| KADOC Ltd. (*3) | E&P | Malaysia | 75.00 | 75.00 |

(*) The entity includes subsidiaries and their subsidiaries.
(*1) Entity is in the process of liquidation as of June 30, 2020
(*2) The entity was established in the previous year, and office building management is its main business activity.
(*3) It was reclassified as a subsidiary from a joint venture, as control was acquried through a change in the shareholders' agreement in the first half of 2020.

## 6. Subsidiaries (cont'd)

(b) Financial information of subsidiaries

(i) Financial information of subsidiaries as of and for the six-month period ended June 30, 2020 is as follows:

*In millions of Korean won*

| Company | | Assets | Liabilities | Revenue | Net profit (loss) |
|---|---|---|---|---|---|
| ANKOR E&P Holdings Corp. | ₩ | 389,445 | 165,787 | 30,824 | (41,950) |
| Dana Petroleum Limited (*1) | | 2,520,489 | 1,529,579 | 413,353 | (225,558) |
| KNOC Eagle Ford Corporation | | 2,640,118 | 656,399 | 101,732 | (170,225) |
| Harvest Operations Corp. | | 2,518,580 | 3,319,956 | 76,196 | (303,389) |
| KNOC Kaz B.V. (*1) | | 782,633 | 591,610 | 76,663 | (28,846) |
| KNOC Sumatra Ltd. (*2) | | 710 | - | - | - |
| KNOC Yemen Ltd. (*2) | | 15 | - | - | - |
| KNOC Trading Singapore Pte. Ltd. | | 805 | 112 | 434 | 253 |
| KNOC Service Ltd. | | 1,323 | 375 | 2,249 | 482 |
| KADOC Ltd. (*1)(*3) | | 926,710 | 246,128 | - | - |

(*1) The amounts presented are after reflecting the difference between the fair value and the book value that arose during the business combination.
(*2) Entity is in the process of liquidation as of June 30, 2020
(*3) It was reclassified as a subsidiary from a joint venture, as control was acquried through a change in the shareholders' agreement in the first half of 2020.

(ii) Financial information of subsidiaries as of and for the year ended December 31, 2019 is as follows:

*In millions of Korean won*

| Company | | Assets | Liabilities | Revenue | Net profit (loss) |
|---|---|---|---|---|---|
| ANKOR E&P Holdings Corp. | ₩ | 458,118 | 202,504 | 106,457 | 13,814 |
| Dana Petroleum Limited (*1) | | 2,908,748 | 1,683,850 | 1,277,072 | 150,443 |
| KNOC Eagle Ford Corporation | | 2,713,455 | 585,691 | 359,525 | 74,763 |
| Harvest Operations Corp. | | 2,681,162 | 3,175,755 | 310,288 | 2,388 |
| KNOC Kaz B.V. (*1) | | 787,547 | 573,651 | 279,685 | 86,474 |
| KNOC Sumatra Ltd. (*2) | | 685 | - | - | - |
| KNOC Yemen Ltd. (*2) | | 14 | - | - | - |
| KNOC Trading Singapore Pte. Ltd. | | 484 | 46 | 411 | 54 |
| KNOC Service Ltd. (*3) | | 477 | 11 | 1,277,072 | 150,443 |

(*1) The amounts presented are after reflecting the difference between the fair value and the book value that arose during the business combination.
(*2) Entity is in the process of liquidation as of December 31, 2019.
(*3) The entity was founded during the prior year.

## 7. Investments in Associates and Joint Ventures

(a) Details of investments in associates and joint ventures

(i) As of June 30, 2020

*In millions of Korean won*

| Entity | Principal activity | Country | Equity interest (%) | | Acquisition cost | Book value |
|---|---|---|---|---|---|---|
| <Investments in associates> | | | | | | |
| Kernhem B.V. | Exploration and Production("E&P") | Netherlands | 36.67 | ₩ | 12,268 | - |
| Oilhub Korea Yeosu Co., Ltd. | Storing of oil | Korea | 29.00 | | 40,592 | 61,998 |
| ADA Oil LLP (*1) | E&P | Kazakhstan | 12.50 | | 21,072 | - |
| Parallel Petroleum LLC (*2)(*9) | E&P | United States | 10.00 | | 46,067 | - |
| KNOC EF Star LLC (*3) | E&P | United States | 100.00 | | 58,126 | 24,750 |
| Korea GS E&P Pte. Ltd. (*10) | E&P | Singapore | 30.00 | | 405,611 | 362,146 |
| | | | | | 583,736 | 448,894 |
| <Investments in joint ventures> | | | | | | |
| KNOC Inam Ltd. | Exploration | Malaysia | 40.00 | | - | - |
| KNOC Kamchatka Petroleum Ltd. (*4) | Exploration | Cyprus | 55.00 | | 1 | - |
| KNOC Bazian Ltd. (*4) | Exploration | Malaysia | 66.72 | | - | - |
| KNOC Nigerian West Oil Company Ltd. (*4) | Exploration | Nigeria | 75.00 | | 72 | - |
| KNOC Nigerian East Oil Company Ltd. (*4) | Exploration | Nigeria | 75.00 | | 72 | - |
| Korea kamchatka Co., Ltd. | Exploration | Cyprus | 50.00 | | 8,160 | - |
| KC kazakh B.V. | Exploration | Netherlands | 35.00 | | 272 | - |
| Offshore International Group, Inc. | E&P | United States | 50.00 | | 762,593 | 31,731 |
| KNOC Ferghana Ltd. | Exploration | Malaysia | 50.00 | | 1 | - |
| KNOC Ferghana2 Ltd. (*4) | Exploration | Malaysia | 65.00 | | - | - |
| KADOC Ltd. (*5) | E&P | Malaysia | - | | - | - |
| Korea Energy Terminal Ltd. (*4) | Storing of oil | Korea | 51.31 | | 37,930 | 32,592 |
| Deep Basin Partnership (*4)(*6) | E&P | Canada | 83.50 | | 269,516 | - |
| HKMS Partnership (*4)(*6) | Gas processing plant operation | Canada | 68.21 | | 65,344 | 29,845 |
| KNOC-VOGO Eagle Ford LLC (*7) | E&P | United States | 50.00 | | - | 1,196 |
| Al Dhafra Petroleum (*8) | E&P | United Arab Emirates | 30.00 | | 480 | 480 |
| | | | | | 1,144,441 | 95,844 |
| | | | | ₩ | 1,728,177 | 544,738 |

## 7. Investments in Associates and Joint Ventures (cont’d)

(a) Summary of investments in associates and joint ventures (cont’d)

(ii) As of December 31, 2019

*In millions of Korean won*

| Entity | Principal activity | Country | Equity interest (%) | Acquisition cost | Book value |
|---|---|---|---|---|---|
| <Investments in associates> | | | | | |
| Kernhem B.V. | Exploration and Production (“E&P”) | Netherlands | 36.67 | ₩ 11,830 | - |
| Oilhub Korea Yeosu Co., Ltd. | Storing of oil | Korea | 29.00 | 39,141 | 58,480 |
| ADA Oil LLP (*1) | E&P | Kazakhstan | 12.50 | 20,320 | - |
| Parallel Petroleum LLC (*2)(*9) | E&P | United States | 10.00 | 44,421 | - |
| KNOC EF Star LLC (*3) | E&P | United States | 100.00 | 30,103 | 40,195 |
| | | | | 145,815 | 98,675 |
| <Investments in joint ventures> | | | | | |
| KNOC Inam Ltd. | Exploration | Malaysia | 40.00 | - | - |
| KNOC Kamchatka Petroleum Ltd. (*4) | Exploration | Cyprus | 55.00 | 1 | - |
| KNOC Bazian Ltd. (*4) | Exploration | Malaysia | 66.72 | - | - |
| KNOC Nigerian West Oil Company Ltd. (*4) | Exploration | Nigeria | 75.00 | 69 | - |
| KNOC Nigerian East Oil Company Ltd. (*4) | Exploration | Nigeria | 75.00 | 69 | - |
| Korea kamchatka Co., Ltd. | Exploration | Cyprus | 50.00 | 7,869 | - |
| KC kazakh B.V. | Exploration | Netherlands | 35.00 | 262 | - |
| Offshore International Group, Inc. | E&P | United States | 50.00 | 735,346 | 91,189 |
| KNOC Ferghana Ltd. | Exploration | Malaysia | 50.00 | 1 | - |
| KNOC Ferghana2 Ltd. (*4) | Exploration | Malaysia | 65.00 | - | - |
| KADOC Ltd. (*4) | E&P | Malaysia | 75.00 | 1 | - |
| Korea Energy Terminal Ltd. (*4) | Storing of oil | Korea | 95.00 | 4,455 | - |
| Deep Basin Partnership (*4)(*6) | E&P | Canada | 83.47 | 258,877 | 17,322 |
| HKMS Partnership (*4)(*6) | Gas processing plant operation | Canada | 68.19 | 62,875 | 32,734 |
| KNOC-VOGO Eagle Ford LLC (*7) | E&P | United States | 50.00 | - | - |
| | | | | 1,069,825 | 141,245 |
| | | | | ₩ 1,215,640 | 239,921 |

(*1) Classified as an investment in associate as the Group’s associate, Kernhem B.V. holds 75% of the equity interest and by effective equity interest, the Group has the ability to exercise significant influence over the entity.

(*2) Classified as an investment in associate as the Group can designate one director in its board of directors. Despite the percentage of ownership is below 20%, the Group has the ability to exercise significant influence over the entity.

(*3) Despite the percentage of ownership of the Group is 100%, it is excluded from the scope of consolidation due to reassessment of control.

(*4) Despite the percentage of ownership is over 50%, the investment is classified as an investment in joint ventures as the Group is unable to exercise control over investees solely.

(*5) It was reclassified as a subsidiary from a joint venture, as control was acquried through a change in the shareholders' agreement in the first half of 2020.

(*6) Deep Basin Partnership and HKMS Partnership are joint ventures owned by Harvest Operations Corp.

(*7 It is a joint venture company 50% owned by KNOC Eagle Ford Corp, which belongs to the Group.

(*8) It is a joint venture company owned by KADOC Ltd, which was reclassified as a subsidiary in the first half of 2020.

(*9) Parallel Petroleum LLC is an associate owned by ANKOR E&P Holdings Corp.

(*10) On April 2, 2020, by exercising the stock option, 30% of stocks were acquired and the difference between the strike price of ₩297,819 million and the fair value of the equity valuation was ₩100,072 million recognized as gains on transaction of derivative financial instruments.

## 7. Investments in Associates and Joint Ventures (cont'd)

(b) Changes in carrying value

(i) For the six-month period ended June 30, 2020

*In millions of Korean won*

| Entity | Beginning balance | Acquisitions | Disposals | Dividends received | Share of profit or loss in equity method | Changes in equity adjustments in equity method | Other changes (*4) | Ending balance |
|---|---|---|---|---|---|---|---|---|
| <Investment in associates> | | | | | | | | |
| Kernhem B.V. (*1) | ₩ - | - | - | - | (1,554) | 1,554 | - | - |
| Oilhub Korea Yeosu Co. Ltd. | 58,480 | - | - | - | 3,528 | (2,170) | 2,160 | 61,998 |
| ADA Oil LLP (*1) | - | - | - | - | (714) | 714 | - | - |
| Parallel Petroleum LLC (*1) | - | - | - | - | - | - | - | - |
| KNOC EF Star LLC | 40,195 | - | - | - | (17,024) | - | 1,579 | 24,750 |
| KOREA GS E&P Pte. Ltd. (*2) | - | 407,773 | - | - | 927 | - | (46,554) | 362,146 |
| | 98,675 | 407,773 | - | - | (14,837) | 98 | (42,815) | 448,894 |
| <Investment in joint ventures> | | | | | | | | |
| Offshore International Group. Inc. (*3) | 91,189 | - | - | - | (8,024) | (2,191) | (49,243) | 31,731 |
| KADOC Ltd. (*7)(*8) | - | - | - | - | - | - | - | - |
| Korea Energy Terminal Ltd (*8). | - | 35,662 | (2,174) | - | (1,028) | 306 | (174) | 32,592 |
| Deep Basin Partnership (*1) | 17,322 | 1,052 | - | - | (69,448) | - | 51,074 | - |
| HKMS Partnership | 32,734 | 140 | - | (7,248) | 4,473 | - | (254) | 29,845 |
| KNOC-VOGO Eagle Ford LLC (*5) | - | - | - | - | 1,203 | - | (7) | 1,196 |
| Al Dhafra Petroleum (*6) | - | - | - | - | - | - | 480 | 480 |
| | 141,245 | 36,854 | (2,174) | (7,248) | (72,824) | (1,885) | 1,876 | 95,844 |
| | ₩ 239,920 | 444,627 | (2,174) | (7,248) | (87,661) | (1,787) | (40,939) | 544,738 |

(*1) The Group does not apply the equity method as the book value of the investment in associates and joint ventures is less than zero due to the cumulative equity method loss.

(*2) The fair value less cost to sell was measured and evaluated for KOREA GS E&P Pte. Ltd. which is an investment in associate for the year ended June 30, 2020. Impairment losses on investments in joint ventures amounted to ₩44,623 million (recoverable amount: ₩362,146 million, discount rate: 6.79%, reason for impairment: decrease in estimated production quantities), and included in other changes.

(*3) The fair value less cost to sell was measured and evaluated for Offshore International Group, Inc, which is an investment in joint ventures for the year ended June 30, 2020. Impairment losses on investments in joint ventures amounted to ₩52,957 million (recoverable amount: ₩31,731 million, discount rate: 6.28%, reason for impairment: decrease in estimated production quantities), and included in other changes.

(*4) Other changes include the effect of changes in exchange rates and impairment losses that were not recognized as the book value of Deep Basin Partners, an investment in joint ventures, until the previous year was less than zero.

(*5) KNOC-VOGO Eagle Ford LLC is SPC with 50% of the shares in KNOC Eagle Ford Corp. KNOC Eagle Ford Corp. invested in EF Energy LLC through KNOC-VOGO Eagle Ford LLC. EF Energy LLC is 40% of shares owned by KNOC-VOGO Eagle Ford LLC and 60% owned by KNOC Eagle Ford Corp. Since KNOC Eagle Ford Corp. recognizes EF Energy LLC as the Group, its investment in KNOC-VOGO Eagle Ford LLC is recognized as '0' because it is offset by the consolidation adjustment process.

(*6) It is a joint venture owned by KADOC Ltd, which was reclassified as a subsidiary in the first half of 2020.

(*7) It was reclassified as a subsidiary from a joint venture, as control was acquried through a change in the shareholders' agreement in the first half of 2020.

(*8) The Group recognized gains on sale of investments in joint ventures of ₩134,959 million while acquiring control of KADOC Ltd., and ₩1,806 million of gains on sale of investments in joint ventures by the sale of Korea Energy Terminal Ltd.

## 7. Investments in Associates and Joint Ventures (cont'd)

(b) Changes in carrying value (cont'd)

(ii) For the year ended December 31, 2019

*In millions of Korean won*

| Entity | Beginning balance | Acqui-sitions | Disposals | Dividends received | Share of profit or loss in equity method (*1) | Changes in equity adjustments in equity method | Other changes (*3) | Ending balance |
|---|---|---|---|---|---|---|---|---|
| <Investment in associates> | | | | | | | | |
| Kernhem B.V. (*1) | ₩ - | - | - | | | | - | - |
| Oilhub Korea Yeosu Co. Ltd. | 53,338 | - | - | (1,520) | 6,704 | (1,915) | 1,873 | 58,480 |
| ADA Oil LLP (*1) | - | - | - | | | | - | - |
| Parallel Petroleum LLC (*1) | - | - | - | | | | - | - |
| KNOC EF Star LLC | 54,127 | - | - | | (15,961) | | 2,029 | 40,195 |
| | 107,465 | - | - | (1,520) | (9,257) | (1,915) | 3,902 | 98,675 |
| <Investment in joint ventures> | | | | | | | | |
| Offshore International Group. Inc. (*2) | 132,985 | - | - | | (7,209) | (373) | (34,214) | 91,189 |
| KADOC Ltd. (*1)(*3) | - | - | - | | | | - | - |
| Korea Energy Terminal Ltd. (*1) | - | 402 | (231) | | (203) | 32 | - | - |
| Deep Basin Partnership | - | 8,652 | | (1,415) | 48,063 | | (37,978) | 17,322 |
| HKMS Partnership | 35,507 | 3 | | (14,323) | 8,734 | | 2,813 | 32,734 |
| KNOC-VOGO Eagle Ford LLC (*1)(*5) | - | - | | | | | - | - |
| | 168,492 | 9,057 | (231) | (15,738) | 49,385 | (341) | (69,379) | 141,245 |
| | ₩ 275,957 | 9,057 | (231) | (17,258) | 40,128 | (2,256) | (65,477) | 239,920 |

(*1) The Group ceased to apply the equity method as the book value of the investment in associates and joint ventures is less than zero due to the cumulative equity method loss.

(*2) The fair value less cost to sell was measured and evaluated for Offshore International Group, Inc, which is an investment in joint ventures for the year ended December 31, 2019. Impairment losses on investments in joint ventures amounted to ₩39,252 million (recoverable amount: ₩9,119 million, discount rate: 6.59%, reason for impairment: decrease in estimated production quantities), and included in other changes.

(*3) The collectability of loans from investments in associates and joint ventures on which equity method ceased to be applied due to the carrying value being zero. As a result, the Group reclassified the loans previously recognized as net investments in equity method to financial assets at fair value through profit or loss through the judgment of the management. Reversal of loss under equity method of ₩52,799 million related to the loans was recognized.

(*4) Other changes include the effect of changes in exchange rates and impairment losses that were not recognized as the book value of Deep Basin Partners, an investment in joint ventures, until the previous year was less than zero.

(*5) KNOC-VOGO Eagle Ford LLC is SPC with 50% of the shares in KNOC Eagle Ford Corp. KNOC Eagle Ford Corp. invested in EF Energy LLC through KNOC-VOGO Eagle Ford LLC. EF Energy LLC is 40% of shares owned by KNOC-VOGO Eagle Ford LLC and 60% owned by KNOC Eagle Ford Corp. Since KNOC Eagle Ford Corp. recognizes EF Energy LLC as the Group, its investment in KNOC-VOGO Eagle Ford LLC is recognized as '0' because it is offset by the consolidation adjustment process.

## 7. Investments in Associates and Joint Ventures (cont'd)

(c) The summaries of financial information of major associates and joint ventures as of June 30, 2020 or the six-month period then and as of December 31, 2019 or for the year then ended are as follows:

(i) June 30, 2020

| *In millions of Korean won* | | Total assets | Total liabilities | Revenue | Net profit (loss) |
|---|---|---|---|---|---|
| <Investment in associates> | | | | | |
| Kernhem B.V. | ₩ | 182,877 | 284,824 | 3,080 | (22,538) |
| Oilhub Korea Yeosu Co., Ltd. | | 505,908 | 292,123 | 77,307 | 12,166 |
| Parallel Petroleum LLC | | 1,297,736 | 638,121 | 19,380 | (8,641) |
| ADA Oil LLP | | 69,498 | 185,251 | 4,107 | (29,729) |
| KNOC EF Star LLC | | 486,990 | 12 | 6,990 | (9,941) |
| KOREA GS E&P Pte. Ltd. | | 1,722,167 | 591,947 | 433,094 | 14,424 |
| <Investment in joint ventures> | | | | | |
| Offshore International Group, Inc. | | 728,784 | 397,041 | 60,529 | (16,048) |
| Korea Energy Terminal Ltd. | | 65,437 | 1,916 | | (3,882) |
| Deep Basin Partnership | | 173,878 | 226,549 | 10,950 | (69,448) |
| HKMS Partnership | | 92,145 | 81,686 | 11,464 | 2,600 |
| KNOC-VOGO Eagle Ford LLC | | 1,134,230 | 623,072 | - | (21) |

(ii) December 31, 2019

| *In millions of Korean won* | | Total assets | Total liabilities | Revenue | Net profit (loss) |
|---|---|---|---|---|---|
| <Investment in associates> | | | | | |
| Kernhem B.V. | ₩ | 179,309 | 260,049 | 32,237 | 8,834 |
| Oilhub Korea Yeosu Co., Ltd. | | 531,041 | 329,385 | 74,652 | 23,119 |
| Parallel Petroleum LLC | | 313,039 | 334,104 | 67,421 | (12,892) |
| ADA Oil LLP | | 73,984 | 162,562 | 42,983 | 14,076 |
| KNOC EF Star LLC | | 484,854 | 5 | 14,198 | (15,961) |
| <Investment in joint ventures> | | | | | |
| Offshore International Group, Inc. | | 736,528 | 397,782 | 188,668 | (14,417) |
| KADOC Ltd. | | 757,247 | 860,553 | 60,569 | (33,608) |
| Korea Energy Terminal Ltd. | | 12,918 | 14,485 | - | (527) |
| Deep Basin Partnership | | 248,544 | 233,156 | 35,334 | 48,063 |
| HKMS Partnership | | 90,587 | 82,645 | 23,116 | 4,158 |
| KNOC-VOGO Eagle Ford LLC | | 1,006,981 | 599,645 | - | 29,548 |

## 8. Property, Plant and Equipment

(a) Changes in property, plant and equipment for the six-month period ended June 30, 2020 and for the year ended December 31, 2019 are as follows:

(i) For the six-month period ended June 30, 2020

*In millions of Korean won*

| | Beginning balance | Acqui-sitions | Dis-posals | Depre-ciation | Impair-ment losses (*1) | Transfers | Others (*2) | Effects of business combinations (*3) | Ending balance |
|---|---|---|---|---|---|---|---|---|---|
| Land | ₩ 480,855 | - | (16) | - | - | - | 17,817 | - | 498,656 |
| Buildings | 47,288 | 39 | (530) | (1,116) | - | 10,225 | 1,689 | - | 57,595 |
| Structures | 1,191,647 | - | (1,874) | (26,324) | - | 52 | 43,958 | - | 1,207,459 |
| (Contributions to construction) | (114) | - | - | 2 | - | - | (4) | - | (116) |
| Machinery | 303,606 | 657 | (2,229) | (16,635) | - | 3,798 | 11,085 | - | 300,282 |
| (Contributions to construction) | (3,104) | - | - | 169 | - | - | (116) | - | (3,051) |
| Vehicles | 1,941 | 247 | (2) | (268) | - | 227 | 43 | - | 2,188 |
| Tools & fixtures | 6,306 | 241 | (19) | (1,276) | - | 153 | 180 | 24 | 5,609 |
| Right-of-use assets | 395,677 | 234 | - | (12,471) | - | - | 14,143 | - | 397,583 |
| Construction-in-progress | 228,623 | 32,548 | - | - | - | (16,859) | 8,325 | - | 252,637 |
| Others | 8,497 | 525 | (28) | (1,597) | (153) | - | 79 | - | 7,323 |
| Oil & gas properties | 6,059,070 | 153,611 | (3,067) | (358,627) | (473,868) | 1,413 | 59,914 | 593,683 | 6,032,129 |
| (Government grants) | (2,573) | - | - | 220 | - | - | (97) | - | (2,450) |
| | ₩ 8,717,719 | 188,102 | (7,765) | (417,923) | (474,021) | (991) | 157,016 | 593,707 | 8,755,844 |

(*1) Impairment losses are net of impairment reversals.
(*2) Include the effect of changes in exchange rates and others.
(*3) It is the recognition amount of KADOC property, plant and equipment that was reclassified as a subsidiary from a joint venture, as control was acquried through a change in the shareholders' agreement during the first half of 2020.

## 8. Property, Plant and Equipment (cont'd)

(a) Changes in property, plant and equipment (cont'd)

(ii) For the year ended December 31, 2019

*In millions of Korean won*

| | | Beginning balance | Effects of new accounting policies | Acqui-sitions | Disposals | Depre-ciation | Impair-ment losses (*1) | Transfers | Others (*2) | Ending balance |
|---|---|---|---|---|---|---|---|---|---|---|
| Land | ₩ | 464,744 | - | - | (393) | - | - | - | 16,504 | 480,855 |
| Buildings | | 46,983 | - | 42 | (1,109) | (2,010) | - | 1,687 | 1,695 | 47,288 |
| Structures | | 1,199,476 | - | 261 | (20) | (51,333) | - | 226 | 43,037 | 1,191,647 |
| (Contributions to construction) | | (114) | - | - | - | 4 | - | - | (4) | (114) |
| Machinery | | 316,980 | - | 8,028 | (117) | (33,715) | - | 1,235 | 11,195 | 303,606 |
| (Contributions to construction) | | (3,310) | - | - | - | 326 | - | - | (120) | (3,104) |
| Vehicles | | 2,171 | - | 535 | (4) | (844) | - | - | 83 | 1,941 |
| Tools & fixtures | | 7,264 | - | 2,630 | (11) | (4,164) | - | 233 | 354 | 6,306 |
| Finance lease asset | | 217,840 | (217,840) | - | - | - | - | - | - | - |
| Right-of-use assets | | - | 419,659 | 7,758 | (22,285) | (30,228) | - | - | 20,773 | 395,677 |
| Construction-in-progress | | 148,151 | - | 85,884 | (1,764) | - | - | (8,398) | 4,750 | 228,623 |
| Others | | 10,230 | - | 1,180 | (12) | (2,296) | - | 9 | (614) | 8,97 |
| Oil & gas properties | | 6,267,204 | - | 392,661 | (16,730) | (842,634) | (151,026) | (37,423) | 447,018 | 6,059,070 |
| (Government grants) | | (3,312) | - | - | - | 862 | - | - | (123) | (2,573) |
| | ₩ | 8,674,307 | 201,819 | 498,979 | (42,445) | (966,032) | (151,026) | (42,431) | 544,548 | 8,717,719 |

(*1) Impairment losses are net of impairment reversals.
(*2) Include the effect of changes in exchange rates and others.

## 9. Goodwill

(a) Changes in goodwill for the six-month period ended June 30, 2020 and for the year ended December 31, 2019 are as follows:

| *In millions of Korean won* | | 2020 | 2019 |
|---|---|---|---|
| Beginning balance | ₩ | 152,976 | 143,793 |
| Acquisitions (*1) | | 115,102 | - |
| Other changes (*2) | | (3,585) | 9,183 |
| Ending balance | ₩ | 264,493 | 152,976 |

(*1) It is goodwill recognized in relation to KADOC Ltd. that was reclassified as a subsidiary from a joint venture, as control was acquried through a change in the shareholders' agreement in the first half of 2020.

(*2) Include the effect of changes in exchange rate and others.

(b) Details of goodwill allocated to CGUs and groups of CGUs as of June 30, 2020 and December 31, 2019 are as follows:

| *In millions of Korean won* | | June 30, 2020 | December 31, 2019 |
|---|---|---|---|
| Oil and gas properties segment | | | |
| Dana Petroleum Limited (*1) | ₩ | 125,671 | 129,188 |
| Altius Holdings Inc. (a subsidiary of KNOC Kaz B.V.) (*2) | | 23,720 | 23,788 |
| KADOC Ltd. (*3) | | 115,102 | - |
| | ₩ | 264,493 | 152,976 |

(*1) Dana Petroleum Limited’s recoverable amount is estimated based on the fair value less cost to sell. The fair value less cost to sell is estimated from the cash inflows, which are discounted at 8% and 12%, derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is no impairment loss on goodwill recognized based on the fair value less cost to sell estimated for each CGU for the six-month period ended June 30, 2020.

(*2) Altius Holding Inc.’s recoverable amount is estimated based on the fair value less cost to sell. The value in use is estimated from the cash inflows, which are discounted at 6.36%, derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is no impairment loss on goodwill recognized based on the value in use estimated for each CGU for the six-month period ended June 30, 2020.

(*3) KADOC Ltd.’s recoverable amount is estimated based on the value in use. The value in use is estimated from the cash inflows, which are discounted at 7.58%, derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is no impairment loss on goodwill recognized based on the value in use estimated for each CGU for the six-month period ended June 30, 2020.

## 10. Intangible Assets Other Than Goodwill

Changes in intangible assets other than goodwill for the six-month period ended June 30, 2020 and for the year ended December 31, 2019 are as follows:

(a) For the six-month period ended June 30, 2020

*In millions of Korean won*

| | | Beginning balance | Acqui-sitions | Disposals | Amortization | Impairment losses (*1) | Re-classification | Others (*2) | Effects of business combinations (*3) | Ending balance |
|---|---|---|---|---|---|---|---|---|---|---|
| Exploration and evaluation assets | ₩ | 393,308 | 1,635 | - | - | (768) | - | 4,298 | 149,310 | 547,783 |
| Software | | 2,535 | 23 | - | (572) | - | 46 | 96 | 3,184 | 5,312 |
| Mining rights | | 1,003,749 | 106 | (1,156) | (29,536) | (34,203) | - | 35,281 | 143,053 | 1,117,294 |
| Development cost | | 4,929 | - | - | (1,000) | - | 945 | 183 | - | 5,057 |
| Land use rights | | 155 | - | - | (3) | - | - | 5 | - | 157 |
| Others | | 2,150 | 7 | (23) | (30) | - | - | 74 | - | 2,178 |
| | ₩ | 1,406,826 | 1,771 | (1,179) | (31,141) | (34,971) | 991 | 39,937 | 295,547 | 1,677,781 |

(*1) Impairment losses are net of impairment reversals.
(*2) Include the effect of changes in exchange rates and others.
(*3) It is intangible assets other than goodwill recognized in relation to KADOC Ltd. that was reclassified as a subsidiary from a joint venture, as control was acquried through a change in the shareholders' agreement during the first half of 2020.

(b) For the year ended December 31, 2019

*In millions of Korean won*

| | | Beginning balance | Acqui-sitions | Disposals (*1) | Amortization | Impairment losses | Re-classification | Others (*2) | Ending balance |
|---|---|---|---|---|---|---|---|---|---|
| Exploration and evaluation assets | ₩ | 348,544 | 46,459 | - | - | (2,136) | - | 441 | 393,308 |
| Software | | 3,119 | 636 | - | (1,379) | - | 425 | (266) | 2,535 |
| Mining rights | | 1,702,800 | 686 | (767,241) | (77,412) | 37,260 | 41,587 | 66,069 | 1,003,749 |
| Development cost | | 6,518 | 185 | - | (2,437) | - | 419 | 244 | 4,929 |
| Land use rights | | 155 | - | - | (6) | - | - | 6 | 155 |
| Others | | 2,232 | 85 | (210) | - | - | 14 | 29 | 2,150 |
| | ₩ | 2,063,368 | 48,051 | (767,451) | (81,234) | 35,124 | 42,445 | 66,523 | 1,406,826 |

(*1) In accordance with the amendment to the Capacity Building Support Agreement in Iraq, the related mining rights of ₩ 767,241 million have been disposed of.
(*2) Include the effect of changes in exchange rates and others.

## 11. Trade and Other Payables

Details of trade and other payables as of June 30, 2020 and December 31, 2019 are as follows:

| *In millions of Korean won* | | June 30, 2020 | | December 31, 2019 | |
|---|---|---|---|---|---|
| | | Current | Non-current | Current | Non-current |
| Trade accounts payable | ₩ | 86,492 | 7,987 | 155,458 | - |
| Other accounts payable | | 425,188 | 14,768 | 426,838 | 31,070 |
| Accrued expenses | | 104,112 | 150,047 | 102,733 | 137,434 |
| Deposit received | | - | 5,220 | - | 5,052 |
| Other deposits received | | - | 14 | - | 15 |
| Lease liabilities | | 40,415 | 363,008 | 43,653 | 375,065 |
| Other payables | | 42,756 | 21,710 | 42,975 | 774 |
| | ₩ | 698,963 | 562,754 | 771,657 | 549,410 |

## 12. Borrowings and Bond Payables

Details of borrowings and bond payables as of June 30, 2020 and December 31, 2019 are as follows:

| *In millions of Korean won* | | June 30, 2020 | December 31, 2019 |
|---|---|---|---|
| **Current liabilities** | | | |
| Short-term borrowings | ₩ | 1,303,512 | 115,780 |
| Current portion of long-term borrowings | | 439,576 | 443,244 |
| Current portion of bond payables | | 1,466,532 | 982,875 |
| Less: current portion of discount on bond payables | | (544) | (131) |
| | | 3,209,076 | 1,541,768 |
| **Non-current liabilities** | | | |
| Long-term borrowings | | 1,865,869 | 1,852,513 |
| Less: present discounted value | | (328) | (413) |
| Bonds payable | | 9,932,796 | 10,466,083 |
| Less: discount on bond payables | | (23,881) | (25,574) |
| Add: premium on bond payables | | 3,777 | 4,067 |
| | | 11,778,233 | 12,296,676 |
| | ₩ | 14,987,309 | 13,838,444 |

## 13. Lease

(a) The Group as a lessee

The Group classified lease contracts with a lease term of 12 months or less as a short-term lease and recognised an expense of ₩ 1,217 million. The Group also classified lease contracts with underlying assets as a low value contracts and recognized an expense of ₩ 87 million.

(b) Right-of-use assets as of June 30, 2020 and December 31, 2019 are as follows:

| *In millions of Korean won* | | June 30, 2020 | | |
|---|---|---|---|---|
| | | **Acquisition cost** | **Accumulated depreciation** | **Book value** |
| Land | ₩ | 5,702 | (1,320) | 4,382 |
| Buildings | | 288,351 | (30,704) | 257,647 |
| Structures | | 9,665 | (9,665) | - |
| Vessels | | 10,506 | (3,335) | 7,171 |
| Vehicles | | 5,055 | (2,430) | 2,625 |
| Others | | 134,871 | (9,113) | 125,758 |
| | ₩ | 454,150 | (56,567) | 397,583 |

| *In millions of Korean won* | | December 31, 2019 | | |
|---|---|---|---|---|
| | | **Acquisition cost** | **Accumulated depreciation** | **Book value** |
| Land | ₩ | 5,478 | (853) | 4,625 |
| Buildings | | 277,994 | (23,518) | 254,476 |
| Structures | | 9,320 | (9,320) | - |
| Machinery | | 315 | (105) | 210 |
| Vessels | | 10,130 | (2,036) | 8,094 |
| Vehicles | | 4,890 | (1,276) | 3,614 |
| Others | | 130,299 | (5,641) | 124,658 |
| | ₩ | 438,426 | (42,749) | 395,677 |

Details of lease liabilities as of June 30, 2020 and December 31,2019 are as follows:

| *In millions of Korean won* | | **June 30, 2020** | **December 31, 2019** |
|---|---|---|---|
| Current | ₩ | 40,415 | 43,653 |
| Non-current | | 363,008 | 375,065 |
| | ₩ | 403,423 | 418,718 |

## 14. Provisions

(a) Changes in provisions for the six-month period ended June 30, 2020 and for the year ended December 31, 2019 are as follows:

(i) For the six-month period ended June 30, 2020

| *In millions of Korean won* | | **Beginning balance** | **Acquisition in business combination (*3)** | **Accretion expenses (*1)** | **Payment** | **Reversal of provision** | **Others (*4)** | **Ending balance** |
|---|---|---|---|---|---|---|---|---|
| Decommissioning cost | ₩ | 2,155,849 | 20,040 | 26,367 | (7,044) | - | 7,792 | 2,203,004 |
| Provision for constructions | | 10,254 | - | - | (271) | - | 382 | 10,365 |
| Allowance for salaries (*2) | | 4,381 | - | 7,338 | - | - | 123 | 11,842 |
| Provision for litigations | | 10,165 | - | 184 | (5,316) | (2,070) | 3,943 | 6,906 |
| Onerous contract | | 99,449 | - | 647 | (8,554) | (21,417) | 4,101 | 74,226 |
| Others | | 16,598 | - | 166 | - | - | 29,892 | 46,656 |
| | | | | | - | | | |
| | ₩ | 2,296,696 | 20,040 | 34,702 | (21,185) | (23,487) | 46,233 | 2,352,999 |

(*1) Included in the provisions.

(*2) The Group recognized provisions for the litigation value and delayed interest in relation to some losses on the ordinary wage payment litigation.

(*3) It is provisions recognized in relation to KADOC Ltd. that was reclassified as a subsidiary from a joint venture in the first half of 2020.

(*4) Includes reduction in provisions of ₩ 2,547 million due to asset sale, reversal of provisions of ₩ 21,417 million related to the oil and gas properties in Vietnam, the effects of changes in foreign exchange rates, etc.

(ii) For the year ended December 31, 2019

| *In millions of Korean won* | | **Beginning balance** | **Effects of new accounting policies (*4)** | **Accretion expenses (*1)** | **Payment** | **Reversal of provision** | **Others (*2)** | **Ending balance** |
|---|---|---|---|---|---|---|---|---|
| Decommissioning cost | ₩ | 1,973,068 | - | 53,255 | (37,013) | (6,945) | 173,484 | 2,155,849 |
| Provision for constructions | | 12,466 | - | 90 | (2,738) | - | 436 | 10,254 |
| Allowance for salaries (*3) | | 49 | - | 4,359 | - | - | (27) | 4,381 |
| Provision for litigations | | 8,866 | - | 991 | - | - | 308 | 10,165 |
| Onerous contract | | 129,908 | (4,314) | 1,586 | (7,667) | (24,786) | 4,722 | 99,449 |
| Others | | 57,123 | - | 2,213 | (7,933) | - | (34,805) | 16,598 |
| | ₩ | 2,181,480 | (4,314) | 62,494 | (55,351) | (31,731) | 144,118 | 2,296,696 |

(*1) Include the provisions.

(*2) Include decrease in provisions of ₩ 8,648 million and the effect of changes in exchange rates regarding disposal of assets.

(*3) The Group recognized provision in relation to litigation amount and statutory interest on the partial loss of litigation on the return of normal wage.

(*4) Amounts were reclassified from the onerous contract to lease liability due to a change in accounting policies.

## 15. Share Capital

The Company's total share capital is invested solely by the Korean government in accordance with the Korea National Oil Corporation Act and the authorized share capital is ₩13 trillion as of June 30, 2020. The changes in share capital during the six-month period ended June 30, 2020 are as follows:

| *In millions of Korean won* | **Description** | | **Amount** |
|---|---|---|---|
| Beginning balance | | ₩ | 10,515,106 |
| April 17, 2020 | Contribution for development of oil field business | | 6,000 |
| June 15, 2020 | Contribution for oil stockpiling business | | 17,967 |
| Ending balance | | ₩ | 10,539,073 |

## 16. Accumulated Deficit

Details of accumulated deficit as of June 30, 2020 and December 31, 2019 are as follows:

| *In millions of Korean won* | | **June 30, 2020** | **December 31, 2019** |
|---|---|---|---|
| Undisposed accumulated deficit | ₩ | (10,542,963) | (9,377,448) |

## 17. Other Components of Equity

(a) Details of other components of equity as of June 30, 2020 and December 31, 2019 are as follows:

| *In millions of Korean won* | | **June 30, 2020** | **December 31, 2019** |
|---|---|---|---|
| Other capital surpluses | ₩ | 24,934 | 24,934 |
| Accumulated other comprehensive loss | | (1,289,015) | (1,180,692) |
| | ₩ | (1,264,081) | (1,155,758) |

(b) Details of accumulated other comprehensive loss as of June 30, 2020 and December 31, 2019 are as follows:

| *In millions of Korean won* | | **June 30, 2020** | **December 31, 2019** |
|---|---|---|---|
| Loss on valuation of financial assets measured at fair value through other comprehensive income | ₩ | (568,969) | (569,312) |
| Equity adjustments in equity method | | 22,608 | 24,396 |
| Foreign currency translation differences for foreign operations | | (658,627) | (640,765) |
| Gains (losses) on valuation of derivative instruments | | (84,027) | 4,989 |
| | ₩ | (1,289,015) | (1,180,692) |

## 18. Revenue

Details of revenue for the six-month periods ended June 30, 2020 and 2019 are as follows:

| *In millions of Korean won* | | 2020 | | | 2019 | | |
|---|---|---|---|---|---|---|---|
| | | Domestic | Overseas | Total | Domestic | Overseas | Total |
| Sales of goods and finished goods | ₩ | 59,322 | 746,583 | 805,905 | 82,491 | 1,262,710 | 1,345,201 |
| Revenues from services rendered | | 30,468 | 166,900 | 197,368 | 15,129 | 79,776 | 94,905 |
| Income on government grants | | 675 | - | 675 | 2,470 | - | 2,470 |
| Others | | 754 | 23,429 | 24,183 | 1,095 | 16,300 | 17,395 |
| | ₩ | 91,219 | 936,912 | 1,028,131 | 101,185 | 1,358,786 | 1,459,971 |

## 19. Other Income and Expense

(a) Details of other non-operating income for the six-month periods ended June 30, 2020 and 2019 are as follows:

| *In millions of Korean won* | | 2020 | 2019 |
|---|---|---|---|
| Reversal of other provisions | ₩ | 2,069 | 2,257 |
| Gains on exemption of debts | | - | 74,939 |
| Gains on reimbursement or compensation | | 6 | - |
| Rental income | | 387 | 220 |
| Others | | 22,326 | 5,521 |
| | ₩ | 24,788 | 82,937 |

(b) Details of other non-operating expense for the six-month periods ended June 30, 2020 and 2019 are as follows:

| *In millions of Korean won* | | 2020 | 2019 |
|---|---|---|---|
| Interest costs on other provisions | ₩ | 564 | - |
| Other bad debt expenses | | 7,445 | - |
| Donations | | 1,360 | 318 |
| Others | | 6,039 | 1,537 |
| | ₩ | 15,408 | 1,855 |

## 20. Other Gains (Losses), net

Details of other gains (losses) for the six-month periods ended June 30, 2020 and 2019 are as follows:

| *In millions of Korean won* | | 2020 | 2019 |
|---|---|---|---|
| Gains on disposal of property, plant and equipment | ₩ | 123 | 4,784 |
| Gains on disposal of intangible assets other than goodwill | | 13 | 24 |
| Gains on transaction of derivatives | | 229 | - |
| Reversal of impairment losses property, plant and equipment | | 2,596 | 6,057 |
| Reversal of impairment losses for intangible assets other than goodwill | | 12,676 | 36,087 |
| Gains on foreign currency translation | | 23,013 | 29,891 |
| Gains on foreign currency transactions | | 26,513 | 25,916 |
| Gains on insurance settlements | | - | 15,521 |
| Other gains | | 1,224 | 5,487 |
| Losses on disposal of property, plant and equipment | | (5,766) | (168) |
| Impairment losses on property, plant and equipment | | (476,618) | (48,196) |
| Impairment losses on intangible assets other than goodwill | | (47,647) | (12,205) |
| Losses on foreign currency translation | | (29,263) | (18,989) |
| Losses on foreign currency transactions | | (32,256) | (21,154) |
| Other losses | | (7,621) | (2,850) |
| | ₩ | (532,784) | 20,205 |

## 21. Finance Income and Costs

(a) Finance income for the six-month periods ended June 30, 2020 and 2019 are as follows:

| *In millions of Korean won* | | 2020 | 2019 |
|---|---|---|---|
| Interest income | ₩ | 8,826 | 13,134 |
| Dividend income | | 6 | 10 |
| Gains on valuation of fair value financial assets | | 7,918 | - |
| Gains on valuation of fair value financial liabilities | | 36,736 | - |
| Gains on valuation of derivatives | | - | 1,807 |
| Gains on transactions of derivatives | | 95,204 | 24,382 |
| Gains on foreign currency translation | | 65,273 | 109,634 |
| Gains on foreign currency transactions | | 21,687 | 38,512 |
| | ₩ | 235,650 | 187,479 |

(b) Finance costs for the six-month periods ended June 30, 2020 and 2019 are as follows:

| *In millions of Korean won* | | 2020 | 2019 |
|---|---|---|---|
| Interest expense | ₩ | 244,766 | 232,401 |
| Losses on valuation of financial assets measured at fair values through profit or loss | | 255,996 | 78,908 |
| Losses on valuation of financial liabilities measured at fair values through profit or loss | | 12,847 | - |
| Losses on transactions of derivatives | | 83,746 | - |
| Losses on foreign currency translation | | 111,809 | 62,028 |
| Losses on foreign currency transactions | | 10,849 | 11,224 |
| Other finance costs | | 35,445 | 39,513 |
| | ₩ | 755,458 | 424,074 |

## 22. Income Tax Expense (Benefit)

Income tax expense (benefit) is calculated by the estimated average effective tax rate applying to the expected annual income.

(a) The components of income tax expense (benefit) for the six-month periods ended June 30, 2020 and 2019 are as follows:

| *In millions of Korean won* | | 2020 | 2019 |
|---|---|---|---|
| Current income tax | ₩ | 31,703 | 85,791 |
| Tax directly charged to equity | | (90,533) | 37,360 |
| Changes in deferred taxes arising from temporary differences | | (12,398) | (18,862) |
| Adjustment for prior periods (*) | | 144,277 | 27,800 |
| Income tax expense | ₩ | 73,049 | 132,089 |

(*) During the 1st half of 2020, Busan Regional Tax Office performed a tax audit for years from 2015 to 2017. As a result of the tax audit, the Company was notified of additional tax payable of ₩ 68,772 million on July 23, 2020, which was reflected in the current income tax expense. The Company plans to raise an objection to the assessment.

## 23. Expenses Classified by Nature

(a) Expenses classified by nature for the six-month period ended June 30, 2020 are as follows:

| *In millions of Korean won* | | Selling and administrative expenses | Cost of sales | Total |
|---|---|---|---|---|
| Changes in inventories | | | | |
| Merchandises | ₩ | - | (77,146) | (77,146) |
| Finished goods | | - | (1,845) | (1,845) |
| Other inventories | | - | 4,571 | 4,571 |
| Purchased inventories | | - | 83,034 | 83,034 |
| Raw materials used | | - | 1,834 | 1,834 |
| Salaries | | 49,221 | 103,354 | 152,575 |
| Severance and retirement benefits | | 3,687 | 2,182 | 5,869 |
| Other employee benefits | | 6,094 | 4,210 | 10,304 |
| Insurance | | 980 | 10,368 | 11,348 |
| Depreciation | | 8,283 | 409,161 | 417,444 |
| Amortization | | 1,568 | 29,572 | 31,140 |
| Commissions and fees | | 13,050 | 20,747 | 33,797 |
| Advertising | | 273 | 59 | 332 |
| Education and training | | 467 | 283 | 750 |
| Vehicle maintenance | | 506 | 359 | 865 |
| Books and printing | | 136 | 9 | 145 |
| Business development | | 46 | 15 | 61 |
| Rent | | 464 | 13,331 | 13,795 |
| Communications | | 279 | 295 | 574 |
| Transport | | - | 80,406 | 80,406 |
| Taxes and dues | | 1,443 | 11,513 | 12,956 |
| Supplies | | 540 | 3,058 | 3,598 |
| Utilities | | 498 | 29,713 | 30,211 |
| Repairs | | 2,121 | 61,995 | 64,116 |
| Research and development | | 2,783 | - | 2,783 |
| Travel | | 285 | 170 | 455 |
| Clothing expenses | | - | 65 | 65 |
| Investigation and analysis | | - | 29 | 29 |
| Association fee | | 68 | 15 | 83 |
| Sales promotion | | - | 166 | 166 |
| Sales fee | | 16,071 | - | 16,071 |
| Others | | 4,907 | 140,935 | 145,842 |
| | ₩ | 113,770 | 932,458 | 1,046,228 |

## 23. Expenses Classified by Nature (cont'd)

(b) Expenses classified by nature for the six-month period ended June 30, 2019 are as follows:

| *In millions of Korean won* | | **Selling and administrative expenses** | **Cost of sales** | **Total** |
|---|---|---|---|---|
| Changes in inventories | | | | |
| Merchandises | ₩ | - | 5,728 | 5,728 |
| Finished goods | | - | (2,496) | (2,496) |
| Other inventories | | - | 3,376 | 3,376 |
| Purchased inventories | | - | 17,347 | 17,347 |
| Raw materials used | | - | 1,207 | 1,207 |
| Salaries | | 51,706 | 100,041 | 151,747 |
| Severance and retirement benefits | | 4,367 | 2,381 | 6,748 |
| Other employee benefits | | 6,835 | 4,403 | 11,238 |
| Insurance | | 1,536 | 5,493 | 7,029 |
| Depreciation | | 9,585 | 464,291 | 473,876 |
| Amortization | | 1,927 | 49,126 | 51,053 |
| Commissions and fees | | 10,709 | 19,832 | 30,541 |
| Advertising | | 188 | 15 | 203 |
| Education and training | | 661 | 444 | 1,105 |
| Vehicle maintenance | | 548 | 298 | 846 |
| Books and printing | | 280 | 10 | 290 |
| Business development | | 58 | 24 | 82 |
| Rent | | 800 | 12,241 | 13,041 |
| Communications | | 444 | 304 | 748 |
| Transport | | - | 83,539 | 83,539 |
| Taxes and dues | | 922 | 17,541 | 18,463 |
| Supplies | | 609 | 1,751 | 2,360 |
| Utilities | | 512 | 32,921 | 33,433 |
| Repairs | | 3,541 | 59,964 | 63,505 |
| Research and development | | 2,352 | 4,375 | 6,727 |
| Travel | | 786 | 251 | 1,037 |
| Clothing expenses | | 5 | 57 | 62 |
| Investigation and analysis | | - | 57 | 57 |
| Association fee | | 123 | 14 | 137 |
| Sales promotion | | 73 | 465 | 538 |
| Sales fee | | 61,892 | - | 61,892 |
| Others | | 5,193 | 72,981 | 78,174 |
| | ₩ | 165,652 | 957,981 | 1,123,633 |

## 24. Categories of Financial Instruments

(a) Details of current financial assets by category as of June 30, 2020 and December 31, 2019 are as follows:

(i) As of June 30, 2020

| *In millions of Korean won* | | Fair value through profit or loss | Amortized costs (*) | Fair value – hedging instruments | Total |
|---|---|---|---|---|---|
| Cash and cash equivalents | ₩ | - | 928,661 | - | 928,661 |
| Derivative assets | | 3,173 | - | 11,541 | 14,714 |
| Others | | - | 866 | - | 866 |
| Short-term loans | | - | 268 | - | 268 |
| Current financial assets at fair value through profit or loss | | 304,925 | - | - | 304,925 |
| Trade and other receivables | | - | 447,622 | - | 447,622 |
| | ₩ | 308,098 | 1,377,417 | 11,541 | 1,697,056 |

(*) The fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

(ii) As of December 31, 2019

| *In millions of Korean won* | | Fair value through profit or loss | Amortized costs (*) | Fair value – hedging instruments | Total |
|---|---|---|---|---|---|
| Cash and cash equivalents | ₩ | - | 725,056 | - | 725,056 |
| Derivative assets | | 17,172 | | 23,545 | 40,717 |
| Others | | - | 503 | - | 503 |
| Short-term loans | | - | 2,587 | - | 2,587 |
| Current financial assets at fair value through profit or loss | | 268,670 | - | - | 268,670 |
| Trade and other receivables | | - | 484,675 | - | 484,675 |
| | ₩ | 285,842 | 1,212,821 | 23,545 | 1,522,208 |

(*) The fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

## 24. Categories of Financial Instruments (cont'd)

(b) Details of non-current financial assets by category as of June 30, 2020 and December 31, 2019 are as follows:

(i) As of June 30, 2020

| *In millions of Korean won* | | Fair value through profit or loss | Fair value through other comprehensive income | Amortized costs | Fair value – hedging instruments | Total |
|---|---|---|---|---|---|---|
| Fair value through profit or loss (*) | ₩ | 719,455 | - | - | - | 719,455 |
| Fair value through other comprehensive income | | - | 7,039 | - | - | 7,039 |
| Loans | | - | - | 130,577 | - | 130,577 |
| Financial instruments | | - | - | 5,817 | - | 5,817 |
| Derivative assets | | - | - | - | 3,230 | 3,230 |
| Trade and other receivables | | - | - | 45,751 | - | 45,751 |
| | ₩ | 719,455 | 7,039 | 182,145 | 3,230 | 911,869 |

(*) Loans provided and accrued revenue with related parties are included.

The fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

(ii) As of December 31, 2019

| *In millions of Korean won* | | Fair value through profit or loss | Fair value through other comprehensive income | Amortized costs | Fair value – hedging instruments | Total |
|---|---|---|---|---|---|---|
| Fair value through profit or loss (*) | ₩ | 1,495,749 | - | - | - | 1,495,749 |
| Fair value through other comprehensive income | | - | 6,458 | - | - | 6,458 |
| Loans | | - | - | 140,150 | - | 140,150 |
| Financial instruments | | - | - | 5,676 | - | 5,676 |
| Derivative assets | | - | - | - | 36,887 | 36,887 |
| Trade and other receivables | | - | - | 44,163 | - | 44,163 |
| | ₩ | 1,495,749 | 6,458 | 189,989 | 36,887 | 1,729,083 |

(*) Loans provided and accrued revenue with related parties are included.

The fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

## 24. Categories of Financial Instruments (cont'd)

(c) Details of current financial liabilities by category as of June 30, 2020 and December 31, 2019 are as follows:

(i) As of June 30, 2020

| *In millions of Korean won* | | Fair value through profit or loss | Amortized costs (*) | Fair value – hedging instruments | Total |
|---|---|---|---|---|---|
| Fair value through profit or loss | ₩ | 1,052 | - | - | 1,052 |
| Current portion of long-term borrowings | | - | 439,576 | - | 439,576 |
| Bond payables | | - | 1,465,988 | - | 1,465,988 |
| Derivative liabilities | | - | - | 41,299 | 41,299 |
| Other current financial liabilities | | - | 9,464 | - | 9,464 |
| Trade and other payables | | - | 698,963 | - | 698,963 |
| Short-term borrowings | | - | 1,303,512 | - | 1,303,512 |
| | ₩ | 1,052 | 3,917,503 | 41,299 | 3,959,854 |

(*) The fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

(ii) As of December 31, 2019

| *In millions of Korean won* | | Fair value through profit or loss | Amortized costs (*) | Fair value – hedging instruments | Total |
|---|---|---|---|---|---|
| Fair value through profit or loss | ₩ | 13,386 | - | - | 13,386 |
| Current portion of long-term borrowings | | - | 443,245 | - | 443,245 |
| Bond payables | | - | 982,743 | - | 982,743 |
| Derivative liabilities | | 1,271 | - | 10,222 | 11,493 |
| Other current financial liabilities | | - | 9,126 | - | 9,126 |
| Trade and other payables | | - | 771,657 | - | 771,657 |
| Short-term borrowings | | - | 115,780 | - | 115,780 |
| | ₩ | 14,657 | 2,322,551 | 10,222 | 2,347,430 |

(*) The fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

## 24. Categories of Financial Instruments (cont'd)

(d) Details of non-current financial liabilities by category as of June 30, 2020 and December 31, 2019 are as follows:

(i) As of June 30, 2020

| *In millions of Korean won* | | **Fair value through profit or loss** | **Amortized costs (*)** | **Fair value – hedging instruments** | **Total** |
|---|---|---|---|---|---|
| Fair value through profit or loss | ₩ | 45,727 | - | - | 45,727 |
| Long-term borrowings | | - | 1,865,541 | - | 1,865,541 |
| Bond payables | | - | 9,912,692 | - | 9,912,692 |
| Derivative liabilities | | - | - | 197,798 | 197,798 |
| Trade and other payables | | - | 562,754 | - | 562,754 |
| | ₩ | 45,727 | 12,340,987 | 197,798 | 12,584,512 |

(*) The fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

(ii) As of December 31, 2019

| *In millions of Korean won* | | **Fair value through profit or loss** | **Amortized costs (*)** | **Fair value – hedging instruments** | **Total** |
|---|---|---|---|---|---|
| Fair value through profit or loss | ₩ | 55,383 | - | - | 55,383 |
| Long-term borrowings | | - | 1,852,100 | - | 1,852,100 |
| Bond payables | | - | 10,444,576 | - | 10,444,576 |
| Derivative liabilities | | 91 | - | 91,091 | 91,182 |
| Trade and other payables | | - | 549,410 | - | 549,410 |
| | ₩ | 55,474 | 12,846,086 | 91,091 | 12,992,651 |

(*) The fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

## 25. Risk Management

(a) Capital management

The primary objective of the Group's capital management is to ensure that it maintains a strong credit rating and capital ratios in order to support its business and maximize the owners' value. The Group manages its capital structure and makes adjustments to it in light of changes in economic conditions. To maintain the sound capital structure, the Group may adjust the dividend payment to the owner, reduce share capital, issue new shares, raise funds from bond offerings and dispose the Group's non-core assets. No changes were made in the objectives, policies or processes for managing capital for the six-month period ended June 30, 2020.

The Group's debt-to-invested capital ratio as of June 30, 2020 and December 31, 2019 are as follows:

| *In millions of Korean won* | | **June 30, 2020** | **December 31, 2019** |
|---|---|---|---|
| Total borrowings and debt securities (A) | ₩ | 14,987,309 | 13,838,444 |
| Cash and cash equivalents (B) | | 928,661 | 725,056 |
| Net borrowings and debt securities (A – B = C) | | 14,058,648 | 13,113,388 |
| Total equity (D) | | (556,644) | 530,846 |
| Total invested capital (C + D = E) | ₩ | 13,502,004 | 13,644,234 |
| Net borrowings and debt securities-to-total invested capital ratio (F=C/E) | | 104.12% | 96.11% |

(b) Financial risk management

The Group is exposed to various risks related to its financial instruments such as market risk (currency risk, interest rate risk and price risk) and credit risk.

(i) Risk management structure

The board of directors is responsible for implementing and monitoring the Group's risk management structure and the management regularly updates the policies for each risk and confirms the validity of the policies. The purpose of the risk management policies is to identify the risks that could potentially affect the Group's financial results and reduce, to an acceptable level, avoid or eliminate those risks. The policies are reviewed regularly to reflect the current market conditions and the Group's activities. The Group makes constant efforts to improve the policies by monitoring on real time basis and with support from the outside experts. The audit committee oversees the Group's compliance to the risk management policies and procedures and reviews the efficiency of the structure.

(ii) Credit risk

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations, and arises principally from the Group's receivables from customers, investment securities, derivatives and financial guarantee contracts.

Credit risk also arises from transactions with financial institutions, and such transactions include transactions of cash and cash equivalents, various deposits, and financial instruments such as derivative contracts. The Group manages its exposure to this credit risk by only entering into transactions with banks that have high international credit ratings. The Group implements a credit risk management policy under which the Group only transacts business with counterparties that have a certain level of credit rate evaluated based on financial condition, historical experience, and other factors.

## 25. Risk Management (cont'd)

(b) Financial risk management (cont'd)

(ii) Credit risk (cont'd)

Book values of the financial assets and guarantee amounts by the contract represent the maximum amounts exposed to the credit risk. Details of the Group's level of maximum exposure to credit risk as of June 30, 2020 and December 31, 2019 are as follows:

| *In millions of Korean won* | | June 30, 2020 | December 31, 2019 |
|---|---|---|---|
| Cash and cash equivalents | ₩ | 928,661 | 725,056 |
| Derivative assets | | 17,943 | 77,603 |
| Financial liabilities at amortized cost | | 630,901 | 677,754 |
| Financial assets at fair value through profit or loss | | 1,024,380 | 1,764,419 |
| Financial guarantee contracts (*) | | 38,204 | 36,658 |

(*) It represents to the maximum amount of financial guarantee provided by the Group.

Details of maturities for financial assets measured at amortized cost and their impaired amounts as of June 30, 2020 and December 31, 2019 are as follows:

| *In millions of Korean won* | | June 30, 2020 | | December 31, 2019 | |
|---|---|---|---|---|---|
| | | Balance | Impairment | Balance | Impairment |
| Not past due | ₩ | 1,091,280 | (555,975) | 1,156,966 | (565,239) |
| 0 ~ 30 days | | 2,011 | - | 7,495 | - |
| 31 ~ 60 days | | 3,190 | - | 8,140 | - |
| More than 60 days | | 192,197 | (101,802) | 137,278 | (66,886) |
| | ₩ | 1,288,678 | (657,777) | 1,309,879 | (632,125) |

Details of changes in allowance for impairment of financial assets measured at amortized cost for the six-month period ended June 30, 2020 and for the year ended December 31, 2019 are as follows:

| *In millions of Korean won* | | 2020 | 2019 |
|---|---|---|---|
| Beginning balance | ₩ | 632,125 | 626,266 |
| Impairment loss | | 7,445 | 3,186 |
| Reversal of impairment loss | | - | (3,495) |
| Write-off | | - | (19,139) |
| Others (*) | | 18,207 | 25,307 |
| Ending balance | ₩ | 657,777 | 632,125 |

(*) Include the effect of changes in exchange rates and others.

## 25. Risk Management (cont'd)

(b) Financial risk management (cont'd)

(ii) Credit risk (cont'd)

Aging of past due but not impaired financial assets as of June 30, 2020 and December 31, 2019 are as follows:

1) As of June 30, 2020

| *In millions of Korean won* | | Book value | Less than 6 months | 6~12 months | 1~2 years | 2~5 years | More than 5 years |
|---|---|---|---|---|---|---|---|
| Financial assets measured at amortized cost | ₩ | 95,595 | 61,003 | 20,845 | 1,814 | 8,353 | 3,580 |

2) As of December 31, 2019

| *In millions of Korean won* | | Book value | Less than 6 months | 6~12 months | 1~2 years | 2~5 years | More than 5 years |
|---|---|---|---|---|---|---|---|
| Financial assets measured at amortized cost | ₩ | 86,027 | 61,412 | 12,451 | 5,112 | 6,940 | 112 |

(iii) Market risk

1) Crude oil price risk

Crude oil price risk is the risk that the profit or cash flows will fluctuate due to changes in the international market prices of crude oil. The Group entered into derivative contracts according to the expected fluctuations of changes in the international market prices of crude oil to avoid the crude oil price risk and secure the product margin. With all other variables held constant, the changes in Company's profit before tax for the six-month periods ended June 30, 2020 and 2019, from crude oil price fluctuations are as follows:

| *In millions of Korean won* | | 2020 | | 2019 | |
|---|---|---|---|---|---|
| | | Increase by 10% | Decrease by 10% | Increase by 10% | Decrease by 10% |
| Increase (decrease) of profit before tax | ₩ | 81,482 | (81,482) | 116,340 | (116,340) |

2) Interest rate risk

The Group is exposed to interest rate risk due to its borrowings with floating interest rates. Assuming a 100 basis point increase or decrease in interest rate for the six-month period ended June 30, 2019, the Group's total equity and its profit or loss will also increase or decrease.

Except for the effect of derivative transactions, this analysis considers the Group's total exposed risks associated with the fluctuation in interest rate. This analysis assumes that all other variables are held constant and the same method is applied with the method used in the prior periods. The details of increase or decrease in the total equity and profit or loss for the six-month periods ended June 30, 2020 and 2019 are as follows:

**25. Risk Management (cont'd)**

(b) Financial risk management (cont'd)

(iii) Market risk (cont'd)

*In millions of Korean won*

| | 2020 | | 2019 | |
|---|---|---|---|---|
| | **Increase by 1%** | **Decrease by 1%** | **Increase by 1%** | **Decrease by 1%** |
| Increase (decrease) of profit before tax | ₩ (10,066) | 10,066 | (12,469) | 12,469 |

3) Foreign currency risk

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 Group is exposed to currency risk from the sales, purchases and borrowings not in United States dollar. The Group reduces currency risk from fluctuations in foreign exchange rates by carrying out and interest rate swap and currency swaps.

Without considering the effect of the derivatives aforementioned, the Group's exposures to foreign currency risk as of June 30, 2020 and December 31, 2019 are as follows:

*In thousands of foreign currencies and millions of Korean won*

| | | June 30, 2020 | | December 31, 2019 | |
|---|---|---|---|---|---|
| | **Currency** | **Foreign currencies** | **Equivalent to Korean won** | **Foreign currencies** | **Equivalent to Korean won** |
| **Financial assets** | | | | | |
| | KRW | 234,916 | ₩ 234,916 | 287,314 | ₩ 287,314 |
| | VND | 53,795,391 | 2,777 | 33,545,748 | 1,677 |
| Denominated in foreign currencies | SGD | 7 | 6 | - | |
| | CAD | 211 | 185 | - | |
| | EUR | 1,246 | 1,682 | - | |
| | EGP | 78,300 | 5,820 | 85,300 | 6,153 |
| | | | ₩ 245,386 | | ₩ 295,144 |
| **Financial liabilities** | | | | | |
| Denominated in foreign currencies | KRW | 1,092,264 | ₩ 1,092,264 | 1,208,016 | ₩ 1,208,016 |
| | EUR | 430,045 | 580,929 | 422,824 | 543,801 |
| | SGD | 403,315 | 347,360 | 403,304 | 344,008 |
| | HKD | 1,865,302 | 288,917 | 2,044,092 | 303,875 |
| | CHF | 1,000,495 | 1,262,801 | 801,117 | 957,751 |
| | JPY | 70,074,200 | 780,801 | 70,086,700 | 742,489 |
| | VND | 109,943,048 | 5,676 | 80,095,685 | 4,006 |
| | NOK | 30,400 | 3,774 | 62,200 | 8,180 |
| | CAD | - | - | 1,412 | 1,252 |
| | | | ₩ 4,362,522 | | ₩ 4,113,378 |

## 25. Risk Management (cont'd)

(b) Financial risk management (cont'd)

(iii) Market risk (cont'd)

3) Foreign currency risk (cont'd)

The exchange rates applied for the six-month periods ended June 30, 2020 and 2019, and as of June 30, 2020 and December 31, 2019 are as follows:

*In US dollar per one foreign currency and Korean won*

| | Average rates | | Reporting date spot rate | |
|---|---|---|---|---|
| **Currency** | **2020** | **2019** | **June 30, 2020** | **December 31, 2019** |
| KRW | 0.0008 | 0.0009 | 0.0008 | 0.0009 |
| EUR | 1.1024 | 1.1295 | 1.1257 | 1.1108 |
| SGD | 0.7151 | 0.7357 | 0.7173 | 0.7367 |
| HKD | 0.1288 | 0.1275 | 0.1290 | 0.1284 |
| CHF | 1.0356 | 1.0004 | 1.0512 | 1.0326 |
| VND(100) | 0.0043 | 0.0043 | 0.0043 | 0.0043 |
| JPY(100) | 0.9239 | 0.9089 | 0.9280 | 0.9150 |
| CAD | 0.7333 | 0.7495 | 0.7322 | 0.7657 |
| EGP | 0.0632 | 0.0578 | 0.0619 | 0.0623 |
| NOK | 0.1029 | 0.1161 | 0.1034 | 0.1134 |

The Company and its subsidiaries use various functional currencies depending on their primary economic environment in which the entities operate. A sensitivity analysis below indicates the effect on the Group's profit before tax from the fluctuations in each function currency exchange rate. As of June 30, 2020 and 2019, the effect of a 5% increase or decrease in each functional currency exchange rate on profit before tax assuming all other variables held constant is as follows:

*In millions of Korean won*

| | | 2020 | | 2019 | |
|---|---|---|---|---|---|
| | **Currency** | **Increase by 5%** | **Decrease by 5%** | **Increase by 5%** | **Decrease by 5%** |
| Increase (decrease) of profit before tax | KRW | ₩ (43,797) | 43,797 | (46,347) | 46,347 |
| | HKD | (15,039) | 15,039 | (15,297) | 15,297 |
| | CHF | (65,733) | 65,733 | (48,212) | 48,212 |
| | EUR | (30,152) | 30,152 | (27,374) | 27,374 |
| | others | (58,759) | 58,759 | (37,376) | 37,376 |

## 25. Risk Management (cont'd)

(b) Financial risk management (cont'd)

(iv) Liquidity risk

Details of contractual maturities of financial liabilities as of June 30, 2020 are as follows:

*In millions of Korean won*

| | | Book value | Contractual cash flows (*1) | Less than 1 year | 1 ~ 2 years | 2 ~ 5 years | More than 5 years (*2) |
|---|---|---|---|---|---|---|---|
| Short-term borrowings | ₩ | 1,303,512 | 1,310,435 | 1,310,435 | - | - | - |
| Current portion of long-term borrowings (*2) | | 439,576 | 446,134 | 446,134 | - | - | - |
| Bonds payable | | 11,378,680 | 12,514,918 | 1,740,529 | 2,401,519 | 5,076,393 | 3,296,477 |
| Long-term borrowings (*2) | | 1,865,541 | 1,901,924 | 30,666 | 893,173 | 765,781 | 212,304 |
| Lease liabilities | | 403,423 | 458,212 | 178,662 | 3,417 | 33,686 | 242,447 |
| Trade and other payables (*2) | | 858,294 | 858,295 | 698,963 | 116 | 2,692 | 156,524 |
| Derivatives liabilities | | 239,097 | 239,097 | 41,299 | 41,271 | 156,527 | - |
| Financial liabilities measured at fair value through profit or loss | | 46,778 | 46,779 | 1,052 | 230 | 41,604 | 3,893 |
| Financial guarantee liabilities (*3) | | 9,464 | 9,464 | 9,464 | - | - | - |
| | ₩ | 16,544,365 | 17,785,258 | 4,457,204 | 3,339,726 | 6,076,683 | 3,911,645 |

(*1) Contractual cash flows include the estimated interest payments but exclude the effects of offsetting contracts.

(*2) Loans from Special Accounting for Energy and Resources ("SAER") included in borrowings and trade and other payables have no specific maturity as entities were borrowed under the condition that the Group is not obligated to make repayment of the principal and interest until the exploration is proven to be successful.

(*3) Financial guarantee is presented at the earliest period when the maximum amount could be requested.

The Group has a working capital (current assets less current liabilities) deficit of ₩ 2,279,021 million as of June 30, 2020. The Group's management currently anticipates that credit facility, other credit sources, the cash flows that the Group generates from its operations and the expected future capital contributions from the government together with its existing cash and cash equivalents will be sufficient to meet its currently anticipated needs for working capital, capital expenditures and business expansion throughout the foreseeable future.

(v) Other price risk

Other price risk is the risk that the fair value or cash flows of financial instruments will fluctuate because of changes in market prices other than interest rate risk and foreign currency risk. The Group's marketable available-for-sale equity securities are exposed to market price risk arising from the fluctuation in the price of the securities. However, the Group's management believes that the effect of the fluctuation in the price of the securities on the financial statements is not significant.

**25. Risk Management (cont'd)**

(c) Fair value measurement

(i) Fair value and book value of financial assets and liabilities as of June 30, 2020 and December 31, 2019 are as follows:

| *In millions of Korean won* | | June 30, 2020 | | December 31, 2019 | |
|---|---|---|---|---|---|
| | | Book value | Fair value | Book value | Fair value |
| **Assets recognized at fair value** | | | | | |
| Financial assets measured at fair value through other comprehensive income | ₩ | 7,039 | 7,039 | 6,459 | 6,459 |
| Financial assets measured at fair value through profit or loss | | 1,024,380 | 1,024,380 | 1,764,419 | 1,764,419 |
| Currency forward | | 401 | 401 | 26,889 | 26,889 |
| Currency swap | | 2,828 | 2,828 | 13,852 | 13,852 |
| Interest rate swap | | - | - | 161 | 161 |
| Other derivative | | 14,714 | 14,714 | 36,701 | 36,701 |
| | ₩ | 1,049,362 | 1,049,362 | 1,848,481 | 1,848,481 |
| **Assets recognized at amortized costs** | | | | | |
| Cash and cash equivalent | ₩ | 928,661 | 928,661 | 725,057 | 725,057 |
| Long-term loans | | 130,845 | 130,845 | 142,737 | 142,737 |
| Long-term financial instruments | | 5,817 | 5,817 | 5,676 | 5,676 |
| Other financial assets | | 866 | 866 | 503 | 503 |
| Trade receivables and other receivables | | 493,373 | 493,373 | 528,837 | 528,837 |
| | ₩ | 1,559,562 | 1,559,562 | 1,402,810 | 1,402,810 |
| **Liabilities recognized at fair value** | | | | | |
| Currency forwards | ₩ | 5,862 | 5,862 | - | - |
| Currency swap | | 113,385 | 113,385 | 72,489 | 72,489 |
| Interest swap | | 55,676 | 55,676 | 26,208 | 26,208 |
| Financial liabilities measured at fair value through profit or loss | | 46,778 | 46,778 | 68,768 | 68,768 |
| Other derivative | | 64,174 | 64,174 | 3,979 | 3,979 |
| | ₩ | 285,875 | 285,875 | 171,444 | 171,444 |
| **Liabilities recognized at amortized costs** | | | | | |
| Bond payables | ₩ | 11,378,680 | 11,378,680 | 11,427,319 | 11,427,319 |
| Bank borrowings | | 3,608,629 | 3,608,629 | 2,411,125 | 2,411,125 |
| Trade and payables | | 1,261,717 | 1,261,717 | 1,321,067 | 1,321,067 |
| Financial guarantee liabilities | | 9,464 | 9,464 | 9,126 | 9,126 |
| | ₩ | 16,258,490 | 16,258,490 | 15,168,637 | 15,168,637 |

## 25. Risk Management (cont'd)

(c) Fair value measurement (cont'd)

(ii) Fair value hierarchy

The following table provides an analysis of financial instruments that are measured subsequent to initial recognition at fair value, classified as Level 1, 2, or 3, based on the degree to which the fair value is observable.

| | |
|---|---|
| Level 1: | Unadjusted quoted prices in active markets for identical assets or liabilities; |
| Level 2: | Inputs other than quoted prices that are observable for the asset or liability either directly or indirectly; and |
| Level 3: | Inputs for the asset or liabilitiy that are not based on observable market data. |

Fair values of financial instruments by hierarchy level as of June 30, 2020 and December 31, 2019 are as follows:

1) As of June 30, 2020

*In millions of Korean won*

| | | June 30, 2020 | | | |
|---|---|---|---|---|---|
| | | Level 1 | Level 2 | Level 3 | Total |
| **Financial assets at fair value** | | | | | |
| Financial assets measured at fair value through other comprehensive income | ₩ | 469 | - | 6,570 | 7,039 |
| Financial assets measured at fair value through profit or loss | | - | 304,925 | 719,455 | 1,024,380 |
| Derivative assets | | - | 17,943 | - | 17,943 |
| | ₩ | 469 | 322,868 | 726,025 | 1,049,362 |
| **Financial liabilities at fair value** | | | | | |
| Derivative liabilities | ₩ | - | 239,097 | - | 239,097 |
| Financial liabilities measured at fair value through profit or loss | | - | - | 46,778 | 46,778 |
| | ₩ | - | 239,097 | 46,778 | 285,875 |

2) As of December 31, 2019

*In millions of Korean won*

| | | December 31, 2019 | | | |
|---|---|---|---|---|---|
| | | Level 1 | Level 2 | Level 3 | Total |
| **Financial assets at fair value** | | | | | |
| Financial assets measured at fair value through other comprehensive income | ₩ | 123 | - | 6,335 | 6,458 |
| Financial assets measured at fair value through profit or loss | | - | 268,670 | 1,495,749 | 1,764,419 |
| Derivative assets | | - | 60,431 | 17,172 | 77,603 |
| | ₩ | 123 | 329,101 | 1,519,256 | 1,848,480 |
| **Financial liabilities at fair value** | | | | | |
| Derivative liabilities | ₩ | - | 102,676 | - | 102,676 |
| Financial liabilities measured at fair value through profit or loss | | - | - | 68,768 | 68,768 |
| | ₩ | - | 102,676 | 68,768 | 171,444 |

## 26. Related Parties

(a) The Group's major related parties as of June 30, 2020 are as follows:

| Type | Related parties |
|---|---|
| Associates | Oilhub Korea Yeosu Co., Ltd. |
| | Kernhem B.V. |
| | ADA Oil LLP |
| | Korea GS E&P Pte. Ltd. |
| | Parallel Petroleum LLC |
| | KNOC EF Star LLC and its subsidiaries |
| Joint ventures | KNOC Inam Ltd. |
| | KNOC Kamchatka Petroleum Ltd. |
| | KNOC Bazian Ltd. |
| | KNOC Nigerian West Oil Company Ltd. |
| | KNOC Nigerian East Oil Company Ltd. |
| | Korea kamchatka Co., Ltd. |
| | KC kazakh B.V. |
| | Offshore International Group, Inc. |
| | KNOC Ferghana Ltd. |
| | KNOC Ferghana2 Ltd. |
| | KADOC Ltd. |
| | Korea Energy Terminal Co., Ltd. |
| | Deep Basin Partnership |
| | HKMS Partnership |
| | KNOC-VOGO Eagle Ford LLC |
| | Al Dhafra Petroleum (*) |

(*) It is a joint venture owned by KADOC Ltd, which was reclassified as a subsidiary in the first half of 2020.

**26. Related Parties (cont'd)**

(b) Significant transactions with related parties for the six-month periods ended June 30, 2020 and 2019 are as follows:

(i) For the six-month period ended June 30, 2020

| *In millions of Korean won* | Transaction | | Sales and others | Purchases and others |
|---|---|---|---|---|
| Oilhub Korea Yeosu Co. Ltd. | Rental service income | ₩ | 815 | - |
| | Interest expense on lease liabilities | | - | 246 |
| Kemhem B.V. | Interest income on loans | | 1,127 | - |
| | Other bad debt expenses | | - | 1,127 |
| ADA Oil LLP | Interest income on loans | | 232 | - |
| | Other bad debt expense | | - | 232 |
| | Sales from services rendered | | 523 | - |
| Offshore International Group, Inc. | Interest income on loans | | 931 | - |
| KADOC Ltd. | Gain on valuation of financial asset measured at fair value through profit or loss | | 7,421 | - |
| Deep Basin Partnership | Other expense | | - | 114 |
| | Other income | | 272 | - |
| HKMS Partnership | Other income | | 81 | - |
| KNOC EF STAR LLC | Interest expense | | - | 6,990 |
| | | ₩ | 11,402 | 8,709 |

## 26. Related Parties (cont'd)

(ii) For the six-month period ended June 30, 2019

| *In millions of Korean won* | Transaction | Sales and others | Purchases and others |
|---|---|---|---|
| Oilhub Korea Yeosu Co. Ltd. | Rental service income | ₩ 771 | - |
| | Interest expense on lease liabilities | - | 450 |
| ADA Oil LLP | Sales from services rendered | 690 | - |
| KNOC Nigerian West Oil Company Ltd. | Loss on valuation of financial instruments measure at fair value through profit of loss | - | 36,495 |
| KNOC Nigerian East Oil Company Ltd. | Loss on valuation of financial instruments measure at fair value through profit of loss | - | 38,657 |
| Offshore International Group, Inc. | Interest income on loans | 1,001 | - |
| KNOC Ferghana2 Ltd | Loss on valuation of financial asset measured at fair value through profit or loss | - | 2,015 |
| KADOC Ltd. | Gain on valuation of financial asset measured at fair value through profit or loss | 5,491 | - |
| Deep Basin Partnership | Other expense | - | 200 |
| | Other income | 344 | - |
| HKMS Partnership | Other income | 135 | - |
| KNOC EF STAR LLC | Interest expense | - | 6,996 |
| | | ₩ 8,432 | 84,813 |

## 26. Related Parties (cont'd)

(c) The outstanding receivables, except for the loans and borrowings, arising from the transactions with related parties as of June 30, 2020 and December 31, 2019 are as follows:

| *In millions of Korean won* | | | Receivables | | Payables | |
|---|---|---|---|---|---|---|
| | Transaction | | 2020 | 2019 | 2020 | 2019 |
| Oilhub Korea Yeosu Co., Ltd. | Other account payables | ₩ | - | - | 1,380 | 1,341 |
| | Lease liabilities | | - | - | 11,147 | 17,756 |
| Offshore International Group, Inc. | Accrued interest | | 130 | 58 | - | - |
| KADOC Ltd. (*1) | Accrued interest | | - | 41,995 | - | - |
| ADA Oil LLP | Other payables | | - | - | 7 | 118 |
| | Trade receivables | | - | 1 | - | - |
| KNOC EF STAR LLC | Accrued expenses | | - | - | 486 | 1,087 |
| | | ₩ | 130 | 42,054 | 13,020 | 20,302 |

(*1) It was reclassified as a subsidiary from a joint venture, as control was acquried through a change in the shareholders' agreement in the first half of 2020. All loans were converted to equity, excluding receivables amounting to ₩ 161 million, due to single shares and interest income.

(d) The loans to related parties as of June 30, 2020 and December 31, 2019 are as follows:

| *In millions of Korean won* | | **June 30, 2020** | **December 31, 2019** |
|---|---|---|---|
| **Joint ventures** | | | |
| KNOC Nigerian West Oil Company Ltd. | ₩ | 267 | 118 |
| KNOC Nigerian East Oil Company Ltd. | | 219 | 107 |
| Offshore International Group, Inc. | | 33,920 | 32,708 |
| KADOC Ltd. | | - | 514,707 |
| Korea Energy Terminal Co., Ltd. (*1) | | 108 | 2,587 |
| | ₩ | 34,514 | 550,227 |

(*1) The loan amount of ₩ 2,600 million has been converted into investment in the first half of 2020.

The Group loaned ₩ 253 million to associates and joint ventures and received repayment of ₩2,588 million during the half of 2020. The Group invested ₩ 536,623 million in KADOC and recorded this as investment stock Meanwhile, the increase due to exchange rate fluctuations is ₩ 23,245 million.

(e) The borrowings from the related parties as of June 30, 2020 and December 31, 2019 are as follow.

| *In millions of Korean won* | | **2020** | **2019** |
|---|---|---|---|
| **Associates** | | | |
| KNOC EF Star LLC | ₩ | 452,602 | 452,602 |

## 26. Related Parties (cont'd)

The Group leases storage facilities with a volume of 240,000 cbm per year through a Commercial Storage Agreement with Oilhub Korea Yeosu Co., Ltd., its associates, and the agreement ends on April 1, 2021. In accordance with the lease agreement entered into with the associates, the Group recognized ₩ 30,377 million in the right-of-use assets and the lease liabilities. The repayment of the lease liabilities recognized in the current period is ₩ 7,560 million and the interest expense is ₩ 246 million.

(f) As of June 30, 2020, the Group does not provide any guarantees to the related parties.

(g) As of June 30, 2020, the Group is not provided with any guarantees from the related parties.

(h) The compensation for the key management personnel of the Company for the six-month periods ended June 30, 2020 and 2019 are as follows:

| *In millions of Korean won* | | 2020 | 2019 |
|---|---|---|---|
| Salaries | ₩ | 321 | 240 |
| Severance and retirement benefits | | 22 | 29 |
| | ₩ | 343 | 269 |

(i) JB Patriot Investment Type Private Investment Limited Liability Company entered into an agreement of acquiring redeemable preferred shares with KNOC Eagle Ford Corporation and KNOC EF Star LLC, its subsidiary. The Group entered into the cash deficiency support agreement with KNOC Eagle Ford Corporation and its associates.

(j) The Company entered into a USD 70 million loan agreement available to February 19, 2021 with Offshore International Group Inc., an investment in joint venture. As of June 30, 2020, Offshore International Group Inc. had drawn USD 28 million under the loan agreement.

## 27. Additional Cash Flow Statement Information

*Non-Cash Transactions*

Significant non-cash investment and finance transactions excluded from the statements of cash flows for the six-month periods ended June 30, 2020 and 2019, are as follows:

| *(in millions of Korean won)* | | 2020 | 2019 |
|---|---|---|---|
| Financial asset measured at fair value through profit or loss transferred to Investments in Associates and Joint Ventures (*1) | ₩ | 2,600 | - |
| Derivative asset transferred to Investments in Associates and Joint Ventures (*2) | | 113,102 | - |

(*1) The Group converted the loan to Korea Energy Terminal Co. Ltd. to equity investment.
(*2) The Group exercised the option to buy shares and obtained a 30% stake in Korea GS E&P Pte. Ltd.

## 28. Contingencies and Commitments

(a) Details of the Group's significant litigations as of June 30, 2020 are as follows:

*In millions of Korean won*

| Plaintiff | Defendant | Description (*1) | | Amount | Process |
|---|---|---|---|---|---|
| Hanhwa Corp. | The Company | Claiming refunds of the premium paid to the Group acquire interests in Yemen 4 oil field (*2) | ₩ | 5,979 | In second trial |
| SK Engineering & Construction Co.,Ltd. and POSCO Engineering & Construction Co., Ltd. | The Company | Claiming additional construction charge due to price escalation | | 7,568 | In first trial |
| SK Engineering & Construction Co.,Ltd. and POSCO Engineering & Construction Co., Ltd. | The Company | Claiming adjustment of contracted amount due to design change and extension of construction period and additional construction charge thereto. | | 12,578 | In first trial |
| SK Engineering & Construction Co.,Ltd. | The Company | Civil lawsuit filed by the constructor regarding the underground construction of the Ulsan stockpile base | | 2,948 | In first trial |

(*1) There are 3 cases against the Company other than the litagations listed above amounting to total of ₩5,296 million, and the Group recognized provisions for 1 of them (See Note 13). Also, there are 11 cases as the Company as plaintiff amounting total of ₩13,178 million.
(*2) The Company paid all claim amounts in February 2015 based on the loss of the first trial and received portion of statutory interest in January 2016 based on the partial loss of the second trial. The third trial is in the process as of June 30, 2020 by appealing to the decision of the second trial.

Also, the Company is in the process of litigation with Dr. Owolabi and others who are claiming compensation for cooperation for acquiring Nigerian mining rights. The Group does not believe it has a present obligation and has not recognized any provisions for these lawsuits as of June 30, 2020.

(b) As of June 30, 2020, the Iranian Dayani family seized shares of Dana Petroleum Limited, a subsidiary of the Group, through a British court on the basis of an investor-state lawsuit against the Korean government. This restricts the sale of stocks and dividend payments, but allows for routine operations. The Korean government is preparing to pay compensation while proceeding with an appeal to lift the seizure order immediately.

## 28. Contingencies and Commitments (cont'd)

(c) The Group has provided loan guarantees to non-related parties as of June 30, 2020 and December 31, 2019 are as follows:

*In thousands of US dollar*

| Description of guarantee | Guaranteed party | Effective date | Guarantee period | June 30, 2020 | December 31, 2019 |
|---|---|---|---|---|---|
| Payment guarantee for Parallel business | Samsung C&T Corporation and others | 2014-07-10 | Until loans fully repaid | ₩ 8,038 | 7,882 |
| | | 2016-06-20 | | 23,780 | 23,780 |

(d) As of June 30, 2020, the Company's significant commitments with the financial institutions are as follows:

*In thousands of US dollar and millions of Korea won*

| Detail of contract (*1) | Financial institutions | Credit line amount | Executed amount | Unit |
|---|---|---|---|---|
| Trade finance | Development Bank of Singapore (*2) | $ 240,000 | - | Thousands of USD |
| | Bank of America (*2) | 190,000 | - | Thousands of USD |
| | ING Bank (*2) | 100,000 | - | Thousands of USD |
| | Standard Chartered Bank (*2) | 150,000 | 52,733 | Thousands of USD |
| | Shinhan Bank | 100,000 | - | Thousands of USD |
| | | $ 780,000 | 52,733 | Thousands of USD |
| Financial loans | BNP Paribas | $ 400,000 | - | Thousands of USD |
| | Development Bank of Singapore (*2) | 240,000 | 240,000 | Thousands of USD |
| | Mizuho Corporate Bank | 100,000 | 100,000 | Thousands of USD |
| | Bank of America (*2) | 190,000 | - | Thousands of USD |
| | ING Bank (*2) | 100,000 | - | Thousands of USD |
| | Credit Agricole | 100,000 | - | Thousands of USD |
| | Standard Chartered Bank (*2) | 150,000 | - | Thousands of USD |
| | The Export-Import Bank of Korea (*3) | - | 484,000 | Thousands of USD |
| | | $ 1,280,000 | 824,000 | Thousands of USD |
| Bank overdraft | Woori Bank | ₩ 10,000 | - | Millions of KRW |

(*1) The above commitments do not include the commitments for borrowing until the Group successfully complete the oil exploration.
(*2) A portion of or all of lines of credit for trade finance and financial loans have been integrated and the integrated line of credit is USD 680 million.
(*3) The limit commitments has expired on May 23, 2020, and maturities for the balance of the half-year-end loans are on December 28, 2020 (USD 200 million), November 28, 2021 (USD 184 million) and January 31, 2022, respectively. Day (USD 100 million).

(e) As of June 30, 2020, the Company has received the payment guarantee amount of ₩5,135 million from the Seoul Guarantee Insurance Company on 22 cases of repayment of leasehold deposits provided in relation to a lease contract.

(f) On November 13, 2019, the Company signed a Joint Venture Agreement with SK Gas Co., LTD and MOL Chemical Tanker to promote Ulsan North Port. Under this agreement, the total investment is expected to be ₩616,005 million, and each participant commits to invest to the extent of its participatory interests that could not be procured through external borrowing.

**28. Contingencies and Commitments (cont'd)**

(g) As of June 30, 2020, other significant commitments and contingencies of the Company's subsidiaries are as follows:

(i) Dana Petroleum Limited ("Dana") and its subsidiaries

The Company provided a performance guarantee of GBP 127 million to Nexen and others for the expenses that will incur for restoration of the sites, decommissioning, dismantling and removal of the facilities and structures. Also, the Company provided a performance guarantee of NOK 38 million to ExxonMobile E&P Norway AS for transferring restoring obligation of Jotun.

In connection with the acquisition of Dana, the Company guaranteed compensation to the Norwegian Government for environmental and human damage that may occur in connection with the resource exploration activities of its subsidiary Dana Petroleum Norway AS.

(ii) Harvest Operations Corp. and its subsidiaries

Guarantees provided by the Company for Harvest Operations Corp. as of June 30, 2020 are as follows:

*In foreign currencies*

| Beneficiary | Description | Amount | Maturity |
|---|---|---|---|
| Harvest Operations Corp. | Guarantees for borrowing from banks | CAD 500,000,000 | Feb 24, 2021 |
| Harvest Operations Corp. | Guarantees for borrowing from banks | CAD 500,000,000 | July 29, 2022 |
| Harvest Operations Corp. | Guarantees for issuing of bonds | USD 195,770,000 | April 14, 2021 |
| Harvest Operations Corp. | Guarantees for issuing of bonds | USD 285,000,000 | September 21, 2022 |
| Harvest Operations Corp. | Guarantees for issuing of bonds | USD 200,000,000 | September 21, 2022 |
| Harvest Operations Corp. | Guarantees for borrowing from banks | CAD 300,000,000 | May 30, 2023 |
| Harvest Operations Corp. | Guarantees for issuing of bonds | USD 397,500,000 | June 1, 2023 |
| Harvest Operations Corp. | Guarantees for borrowing from banks | CAD 150,000,000 | April 1, 2021 |

(iii) ANKOR E&P Holdings Corp. ("ANKOR") and its subsidiaries

The Company provided a performance guarantee of USD 121 million to Chubb Limited and others for the future restoration of oil and gas sites held by ANKOR.

Guarantees provided by the Company for ANKOR. as of June 30, 2020 are as follows:

*In foreign currencies*

| Beneficiary | Description | Amount | Maturity |
|---|---|---|---|
| ANKOR E&P Holdings Corp. | Guarantees for borrowing from banks | USD 50,000,000 | June 28, 2021 |
| ANKOR E&P Holdings Corp. | Guarantees for borrowing from banks | USD 30,000,000 | July 29, 2021 (*) |

(*) The Company renewed the guarantee contract on July 29, 2020 and extended the maturity to July 29, 2021.

## 28. Contingencies and Commitments (cont'd)

(g) As of June 30, 2020, other significant commitments and contingencies of the Company's subsidiaries are as follows: (cont'd)

(iv) KNOC Yemen Ltd.

The Company is in the process of arranging the liquidation of KNOC Yemen Ltd. with YICOM, an acquirer. According to the arrangement, the Company may have a possibility of settlement, of which the amount cannot be estimated.

(v) KNOC Eagle Ford Corporation and its subsidiaries

JB Patriot Investment Type Private Investment Limited Liability Company, non-controlling interest of KNOC Eagle Ford Corporation entered into an agreement of acquiring redeemable preferred shares with KNOC Eagle Ford Corporation and KNOC EF Star LLC, its associate. The Company entered into the cash deficiency support agreement with KNOC Eagle Ford Corporation. In the case of a breach of covenants, JB Patriot Investment Type Private Investment Limited Liability Company is entitled to exercise a drag along right to require the KNOC Eagle Ford Corporation to sell the entire common shares held by KNOC Eagle Ford Corporation together with the preferred shares.

Details of agreements with financial facilities of KNOC Eagle Ford and its subsidiaries are as follows:

*In thousands of US dollar*

| Agreement | Financial institution | | Credit line amount | Executed amount |
|---|---|---|---|---|
| Credit line | Bank of America | $ | 25,000 | - |
| | Sumitomo Mitsui Banking Corporation | | 70,000 | - |
| | Societe Generale Bank | | 30,000 | - |
| | | $ | 125,000 | - |

## 29. Business Combinations

(a) Details of the Group's business combinations for the six-month period ended June 30, 2020 are as follows:

*In millions of Korean won*

| Entity | Principal activity | Acquisition date (*) | | Consideration transferred |
|---|---|---|---|---|
| KADOC Ltd. | Exploration and Production | June 30, 2020 | ₩ | 134,244 |

(*) Although June 9, 2020, the date when the revised contract was concluded, is the acquisition date, for convenience in practice, the settlement date, June 30, 2020, is determined to be the deemed acquisition date.

(b) The following table summarizes the acquisition date fair value of each major class of consideration transferred.

*In millions of Korean won*

| | | Fair value amounts |
|---|---|---|
| Cash | ₩ | - |
| Settlement of pre-existing shareholding | | 134,244 |
| | ₩ | 134,244 |

**29. Business Combinations (cont'd)**

(c) The following table summarizes the recognized amounts of assets acquired and liabilities assumed the date of acquisition.

*In millions of Korean won*

| | | **Amounts** |
|---|---|---|
| Assets | | |
| Cash and cash equivalents | ₩ | 141,009 |
| Short-term trade receivable | | 16,229 |
| Short-term other receivables | | 1,093 |
| Other current financial assets | | 248 |
| Inventories, net | | 2,618 |
| Current assets | | 161,197 |
| Property, plant and equipment, net | | 24 |
| Exploration and production asset | | 886,045 |
| Intangible assets other than goodwill, net | | 3,184 |
| Non-current assets | | 863 |
| Deferred tax assets | | 963 |
| Non-current assets | | 891,079 |
| Total identifiable assets | | 1,052,276 |
| Liabilities | | |
| Trade and other payables | | 60,243 |
| Accrued expenses | | 7,199 |
| Other current liabilities | | 6 |
| Current tax liabilities | | 5,105 |
| Current liabilities | | 72,553 |
| Long-term borrowings | | 780,625 |
| Employee benefits, net | | 66 |
| Non-current provisions | | 20,040 |
| Deferred tax liabilities | | 153,469 |
| Non-current liabilities | | 954,200 |
| Total identifiable liabilities | | 1,026,753 |
| Total identifiable net assets acquired | ₩ | 25,523 |

(d) Goodwill arising from the acquisition has been recognized as follows:

*In millions of Korean won*

| | | **Amounts** |
|---|---|---|
| Consideration transferred | ₩ | 134,244 |
| Add: non-controlling interests | | 6,381 |
| Less: identifiable net assets acquired | | (25,523) |
| Goodwill | ₩ | 115,102 |

## 29. Business Combinations (cont'd)

(e) Details of net cash inflow in Group's business combinations are as follows:

*In millions of Korean won*

| | | Amounts |
|---|---|---|
| Consideration paid in cash | ₩ | - |
| Less: acquisition of cash and cash equivalents | | (141,009) |
| | ₩ | (141,009) |

## 30. Events After the Reporting Period

(a) On July 30, 2020, the Company issued CHF 100 million of non-guaranteed senior bonds with a maturity of 7 years and received the full proceeds of the bond. To minimize exposure to currency risk related to foreign currency bonds, the Company entered into a currency swap contract under the condition that the principal of the bond is USD 106 million and interest is fixed at an annual interest rate of 1.55% based on USD.

(b) In accordance with the agreement with GS Energy, parent company of Korea GS E&P Pte. Ltd. (the Company's associate), the Company provides a guarantee to GS Energy equivalent to the Company's share of the financial institution loan agreement of Korea GS E&P Pte. Ltd. The guaranteed amount is USD 34.2 million as of August 13, 2020, the guarantee execution date.

Building a better
working world

한영회계법인
서울특별시 영등포구 여의공원로 111, 태영빌딩 3-8F
07241

Tel: 02 3787 6600
Fax: 02 783 5890
ey.com/kr

Ernst & Young Han Young
Taeyoung Building, 111, Yeouigongwon-ro,
Yeongdeungpo-gu, Seoul 07241 Korea

Tel: +82 2 3787 6600
Fax: +82 2 783 5890
ey.com/kr

## Independent auditor's report

**The Shareholder and Board of Directors**
**Korea National Oil Corporation**

### Opinion

We have audited the consolidated financial statements of Korea National Oil Corporation (the "Company") and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statement of financial position as of December 31, 2019, and the consolidated statement of comprehensive loss, consolidated statement of changes in equity and consolidated statement of cash flows for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2019, and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions.

### Basis for opinion

We conducted our audit in accordance with Korean Auditing Standards ("KGAAS"). Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the consolidated financial statements section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in the Republic of Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

### Responsibilities of management and those charged with governance for the consolidated financial statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions, and for such internal control as management determines is necessary to enable the preparation of the consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

### Auditor's responsibilities for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with KGAAS will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with KGAAS, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit 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 Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

**Emphasis of matters**

(1) Accounting standards applied to the preparation of the consolidated financial statements

We draw attention to Note 2 to the consolidated financial statements which describes that the Group has prepared the consolidated financial statements in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions. Pursuant to its Article 2-5, the Group applies Korean International Financial Reporting Standards ("KIFRS") where specific accounting treatments are not prescribed by the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions. There are no accounts of which accounting treatment is materially different compared to KIFRS in order for the Group to be in full compliance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions. Our opinion is not modified in respect of this matter.

(2) Restatement of the consolidated financial statements

We draw attention to Note 50 to the consolidated financial statements which describes that the Group has made a correction of an accounting error in deferred tax assets recognition for future taxable profit that is not highly probable, and accordingly has restated the consolidated financial statements for the year ended December 31, 2019.

As a result of such correction, the Group's net assets as of December 31, 2019 decreased by ₩69,344 million and net loss for the year then ended increased by ₩69,814 million. Accordingly, our report is reissued as the Group has restated the consolidated financial statements. Our opinion is not modified in respect of this matter.

**Other matters**

(1) Reissuance of the auditor's report on the consolidated financial statements

We conducted additional audit procedures required to express our opinion on the restated consolidated financial statements for the year ended December 31, 2019.

As the consolidated financial statements of the Group for the year ended December 31, 2019 have been restated, our report dated March 3, 2020 is no longer valid and shall not be used in relation to the consolidated financial statements for the year ended December 31, 2019.

(2) Opinion on the comparative consolidated financial statements

The consolidated financial statements of the Group for the year ended December 31, 2018 were audited by KPMG Samjong Accounting Corp. in accordance with KGAAS whose report dated March 9, 2019 (not presented herein) expressed an unqualified opinion thereon. The accompanying consolidated statement of financial position as of December 31, 2018 presented for comparative purpose is not different, in all material respects, from the above audited consolidated statement of financial position.

Ernst & Young Han Young

March 3, 2020
(Except for items related to Note 50)

July 28, 2020
(End date of audit procedures limited on the correction described in Note 50)

This audit report is effective as of July 28, 2020, the independent auditor’s report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the date of the independent auditor’s report to the time this report is used. Such events and circumstances could significantly affect the accompanying consolidated financial statements and may result in modifications to this report.

## Korea National Oil Corporation and its subsidiaries
### Consolidated statements of financial position
### December 31, 2019 and 2018

| *(in Korean won)* | Notes | 2019 | 2018 |
|---|---|---|---|
| **Assets** | | | |
| **Current assets** | | | |
| Cash and cash equivalents | 5,6,26,41,43 | ₩ 725,056,410,891 | ₩ 778,120,148,878 |
| Current financial assets | 7,10,12,41,42,43 | 312,477,148,056 | 87,103,034,162 |
| Trade and other receivables, net | 8,23,41,43 | 484,674,617,029 | 444,109,507,070 |
| Inventories, net | 13 | 98,001,120,211 | 95,619,589,763 |
| Current income tax assets | | 5,467,561,503 | 53,461,320,344 |
| Current non-financial assets | 14 | 87,677,366,722 | 66,830,233,059 |
| | | 1,713,354,224,412 | 1,525,243,833,276 |
| **Non-current assets** | | | |
| Non-current financial assets, net | 6,7,9,10,11,41,42,43 | 1,684,920,064,133 | 785,335,300,405 |
| Long-term trade and other receivables, net | 8,23,41,43 | 44,162,826,491 | 33,836,113,280 |
| Property, plant and equipment, net | 16,23,26,27 | 8,717,719,481,763 | 8,674,307,451,404 |
| Goodwill | 17 | 152,975,919,835 | 143,792,882,265 |
| Intangible assets other than goodwill, net | 18 | 1,406,826,475,801 | 2,063,367,675,864 |
| Investments in associates and joint ventures | 15 | 239,920,503,348 | 275,957,499,954 |
| Deferred tax assets | 39,50 | 784,338,423,816 | 1,006,600,263,783 |
| Non-current non-financial assets | 14 | 3,917,584,915,080 | 3,730,560,029,569 |
| | | 16,948,448,610,267 | 16,713,757,216,524 |
| **Total assets** | | ₩ 18,661,802,834,679 | ₩ 18,239,001,049,800 |
| **Liabilities** | | | |
| **Current liabilities** | | | |
| Trade and other payables | 20,23,41,43,46 | ₩ 771,657,311,606 | ₩ 644,690,362,285 |
| Current financial liabilities | 7,19,21,22,41,42,43,46 | 1,575,772,270,504 | 1,521,136,236,746 |
| Current income tax liabilities | | 50,950,396,225 | 29,929,263,668 |
| Current non-financial liabilities | 28 | 150,381,118,367 | 174,521,678,134 |
| Current provisions | 25 | 60,382,894,748 | 56,418,469,066 |
| | | 2,609,143,991,450 | 2,426,696,009,899 |
| **Non-current liabilities** | | | |
| Long-term trade and other payables | 20,23,41,43,46 | 549,409,820,867 | 434,319,512,101 |
| Non-current financial liabilities | 7,19,21,22,41,42,43,46 | 12,443,241,329,623 | 12,226,052,926,194 |
| Non-current non-financial liabilities | 28 | 57,746,729,186 | 68,522,554,726 |
| Employee benefits, net | 24 | 13,453,938,615 | 8,749,812,327 |
| Deferred tax liabilities | 39 | 221,647,766,711 | 185,533,918,235 |
| Non-current provisions | 25 | 2,236,312,862,677 | 2,125,061,337,618 |
| | | 15,521,812,447,679 | 15,048,240,061,201 |
| **Total liabilities** | | 18,130,956,439,129 | 17,474,936,071,100 |
| **Equity** | | | |
| **Equity attributable to the owner of the Company** | | | |
| Share capital | 1,29 | 10,515,105,780,075 | 10,481,533,780,075 |
| Accumulated deficit | 30,31,50 | (9,377,447,616,190) | (9,201,495,688,459) |
| Other components of equity | 32,50 | (1,155,757,805,551) | (1,032,764,256,425) |
| | | (18,099,641,666) | 247,273,835,191 |
| **Non-controlling interests** | | 548,946,037,216 | 516,791,143,509 |
| **Total equity** | | 530,846,395,550 | 764,064,978,700 |
| **Total liabilities and equity** | | ₩ 18,661,802,834,679 | ₩ 18,239,001,049,800 |

The accompanying notes are an integrated part of the consolidated financial statements.

## Korea National Oil Corporation and its subsidiaries
### Consolidated statements of comprehensive income(loss)
### Years ended December 31, 2019 and 2018

| *(in Korean won)* | **Notes** | **2019** | **2018** |
|---|---|---|---|
| **Continuing operations** | | | |
| **Revenue** | 4,26,33 | ₩ 2,929,992,959,600 | ₩ 3,149,265,266,290 |
| **Cost of sales** | 4,40 | (2,052,413,071,153) | (2,171,932,854,252) |
| **Gross profit** | 4 | 877,579,888,447 | 977,332,412,038 |
| Selling and administrative expenses | 4,18,24,34,40 | (306,110,440,934) | (433,971,587,671) |
| **Operating profit** | 4 | 571,469,447,513 | 543,360,824,367 |
| Other non-operating income | 4,8,35,41,45 | 93,597,344,082 | 76,488,772,599 |
| Other non-operating expenses | 4,8,35,41 | (8,259,254,071) | (37,791,273,655) |
| Other loss, net | 4,7,16,18,36 | (2,095,013,255) | (849,323,244,196) |
| Finance income | 4,7,9,37,41,45 | 402,068,273,215 | 231,241,417,396 |
| Finance costs | 4,7,19,38,41 | (731,432,586,748) | (783,490,645,306) |
| Gain (loss) on investments in associates and joint ventures, net | 4,15 | 53,712,409,399 | (112,547,149,313) |
| Profit (loss) before income tax | 4 | 379,060,620,135 | (932,061,298,108) |
| Income tax expense | 4,39,50 | (533,812,592,404) | (228,333,933,634) |
| **Loss from continuing operations** | | (154,751,972,269) | (1,160,395,231,742) |
| **Discontinued operations** | | | |
| Profit from discontinued operations, net of tax | | - | 854,209,774 |
| **Loss for the year** | 30,31 | (154,751,972,269) | (1,159,541,021,968) |
| **Other comprehensive income (loss)** | | | |
| *Items that will never be reclassified subsequently to profit or loss* | | | |
| Actuarial losses on defined benefit plans, net of tax | 24,30 | (3,200,429,622) | (1,679,984,253) |
| Retained earnings adjustments in equity method, net of tax | | - | (46,222,503) |
| Net change in fair value of financial assets measured at fair value through other comprehensive income | 9,41 | (27,087,490,099) | (177,207,309,089) |
| *Items that are or may be reclassified subsequently to profit or loss* | | | |
| Equity adjustments arising from investments in equity-method investees, net of tax | 15 | (2,256,031,648) | 2,811,814,449 |
| Net change in the unrealized fair value of derivative using cash flow hedge accounting, net of tax | 7,41 | (110,655,301,372) | 99,356,555,254 |
| Foreign currency translation differences for foreign operations | 50 | 34,276,424,310 | 40,863,016,928 |
| **Other comprehensive loss for the year, net of tax** | | (108,922,828,431) | (35,902,129,214) |
| **Total comprehensive loss for the year** | | ₩ (263,674,800,700) | ₩ (1,195,443,151,182) |
| **Loss attributable to:** | | | |
| Owners of the Company | | ₩ (173,257,481,130) | ₩ (1,205,946,785,504) |
| Non-controlling interests | | 18,505,508,861 | 46,405,763,536 |
| **Loss for the year** | | ₩ (154,751,972,269) | ₩ (1,159,541,021,968) |
| **Total comprehensive loss attributable to:** | | | |
| Owners of the Company | | ₩ (299,451,459,878) | ₩ (1,274,009,423,761) |
| Non-controlling interests | | 35,776,659,178 | 78,566,272,579 |
| **Total comprehensive loss for the year** | | ₩ (263,674,800,700) | ₩ (1,195,443,151,182) |

The accompanying notes are an integrated part of the consolidated financial statements.

## Korea National Oil Corporation and its subsidiaries

**Consolidated statements of changes in equity**

**Years ended December 31, 2019 and 2018**

| *(in Korean won)* | Attributable to owners of the Company | | | | Non-controlling | Total |
|---|---|---|---|---|---|---|
| | Share capital | Accumulated deficit | Other components of equity | Subtotal | interests | equity |
| **Balance at January 1, 2018 before adjustment** | ₩ 10,434,864,780,075 | ₩ (8,363,377,364,175) | ₩ (589,302,687,164) | ₩ 1,482,184,728,736 | ₩ 901,705,636,211 | ₩ 2,383,890,364,947 |
| Adjustment on initial adoption of K-IFRS No. 1109 | - | 369,554,667,976 | (377,105,179,418) | (7,550,511,442) | - | (7,550,511,442) |
| **Balance at January 1, 2018 after adjustment** | 10,434,864,780,075 | (7,993,822,696,199) | (966,407,866,582) | 1,474,634,217,294 | 901,705,636,211 | 2,376,339,853,505 |
| **Total comprehensive income (loss) for the year** | | | | | | |
| Profit (loss) for the year | - | (1,205,946,785,504) | - | (1,205,946,785,504) | 46,405,763,536 | (1,159,541,021,968) |
| Other comprehensive income | | | | | | |
| ***Items that will not be reclassified subsequently to profit or loss*** | | | | | | |
| Actuarial losses on defined benefit plans, net of tax | - | (1,679,984,253) | - | (1,679,984,253) | - | (1,679,984,253) |
| Retained earnings adjustments in equity method, net of tax | - | (46,222,503) | - | (46,222,503) | - | (46,222,503) |
| Net change in fair value of financial assets measured at fair value through other comprehensive income | - | - | (177,207,309,089) | (177,207,309,089) | - | (177,207,309,089) |
| ***Items that may be reclassified subsequently to profit or loss*** | | | | | | |
| Equity adjustments arising from investments in equity-method investees, net of tax | - | - | 2,811,814,449 | 2,811,814,449 | - | 2,811,814,449 |
| Net change in the unrealized fair value of derivative using cash flow hedge accounting, net of tax | - | - | 99,356,555,254 | 99,356,555,254 | - | 99,356,555,254 |
| Foreign currency translation differences for foreign operations | - | - | 8,702,507,885 | 8,702,507,885 | 32,160,509,043 | 40,863,016,928 |
| **Total other comprehensive loss for the year** | - | (1,207,672,992,260) | (66,336,431,501) | (1,274,009,423,761) | 78,566,272,579 | (1,195,443,151,182) |
| **Transactions with owners of the Company, recognized directly in equity** | | | | | | |
| Issuance of share capital | 46,669,000,000 | - | - | 46,669,000,000 | - | 46,669,000,000 |
| Dividends paid | - | - | - | - | (37,431,456,696) | (37,431,456,696) |
| Distribution to non-controlling interests | - | - | (19,958,342) | (19,958,342) | (2,433,808,585) | (2,453,766,927) |
| Change in the scope of consolidation | - | - | - | - | (423,615,500,000) | (423,615,500,000) |
| **Total transactions with owners of the Company** | 46,669,000,000 | - | (19,958,342) | 46,649,041,658 | (463,480,765,281) | (416,831,723,623) |
| **Balance at December 31, 2018** | ₩ 10,481,533,780,075 | ₩ (9,201,495,688,459) | ₩ (1,032,764,256,425) | ₩ 247,273,835,191 | ₩ 516,791,143,509 | ₩ 764,064,978,700 |
| **Balance at January 1, 2019** | ₩ 10,481,533,780,075 | ₩ (9,201,495,688,459) | ₩ (1,032,764,256,425) | ₩ 247,273,835,191 | ₩ 516,791,143,509 | ₩ 764,064,978,700 |
| **Total comprehensive income (loss) for the year** | | | | | | |
| Profit (loss) for the year | - | (173,257,481,130) | - | (173,257,481,130) | 18,505,508,861 | (154,751,972,269) |
| Other comprehensive income | | | | | | |
| ***Items that will not be reclassified subsequently to profit or loss*** | | | | | | |
| Actuarial losses on defined benefit plans, net of tax | - | (3,200,429,622) | - | (3,200,429,622) | - | (3,200,429,622) |
| Net change in fair value of financial assets measured at fair value through other comprehensive income | - | - | (27,087,490,099) | (27,087,490,099) | - | (27,087,490,099) |
| ***Items that may be reclassified subsequently to profit or loss*** | | | | | | |
| Equity adjustments arising from investments in equity-method investees, net of tax | - | - | (2,256,031,648) | (2,256,031,648) | - | (2,256,031,648) |
| Net change in the unrealized fair value of derivative using cash flow hedge accounting, net of tax | - | - | (110,655,301,372) | (110,655,301,372) | - | (110,655,301,372) |
| Foreign currency translation differences for foreign operations | - | - | 17,005,273,993 | 17,005,273,993 | 17,271,150,317 | 34,276,424,310 |
| **Total other comprehensive loss for the year** | - | (176,457,910,752) | (122,993,549,126) | (299,451,459,878) | 35,776,659,178 | (263,674,800,700) |
| **Transactions with owners of the Company, recognized directly in equity** | | | | | | |
| Issuance of share capital | 33,572,000,000 | - | - | 33,572,000,000 | - | 33,572,000,000 |
| Distribution to non-controlling interests | - | 505,983,021 | - | 505,983,021 | (3,621,765,471) | (3,115,782,450) |
| **Total transactions with owners of the Company** | 33,572,000,000 | 505,983,021 | - | 34,077,983,021 | (3,621,765,471) | 30,456,217,550 |
| **Balance at December 31, 2019** | ₩ 10,515,105,780,075 | ₩ (9,377,447,616,190) | ₩ (1,155,757,805,551) | ₩ (18,099,641,666) | ₩ 548,946,037,216 | ₩ 530,846,395,550 |

The accompanying notes are an integrated part of the consolidated financial statements.

## Korea National Oil Corporation and its subsidiaries
### Consolidated statements of cash flows
### Years ended December 31, 2019 and 2018

| *(in Korean won)* | 2019 | 2018 |
|---|---|---|
| **Cash flows from operating activities** | | |
| Loss for the year | ₩ (154,751,972,269) | ₩ (1,159,541,021,968) |
| Adjustment for: | | |
| Severance and retirement benefits | 12,723,526,195 | 8,817,688,669 |
| Wages and salaries | 4,359,067,934 | - |
| Depreciation | 965,218,918,919 | 1,068,719,904,560 |
| Amortization of intangible assets other than goodwill | 81,194,519,000 | 66,267,991,859 |
| Other bad debt expense | 3,186,538,955 | 765,168,480 |
| Gains on exemption of debts | (76,223,080,929) | - |
| Reversal of other bad debt allowance | (3,495,036,527) | (8,356,085,894) |
| Non-operating income from overseas oil fields | (365,395,128) | (1,538,146,780) |
| Gains on disposal of property, plant and equipment | (12,234,503,767) | (7,660,786,299) |
| Losses on valuation of inventories | 404,191,177 | 121,465,055 |
| Loss on cancellation of debt exemption | 1,065,761,174 | 11,033,808 |
| Other income | (4,944,867,160) | (1,379,733,926) |
| Other expenses | 2,369,477,299 | 345,743,968 |
| Transfer to other provision | 938,611,291 | 13,039,492,808 |
| Gains on disposal of intangible assets other than goodwill | (87,120,730,552) | (6,763,819) |
| Reversal of impairment losses on property, plant and equipment | (25,224,458,258) | (23,146,479,941) |
| Gains on foreign currency translation (other than finance income) | (22,942,425,015) | (26,654,135,840) |
| Losses on disposal of property, plant and equipment | 17,491,127,469 | 154,437,052 |
| Impairment losses on property, plant and equipment | 176,250,820,929 | 272,828,899,217 |
| Impairment losses on intangible assets other than goodwill | 18,106,642,179 | 609,346,912,576 |
| Reversal of impairment losses on intangible assets other than goodwill | (53,230,301,443) | - |
| Losses on foreign currency translation (other than finance cost) | 21,518,126,092 | 19,636,929,194 |
| Income tax expense | 533,812,592,404 | 228,333,933,634 |
| Interest income | (22,512,597,370) | (22,655,696,529) |
| Dividends income | (10,232,181) | (10,295,683) |
| Gains on transaction of derivative (finance income) | (11,338,703,001) | (4,421,358,354) |
| Gains on valuation of derivative (finance income) | (18,630,088,549) | (23,218,443,225) |
| Gains on transaction of derivative (other than finance income) | (42,418,004) | - |
| Losses on transaction of derivative (other than finance cost) | 117,357,642 | - |
| Gains on foreign currency translation (finance income) | (136,666,853,054) | (55,441,206,189) |
| Interest expense | 474,593,305,053 | 426,020,666,500 |
| Losses on transaction of derivative (finance cost) | - | 1,088,097,827 |
| Losses on valuation of derivative (finance cost) | 2,518,652,850 | - |
| Losses on valuation of financial asset measured at fair value through profit or loss | 82,191,492,544 | 5,058,940,998 |
| Gains on valuation of financial asset measured at fair value through profit or loss | (167,773,467,775) | (87,037,043,388) |
| Gains on transaction of financial asset measured at fair value through profit or loss | (2,072,434,884) | - |
| Losses on valuation of financial liabilities measured at fair value through profit or loss | 15,615,393,575 | - |
| Losses on foreign currency translation (finance cost) | 65,411,763,076 | 209,389,524,458 |
| Other finance costs (interest expense) | 77,451,325,484 | 115,393,451,884 |
| Transfer to other provision (Sales commissions) | (24,786,154,683) | 122,362,848,987 |
| Reversal of other provision | (2,454,517,994) | - |
| Gains on disposal of asset held for sale | - | (2,058,657,999) |
| Share of gain in associates and joint ventures | (116,300,551,234) | (6,049,649,038) |
| Gains on disposal of investments in associates and joint ventures | (37,011,521) | - |
| Share of loss in associates and joint ventures | 23,372,718,406 | 117,335,392,425 |
| Impairment losses on investments in associates and joint ventures | 39,252,434,950 | 1,261,405,926 |
| | 1,830,758,535,568 | 3,016,665,446,981 |
| Changes in: | | |
| Inventories | 2,530,434,890 | (8,001,353,180) |
| Trade and other receivables | (43,642,565,894) | 93,793,171,048 |
| Other receivables from operating activities | (13,525,738,194) | 47,237,270,791 |
| Trade and other payables | (21,999,177,514) | (247,322,811,402) |
| Other payables from operating activities | (52,016,981,114) | 76,421,609,704 |
| Defined benefit liability | (180,995,466) | - |
| Payments from plan assets | (11,524,029,215) | (10,375,860,909) |
| Current other provisions | (17,671,811,111) | (58,184,542,885) |
| Non-current other provisions | - | (8,243,190,130) |
| Decommissioning cost | (39,829,872,292) | (9,150,562,428) |
| | (197,860,735,910) | (123,826,269,391) |
| Cash generated from operating activities | 1,478,145,827,389 | 1,733,298,155,622 |
| Dividend received | 17,257,116,448 | 3,026,196,901 |
| Interest paid | (455,870,627,770) | (511,015,935,140) |
| Interest received | 76,762,229,700 | 110,942,172,488 |
| Income tax paid | (83,599,099,347) | (75,232,300,540) |
| **Net cash inflow from operating activities** | ₩ 1,032,695,446,420 | ₩ 1,261,018,289,331 |

## Korea National Oil Corporation and its subsidiaries
### Consolidated statements of cash flows
### Years ended December 31, 2019 and 2018

| *(in Korean won)* | 2019 | 2018 |
|---|---|---|
| **Cash flows from investing activities** | | |
| Acquisition of investments in associates and joint ventures | ₩ (9,056,586,845) | ₩ (43,614,436,930) |
| Proceeds from disposal of investments in associates and joint ventures | 267,540,221 | - |
| Proceeds from disposal of property, plant and equipment | 18,739,499,698 | 6,187,227,382 |
| Acquisition of property, plant and equipment | (503,201,535,631) | (598,040,058,789) |
| Proceeds from disposal of intangible assets other than goodwill | 234,864,044 | 17,129,470 |
| Acquisition of intangible assets other than goodwill | (48,046,370,391) | (27,259,002,207) |
| Proceeds from disposal of asset held for sale | - | 5,623,854,460 |
| Acquisition of non-current non-financial assets | (25,154,394,323) | (27,458,034,913) |
| Increase in long-term deposits received | (427,206,447) | (2,853,865,715) |
| Decrease in long-term deposits received | 366,209,999 | 3,074,997,407 |
| Increase in long-term and short-term financial assets | (35,213,926,547) | (149,791,630,224) |
| Decrease in long-term and short-term financial assets | 34,924,277,443 | 151,609,019,127 |
| Increase in long-term loans | (160,303,832,591) | (120,228,581,673) |
| Decrease of long-term loans | 169,712,525,315 | 27,536,759,178 |
| Increase in leasehold deposits provided | 452,263,177 | 46,364,265 |
| Decrease in leasehold deposits provided | (5,490,841) | - |
| Proceeds from disposal of financial assets measured at fair value through profit or loss | 286,522,167,729 | - |
| Acquisition of financial assets measured at fair value through profit or loss | (511,219,410,502) | - |
| Cash outflow from futures contracts, forward contracts, options contracts and swap contracts | (4,525,663,331) | - |
| **Net cash outflow from investing activities** | (785,935,069,823) | (775,150,259,162) |
| | | |
| **Cash flows from financing activities** | | |
| Proceeds from increase in share capital | 33,572,000,000 | 46,669,000,000 |
| Proceeds from short-term borrowings | 233,130,000,000 | 200,567,277,885 |
| Repayments of short-term borrowings | (188,835,300,000) | (409,580,272,904) |
| Repayments of current portion of long-term borrowings | (234,684,729,761) | - |
| Proceeds from issue of bond payables | 1,270,571,087,901 | 1,821,361,622,595 |
| Repayments of bond payables | (1,490,846,568,698) | (2,381,291,976,794) |
| Proceeds from long-term borrowings | 283,159,024,767 | 528,487,812,843 |
| Repayments of long-term borrowings | (164,291,102,004) | (276,917,859,571) |
| Dividends paid | - | (37,431,456,168) |
| Repayments of finance lease liability | (28,660,897,898) | (8,565,749,677) |
| Net cash outflow due to other distribution to non-controlling interests | (3,115,782,450) | (2,433,808,585) |
| **Net cash outflow from financing activities** | (290,002,268,143) | (519,135,410,376) |
| | | |
| **Net decrease in cash and cash equivalents before net effect of foreign exchange differences** | (43,241,891,546) | (33,267,380,207) |
| Effect of exchange rate fluctuations on cash held | (9,888,455,565) | 20,345,437,270 |
| **Net decrease in cash and cash equivalents** | (53,130,347,111) | (12,921,942,937) |
| **Cash and cash equivalents as at January 1 before deduction of government grants** | 778,197,858,919 | 791,119,801,856 |
| **Cash and cash equivalents as at December 31 before deduction of government grants** | 725,067,511,808 | 778,197,858,919 |
| Government grants | (11,100,917) | (77,710,041) |
| **Cash and cash equivalents as at December 31 after deduction of gorvernment grants** | ₩ 725,056,410,891 | ₩ 778,120,148,878 |

The accompanying notes are an integrated part of the consolidated financial statements.

## 1. Reporting Entity

### 1.1 Description of the Controlling Company

Korea National Oil Corporation (the "Parent Company") was incorporated on March 3, 1979 to engage in the development of oil fields, distribution of crude oil, maintenance of petroleum reserve stock and improvement of the petroleum distribution infrastructure under the Korea National Oil Corporation Act. The Parent Company's head office is located at 305, Jongga-Ro, Jung-Gu, Ulsan in Korea. The Parent Company also has 9 petroleum stockpile sites, 1 domestic gas field management office, and overseas subsidiaries and affiliates (Dana Petroleum Limited etc.) in other countries.

As of December 31, 2019, the Parent Company's share capital is ₩ 10,515,106 million, which is wholly owned by the government of the Republic of Korea.

### 1.2 Consolidated subsidiaries

Details of the consolidated subsidiaries as of December 31, 2019 and 2018, are as follows:

| | | | Ownership (%) | |
|---|---|---|---|---|
| Subsidiary name[1] | Principal activity | Country of incorporation | 2019 | 2018 |
| ANKOR E&P Holdings Corp. | Exploration and production ("E&P") | United States | 100.00 | 100.00 |
| Dana Petroleum Limited | E&P | United Kingdom | 100.00 | 100.00 |
| KNOC Eagle Ford Corporation | E&P | United States | 100.00 | 100.00 |
| Harvest Operations Corp. | E&P | Canada | 100.00 | 100.00 |
| KNOC Kaz B.V. | E&P | Netherlands | 100.00 | 100.00 |
| KNOC Sumatra Ltd. | E&P | Indonesia | 100.00 | 100.00 |
| KNOC Yemen Ltd. | E&P | Yemen | 60.00 | 60.00 |
| KNOC Trading Singapore Pte. Ltd. | Trading and Marketing | Singapore | 100.00 | 100.00 |
| KNOC Service | Facility maintenance | South Korea | 100.00 | - |

[1] including intermediate parent companies and their subsidiaries

### 1.2 Consolidated subsidiaries (cont'd)

Financial information for subsidiaries as of and for the years ended December 31, 2019 and 2018, is as follows:

| *(in Korean won)* | 2019 | | | |
|---|---|---|---|---|
| **Subsidiary name** | **Assets** | **Liabilities** | **Revenue** | **Profit (loss) for the year** |
| ANKOR E&P Holdings Corp. | ₩ 458,117,682,331 | ₩ 202,504,287,239 | ₩ 106,456,792,295 | ₩ 13,813,665,004 |
| Dana Petroleum Limited[1] | 2,908,747,825,043 | 1,683,849,806,839 | 1,277,072,045,730 | 150,443,248,159 |
| KNOC Eagle Ford Corporation | 2,713,454,703,094 | 585,691,411,095 | 359,524,834,189 | 74,762,599,776 |
| Harvest Operations Corp. | 2,681,161,729,641 | 3,175,755,374,775 | 310,288,485,225 | 2,388,119,656 |
| KNOC Kaz B.V.[1] | 787,546,928,913 | 573,650,640,634 | 279,684,849,272 | 86,474,382,872 |
| KNOC Sumatra Ltd.[2] | 684,824,806 | - | - | 60,194 |
| KNOC Yemen Ltd.[2] | 14,032,698 | - | - | - |
| KNOC Trading Singapore Pte. Ltd. | 483,723,398 | 46,222,595 | 411,183,003 | 54,405,175 |
| KNOC Service[3] | 476,754,496 | 10,869,739 | - | (34,115,230) |

[1] The amounts presented are after reflecting the difference between the fair value and the book value that arose during the business combination.

[2] The entity is in the process of liquidation as of December 31, 2019.

[3] The entity was newly established for the year ended December 31, 2019, and its main business is the maintenance of the headquarter building.

### 1.2 Consolidated subsidiaries (cont'd)

| *(in Korean won)* | 2018 | | | |
|---|---|---|---|---|
| **Subsidiary name** | **Assets** | **Liabilities** | **Revenue** | **Profit (loss) for the year** |
| ANKOR E&P Holdings Corp. | ₩ 466,124,841,808 | ₩ 229,614,170,528 | ₩ 121,844,800,383 | ₩ (37,798,751,382) |
| Dana Petroleum Limited[1] | 2,962,432,952,674 | 1,653,661,053,201 | 1,490,812,820,612 | 160,351,793,022 |
| KNOC Eagle Ford Corporation | 2,626,974,989,910 | 635,210,141,875 | 451,619,779,519 | 153,665,031,619 |
| Harvest Operations Corp. | 2,441,861,309,772 | 2,900,996,993,467 | 242,824,429,913 | (322,992,581,341) |
| KNOC Kaz B.V.[1] | 756,302,445,336 | 574,615,524,250 | 272,416,774,348 | (4,140,853,792) |
| KNOC Exploracao e Producao dePetro do Brasil Ltda.[2] | - | - | - | (9,861,934) |
| KNOC NEMONE Ltd.[2] | - | - | - | - |
| KNOC NEMTWO Ltd.[2] | - | - | - | - |
| KNOC Sumatra Ltd. | 661,284,994 | - | - | 160,765 |
| KNOC Yemen Ltd.[3] | 13,551,529 | - | - | - |
| KNOC Trading Singapore Pte. Ltd. | 375,068,367 | 10,189,368 | 357,813,786 | (44,294,843) |

[1] The amounts presented are after reflecting the difference between the fair value and the book value that arose during the business combination.
[2] The liquidation process has been completed as of December 31, 2018.
[3] The entity is in the process of liquidation as of December 31, 2018.

The changes in the scope of consolidation are as follows:

| | Changes | Reason |
|---|---|---|
| KNOC Service | Included in the consolidation | Newly established |

## 2. Basis of Preparation and Changes in Accounting Policies

### 2.1 Statement of compliance

The consolidated financial statements of the Korea National Oil Corporation (the Parent Company) and its subsidiaries (collectively referred to as the "Group") have been prepared in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions. Pursuant to its Article 2-5, the Group applies Korean International Financial Reporting Standards ("K-IFRS"), a standard adopted in accordance with International Financial Reporting Standards by the Korean Accounting Standards Board, for specific accounting treatments that are not prescribed by the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions. There are no accounts of which accounting treatment is materially different compared to K-IFRS in order for the Group to be in full compliance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions.

The accompanying consolidated financial statements have been translated into English from Korean financial statements. In the event of any differences in interpreting the financial statements or the independent auditor's report thereon, Korean version, which is used for regulatory reporting purposes, shall prevail.

*(a)* Basis of measurement

The consolidated financial statements have been prepared on the historical cost basis, except for the following material items in the statement of financial position:

- ✓ derivative financial instruments measured at fair value
- ✓ financial assets measured at fair value through profit or loss
- ✓ financial assets measured at fair value through other comprehensive income
- ✓ financial liabilities measured at fair value through profit or loss
- ✓ investments in associates and joint ventures measured at fair value
- ✓ net defined benefit liabilities recognized at the net of the total present value of defined benefit obligations less the fair value of plan assets

*(b)* Functional and presentation currency

Items included in the consolidated 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 accompanying consolidated financial statements are prepared in the Group's functional currency, the United States dollar, and presented in Korean won, the Group's presentation currency, for the financial reporting purposes in accordance with K-IFRS No. 1021, 'The Effects of Changes in Foreign Exchange Rates'. The Group is required to present its financial statements in Korean won in accordance with regulations in Korea.

Assets and liabilities for each statement of financial position presented (i.e. including comparatives) were translated at the closing rate at the date of that statement of financial position, income and expenses for each statement presenting profit or loss and other comprehensive income (i.e. including comparatives) were translated at the average exchange rates of the period and all resulting exchange differences were recognized in other comprehensive income.

### 2.2 New standards and interpretations not yet adopted by the Group

There are no certain new accounting standards and interpretations that have been published that are not mandatory for annual reporting period commencing January 1, 2019 and have not been early adopted by the Group.

### 2.3 New and amended standards adopted by the Group

The Group has applied the following standards and amendments for the first time for their annual reporting period commencing January 1, 2019.

*(a)* Enactment of K-IFRS 1116 *Leases*

The Group has changed its accounting policies by applying K-IFRS No. 1116 *Leases* on January 1, 2019, the date of initial application. This standard has replaced K-IFRS 1017 *Leases*, Interpretation 2104 *Determining whether an Arrangement contains a Lease*, Interpretation 2015 *Operating Leases-Incentives*, and Interpretation 2027 *Evaluating the Substance of Transactions Involving the Legal Form of a Lease*.

The Group applied the standard retrospectively in accordance with the transitional provisions in K-IFRS No. 1116. The Group apply the modified retrospective approach which recognizes the cumulative impact of initially applying the revenue standard as an adjustment to retained earnings (or other components of equity, as appropriate) as of January 1, 2019, the period of initial application. The Group does not restate any comparative information. See Note 2.4 *(g)* for further details on the impact of the application of the standard and the practical expedient.

*(b)* Amendment to K-IFRS 1109 *Financial Instruments*

The narrow-scope amendments made to K-IFRS *1109 Financial Instruments* enable entities to measure certain prepayable financial assets with negative compensation at amortized cost. When a modification of a financial liability measured at amortized cost that does not result in the derecognition, a modification gain or loss shall be recognized in profit or loss. The amendment does not have a material impact on the financial statements.

*(c)* Amendments to K-IFRS 1019 *Employee Benefits*

The amendments require that an entity shall calculate current service cost and net interest for the remainder of the reporting period after a plan amendment, curtailment or settlement based on updated actuarial assumptions from the date of the change. The amendments also require that a reduction in a surplus must be recognized in profit or loss even if that surplus was not previously recognized because of the impact of the asset ceiling. The amendment does not have a significant impact on the financial statements.

### 2.3 New and amended standards adopted by the Group (cont'd)

*(d) Amendments to K-IFRS 1028 Investments in Associates and Joint Ventures*

The amendments clarify that an entity shall apply K-IFRS 1109 to financial instruments in an associate or joint venture to which the equity method is not applied. These include long-term interests that, in substance, form part of the entity's net investment in an associate or joint venture. The amendment does not have a significant impact on the financial statements.

*(e)* Enactment to Interpretation of K-IFRS 2123 *Uncertainty over Income Tax Treatments*

The Interpretation explains how to recognize and measure deferred and current income tax assets and liabilities where there is uncertainty over a tax treatment, and includes guidance on how to determine whether each uncertain tax treatment is considered separately or together. It also presents examples of circumstances where a judgement or estimate is required to be reassessed. The amendment does not have a significant impact on the financial statements.

*(f)* Annual Improvements to K-IFRS 2015 – 2017 Cycle:

- Amendments to K-IFRS 1103 *Business Combination*

The amendments clarify that when a party to a joint arrangement obtains control of a business that is a joint operation, and had rights to the assets and obligations for the liabilities relating to that joint operation immediately before the acquisition date, the transaction is a business combination achieved in stages. In such cases, the acquirer shall remeasure its entire previously held interest in the joint operation. The amendment does not have a material impact on the financial statements.

- Amendments to K-IFRS 1111 *Joint Agreements*

The amendments clarify that when a party that participates in, but does not have joint control of, a joint operation might obtain joint control of the joint operation in which the activity of the joint operation constitutes a business. In such cases, previously held interests in the joint operation are not remeasured. The amendment does not have a material impact on the financial statements.

- Amendments to Paragraph 57A of K-IFRS 1012 *Income Tax*

The amendments clarify that the income tax consequences of dividends is more directly related to past transactions or events that generate distributable profits rather than distribution to its owners. The Group recognizes the income tax consequences of dividends in profit or loss, other comprehensive income or equity according to where the entity originally recognized those past transactions or events. The amendment does not have a material impact on the financial statements.

- Amendments to K-IFRS 1023 *Borrowing Costs*

The amendments clarify that if a specific borrowing remains outstanding after the related qualifying asset is ready for its subsequently intended use or sale, it becomes part of general borrowings. The amendment does not have a material impact on the financial statements.

### 2.3 New and amended standards adopted by the Group (cont'd)

*(g)* Effect of changes in accounting policy on financial statements

The effect of the change in accounting policies of the Group on the financial statements is described in 2.4 *(g)* Lease.

### 2.4 Significant accounting policies

The significant accounting policies applied by the Group in preparation of its consolidated financial statements are included below. The accounting policies set out below have been applied consistently to all periods presented in these consolidated financial statements, except for changes in accounting policies as explained in Note 2.3.

*(a)* Basis of consolidation

(i) Non-controlling interests

Non-controlling interests are measured at their proportionate share of the acquiree's identifiable net assets at the date of acquisition. Changes in the Group's interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

(ii) Subsidiaries

Subsidiaries are entities controlled by the Group. The Group controls an entity when it 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. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

(iii) Loss of control

When the Group loses control over a subsidiary, it derecognizes the assets and liabilities of the subsidiary, and any related non-controlling interests and other components of equity. Any resulting gain or loss is recognized in profit or loss. Any interest retained in the former subsidiary is measured at fair value when control is lost.

(iv) Interests in equity-accounted investees

The Group's interests in equity-accounted investees comprise interests in associates and a joint venture. Associates are those entities in which the Group has significant influence, but not control or joint control, over the financial and operating policies. A joint venture is an arrangement in which the Group has joint control, whereby the Group has rights to the net assets of the arrangement, rather than rights to its assets and obligations for its liabilities.

### 2.4 Significant accounting policies (cont'd)

Interests in associates and the joint venture are accounted for using the equity method. They are initially recognized at cost, which includes transaction costs. Subsequent to initial recognition, the consolidated financial statements include the Group's share of the profit or loss and OCI of equity-accounted investees, until the date on which significant influence or joint control ceases.

(v) Transactions eliminated on consolidation

Intra-group balances and transactions, and any unrealized income and expenses arising from intra-group transactions, are eliminated. Unrealized gains arising from transactions with equity-accounted investees are eliminated against the investment to the extent of the Group's interest in the investee. Unrealized losses are eliminated in the same way as unrealized gains, but only to the extent that there is no evidence of impairment.

*(b)* Business combination

The acquisition method of accounting is used to account for business combinations by the Group. The consideration transferred in a business combination is measured at the fair values, at the acquisition date (transfer date), of the assets transferred with controlling interest in the acquired entity, liabilities issued or borne by the Group to the former owners of the acquired entity and equity interests issued by the Group in exchange for control of the acquired entity. Acquisition-related costs are generally recognized in profit or loss as incurred.

The identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date except that:

- deferred tax assets and liabilities and assets and liabilities related to employ benefit arrangements are recognized and measured in accordance with K-IFRS 1012 *Income Tax* and K-IFRS 1019 *Employee Benefits*, respectively;

- liabilities and equity instruments incurred due to replacing the share-based payment of the acquired entity with the share-based payment of the Group are measured in accordance with K-IFRS 1102 *Share-based Payment*; and

- non-current assets (or disposal groups comprising assets and liabilities) classified as available-for-sale assets pursuant to K-IFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations* are measured in accordance with K-IFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations*.

### 2.4 Significant accounting policies (cont'd)

Goodwill is measured as the excess of the sum of the consideration transferred, the amount of any non-controlling interests in the acquired entity, and the fair value of the Group's previously held equity interest in the acquired entity (if any) over the net of the acquisition-date amounts of the identifiable assets acquired and the liabilities assumed. If, after reassessment, the net of the acquisition-date amounts of the identifiable assets acquired and liabilities assumed exceeds the sum of the consideration transferred, the amount of any non-controlling interest in the acquired entity and the fair value of the Group's previously held interest in the acquire (if any), the excess is recognized immediately in profit or loss as a bargain purchase gain.

Non-controlling interests that present ownership interests and entitle their holders to a proportionate share of the entity's net assets in the event of liquidation may be initially measured either at fair value or at the non-controlling interests' proportionate share of the recognized amounts of the acquired entity's identifiable net assets. The choice of measurement basis is made on a transaction-by-transaction basis. Other types of non-controlling interests are measured at fair value or, when applicable, on other basis specified in K-IFRS.

The Group's consideration transferred includes the assets and liabilities on a contingent consideration agreement. The contingent consideration is measured at its fair value at the acquisition date and is included as a part of the consideration transferred in a business combination. Changes in the fair value of the contingent consideration that qualify as measurement period adjustments are adjusted retrospectively, with corresponding adjustments against goodwill. Measurement period adjustments are the adjustments resulted from obtaining additional information on any fact and circumstance that existed at the acquisition date during the 'adjustment period (which cannot exceed one year from the acquisition date)'.

The subsequent accounting for changes in fair value of the contingent consideration, which does qualify as measurement period adjustments, depends on how the contingent consideration is classified. Contingent consideration that is classified as equity is not remeasured at the subsequent reporting dates and its subsequent settlement is accounted for within equity. Contingent consideration that is classified as an asset or a liability is remeasured at the subsequent reporting dates in accordance with K-IFRS 1109 *Financial Instruments* or K-IFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets*, as appropriate, with the corresponding gain or loss being recognized in profit or loss.

When a business combination is achieved in stages, the Group's previously held equity interest in the acquired entity is remeasured at fair value at the acquisition date (i.e., the date when the Group obtains control) and the resulting gain or loss, if any, is recognized in profit or loss. The amounts arising from interests in the acquisition prior to the acquisition date that have previously been recognized in other comprehensive income are reclassified to profit or loss where such treatment would be appropriate if that interests were disposed of.

**2.4 Significant accounting policies (cont'd)**

If the initial recognition of the business combination has not been completed until the end of the reporting period in which the combination occurs, the Group reports provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted during the measurement period (see above), or additional assets or liabilities are recognized, to reflect new information obtained on the facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognized at that date.

*(c)* Investments in associates

An associate is an entity that is not a subsidiary or joint venture of the Group, and over which the Group has significant influence. The Group has a significant influence over an associate when:

- the Group participates in the Board of Directors or such decision-making bodies of the investee;
- the Group participates in making decisions on policies including decisions on dividend payment and other distribution;
- the Group has a material transaction with the investee;
- the Group has a mutual interaction of management with the investee; and
- the Group shares essential information on technology with the investee.

The results and assets and liabilities of associates are incorporated in these consolidated financial statements using the equity method of accounting, except when the investment is classified as held for sale, in which case it is accounted for in accordance with K-IFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations*. Under the equity method, an investment in an associate is initially recognized in the consolidated statement of financial position at cost and adjusted thereafter to recognize the Parent Company's share of the profit or loss and other comprehensive income of the associate. When the Parent Company's share of losses of an associate exceeds the Parent Company's interest in that associate (which includes any long-term interests that, in substance, form part of the Parent Company's net investment in the associate), the Parent Company discontinues recognizing its share of further losses. Additional losses are recognized only to the extent that the Parent Company has incurred legal or constructive obligations or made payments on behalf of the associate.

Any excess of the cost of acquisition over the Parent Company's share of the net fair value of the identifiable assets, liabilities and contingent liabilities of an associate recognized at the date of acquisition is recognized as goodwill, which is included within the carrying amount of the investment. Any excess of the Parent Company's share of the net fair value of the identifiable assets, liabilities and contingent liabilities over the cost of acquisition, after reassessment, is recognized immediately in profit or loss.

**2.4 Significant accounting policies (cont'd)**

The requirements of K-IFRS 1109 *Financial Instruments* are applied to determine whether it is necessary to recognize any impairment loss with respect to the Group's investment in an associate. When necessary, the entire carrying amount of the investment as a single asset (including goodwill) is tested for impairment in accordance with K-IFRS 1036 *Impairment of Assets* by comparing its recoverable amount (higher of value in use and fair value less costs to sell) with its carrying amount, and any impairment loss recognized forms part of the carrying amount of the investment. Any reversal of that impairment loss is recognized in accordance with K-IFRS 1036 to the extent that the recoverable amount of the investment subsequently increases.

When an entity has transactions with an associate of the Group, profits and losses resulting from the transactions with the associate are recognized in the Parent Company's consolidated financial statements only to the extent of interests in the associate that are not related to the Group.

*(d)* Investments in joint ventures

A joint arrangement is an arrangement for the Group and other parties to perform economic activities that are subject to a joint control. A joint control requires a unanimous consent of the parties sharing the control on the decisions related to the major financial and operational policies on the joint arrangement.

In case of that the Group performs the economic activities in accordance with the joint arrangement, the Group's share of a joint venture and the Group's share of the liabilities that the Group incurred jointly with other parties are recognized in the joint venture's financial statement and classified by nature. The liabilities and expenses incurred directly in relation to the Group's share of a joint venture are recognized on accrual basis. The Group recognizes its share of revenues incurred due to sales or use of its share of the joint venture's business results and the its share of costs incurred by the joint venture when it is highly possible that the economic benefits related to such transactions will flow into or out and the amounts can be measured reliably.

The Group's share of a joint venture is incorporated in the consolidated financial statements using the equity method of accounting, except when the investment share is classified as held for sale, in which case it is accounted for in accordance with K-IFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations*.

Goodwill arising from acquiring a share of a joint venture is recognized in accordance with the Group's accounting policies on goodwill arising from a business combination. When the Group has a transaction with a joint venture, a gain or loss incurred from the transaction is recognized on the Group's financial statement only for the amounts that are the share of the joint venture not related to the Group.

### 2.4 Significant accounting policies (cont'd)

*(e)* Goodwill

Goodwill arising on an acquisition of a business is carried at cost as established at the date of acquisition of the business, less accumulated impairment losses, if any. For impairment testing, goodwill is allocated to cash-generating units (or groups of cash-generating units) of the Group that were expected, at the date of acquisition, to benefit from the synergies of the combination giving rise to the goodwill.

A cash-generating unit to which goodwill has been allocated is tested for impairment annually or more frequently when there is an indication that the unit may be impaired. If the recoverable amount of the cash-generating unit is less than its carrying amount, the impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the unit and then to the other assets of the unit on a pro rata basis based on the carrying amount of each asset in the unit. Any impairment loss for goodwill is recognized directly in profit or loss in the consolidated statement of comprehensive income. An impairment loss recognized for goodwill is not reversed in subsequent periods.

On disposal of the relevant cash-generating unit, the allocated amount of goodwill is included in the determination of the profit or loss on disposal. The Group's accounting policies with respect to the goodwill arising from acquisition of an affiliate are stated in the Note 2.4 (b).

*(f)* Revenue

Under the new standard, K-IFRS No. 1115, the Group recognizes revenue base on the five-step approach (Step 1: Identify the contract(s) with a customer, Step 2: Identify the performance obligations in the contract, Step 3: Determine the transaction price, Step 4: Allocate the transaction price to the performance obligations in the contract, Step 5: Recognize revenue when the entity satisfied a performance obligation) is applied for all types of contracts or agreements. Revenue is measured based on the consideration defined by the contracts with customers, and the amount collected as an agent of a third party is excluded. In addition, the Group recognizes revenue when the control over the goods or service is transferred to the customer.

i) Sale of goods

The contracts which the Group entered with customers for the sale of crude oil and others contain a single performance obligation. Depending on sales contract with customers, performance obligation can be distinguished as 'performance obligation satisfied at a point in time' and 'performance obligation satisfied over time'. In the case of 'performance obligation satisfied at a point in time', the Group has concluded that revenue to be recognized at the time of delivery because control of goods is transferred at a point in time of delivery. Also, in the case of 'performance obligation satisfied over time', although revenue should be recognized by measuring progress towards complete satisfaction of a performance obligation, the Group has applied practical expedient allowed under K-IFRS No. 1115 in relation to measuring progress.

**2.4 Significant accounting policies (cont'd)**

ii) Rendering of services

The Group provides services such as lending stockpile oil resources, storing oil resources, and leasing related facilities. Service contract contains a large number of performance obligations whose promises with customers are distinct within the context of the contract and separately identifiable. The Group has determined that service contract contains 'performance obligation satisfied over time', and applied practical expedient of measuring progress allowed under K-IFRS No. 1115.

*(g)* Leases

The Group has applied K-IFRS No. 1116 *Leases* from January 1, 2019.

In accordance with the amendment of the standard, lessee applies a single lease model and recognizes assets and liabilities for all lease which lease term is over 12 months and underlying assets are not low value assets. A lessee is required to recognize a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments.

At inception of a contract, the Group shall assess whether the contract is, or contains, a lease. Also, at the date of initial application, the Group shall assess whether the contract is, or contains, a lease in accordance with the standard. However, the Group will not need to reassess all contracts with applying the practical expedient because the entity elected to apply the practical expedient only to contracts entered before the date of initial application.

For a contract that is, or contains, a lease, the Group shall account for each lease component within the contract as a lease separately from non-lease components of the contract.

The lessor accounting has not significantly changed. A lease in which the risks and rewards of ownership of the underlying asset are not transferred to the Group is classified as a finance lease, and leases in which the risks and rewards of ownership of the underlying asset are not transferred to the Group are classified as an operating lease.

i) The Group as a lessor

The Group recognizes the amount equivalent to the net investment in the leases as finance lease receivables. Uncollected part of net investment is recognized as interest income applying the effective interest rate.

Lease income from operating leases is recognized in income on a straight-line basis over the lease term. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the lease asset and recognized as expense over the lease term on the same basis as lease income.

### 2.4 Significant accounting policies (cont'd)

ii) The Group as a lessee

For leases previously classified as 'finance leases', the Group recognized the carrying amount of the lease asset and lease liability as the carrying amount of the right-of-use asset and the lease liability at the date of initial application.

On adoption of K-IFRS No. 1116, the Group changed the leases accounting that was not accounted for in the financial statements in relation to leases which had previously been classified as 'operating leases' under the principles of K-IFRS 1017, and recognized the right-of-use asset and the lease liability at the date of initial application.

A lessee measured the liabilities at the present value of the remaining lease payments, discounted using the lessee's incremental borrowing rate at the date of initial application. The lessee's incremental borrowing rate applied to the lease liabilities on January 1st, 2019 was 3.55%

| *(in Korean won)* | | 2019 |
|---|---|---|
| Operating lease commitments as of December 31, 2018 | ₩ | 259,640,003,220 |
| Add: Discounted using the lessee's incremental borrowing rate of at the date of initial application (January 1st, 2019) | | 209,507,832,455 |
| Add: finance lease liabilities recognized as of December 31, 2018 | | 222,267,254,416 |
| Less: application of exemption on low-value underlying leases | | (126,392,134) |
| Less: application of exemption on leases with lease term that is within 12 months at the turning point | | (8,684,301,018) |
| **Lease liability recognized as of January 1, 2019** | ₩ | 422,964,393,719 |

When the Group has used the practical expedients to estimate the remaining lease duration, the Group applies a hindsight on the possibility to exercise where the contract contains options to extend or terminate the lease.

The Group recognized right-of-use asset at the date of initial application in relation to leases which had previously been classified as 'operating leases' under the adoption of K-IFRS 1017. The lessee recognized the amount equal to the lease liability as a right-of use asset and adjusted the amount of any prepaid or accrued lease payments relating to that lease recognized in the consolidated statement of financial position immediately before transition.

### 2.4 Significant accounting policies (cont'd)

When calculating the amount of right-of-use assets at the date of initial application by using cumulative effect cumulative reconciliation action, the Group has used the following practical expedients:

- the accounting for operating leases with a remaining lease term of less than 12 months as of January 1, 2019, as short-term leases;
- the exclusion of initial direct costs for the measurement of the right-of-use asset at the date of initial application; and
- the use of hindsight in determining the lease term where the contract contains options to extend or terminate the lease.

iii) New accounting policies

The new accounting policies with implementation of K-IFRS No. 1116 for their annual reporting period commencing January 1, 2019 are as follows.

- Right-of-use asset

The Group recognized a right-of-use asset at the commencement date. Right-of-use assets are recognized at its cost, and carried at cost less accumulated amortization and accumulated impairment losses, adjusted in the event of a remeasurement of the lease liability.

The cost of the right-of-use assets includes the amount recognized of the lease liability and initial direct costs incurred, and the prepaid lease payments or lease incentive paid before commencement date are deducted. As for lease assets, if there is no reasonable certainty that the Group will obtain ownership at the end of the lease term, the asset is fully depreciated over the shorter of the asset's useful life and the lease term. The Group performs an assessment for impairment of right-of-use assets.

- Lease liability

The Group measured the lease liability at the present value of the lease payments at commencement date. Lease liabilities include the net present value of the following lease payments:

- fixed payments (including in-substance fixed payments), less any lease incentives receivable;
- variable lease payment that are based on an index or a rate, initially measured using the index or rate as of the commencement date;
- amounts expected to be payable by the Group (the lessee) under residual value guarantees;
- the exercise price of a purchase option if the Group (the lessee) is reasonably certain to exercise that option; and

### 2.4 Significant accounting policies (cont'd)

- payments of penalties for terminating the lease, if the lease term reflects the Group (the lessee) exercising that option.

Variable lease payments, which do not depend on the index or a rate, are recognized as an expense as incurred.

When calculating the present value of the lease payments, the lessee's incremental borrowing rate is used at commencement date if that rate cannot be determined. After the commencement date, the Group increases the carrying amount of the lease liability by reflecting the interest on the lease liability and reduces the carrying amount of the lease liability by reflecting the lease payments. In addition, the Group remeasures the lease liability to reflect changes in leases, changes in fixed payments, changes in lease terms, or changes in the valuation of underlying asset that option.

- Short-term leases and leases of low-value assets

The lessee may elect not to apply the requirements to short-term lease (a lease term of 12 months or less at the commencement date, and does not exercise option) and low value real estate and tools and fixtures (underlying assets below $ 5,000). Payments of short-term leases and leases of low-value assets are recognized on a straight-line basis as an expense over the lease term.

- Critical judgements in determining the lease term where the contract contains options to extend the lease

Extension options or periods after termination options are included in the lease term if the lease is reasonably certain to be extended or not terminated. The Group applies these judgments when assessing whether the exercise of these options is reasonably certain. The Group considers all facts and circumstances that create an economic incentive to exercise an extension option.

After the commencement date, the lease term is reassessed if a significant event or a significant change in circumstances occurs, which affects the exercise (or not exercised) of the option (e.g. changes in business strategy), and that is within the control of the lessee.

The carrying amount of the Group's right-of-use asset and lease liability and changes during the reporting period are explained in Note 23.

### 2.4 Significant accounting policies (cont'd)

The impact of the adoption of K-IFRS No. 1116 as of January 1, 2019, at the date of initial application, on the consolidate statement of financial position is as follows:

| *(in Korean won)* | | 2019 |
|---|---|---|
| Assets | | |
| Finance lease receivables | ₩ | 3,552,708,533 |
| Finance lease asset[1] | | (217,840,322,869) |
| Right-of-use assets[1] | | 419,659,531,909 |
| Prepaid expenses | | (8,981,215,948) |
| Leasehold deposits provided at present value discount | | (7,075,471) |
| Total assets | ₩ | 196,383,626,154 |
| Liabilities | | |
| Lease liabilities | ₩ | 200,697,139,303 |
| Provisions | | (4,313,513,149) |
| Total liabilities | ₩ | 196,383,626,154 |
| Effect of adjustments on equity | | |
| Retained earnings | ₩ | - |
| Total equity | ₩ | - |

[1] In accordance with K-IFRS No. 1017, the previously recognized finance lease asset of ₩ 217,840,322,869 for lease contracts were reclassified into right-of-use assets.

*(h)* Foreign currencies

Transactions in foreign currencies are translated to the respective functional currencies of the Group entities at exchange rates at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are retranslated to the functional currency using the reporting date's exchange rate. Non-monetary assets and liabilities denominated in foreign currencies that are measured at fair value are retranslated to the functional currency at the exchange rate at the date that the fair value was determined. Non-monetary assets and liabilities denominated in foreign currencies that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the dates of the transactions.

Foreign currency differences arising on retranslation are recognized in profit or loss, except for differences arising on the retranslation of available-for-sale equity instruments, a financial liability designated as a hedge of the net investment in a foreign operation, or qualifying cash flow hedges, which are recognized in other comprehensive income. When gains or losses on non-monetary items are recognized in other comprehensive income, exchange components of those gains or losses are recognized in other comprehensive income. Conversely, when gains or losses on non-monetary items are recognized in profit or loss, exchange components of those gains or losses are recognized in profit or loss.

### 2.4 Significant accounting policies (cont'd)

*(i)* Borrowing costs

The Group capitalizes borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset as part of the cost of that asset. Other borrowing costs are recognized in expense as incurred. A qualifying asset is an asset that requires a substantial period of time to get ready for its intended use or sale. Financial assets and inventories that are manufactured or otherwise produced over a short period of time are not qualifying assets. Assets that are ready for their intended use or sale when acquired are not qualifying assets.

To the extent that the Group borrows funds specifically for the purpose of obtaining a qualifying asset, the Group determines the amount of borrowing costs eligible for capitalization as the actual borrowing costs incurred on that borrowing during the period less any investment income on the temporary investment of those borrowings. To the extent that the Group borrows funds generally and uses them for the purpose of obtaining a qualifying asset, the Group shall determine the amount of borrowing costs eligible for capitalization by applying a capitalization rate to the expenditures on that asset. The capitalization rate shall be the weighted average of the borrowing costs applicable to the borrowings of the Group that are outstanding during the period, other than borrowings made specifically for the purpose of obtaining a qualifying asset. The amount of borrowing costs that the Group capitalizes during a period shall not exceed the amount of borrowing costs incurred during that period.

*(j)* Government grants

Government grants are not recognized until there is reasonable assurance that the Group complies with the conditions relating to the grants and that the grants will be received. The benefits of government grants with interest rates lower than the market interest rate are treated as government grants. The difference between the fair value of government grants based on the market interest rate and the consideration received are accounted for as government grants.

Government grants related to assets are presented as a deduction of related assets. The related government grants are recognized as profit or loss in a way that decreases the depreciation over the expected lives of the related assets.

Government grants related to income are recognized in profit or loss on a systematic basis over the period to match with the related subsidized expenses. Government grants that are receivable as compensation for expenses or losses already incurred or for the purpose of giving immediate financial support to the Group with no future related costs are recognized in profit or loss in the period in which they become receivable.

### 2.4 Significant accounting policies (cont'd)

*(k)* Employee benefits

i) Short-term employee benefits

Short-term employee benefits are employee benefits that are due to be settled within 12 months after the end of the period in which the employees render the related service. When an employee has rendered service to the Group during an accounting period, the Group recognizes the undiscounted amount of short-term employee benefits expected to be paid in exchange for that service.

ii) Retirement benefits: defined contribution plans

When an employee has rendered service to the Group during a period, the Group recognizes the contribution payable to a defined contribution plan in exchange for that service as a liability (accrued expense), after deducting any contribution already paid. If the contribution already paid exceeds the contribution due for service before the end of the reporting period, the Group recognizes that excess as an asset (prepaid expense) to the extent that the prepayment will lead to a reduction in future payments or a cash refund.

A defined benefit plan is a post-employment benefit plan other than a defined contribution plan. The Group's net obligation in respect of defined benefit plans is calculated by estimating the amount of future benefit that employees have earned in return for their service in the current and prior periods; that benefit is discounted to determine its present value. The fair value of plan assets is deducted. The calculation is performed annually by an independent actuary using the projected unit credit method.

The discount rate is the yield at the reporting date on high-quality corporate bonds that have maturity dates approximating the terms of the Group's obligations and that are denominated in the same currency in which the benefits are expected to be paid. The Group recognizes all actuarial gains and losses arising from actuarial assumption changes and experiential adjustments in other comprehensive income when incurred.

Re-measurements of net defined benefit liabilities, which comprise actuarial gains and losses, the return on plan assets (excluding interest) and the effect of the asset ceiling (if any, excluding interest), are recognized immediately in other comprehensive income. The Group determines the net interest expense (income) on the net defined benefit liability (asset) for the period by applying the discount rate used to measure the defined benefit obligation at the beginning of the annual period to the then-net defined benefit liability (asset), taking into account any changes in the net defined benefit liability (asset) during the period as a result of contributions and benefit payments, net interest expense and other expenses related to defined benefit plans are recognized in profit or loss.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss in curtailment is recognized immediately in profit or loss. The Group recognizes gains and losses on the settlement of a defined benefit plan when the settlement occurs.

### 2.4 Significant accounting policies (cont'd)

*(l)* Income taxes

Income tax expense comprises current and deferred tax. Current tax and deferred tax are recognized in profit or loss except to the extent that it relates to a business combination, or items recognized directly in equity or in other comprehensive income.

i) Current tax

Current tax is the expected tax payable or receivable on the taxable profit or loss for the year, using tax rates enacted or substantively enacted at the end of the reporting period and any adjustment to tax payable in respect of previous years. The taxable profit is different from the accounting profit for the period since the taxable profit is calculated excluding the temporary differences, which will be taxable or deductible in determining taxable profit (tax loss) of future periods, and non-taxable or non-deductible items from the accounting profit.

ii) Deferred tax

The measurement of deferred tax assets and deferred tax liabilities reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities. The Group recognizes a deferred tax liability for all taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures, except to the extent that the Group is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, the Group recognizes a deferred tax asset for all deductible temporary differences to the extent that it is probable that the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

The carrying amount of a deferred tax asset is reviewed at the end of each reporting period and reduces the carrying amount to the extent that it is no longer probable that sufficient taxable profit will be available to allow the benefit of part or all of that deferred tax asset to be utilized. Deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the period when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

Deferred tax assets and liabilities are offset only if there is a legally enforceable right to offset the related current tax liabilities and assets, and they relate to income taxes levied by the same tax authority and they intend to settle current tax liabilities and assets on a net basis.

### 2.4 Significant accounting policies (cont'd)

*(m)* Property, plant and equipment

Property, plant and equipment are initially measured at cost and after initial recognition, are carried at cost less accumulated depreciation and accumulated impairment losses.

The cost of property, plant and equipment includes expenditures arising directly from the construction or acquisition of the asset, any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management and the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

The following costs are capitalized as oil and gas properties.

- the costs incurred in development stage for constructing facilities and drilling wells for production
- the costs of acquiring production areas or fields with proved reserves
- the construction costs and other expenditures for initiating production
- the estimated costs for decommissioning

Additionally, the Group depreciates the acquisition costs of oil and gas properties which are aggregated on an area-by-area basis or field-by-field basis. For the costs of oil and gas properties which are aggregated on an area-by-area basis, the Group depreciates the acquisition costs using proved reserves as the total estimated production when applying the unit-of-production depreciation method.

For the costs of oil and gas properties which are aggregated on a field-by-field basis, the Group depreciates the acquisition costs using proved developed reserves as the total estimated production when applying the unit-of-production depreciation method.

Costs related to undeveloped oil and gas properties are not immediately included in the depletable pool of developed assets but are transferred to the depletable pool as the reserves become proved (for area-by-area basis) or developed (for field-by-filed basis) through drilling activities.

Subsequent costs are recognized in the carrying amount of property, plant and equipment at cost or, if appropriate, as separated items if it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognized. The costs of the day-to-day servicing are recognized in profit or loss as incurred.

Property, plant and equipment, except for land and oil and gas properties, are depreciated on a straight-line basis over estimated useful lives that appropriately reflect the pattern in which the asset's future economic benefits are expected to be consumed.

**2.4 Significant accounting policies (cont'd)**

| | **Useful lives** |
|---|---|
| Buildings | 20 - 40 years |
| Structures | 20 - 40 |
| Machinery | 5 - 20 |
| Tools and fixtures | 5 |
| Vehicles | 5 |
| Right-of-use assets | 1~40 |
| Others | 5~10 |

Gains and losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of property, plant and equipment and are recognized in profit or loss. Depreciation methods, useful lives and residual values are reviewed at the end of each reporting date and adjusted, if appropriate. The change is accounted for as a change in an accounting estimate.

*(n)* Intangible assets other than goodwill

Intangible assets other than goodwill with finite useful lives acquired separately are carried at cost. Intangible assets other than goodwill acquired in a business combination are initially recognized at their fair value at the acquisition date (which is regarded as their cost). Subsequent to initial recognition, intangible assets acquired in a business combination are reported at cost less accumulated amortization and accumulated impairment losses.

Prior to acquiring the legal rights to explore an area, all costs related to exploration and evaluation of an area are charged directly to the statement of comprehensive loss. Once the legal rights to explore are acquired, all costs associated with acquisition of exploration rights, geological, geophysical and geographical research, drilling costs and evaluation of technical and commercial viability of economic production are capitalized as exploration and evaluation assets. All such costs are subject to review for impairment when facts and circumstances suggest that the carrying amount of the assets exceeds their recoverable amount. When technical feasibility and commercial viability are established, the relevant expenditure is transferred to oil and gas properties after impairment is assessed and any resulting impairment loss is recognized. If no potentially commercial petroleum is discovered from exploration drilling, the relating exploration and evaluation assets are written off through the statement of comprehensive loss.

### 2.4 Significant accounting policies (cont'd)

The useful lives of intangible assets other than goodwill are assessed as either finite or indefinite. Intangible assets other than goodwill with finite lives are amortized over the useful economic life and assessed for impairment whenever there is an indication that the intangible asset other than goodwill may be impaired. The amortization period and the amortization method for intangible assets other than goodwill with a finite useful lives are reviewed at least each financial year end. Changes in the expected useful life or the expected pattern of consumption of future economic benefits embodied in the asset is accounted for by changing the amortization period or method, as appropriate, and are treated as changes in accounting estimates. The amortization expense on intangible assets other than goodwill with finite lives is recognized in the statement of comprehensive income in the expense category consistent with the function of the intangible asset other than goodwill.

When future economic benefits are not expected through the use or disposition of intangible assets other than goodwill, the Group removes the book value of the assets from the consolidated statements of financial position. The difference between the amounts received from the disposal and the book values of assets is recognized in profit or loss when the assets are removed.

*(o)* Oil stockpiles

The Group stockpiles crude oil and petroleum products to stabilize domestic demand and market prices and classifies those assets as oil stockpiles (non-current non-financial assets) of which the cost is determined using the moving-average method. The Group performs annual impairment test for oil stockpiles.

*(p)* Impairment of non-financial assets

The carrying amounts of the Group's non-financial assets, other than assets arising from employee benefits, inventories, deferred tax assets and non-current assets held for sale, are reviewed at the end of the reporting period to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. Intangible assets other than goodwill that have indefinite useful lives or that are not yet available for use, irrespective of whether there is any indication of impairment, are tested for impairment annually by comparing their recoverable amount to their carrying amount.

For impairment testing, assets are grouped together into the smallest group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets ("CGUs"). The recoverable amount of an asset or CGU is the greater of its value in use and its fair value less costs to sell. The value in use is estimated by applying a pre-tax discount rate that reflect current market assessments of the time value of money and the risks specific to the asset or CGU for which estimated future cash flows have not been adjusted, to the estimated future cash flows expected to be generated by the asset or CGU.

**2.4 Significant accounting policies (cont'd)**

An impairment loss is recognized in profit or loss if the carrying amount of an asset or a CGU exceeds its recoverable amount. When reversing the impairment loss in prior periods, the carrying amount of an asset shall be lower of the modified recoverable amount and the carrying amount that would have been determined had no impairment loss been recognized for the asset in prior periods. Reversed amount should be accounted as profit or loss immediately.

*(q)* Inventories

Inventories are measured at the lower of cost and net realizable value. The cost of inventories is based on the moving-weighted average method, and includes expenditures for acquiring the inventories, production or conversion costs and other costs incurred in bringing them to their existing location and condition. Net realizable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and selling expenses.

The amount of any write-down of inventories to net realizable value and all losses of inventories are recognized as an expense in the period the write-down or loss occurs. The amount of any reversal of any write-down of inventories, arising from an increase in net realizable value, are recognized as a reduction in the amount of inventories recognized as an expense in the period in which the reversal occurs.

*(r)* Provisions

Provisions are recognized when the Group has a present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

The risks and uncertainties that inevitably surround many events and circumstances are taken into account in reaching the best estimate of a provision. Where the effect of the time value of money is material, provisions are determined at the present value of the expected future cash flows.

Where some or all of the expenditures required to settle a provision are expected to be reimbursed by another party, the reimbursement shall be recognized when, and only when, it is virtually certain that reimbursement will be received if the entity settles the obligation. The reimbursement shall be treated as a separated asset.

Provisions are reviewed at the end of each reporting period and adjusted to reflect the current best estimates. If it is no longer probable that an outflow of resources embodying economic benefits will be required to settle the obligation, the provision is reversed.

### 2.4 Significant accounting policies (cont'd)

- Restoration costs

When there is a legal or contractual obligation for dismantling, removing facilities and restoring sites on which they are located to their original condition at the end of the useful lives of the facilities, the present value of the estimated future restoration costs are capitalized at the acquisition date as additions to the cost of oil and gas properties and are accounted for as a provision. The Group subsequently depreciates the restoration costs using the unit-of-production method and the difference between estimated restoration costs and their present value is charged to current operations by applying the effective-interest-rate method.

- Employee incentive

Based on the annual management performance, the Ministry of Strategy and Finance conducts an institutional evaluation and pays incentive based on the evaluation. Performance incentives are reasonably estimated in accordance with K-IFRS No. 1037 and presented as provisions for employee benefits.

*(s)* Financial assets

*i) Classification*

From January 1, 2019, the Group classifies its financial assets in the following measurement categories:

- those to be measured at fair value through profit or loss;
- those to be measured at fair value through other comprehensive income; and
- those to be measured at amortized cost.

The classification depends on the Group's business model for managing the financial assets and the contractual terms of the cash flows.

For financial assets measured at fair value, gains and losses will either be recorded in profit or loss or other comprehensive income. For investments in debt instruments, this will depend on the business model in which the investment is held. The Group reclassifies debt investments when, and only when its business model for managing those assets changes.

For investments in equity instruments that are not held for trading, this will depend on whether the Group has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income.

### 2.4 Significant accounting policies (cont'd)

*ii) Measurement*

At initial recognition, the Group measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss.

Financial assets with embedded derivatives are considered in their entirety when determining whether their cash flows are solely payment of principal and interest.

*A. Debt instruments*

Subsequent measurement of debt instruments depends on the Group's business model for managing the asset and the cash flow characteristics of the asset. The Group classifies its debt instruments into one of the following three measurement categories:

- Amortized cost: Assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortized cost. A gain or loss on a debt investment that is subsequently measured at amortized cost and is not part of a hedging relationship is recognized in profit or loss when the asset is derecognized or impaired. Interest income from these financial assets is included in 'finance income' using the effective interest rate method.

- Fair value through other comprehensive income: Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely payments of principal and interest, are measured at fair value through other comprehensive income. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment loss (reversal of impairment loss), interest income and foreign exchange gains and losses which are recognized in profit or loss. When the financial asset is derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss. Interest income from these financial assets is included in 'finance income' using the effective interest rate method. Foreign exchange gains and losses are presented in 'finance income or cost' and impairment losses are presented in 'finance cost'.

- Fair value through profit or loss: Assets that do not meet the criteria for amortized cost or fair value through other comprehensive income are measured at fair value through profit or loss. A gain or loss on a debt investment that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognized in profit or loss and presented net in the statement of profit or loss within 'finance income or cost' in the year in which it arises.

### 2.4 Significant accounting policies (cont'd)

*B. Equity instruments*

The Group subsequently measures all equity investments at fair value. Where the Group's management has elected to present fair value gains and losses on equity investments, which held for long-term investment or strategic purpose, in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividend income from such investments continue to be recognized in profit or loss as 'finance income' when the right to receive payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'finance income or cost' in the statement of profit or loss as applicable. Impairment loss (reversal of impairment loss) on equity investments measured at fair value through other comprehensive income are not reported separately from other changes in fair value.

*(iii) Impairment*

In respect of the impairment of financial assets, the Group accounts for expected credit losses at each reporting date, and changes in those expected credit losses to reflect changes in credit risk since initial recognition. That is, it is not necessary for a credit event to have occurred before credit losses are recognized.

The Group shall recognize expected credit losses as an allowance for bad debts on i) debt instruments subsequently measured at amortized cost or at fair value through other comprehensive income; ii) lease receivables; iii) contract assets; and iv) loan commitments and financial guarantee contracts under K-IFRS 1109.

At each reporting date, the Group measures the loss allowance for a financial instrument at an amount equal to the lifetime expected credit losses if the credit risk on that financial instrument has increased significantly or the credit has been impaired upon the acquisition of assets since initial recognition. If, at the reporting date, the credit risk on a financial instrument has not increased significantly since initial recognition (except for financial assets whose credit has been impaired upon the acquisition), the Group measures the loss allowance for that financial instrument at an amount equal to 12-month expected credit losses.

Under K-IFRS 1109, for trade receivables, contract assets and lease receivables that contain a significant financing component, the Group measures the loss allowance using the simplified approach at an amount equal to lifetime expected credit losses.

-Trade receivables

The Group applies the simplified approach to measure the loss allowance at an amount equal to lifetime expected credit losses for trade receivables.

### 2.4 Significant accounting policies (cont'd)

- Debt investments

Debt investments at amortized cost and those at fair value through other comprehensive income are considered to be low risk, and thus the provision for impairment is determined as 12 months expected credit losses.

*(iv) Derecognition*

The Group derecognizes a financial asset only when the contractual rights to the cash flows from the asset expire or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity. If the Group neither transfers nor retains substantially all the risks and rewards of ownership and continues to control the transferred asset, the Group recognizes its retained interest in the asset and an associated liability for amounts it may have to pay. If the Group retains substantially all the risks and rewards of ownership of a transferred financial asset, the Group continues to recognize the financial asset and also recognizes a collateralized borrowing for the proceeds received.

*(t)* Financial liabilities and equity instruments

The Group classifies non-derivative financial liabilities into financial liabilities at fair value through profit or loss or other financial liabilities in accordance with the substance of the contractual arrangement and the definitions of financial liabilities. The Group recognizes financial liabilities in the consolidated statement of financial position when the Group becomes a party to the contractual provisions of the financial liability.

i) Financial liabilities at fair value through profit or loss

The Group requires the effect of changes in the credit risk on financial liabilities designated at fair value through profit or loss attributable to changes in the credit risk to be recognized in other comprehensive income, unless this treatment of the credit risk component creates or enlarges a measurement mismatch. Amounts presented in other comprehensive income are not subsequently transferred to profit or loss. When financial liabilities are derecognized, they are recognized as retained earnings.

ii) Other financial liabilities

At the date of initial recognition, other financial liabilities are measured at fair value minus transaction costs. Subsequent to initial recognition, other financial liabilities are measured at amortized cost using the effective interest method. The effective interest method is a method of calculating the amortized cost of a financial liability and of allocating the interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments through the expected life of the financial instrument or, when appropriate, a shorter period to the net carrying amount of the financial asset or financial liability at the date of initial recognition.

### 2.4 Significant accounting policies (cont'd)

iii) Derecognition of financial liabilities

The Group derecognizes a financial liability from the consolidated statement of financial position when it is extinguished (i.e. when the obligation specified in the contract is discharged, cancelled or expires). The difference between carrying amount and consideration paid is recognized through profit or loss when derecognizing a financial liability.

*(u)* Derivative financial instruments

The Group entered into a variety of derivative financial instruments to manage its exposure to interest rate and foreign exchange rate risk, including foreign exchange forward contracts, interest swap and currency swap. Derivatives are initially recognized at fair value at the date the derivative contract is entered into and are subsequently remeasured to their fair value at the end of each reporting period. The resulting gain or loss is recognized in profit or loss immediately, unless the derivative is designated and effective as a hedging instrument, in which case, the timing of the recognition in profit or loss depends on the nature of the hedge relationship.

i) Embedded derivative

In case of which the embedded derivative instrument is not closely related to the economic characteristics and risks of the host contract and a separated instrument with the same terms as the embedded derivative meets the definition of a derivative, if a hybrid contract contains a host that is not an asset at fair value through profit or loss, an embedded derivative is accounted for separately from the host. Changes of an embedded derivative separated from the host are recognized in profit or loss.

ii) Hedge accounting

The Group holds forward exchange contracts, currency swaps and commodity future contracts to manage foreign exchange risk and commodity fair value risk. The Group designated derivative as hedging instruments to hedge the risk of changes in the fair value of assets, liabilities or firm commitments (a fair value hedge) and foreign currency risk of highly probable forecasted transactions or firm commitments (a cash flow hedge).

On initial designation of the hedge, the Group formally documents the relationship between the hedging instruments and hedged items, including the risk management objectives and strategy in undertaking the hedge transaction, together with the methods that will be used to assess the effectiveness of the hedging relationship.

### 2.4 Significant accounting policies (cont'd)

iii) Fair value hedge

Changes in the fair value of a derivative hedging instrument designated as a fair value hedge are recognized in profit or loss. The gain or loss from remeasuring the hedging instrument at fair value for a derivative hedging instrument and the gain or loss on the hedged item attributable to the hedged risk are recognized in profit or loss in the same line item of the consolidated statement of comprehensive income. However, the Group elected to present the changes in the fair value as other comprehensive income at the date of initial recognition, the gain or loss from remeasuring the hedging instrument at fair value for a derivative hedging instrument and the gain or loss on the hedged item attributable to the hedged risk are recognized in other comprehensive income.

The Group discontinues fair value hedge accounting if the hedging instrument expires or is sold, terminated or exercised or even after considering re-adjustments, or if the hedge no longer meets the criteria for hedge accounting. Any adjustment arising from gain or loss on the hedged item attributable to the hedged risk is amortized to profit or loss from the date the hedge accounting is discontinued. If the hedge relationship no longer meets the requirements for hedge effectiveness related to the hedge ratio, but the objectives of risk management for the designated hedge relationship remain the same, the hedging ratio of the hedge relationship should be adjusted ('re-adjustments').

iv) Cash flow hedge

When a derivative is designated to hedge the variability in cash flows attributable to a particular risk associated with a recognized asset or liability or a highly probable forecasted transaction that could affect profit or loss, the effective portion of changes in the fair value of the derivative is recognized in other comprehensive income, and accumulated in the hedging reserve. Any ineffective portion of changes in the fair value of the derivative is recognized immediately in profit or loss and is recognized as 'finance income and cost' in the consolidated statement of comprehensive income.

Amounts previously recognized in other comprehensive income and accumulated in equity are reclassified to profit or loss in the periods when the hedged item is recognized in profit or loss, in the same line of the consolidated statement of comprehensive income as the recognized hedged item. However, when the forecast transaction that is hedged results in the recognition of a non-financial asset or a non-financial liability, the gains and losses previously accumulated in equity are transferred from equity and included in the initial measurement of the cost of the non-financial asset or non-financial liability.

If the hedging instrument no longer meets the criteria for hedge accounting, expires or is sold, terminated or exercised, then hedge accounting is discontinued prospectively. The cumulative gain or loss on the hedging instrument that has been recognized in other comprehensive income and accumulated in equity remains in equity. Any gains or losses is reclassified to profit or loss when the forecast transaction is ultimately recognized in profit or loss. If the forecasted transaction is no longer expected to occur, the gains or losses accumulated in equity is reclassified immediately to profit or loss.

### 2.4 Significant accounting policies (cont'd)

v) Hedges of net investments in foreign operations

Hedges of net investments in foreign operations are accounted for similarly to cash flow hedges. Any gains or losses on the hedging instrument relating to the effective portion of the hedge are recognized in foreign currency translation reserve in other comprehensive income. The gains or losses relating to the ineffective portion is recognized immediately in profit or loss, and is included in the 'finance income and costs'. When a foreign operation is disposed of, gains and losses on the hedging instrument relating to the effective portion of the hedge accumulated in the foreign currency translation reserve are reclassified to profit or loss.

vi) Other derivative

Changes in the fair value of a derivative that is not designated as a hedging instrument are recognized immediately in profit or loss.

*(v) Other accounting policies*

i) Discontinued operations

The Group classifies its business segment or subsidiary as discontinued operation when it disposes a separated line of business or a segment, meets the criteria for assets held for sale, or acquires a subsidiary for sole purpose of sale. The consolidated statements of comprehensive income should be restated as if the operations have been discontinued from the beginning of the comparative fiscal period.

ii) Cash and cash equivalents

Cash and cash equivalents comprise cash on hand, demand deposits, and short-term investments in highly liquid securities that are readily convertible to known amounts of cash with maturities of three months or less from the acquisition date and which are subject to an insignificant risk of changes in value. Equity investments are excluded from cash and cash equivalents unless they are, in substance, cash equivalents, for example in the case of preferred shares when it has a short maturity with a specified redemption date.

iii) Share capital

Common stock is classified as equity and the incremental costs arising directly attributable to the issuance of common stock less their tax effects are deducted from equity.

### 2.4 Significant accounting policies (cont'd)

iv) Finance income and finance costs

The Group's finance income and finance costs include:

- interest income;

- interest expense;

- dividend income;

- the foreign currency gain or loss on financial assets and financial liabilities;

- the net gain or loss on financial assets measured at fair value through profit or loss;

- hedge ineffectiveness recognized in profit or loss; and

- the net gain or loss on the disposal of investments in debt securities measured at fair value through other comprehensive income.

Interest income or expense is recognized using the effective interest method. Dividend income is recognized in profit or loss on the date on which the Group's right to receive payment is established. The 'effective interest rate' is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument to:

- the gross carrying amount of the financial asset; or

- the amortized cost of the financial liability.

In calculating interest income and expense, the effective interest rate is applied to the gross carrying amount of the asset (when the asset is not credit-impaired) or to the amortized cost of the liability. However, for financial assets that have become credit-impaired subsequent to initial recognition, interest income is calculated by applying the effective interest rate to the amortized cost of the financial asset. If the asset is no longer credit-impaired, then the calculation of interest income reverts to the gross basis.

## 3. Critical Accounting Estimates and Assumptions

The preparation of consolidated financial statements requires the Group to make estimates and assumptions concerning the future. Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities after the end of the reporting period are discussed below.

## 3. Critical Accounting Estimates and Assumptions (cont'd)

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

*(a) Estimated goodwill impairment*

The Group assesses annually whether there is any indication of impairment in accordance with the accounting policy stated in Note 2.4 (e). The recoverable amounts of cash-generating units have been determined based on value-in-use calculations. These calculations require the use of estimates.

*(b) Impairment of non-financial assets*

The Group assesses whether there is any indication of impairment at the end of the reporting period in accordance with the accounting policy stated in Note 2.4 *(p)*. If any such indication exists, then the asset's recoverable amount is estimated to determine the impairment amount. The recoverable amounts of cash-generating units have been determined based on value-in-use calculations. These calculations require the use of estimates.

*(c) Income taxes*

The Group is operating in numerous countries and the income generated from these operations is subject to income taxes based on tax laws and interpretations of tax authorities in numerous jurisdictions. Judgement is required as there are many transactions and calculations for which the ultimate tax determination is uncertain. The Group recognizes assets and liabilities for anticipated tax audit issues based on the best estimates of whether additional taxes will be due as a result of operation activities up to present. Where the final tax outcome of these matters is different from the amounts that were initially recorded, such differences will impact the current and deferred income tax assets and liabilities in the period in which such determination is made.

*(d) Fair value of financial instruments*

The fair value of financial instruments that are not traded in an active market is determined by using valuation techniques. The Group uses its judgment to select a variety of methods and make assumptions that are mainly based on market conditions existing at the end of each reporting period.

*(e) Provisions*

As of December 31, 2019, the Group recognizes provisions for estimated restoration costs of mining as explained in Note 2.4 *(r)*. These provisions are estimated based on past experience. Based on the annual management performance, the Ministry of Strategy and Finance conducts an institutional evaluation. Performance incentives are reasonably estimated and presented as provisions for employee benefits.

## 3. Critical Accounting Estimates and Assumptions (cont'd)

*(f) Defined benefit obligations*

The present value of the defined benefit obligations 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. Any changes in these assumptions will impact the carrying amount of the defined benefit obligations. The Group determines the appropriate discount rate at the end of each year. This is the interest rate that is used to determine the present value of estimated future cash outflows expected to be required to settle the defined benefit obligations. In determining the appropriate discount rate, the Group considers the interest rates of high-quality corporate bonds that are denominated in the currency in which the pension benefits will be paid, and that have terms to maturity approximating to the terms of the related pension liability. Other key assumptions for defined benefit liability are based in part on current market conditions. Additional information is disclosed in Note 24.

*(g) Management's judgment*

Information about critical judgments in applying accounting policies that have the most significant effect on the amounts recognized in the consolidated financial statements is included in the following notes:

Note 1: Reporting Entity– whether the Group has de facto control

Note 15: Investments in Associates and Joint Ventures – classification of a joint arrangement

*(h) Assumptions and estimation uncertainties*

Information about assumptions and estimation uncertainties that have a significant risk of resulting in a material adjustment within the next financial year are included in the following notes:

Note 15: Investments in Associates and Joint Ventures – main assumptions for recoverable amounts

Note 16: Property, Plant and Equipment – estimation of factors for depreciation and recoverable amount

Note 17: Intangible assets – main assumptions for recoverable amounts

Note 18: Intangible assets other than goodwill – estimation of factors for depreciation and recoverable amounts

Note 24: Employee Benefits – main actuarial assumptions

Note 25 and 47: Provisions and Contingencies – assumptions for possibility of cash outflows and their amounts

Note 39: Income tax expense (benefit) – possibility of realization of deferred tax assets

## 4. Segment and Other Information

For management purposes, the Group is organized into business units based on their goods and services. The Group's operating segments are 1) oil and gas, 2) petroleum distribution, 3) oil stockpiling, 4) drillship chartering and 5) others.

| Segments | Goods and services | Location of business |
|---|---|---|
| Oil and gas | Exploration, development and production of domestic and overseas resources and sales of crude oil | Domestic and overseas |
| Petroleum distribution | Distribution business of gasoline and gas oil and oil trading | Domestic and overseas |
| Oil stockpiling | Trading of crude oil and petroleum product, lending and sales of oil stockpiles, management, operation and lending of oil stockpiling facilities | Domestic |
| Drillship chartering [1] | Drillship chartering business | Domestic and overseas |
| Others | Oil information services, other research services, etc. | Domestic and overseas |

[1] Drillship chartering segments have been classified as discontinued operations during the year ended December 31, 2018.

(a) Segment results for the year ended December 31, 2019

*(in Korean won)*

| | 2019 | | | | | | |
|---|---|---|---|---|---|---|---|
| | Oil and gas | Petroleum distribution | Oil stockpiling | Others | Reportable segment total | Reconciling items[1] | Group total |
| Revenue | ₩ 2,662,815,845,497 | ₩ 60,894,664,988 | ₩ 199,546,442,627 | ₩ 6,736,006,488 | ₩ 2,929,992,959,600 | ₩ - | ₩ 2,929,992,959,600 |
| Cost of sales | 1,801,810,225,004 | 70,903,269,672 | 177,440,324,744 | 2,259,251,733 | 2,052,413,071,153 | - | 2,052,413,071,153 |
| Gross profit | 861,005,620,493 | (10,008,604,684) | 22,106,117,883 | 4,476,754,755 | 877,579,888,447 | - | 877,579,888,447 |
| Selling and administrative expenses | 236,226,246,615 | 364,198,693 | - | - | 236,590,445,308 | 69,519,995,626 | 306,110,440,934 |
| Reportable segment operating profit (loss) | 624,779,373,878 | (10,372,803,377) | 22,106,117,883 | 4,476,754,755 | 640,989,443,139 | (69,519,995,626) | 571,469,447,513 |
| Other income | - | - | - | - | 93,597,344,082 | - | 93,597,344,082 |
| Other expenses | - | - | - | - | 8,259,254,071 | - | 8,259,254,071 |
| Other loss, net | - | - | - | - | (2,095,013,255) | - | (2,095,013,255) |
| Finance income | - | - | - | - | 402,068,273,215 | - | 402,068,273,215 |
| Finance costs | - | - | - | - | (731,432,586,748) | - | (731,432,586,748) |
| Loss on investments in associates and joint ventures, net | - | - | - | - | 53,712,409,399 | - | 53,712,409,399 |
| Profit (loss) before income tax | ₩ - | ₩ - | ₩ - | ₩ - | ₩ 448,580,615,761 | ₩ (69,519,995,626) | ₩ 379,060,620,135 |
| Depreciation and amortization of intangible assets other than goodwill | ₩ 933,639,067,189 | ₩ 9,399,809,655 | ₩ 91,971,649,480 | ₩ 11,402,911,595 | ₩ 1,046,413,437,919 | ₩ - | ₩ 1,046,413,437,919 |
| Impairment losses on property, plant and equipment | 176,250,820,929 | - | - | - | 176,250,820,929 | - | 176,250,820,929 |
| Reversal of impairment losses on property, plant and equipment | 25,224,458,258 | - | - | - | 25,224,458,258 | - | 25,224,458,258 |
| Impairment losses on intangible assets other than goodwill | 18,106,642,179 | - | - | - | 18,106,642,179 | - | 18,106,642,179 |
| Reversal of impairment losses on intangible assets other than goodwill | 53,230,301,443 | - | - | - | 53,230,301,443 | - | 53,230,301,443 |

[1] Primarily consists of operating profit (loss) including depreciation and amortization of intangible assets other than goodwill that are not allocated to the segments.

## 4. Segment and Other Information (cont'd)

(b) Segment results for the year ended December 31, 2018

| *(in Korean won)* | 2018 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **Oil and gas** | **Petroleum distribution** | **Oil stockpiling** | **Others** | **Reportable Segment total** | **Reconciling items[1]** | **Drillship chartering (Discontinued)** | **Group total** |
| Revenue | ₩ 2,924,847,664,831 | ₩ 41,723,075,959 | ₩ 178,326,799,795 | ₩ 4,367,725,705 | ₩ 3,149,265,266,290 | ₩ - | ₩ - | ₩ 3,149,265,266,290 |
| Cost of sales | 1,958,193,645,082 | 35,995,351,605 | 175,625,591,628 | 2,118,265,937 | 2,171,932,854,252 | - | 1,514,633,666 | 2,173,447,487,918 |
| Gross profit (loss) | 966,654,019,749 | 5,727,724,354 | 2,701,208,167 | 2,249,459,768 | 977,332,412,038 | - | (1,514,633,666) | 975,817,778,372 |
| Selling and administrative expenses | 361,146,278,423 | 339,848,748 | - | - | 361,486,127,171 | 72,485,460,500 | - | 433,971,587,671 |
| Reportable segment operating profit (loss) | 605,507,741,326 | 5,387,875,606 | 2,701,208,167 | 2,249,459,768 | 615,846,284,867 | (72,485,460,500) | (1,514,633,666) | 541,846,190,701 |
| Other income | - | - | - | - | 76,488,772,599 | - | - | 76,488,772,599 |
| Other expenses | - | - | - | - | 37,791,273,655 | - | - | 37,791,273,655 |
| Other gain (loss), net | - | - | - | - | (849,323,244,196) | - | 2,368,843,440 | (846,954,400,756) |
| Finance income | - | - | - | - | 231,241,417,396 | - | - | 231,241,417,396 |
| Finance costs | - | - | - | - | 783,490,645,306 | - | - | 783,490,645,306 |
| Loss on investments in associates and joint ventures, net | - | - | - | - | (112,547,149,313) | - | - | (112,547,149,313) |
| Profit (loss) before income tax | ₩ - | ₩ - | ₩ - | ₩ - | ₩ (859,575,837,608) | ₩ (72,485,460,500) | ₩ 854,209,774 | ₩ (931,207,088,334) |
| Depreciation and amortization of other than goodwill | ₩ 1,046,994,244,397 | ₩ 7,443,893 | ₩ 75,268,676,326 | ₩ 9,351,406 | ₩ 1,122,279,716,022 | ₩ 12,708,178,515 | ₩ 1,479,188 | ₩ 1,134,989,373,725 |
| Impairment losses on property, plant and equipment | 272,828,899,217 | - | - | - | 272,828,899,217 | - | - | 272,828,899,217 |
| Reversal of impairment losses on property, plant and equipment | 23,146,479,941 | - | - | - | 23,146,479,941 | - | - | 23,146,479,941 |
| Impairment losses on intangible assets other than goodwill | 609,346,912,576 | - | - | - | 609,346,912,576 | - | - | 609,346,912,576 |

---

[1] Primarily consists of operating profit (loss) including depreciation and amortization that are not allocated to the segments.

### 4. Segment and Other Information (cont'd)

Revenue by geographic area for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | **2019** | | **2018** |
|---|---|---|---|---|
| Domestic | ₩ | 598,411,295,978 | ₩ | 592,869,854,421 |
| Canada | | 310,288,485,225 | | 242,824,429,913 |
| United Kingdom | | 1,277,072,045,730 | | 1,490,812,820,612 |
| United States | | 465,981,626,484 | | 573,464,579,902 |
| Kazakhstan | | 278,100,479,141 | | 249,293,581,442 |
| Others | | 139,027,042 | | - |
| | ₩ | 2,929,992,959,600 | ₩ | 3,149,265,266,290 |

In presenting information about geographical areas, segment revenue is based on the geographical location of the Group's entities which recorded the related revenue.

Customers whose revenue is 10% or more of consolidated revenue for the year ended December 31, 2019 are BP P.L.C. and Shell Co. (2018: BP P.L.C. and Shell Co.) amounting to ₩ 371,225 million and ₩ 530,883 million (2018: ₩ 522,857 million and ₩ 567,294 million, respectively), respectively. Furthermore, revenues from these customers for the year ended December 31, 2019, are related to oil and gas segment (2018: oil and gas segment).

## 5. Cash and Cash Equivalents

Cash and cash equivalents in the consolidated statements of cash flows include cash and bank deposit and exclude government grants. Cash and cash equivalents in the consolidated statements of cash flows for the years ended December 31, 2019 and 2018 are comprised of the following items in the consolidated statements of financial position.

| *(in Korean won)* | | 2019 | | 2018 |
|---|---|---|---|---|
| Cash in hands | ₩ | 484,172,474 | ₩ | 88,273,347 |
| Other on demand deposits | | 221,102,996,815 | | 276,719,728,000 |
| Short-term deposits classified as cash equivalents | | 255,017,200,894 | | 202,523,409,038 |
| Short-term investments classified as cash equivalents | | 248,463,141,625 | | 298,866,448,534 |
| Government grants | | (11,100,917) | | (77,710,041) |
| | ₩ | 725,056,410,891 | ₩ | 778,120,148,878 |

## 6. Restricted Cash and Cash Equivalents

Details of restricted cash and cash equivalents and financial assets provided as collateral for liabilities or contingent liabilities as of December 31, 2019 and 2018, are as follows. There are no restricted cash and cash equivalents as of December 31, 2019.

| *(in Korean won)* | | 2019 | | 2018 |
|---|---|---|---|---|
| **Long-term financial instruments** | | | | |
| Asset retirement obligation | ₩ | 2,704,540,912 | ₩ | 2,490,937,539 |
| Deposits for foreign workers | | - | | 2,505,629 |
| | ₩ | 2,704,540,912 | ₩ | 2,493,443,168 |

## 7. Financial Assets Measured at Fair Value through Profit or Loss And Derivative Instruments

Details of financial assets measured at fair value through profit or loss as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | 2018 | |
|---|---|---|---|---|
| | **Current** | **Non-current**[1] | **Current** | **Non-current**[1] |
| Debt securities | ₩ 268,670,204,196 | ₩ 1,495,749,044,152 | ₩ - | ₩ 534,982,771,949 |
| | ₩ 268,670,204,196 | ₩ 1,495,749,044,152 | ₩ - | ₩ 534,982,771,949 |

[1] Includes loans classified as financial assets measured at fair value through profit or loss.

The amounts recognized in profit or loss in relation to financial assets measured at fair value through profit or loss for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | 2018 |
|---|---|---|
| Gain on valuation of financial asset measured at fair value through profit or loss | ₩ 167,773,467,775 | ₩ 87,037,043,388 |
| Loss on valuation of financial asset measured at fair value through profit or loss | (82,191,492,544) | (5,058,940,998) |
| Gain on transaction of financial asset measured at fair value through profit or loss | 2,072,434,884 | - |
| | ₩ 87,654,410,115 | ₩ 81,978,102,390 |

Details of derivatives as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | 2018 | |
|---|---|---|---|---|
| | **Current** | **Non-current** | **Current** | **Non-current** |
| **Derivative assets** | | | | |
| Currency forwards | ₩ 17,253,809,664 | ₩ 9,634,659,643 | ₩ - | ₩ - |
| Currency swap | 5,208,863,958 | 8,643,513,255 | 5,520,012,567 | 20,405,018,540 |
| Interest swap | 161,161,777 | - | - | 6,014,151,165 |
| Other derivatives [1] | 18,092,980,877 | 18,608,341,061 | 65,292,288,539 | 35,968,421,687 |
| | ₩ 40,716,816,276 | ₩ 36,886,513,959 | ₩ 70,812,301,106 | ₩ 62,387,591,392 |
| **Derivative liabilities** | | | | |
| Currency forwards | ₩ - | ₩ - | ₩ 233,258,134 | ₩ - |
| Currency swap | 226,707,484 | 72,262,073,819 | 67,766,305,742 | 40,266,383,049 |
| Interest swap | 7,378,119,697 | 18,829,527,657 | 5,954,068,093 | 5,160,880,272 |
| Other derivatives | 3,888,054,732 | 90,948,685 | 3,290,569 | 122,316,785 |
| | ₩ 11,492,881,913 | ₩ 91,182,550,161 | ₩ 73,956,922,538 | ₩ 45,549,580,106 |

[1] The Group holds right to purchase shares of Korea GS E&P Pte. Ltd. and, accordingly, recognized non-current derivative assets amounting to ₩ 17,172 million (Note 47).

## 7. Financial Assets Measured at Fair Value through Profit or Loss And Derivative Instruments (cont'd)

Details of currency swap contracts as of December 31, 2019, are as follows:

*(in Korean won, foreign currencies)*

| Type | Counter party | Maturity | Contract amount | | Contract interest rate per annum (%) | |
|---|---|---|---|---|---|---|
| | | | Sell | Buy | Sell | Buy |
| Cash flow hedge | HSBC | 2021-02-08 | HKD 500,000,000 | USD 64,184,852 | 4.38 | 5.03 |
| | BNP PARIBAS | 2021-03-04 | HKD 390,000,000 | USD 50,080,900 | 4.50 | 5.20 |
| | HSBC | 2022-02-10 | HKD 390,000,000 | USD 50,281,707 | 3.95 | 4.45 |
| | BNP PARIBAS | 2022-03-28 | EUR 50,000,000 | USD 65,075,000 | 4.00 | 4.55 |
| | HSBC | 2023-01-24 | HKD 400,000,000 | USD 51,599,587 | 2.85 | 3.17 |
| | Development Bank of Singapore | 2023-02-04 | EUR 37,000,000 | USD 49,765,000 | 2.40 | 3.19 |
| | HSBC | 2025-06-24 | EUR 60,000,000 | USD 80,070,000 | 3.00 | 4.06 |
| | HSBC | 2023-07-03 | EUR 50,000,000 | USD 65,670,000 | 3.09 | 4.31 |
| | Standard Chartered | 2020-01-29 | HKD 310,000,000 | USD 39,984,522 | 2.18 | 2.42 |
| | HSBC | 2020-08-26 | KRW 150,000,000,000 | USD 125,565,043 | 2.03 | 2.41 |
| | Development Bank of Singapore | 2021-01-30 | SGD 400,000,000 | USD 305,950,741 | 1.86 | 2.64 |
| | BNP PARIBAS | 2023-06-01 | CHF 200,000,000 | USD 199,976,003 | 0.37 | 3.69 |
| | Korea Development Bank | 2023-06-01 | CHF 200,000,000 | USD 199,976,003 | 0.37 | 3.69 |
| | Standard Chartered | 2023-06-01 | CHF 100,000,000 | USD 99,988,001 | 0.37 | 3.68 |
| | CREDIT AGRICOLE | 2022-01-22 | JPY 30,000,000,000 | USD 276,586,917 | 0.24 | 3.37 |
| | MIZUHO | 2022-01-22 | JPY 20,000,000,000 | USD 184,391,278 | 0.24 | 3.39 |
| | BNP PARIBAS | 2022-01-22 | JPY 20,000,000,000 | USD 184,391,278 | 0.24 | 3.39 |
| | BNP PARIBAS | 2024-10-04 | CHF 200,000,000 | USD 201,940,000 | 0.00 | 2.55 |
| | Korea Development Bank | 2024-10-04 | CHF 100,000,000 | USD 100,970,000 | 0.00 | 2.55 |

Details of interest rate swap contracts as of December 31, 2019, are as follows:

*(in USD and CAD)*

| Type | Counterparty | Terms | Contract amount | Contract interest rate per annum(%) | |
|---|---|---|---|---|---|
| | | | | Sell | Buy |
| Cash flow hedge | Bank of America | 2020-03-27 | USD 500,000,000 | 3ML+0.6 | 2.46 |
| | Societe Generale | 2023-07-16 | USD 400,000,000 | 3ML+0.9 | 3.70 |
| | HSBC | 2023-05-11 | CAD 300,000,000 | 1.95 | 2.82 |

## 7. Financial Assets Measured at Fair Value through Profit or Loss And Derivative Instruments (cont'd)

Details of the currency forward contracts as of December 31, 2019, are as follows:

*(in USD, GBP and, Korean won)*

| Type | Counter party | Contract date | Maturity | Contract amount | | Contract currency rate [1] |
|---|---|---|---|---|---|---|
| | | | | Sell | Buy | |
| Cash flow hedge | BNP PARIBAS | 2019-07-09 | 2020-01-08 | USD 7,546,200 | GBP 6,000,000 | 1.2577 |
| | WELLS FARGO | 2019-05-30 | 2020-01-15 | USD 1,273,400 | GBP 1,000,000 | 1.2734 |
| | DNB | 2019-06-18 | 2020-01-15 | USD 10,112,800 | GBP 8,000,000 | 1.2641 |
| | ING | 2019-08-08 | 2020-02-07 | USD 3,672,600 | GBP 3,000,000 | 1.2242 |
| | BNP PARIBAS | 2019-09-03 | 2020-02-07 | USD 1,212,100 | GBP 1,000,000 | 1.2121 |
| | WELLS FARGO | 2019-05-30 | 2020-02-14 | USD 16,575,000 | GBP 13,000,000 | 1.2750 |
| | DNB | 2019-08-08 | 2020-03-06 | USD 1,226,400 | GBP 1,000,000 | 1.2264 |
| | ING | 2019-05-31 | 2020-03-12 | USD 12,742,000 | GBP 10,000,000 | 1.2742 |
| | DNB | 2019-06-18 | 2020-03-16 | USD 3,799,350 | GBP 3,000,000 | 1.2665 |
| | DNB | 2019-07-09 | 2020-03-16 | USD 1,261,000 | GBP 1,000,000 | 1.2610 |
| | Royal Bank of Scotland | 2019-09-03 | 2020-03-19 | USD 4,853,200 | GBP 4,000,000 | 1.2133 |
| | CIBC | 2019-07-09 | 2020-04-08 | USD 3,786,000 | GBP 3,000,000 | 1.2620 |
| | WELLS FARGO | 2019-05-22 | 2020-04-15 | USD 7,708,200 | GBP 6,000,000 | 1.2847 |
| | COMMONWEALTH BANK OF AUSTRALIA | 2019-05-31 | 2020-04-15 | USD 3,824,700 | GBP 3,000,000 | 1.2749 |
| | WELLS FARGO | 2019-09-03 | 2020-04-23 | USD 1,212,900 | GBP 1,000,000 | 1.2129 |
| | COMMONWEALTH BANK OF AUSTRALIA | 2019-10-15 | 2020-04-23 | USD 6,371,000 | GBP 5,000,000 | 1.2742 |
| | Royal Bank of Scotland | 2019-08-08 | 2020-05-07 | USD 3,682,800 | GBP 3,000,000 | 1.2276 |
| | WELLS FARGO | 2019-05-23 | 2020-05-14 | USD 8,976,800 | GBP 7,000,000 | 1.2824 |
| | COMMONWEALTH BANK OF AUSTRALIA | 2019-06-18 | 2020-05-14 | USD 3,807,000 | GBP 3,000,000 | 1.2690 |
| | WELLS FARGO | 2019-06-18 | 2020-05-21 | USD 1,213,600 | GBP 1,000,000 | 1.2136 |
| | Royal Bank of Scotland | 2019-10-15 | 2020-05-21 | USD 3,819,300 | GBP 3,000,000 | 1.2731 |
| | Royal Bank of Scotland | 2019-06-18 | 2020-06-08 | USD 8,887,900 | GBP 7,000,000 | 1.2697 |
| | ABN AMRO | 2019-06-18 | 2020-06-15 | USD 8,886,500 | GBP 7,000,000 | 1.2695 |
| | ABN AMRO | 2019-09-03 | 2020-06-19 | USD 4,860,400 | GBP 4,000,000 | 1.2151 |
| | ABN AMRO | 2019-10-15 | 2020-06-23 | USD 2,548,600 | GBP 2,000,000 | 1.2743 |
| | ING | 2019-07-09 | 2020-07-08 | USD 7,593,000 | GBP 6,000,000 | 1.2655 |
| | WELLS FARGO | 2019-07-09 | 2020-07-15 | USD 8,862,875 | GBP 7,000,000 | 1.2661 |
| | DNB | 2019-08-08 | 2020-07-17 | USD 2,462,600 | GBP 2,000,000 | 1.2313 |
| | CREDIT AGRICOLE | 2019-10-15 | 2020-07-17 | USD 5,100,000 | GBP 4,000,000 | 1.2750 |
| | COMMONWEALTH BANK OF AUSTRALIA | 2019-08-08 | 2020-08-07 | USD 9,847,200 | GBP 8,000,000 | 1.2309 |
| | CIBC | 2019-08-08 | 2020-08-14 | USD 8,619,100 | GBP 7,000,000 | 1.2313 |
| | BNP PARIBAS | 2019-09-03 | 2020-09-03 | USD 7,319,400 | GBP 6,000,000 | 1.2199 |
| | ING | 2019-09-03 | 2020-09-10 | USD 8,528,100 | GBP 7,000,000 | 1.2183 |
| | WELLS FARGO | 2019-09-03 | 2020-09-17 | USD 7,317,300 | GBP 6,000,000 | 1.2196 |
| Fair value hedge | Standard Chartered | 2019-08-05 | 2021-11-23 | USD 96,250,000 | KRW 113,151,500,000 | 0.0009 |
| | Bank of America | 2019-08-05 | 2021-11-23 | USD 96,250,000 | KRW 113,151,500,000 | 0.0009 |
| | Standard Chartered | 2019-08-14 | 2021-11-23 | USD 38,500,000 | KRW 45,645,600,000 | 0.0008 |

[1] The contract currency rate is presented in USD and the contract currency rate is applied to the buy contract amount.

## 7. Financial Assets Measured at Fair Value through Profit or Loss And Derivative Instruments (cont'd)

Details of other derivatives (crude oil swaps) as of December 31, 2019, are as follows:

*(in BBL, MBTU, US dollar)*

| Type | Counterparty | Terms | Contract amount | Exercise price |
|---|---|---|---|---|
| Held for trading | BNP PARIBAS | 2020-03-31 | 67,000 | 59.47 |
| | BNP PARIBAS | 2020-06-30 | 33,000 | 59.47 |
| | Societe Generale | 2020-06-30 | 33,000 | 57.13 |
| | Societe Generale | 2020-09-30 | 33,000 | 57.13 |
| | Societe Generale | 2020-12-31 | 32,000 | 57.13 |
| Cash flow hedge | Standard Chartered | 2020-07-14 | 9,000 | 59.50 |
| | Standard Chartered | 2020-07-14 | 35,000 | 59.50 |
| | Citi | 2020-09-30 | 17,000 | 57.14 |
| | Citi | 2020-12-31 | 16,000 | 57.14 |
| | BNP PARIBAS | 2020-03-31 | 135,000 | 65.15 |
| | BNP PARIBAS | 2020-03-31 | 135,000 | 65.20 |
| | BNP PARIBAS | 2020-03-31 | 106,817 | 65.06 |

Details of other derivatives (zero cost collar options) as of December 31, 2019, are as follows:

*(in BBL, MBTU, US dollar)*

| Type | Counterparty | Terms | Contract amount | Exercise Price | |
|---|---|---|---|---|---|
| | | | | Call | Put |
| Held for trading | Goldman Sachs | 2020-06-30 | 36,000 | 65.50 | 54.00 |
| | Goldman Sachs | 2020-09-30 | 35,000 | 65.50 | 54.00 |
| | Goldman Sachs | 2020-12-31 | 36,000 | 65.50 | 54.00 |
| | BNP PARIBAS | 2020-03-31 | 35,000 | 64.00 | 54.00 |
| | **Citi** | 2021-03-31 | 34,000 | 65.17 | 56.00 |
| | **Citi** | 2021-06-30 | 34,000 | 65.17 | 56.00 |
| Cash flow hedge | Goldman Sachs | 2020-03-31 | 22,000 | 64.30 | 54.00 |
| | BNP PARIBAS | 2020-03-31 | 27,000 | 72.00 | 59.00 |
| | BNP PARIBAS | 2020-06-30 | 23,000 | 65.10 | 54.00 |
| | BNP PARIBAS | 2020-09-30 | 22,000 | 65.10 | 54.00 |
| | BNP PARIBAS | 2020-12-31 | 23,000 | 65.10 | 54.00 |
| | BNP PARIBAS | 2021-03-31 | 21,000 | 65.03 | 56.00 |
| | BNP PARIBAS | 2021-06-30 | 21,000 | 65.03 | 56.00 |
| | Standard Chartered | 2020-03-31 | 81,000 | 60.60 | 59.50 |
| | Standard Chartered | 2020-06-30 | 11,000 | 61.15 | 58.80 |
| | Goldman Sachs | 2020-03-31 | 17,000 | 69.90 | 60.00 |
| | Goldman Sachs | 2020-06-30 | 11,000 | 68.25 | 60.00 |

## 7. Financial Assets Measured at Fair Value through Profit or Loss And Derivative Instruments (cont'd)

*(in BBL, MBTU, US dollar)*

| Type | Counterparty | Terms | Contract amount | Exercise Price | |
|---|---|---|---|---|---|
| | | | | Call | Put |
| Cash flow hedge | Goldman Sachs | 2020-09-30 | 6,000 | 66.60 | 60.00 |
| | Goldman Sachs | 2020-03-31 | 12,000 | 63.00 | 58.80 |
| | Goldman Sachs | 2020-09-30 | 11,000 | 59.40 | 58.80 |
| | Standard Chartered | 2020-09-30 | 14,000 | 59.25 | 58.00 |
| | Standard Chartered | 2021-03-31 | 21,000 | 57.25 | 57.00 |
| | Standard Chartered | 2020-03-31 | 7,000 | 55.25 | 50.00 |
| | Standard Chartered | 2020-09-30 | 35,000 | 51.20 | 50.00 |
| | Standard Chartered | 2020-03-31 | 116,000 | 70.50 | 60.00 |
| | Goldman Sachs | 2020-06-30 | 77,000 | 68.85 | 60.00 |
| | Goldman Sachs | 2020-06-30 | 29,000 | 52.85 | 57.50 |
| | Societe Generale | 2020-09-30 | 35,000 | 58.30 | 57.50 |
| | Societe Generale | 2020-09-30 | 39,000 | 66.91 | 60.00 |
| | COMMONWEALTH BANK OF AUSTRALIA | 2020-09-30 | 280,000 | 84.50 | 65.00 |
| | BNP PARIBAS | 2020-09-30 | 280,000 | 88.30 | 65.00 |
| | BNP PARIBAS | 2020-09-30 | 298,212 | 91.90 | 65.00 |
| | BNP PARIBAS | 2020-06-30 | 125,300 | 65.89 | 56.00 |

Details of other derivative (right to purchase shares) as of December 31, 2019, are as follows:

*(in Korean won)*

| Type | Counterparty | Maturity | Transaction details | Excercise price | Valuation price |
|---|---|---|---|---|---|
| Right to purchase shares | Korea GS E&P Pte. Ltd. | 2020-02-27 | 30% shares | In accordance with exercise price clause | ₩17,172,238,357 |

## 7. Financial Assets Measured at Fair Value through Profit or Loss And Derivative Instruments (cont'd)

Gains and losses on valuation and transaction of derivative for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | Gains on valuation of derivative instruments | | Gains (losses) on transaction of derivative instruments | | Gains (losses) on valuation of derivative instruments (other comprehensive income (loss)) [1] | |
|---|---|---|---|---|---|---|
| | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 |
| Currency forwards | ₩ - | ₩ - | ₩ - | ₩ (2,738,401,289) | ₩ - | ₩ (2,723,935,575) |
| Currency swaps | - | 4,354,445,359 | 11,338,703,001 | 3,333,260,527 | (44,400,266,517) | (4,666,323,912) |
| Interest rate swaps | - | - | - | - | (15,742,866,666) | (8,492,670,637) |
| Other derivatives | 16,111,435,699 | 18,863,997,866 | - | (167,137,771) | (50,512,168,189) | 115,239,485,378 |
| | ₩ 16,111,435,699 | ₩ 23,218,443,225 | ₩ 11,338,703,001 | ₩ 427,721,467 | ₩ (110,655,301,372) | ₩ 99,356,555,254 |

[1] Changes in accumulated other comprehensive income (loss) are net of tax effect amounting to (+) ₩ 30,093 million and (-) ₩ 36,199 million for the years ended December 31, 2019 and 2018, respectively.

## 8. Trade and Other Receivables

Details of trade and other receivables as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | | |
|---|---|---|---|---|
| | **Gross amounts** | **Allowance for doubtful accounts** | **Present value discount** | **Book value** |
| **Current** | | | | |
| Trade receivables | ₩ 223,306,827,341 | ₩ (9,732,663,082) | ₩ - | ₩ 213,574,164,259 |
| Other receivables | 210,877,607,930 | - | - | 210,877,607,930 |
| Accrued income | 1,002,741,230 | (375,601,898) | - | 627,139,332 |
| Finance lease receivables | 7,566,303,154 | - | (367,497,900) | 7,198,805,254 |
| Other current receivables | 52,396,900,254 | - | - | 52,396,900,254 |
| | 495,150,379,909 | (10,108,264,980) | (367,497,900) | 484,674,617,029 |
| **Non-current** | | | | |
| Other receivables | 1,827,674,448 | - | - | 1,827,674,448 |
| Accrued income | 7,121,330,581 | (7,121,330,581) | - | - |
| Deposit received | 50,111,179,032 | - | (17,680,017,054) | 32,431,161,978 |
| Finance lease receivables | 11,054,185,658 | - | (1,150,195,593) | 9,903,990,065 |
| | 70,114,369,719 | (7,121,330,581) | (18,830,212,647) | 44,162,826,491 |
| | ₩ 565,264,749,628 | ₩ (17,229,595,561) | ₩ (19,197,710,547) | ₩ 528,837,443,520 |

### 8. Trade and Other Receivables (cont'd)

| *(in Korean won)* | 2018 | | | |
|---|---|---|---|---|
| | **Gross amounts** | **Allowance for doubtful accounts** | **Present value discount** | **Book value** |
| **Current** | | | | |
| Trade receivables | ₩ 210,640,916,830 | ₩ (8,927,800,430) | ₩ - | ₩ 201,713,116,400 |
| Other receivables | 199,614,558,613 | - | - | 199,614,558,613 |
| Accrued income | 4,263,186,316 | (343,108,216) | - | 3,920,078,100 |
| Other current receivables | 38,861,753,957 | - | - | 38,861,753,957 |
| | 453,380,415,716 | (9,270,908,646) | - | 444,109,507,070 |
| **Non-current** | | | | |
| Other receivables | 2,607,995,084 | - | - | 2,607,995,084 |
| Accrued income | 4,955,949,179 | (4,955,949,179) | - | - |
| Deposit received | 49,089,306,157 | - | (17,861,187,961) | 31,228,118,196 |
| | 56,653,250,420 | (4,955,949,179) | (17,861,187,961) | 33,836,113,280 |
| | ₩ 510,033,666,136 | ₩ (14,226,857,825) | ₩ (17,861,187,961) | ₩ 477,945,620,350 |

Details of other current receivables as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | |
|---|---|---|
| | **Gross amounts** | **Book value** |
| Prepaid value added tax | ₩ 24,477,691,765 | ₩ 24,477,691,765 |
| Overseas prepaid value added tax | 531,634,089 | 531,634,089 |
| Due from financial institutions | 436,623,643 | 436,623,643 |
| Other current assets | 26,950,950,757 | 26,950,950,757 |
| | ₩ 52,396,900,254 | ₩ 52,396,900,254 |

| *(in Korean won)* | 2018 | |
|---|---|---|
| | **Gross amounts** | **Book value** |
| Prepaid value added tax | ₩ 5,495,780,036 | ₩ 5,495,780,036 |
| Overseas prepaid value added tax | 6,224,612,380 | 6,224,612,380 |
| Due from financial institutions | 745,762,928 | 745,762,928 |
| Other current assets | 26,395,598,613 | 26,395,598,613 |
| | ₩ 38,861,753,957 | ₩ 38,861,753,957 |

The trade and other receivables include those receivables without allowance provision as they are considered collectible, including accrued interest on the receivables and have no significant changes in their credit rating as of December 31, 2019. Above trade and other receivables are classified as loans and receivables and measured at amortized cost. If objective evidence of impairment for a portfolio of receivables has occurred but no loss has been realized, based on the Group's past experience of collecting payments as well as observable changes in national or local economic conditions that correlate with default on receivables, an allowance account is recognized. The Group has no right to offset against any related liabilities with the counterparties.

## 8. Trade and Other Receivables (cont'd)

The aging analysis of trade receivables as of December 31, 2019 and 2018, is as follows:

| *(in Korean won)* | 2019 | 2018 |
|---|---|---|
| Receivables not past due and impaired | ₩ 156,698,004,965 | ₩ 160,478,979,017 |
| Past due but not impaired | 56,876,159,294 | 41,234,137,383 |
| - Up to 2 months | 8,787,511,906 | 8,457,941,007 |
| - 2 to 3 months | 2,422,497,266 | 1,927,866,908 |
| - 3 to 4 months | 2,967,311,807 | 2,053,339,128 |
| - 4 to 12 months | 38,489,304,606 | 21,686,379,611 |
| -Over 12 months | 4,209,533,709 | 7,108,610,729 |
| Impaired | 9,732,663,082 | 8,927,800,430 |
| - 2 to 3 months | 6,450,366,088 | 5,423,586,980 |
| - 4 to 12 months | 3,282,296,994 | - |
| -Over 12 months | - | 3,504,213,450 |
| | 223,306,827,341 | 210,640,916,830 |
| Less: allowance for doubtful accounts | (9,732,663,082) | (8,927,800,430) |
| | ₩ 213,574,164,259 | ₩ 201,713,116,400 |

The aging analysis of other receivables as of December 31, 2019 and 2018, is as follows:

| *(in Korean won)* | 2019 | 2018 |
|---|---|---|
| Receivables not past due and impaired | ₩ 331,001,476,901 | ₩ 290,635,663,583 |
| Past due but not impaired | 3,459,512,907 | 3,458,028,328 |
| - Up to 2 months | 397,014,344 | 26,359,890 |
| - 2 to 3 months | - | 108,585,959 |
| - 3 to 4 months | 19,353,403 | 9,258,013 |
| - 4 to 12 months | 70,122,335 | 26,480,913 |
| -Over 12 months | 2,973,022,825 | 3,287,343,553 |
| Impaired | 7,496,932,479 | 4,955,949,179 |
| - Up to 2 months | 476,100,517 | - |
| - 2 to 3 months | 247,598,174 | - |
| - 3 to 4 months | 253,380,273 | - |
| - 4 to 12 months | 2,188,000,433 | 661,538,611 |
| -Over 12 months | 4,331,853,082 | 4,294,410,568 |
| | 341,957,922,287 | 299,049,641,090 |
| Less: allowance for doubtful accounts | (7,496,932,479) | (4,955,949,179) |
| Less: present value discounts | (19,197,710,547) | (17,861,187,961) |
| | ₩ 315,263,279,261 | ₩ 276,232,503,950 |

## 8. Trade and Other Receivables (cont'd)

Movements in the allowance for doubtful accounts of trade and other receivables for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | | **2018** | |
|---|---|---|---|---|
| | **Trade receivables** | **Other receivables** | **Trade receivables** | **Other receivables** |
| Beginning balance | ₩ 8,927,800,430 | ₩ 5,299,057,395 | ₩ 8,229,242,966 | ₩ 11,152,760 |
| Amount recognized in profit or loss | - | 3,186,538,955 | 950,870,942 | (185,702,462) |
| Write-off | - | - | (97,605,809) | (11,453,595) |
| Reversal | - | (3,495,036,527) | - | (8,356,085,894) |
| Others [1] | 804,862,652 | 2,506,372,656 | (154,707,669) | 13,841,146,586 |
| Ending balance | ₩ 9,732,663,082 | ₩ 7,496,932,479 | ₩ 8,927,800,430 | ₩ 5,299,057,395 |

[1] Include the effect of changes in exchange rates.

## 9. Financial Assets Measured at Fair Value Through Other Comprehensive Income

Movements in the financial assets at fair value through other comprehensive income for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | | | |
|---|---|---|---|---|
| | **Beginning balance** | **Valuation**[1,2] | **Others**[3] | **Ending balance** |
| **Marketable** | ₩ 24,479,355,138 | ₩ (25,396,444,728) | ₩ 1,040,211,049 | ₩ 123,121,459 |
| **Non-marketable** | 7,740,142,479 | (1,691,045,371) | 286,215,048 | 6,335,312,156 |
| | ₩ 32,219,497,617 | ₩ (27,087,490,099) | ₩ 1,326,426,097 | ₩ 6,458,433,615 |

[1] The Group recognized valuation losses on EP Energy and Troika Resource Investment PEF to ₩ 25,396 million and ₩ 1,691 million, respectively, for the year ended December 31, 2019.

[2] Related income tax effect is not recognized for the year ended December 31 ,2019 due to unrecognized deferred tax asset as the amount is not expected be realized in a foreseeable future.

[3] Include other changes and the effect of changes in exchange rates and others.

| *(in Korean won)* | **2018** | | | |
|---|---|---|---|---|
| | **Beginning balance** | **Valuation**[1,2] | **Others**[3] | **Ending balance** |
| **Marketable** | ₩ 79,083,326,798 | ₩ (57,126,877,487) | ₩ 2,522,905,827 | ₩ 24,479,355,138 |
| **Non-marketable** | 11,723,413,253 | (4,422,720,755) | 439,449,981 | 7,740,142,479 |
| | ₩ 90,806,740,051 | ₩ (61,549,598,242) | ₩ 2,962,355,808 | ₩ 32,219,497,617 |

[1] The Group recognized valuation losses on EP Energy, Yemen LNG Company Limited, Troika Resource Investment PEF and Global Dynasty Natural Resource PEF to ₩ 57,127 million, ₩ 557 million, ₩ 794 million and ₩ 3,072 million, respectively, for the year ended December 31, 2018.

[2] Related income tax effect is not recognized for the year ended December 31 ,2019 due to unrecognized deferred tax asset as the amount is not expected be realized in a foreseeable future.

[3] Include other changes and the effect of changes in exchange rates and others.

## 9. Financial Assets Measured at Fair Value Through Other Comprehensive Income (cont'd)

Details of financial assets measured at fair value through other comprehensive income as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | Carrying amount | | Fair value | |
|---|---|---|---|---|---|
| | **Ownership interest (%)** | **2019** | **2018** | **2019** | **2018** |
| **Marketable** | | | | | |
| EP Energy | 12.82 | ₩ 123,121,459 | ₩ 24,479,355,138 | ₩ 123,121,459 | ₩ 24,479,355,138 |
| **Non-marketable** | | | | | |
| Yemen LNG Company Limited | 1.06 | ₩ 4,458,690,092 | ₩ 4,305,805,314 | ₩ 4,458,690,092 | ₩ 4,305,805,314 |
| Petronado S.A. | 5.64 | - | - | - | - |
| Micronic Korea[1] | 16.70 | 885,780,447 | 855,407,772 | 885,780,447 | 855,407,772 |
| Troika Resource Investment PEF | 14.47 | 990,841,617 | 2,578,929,393 | 990,841,617 | 2,578,929,393 |
| Global Dynasty Natural Resource PEF | 15.67 | - | - | - | - |
| | | ₩ 6,458,433,615 | ₩ 32,219,497,617 | ₩ 6,458,433,615 | ₩ 32,219,497,617 |

[1] The dividend incomes associated with Micronic Korea for the years ended December 31, 2019 and 2018, are both ₩ 10 million.

## 10. Loans

Details of loans as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | |
|---|---|---|---|
| | **Face value** | **Provision for loans** | **Carrying amount** |
| **Short-term loans** | | | |
| Loans to related parties [4] | ₩ 2,586,817,903 | ₩ - | ₩ 2,586,817,903 |
| | 2,586,817,903 | - | 2,586,817,903 |
| **Long-term loans** | | | |
| Loans for tuitions [1] | 441,556,913 | - | 441,556,913 |
| Loans for housing [2] | 99,434,890,964 | - | 99,434,890,964 |
| Loans for vehicle [3] | 252,819,744 | - | 252,819,744 |
| General loans | 8,460,404,108 | (1,147,458,530) | 7,312,945,578 |
| Loans to related parties [4] | 646,455,977,842 | (613,748,127,739) | 32,707,850,103 |
| | 755,045,649,571 | (614,895,586,269) | 140,150,063,302 |
| | ₩ 757,632,467,474 | ₩ (614,895,586,269) | ₩ 142,736,881,205 |

[1] The Group provides employees who worked over a year with interest-free loans for their children's tuitions. The loans are repaid from their monthly wages.

[2] The Group provides employees without housing with loans for housing at market interest rates. The loans are due 5~10 years and repaid by lump sum at maturity.

[3] The Group provides non-interest bearing loans to overseas secondees who newly purchase or lease a vehicle. The loans are due when the secondees return to the Headquarters.

[4] The Group provided Offshore International Group and 14 other related parties with loans at interest rates of 3.00 ~ 7.99%. The loans are due to be repaid in 1 year.

### 10. Loans (cont'd)

| *(in Korean won)* | 2018 | | |
|---|---|---|---|
| | **Face value** | **Provision for loans** | **Carrying amount** |
| **Long-term loans** | | | |
| Loans for tuitions [1] | ₩ 375,445,278 | ₩ - | ₩ 375,445,278 |
| Loans for housing [2] | 105,095,519,677 | - | 105,095,519,677 |
| Loans for vehicle [3] | 274,214,025 | - | 274,214,025 |
| General loans | 6,409,446,699 | (977,280,896) | 5,432,165,803 |
| Loans to related parties [4] | 650,544,904,530 | (611,061,998,302) | 39,482,906,228 |
| | ₩ 762,699,530,209 | ₩ (612,039,279,198) | ₩ 150,660,251,011 |

[1] The Group provides employees who worked over a year with interest-free loans for their children's tuitions. The loans are repaid from their monthly wages.

[2] The Group provides employees without housing with loans for housing at market interest rates. The loans are due 5~10 years and repaid by lump sum at maturity.

[3] The Group provides non-interest bearing loans to overseas secondees who newly purchase or lease a vehicle. The loans are due when the secondees return to the Headquarters.

[4] The Group provided Offshore International Group and 14 other related parties with loans at interest rates of 3.00 ~ 7.80%. The loans are due to be repaid in 2 years. The Group recognized reversal of bad debt allowance amounting to ₩ 77 million and financial guarantee expenses amounting to ₩ 5,921 million for the year ended December 31, 2018.

### 11. Long-term Financial Instruments

Details of long-term financial instruments as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | **2018** |
|---|---|---|
| **Non-current** | | |
| Asset retirement obligation | ₩ 5,676,009,105 | ₩ 5,085,188,402 |
| | ₩ 5,676,009,105 | ₩ 5,085,188,402 |

### 12. Other Financial Assets

Details of other current financial assets as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | **2018** |
|---|---|---|
| Overseas field operations quick assets | ₩ 503,309,681 | ₩ 16,290,733,056 |
| | ₩ 503,309,681 | ₩ 16,290,733,056 |

## 13. Inventories

Details of inventories as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | |
|---|---|---|---|
| | **Acquisition cost** | **Provision for losses on valuation [1]** | **Carrying amount** |
| Raw materials [1] | ₩ 4,166,555,201 | ₩ (629,880,018) | ₩ 3,536,675,183 |
| Merchandises [1] | 4,810,645,732 | (336,388,393) | 4,474,257,339 |
| Work-in-progress | 126,555,181 | - | 126,555,181 |
| Finished goods | 17,905,334,509 | - | 17,905,334,509 |
| Supplies | 71,576,332,485 | - | 71,576,332,485 |
| Goods in-transit | 381,965,514 | - | 381,965,514 |
| | ₩ 98,967,388,622 | ₩ (966,268,411) | ₩ 98,001,120,211 |

| *(in Korean won)* | 2018 | | |
|---|---|---|---|
| | **Acquisition cost** | **Provision for losses on valuation [1]** | **Carrying amount** |
| Raw materials [1] | ₩ 4,789,739,668 | ₩ (368,010,540) | ₩ 4,421,729,128 |
| Merchandises [1] | 11,622,249,265 | (194,066,694) | 11,428,182,571 |
| Work-in-progress | 96,523,113 | - | 96,523,113 |
| Finished goods | 9,522,015,860 | - | 9,522,015,860 |
| Supplies | 66,931,419,466 | - | 66,931,419,466 |
| Goods in-transit | 3,219,719,625 | - | 3,219,719,625 |
| | ₩ 96,181,666,997 | ₩ (562,077,234) | ₩ 95,619,589,763 |

[1] The losses on the valuation of inventories recognized in cost of sales for the year ended December 31, 2019 is ₩ 404 million (2018: ₩ 121 million).

## 14. Non-Financial Assets

Details of non-financial assets as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | 2018 | |
|---|---|---|---|---|
| | **Current** | **Non-current** | **Current** | **Non-current** |
| Advance payments | ₩ 56,315,321,907 | ₩ - | ₩ 48,020,733,011 | ₩ - |
| Prepaid expenses | 31,362,044,815 | 325,745,942 | 18,809,500,048 | 8,487,935,831 |
| Oil stockpiles | - | 3,910,638,405,954 | - | 3,722,072,093,738 |
| Others | - | 6,620,763,184 | - | - |
| | ₩ 87,677,366,722 | ₩ 3,917,584,915,080 | ₩ 66,830,233,059 | ₩ 3,730,560,029,569 |

## 15. Investments in Associates and Joint Ventures

Details of investments in associates and joint ventures as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | | 2019 | | | 2018 | | |
|---|---|---|---|---|---|---|---|---|
| Entity | Principal activity | Country | Equity interest (%) | Acquisition cost | Book value | Equity interest (%) | Acquisition cost | Book value |
| <Investments in associates> | | | | | | | | |
| Kernhem B.V. | Exploration and Production("E&P") | Netherlands | 36.67 | ₩ 11,830,145,546 | ₩ - | 36.67 | ₩ 11,424,499,684 | ₩ - |
| Oilhub Korea Yeosu Co., Ltd. | Storing of oil | Korea | 29.00 | 39,141,538,685 | 58,480,114,370 | 29.00 | 37,799,407,846 | 53,338,116,553 |
| ADA Oil LLP[1] | E&P | Kazakhstan | 12.50 | 20,319,532,757 | - | 12.50 | 19,622,792,862 | - |
| Parallel Petroleum LLC [2,5] | E&P | United States | 10.00 | 44,420,609,815 | - | 10.00 | 42,897,464,013 | - |
| KNOC EF Star LLC[3] | E&P | United States | 100.00 | 30,102,800,000 | 40,194,986,889 | 100.00 | 29,070,600,000 | 54,127,002,853 |
| | | | | 145,814,626,803 | 98,675,101,259 | | 140,814,764,405 | 107,465,119,406 |
| <Investments in joint ventures> | | | | | | | | |
| KNOC Inam Ltd | Exploration | Malaysia | 40.00 | 46,312 | - | 40.00 | 44,724 | - |
| KNOC Kamchatka Petroleum Ltd.[4] | Exploration | Cyprus | 55.00 | 1,273,580 | - | 55.00 | 1,229,910 | - |
| KC Karpovsky B.V. [5] | Exploration | Netherlands | - | - | - | - | - | - |
| KNOC Bazian Ltd. [4] | Exploration | Malaysia | 66.72 | 65,995 | - | 66.72 | 63,732 | - |
| KNOC Nigerian East Oil Company Ltd. [4] | Exploration | Nigeria | 75.00 | 69,468,000 | - | 75.00 | 67,086,000 | - |
| KNOC Nigerian West Oil Company Ltd. [4] | Exploration | Nigeria | 75.00 | 69,468,000 | - | 75.00 | 67,086,000 | - |
| Korea kamchatka Co. Ltd | Exploration | Cyprus | 50.00 | 7,868,813,741 | - | 50.00 | 7,598,998,655 | - |
| KC kazakh B.V | Exploration | Netherlands | 35.00 | 262,202,867 | - | 35.00 | 253,212,149 | - |
| Offshore International Group, Inc. | E&P | United States | 50.00 | 735,346,010,333 | 91,189,025,586 | 50.00 | 710,131,606,627 | 132,985,475,273 |
| KNOC Ferghana Ltd | Exploration | Malaysia | 50.00 | 578,900 | - | 50.00 | 559,050 | - |
| KNOC Ferghana2 Ltd [4] | Exploration | Malaysia | 65.00 | 75,755 | - | 65.00 | 73,157 | - |
| KADOC Ltd [4] | E&P | Malaysia | 75.00 | 868,350 | - | 75.00 | 838,575 | - |
| Korea Energy Terminal Ltd [4] | Storing of oil | Korea | 95.00 | 4,455,105,231 | - | 82.26 | 4,137,949,702 | - |
| Deep Basin Partnership [4,6] | Exploration | Canada | 83.47 | 258,876,914,781 | 17,322,008,564 | 83.40 | 241,701,273,413 | - |
| HKMS Partnership [4,6] | Gas processing plant operation | Canada | 68.19 | 62,874,731,116 | 32,734,367,939 | 68.15 | 60,716,149,863 | 35,506,905,275 |
| KNOC-VOGO Eagle Ford LLC [7] | E&P | United States | 50.00 | - | - | 50.00 | - | - |
| | | | | 1,069,825,622,961 | 141,245,402,089 | | 1,024,676,171,557 | 168,492,380,548 |
| | | | | ₩ 1,215,640,249,764 | ₩ 239,920,503,348 | | ₩ 1,165,490,935,962 | ₩ 275,957,499,954 |

[1] Classified as an investment in associate as the Group's associate, Kernhem B.V. holds 75.00% of the equity interest and by effective equity interest, the Group has the ability to exercise significant influence over the entity.

[2] Classified as an investment in associate as the Group can designate one director in its board of directors. Despite the percentage of ownership is below 20%, the Group has the ability to exercise significant influence over the entity.

[3] Despite the percentage of ownership of the Group is 100%, it is excluded from the scope of consolidation due to reassessment of entity's control.

[4] Despite the percentage of ownership is over 50%, the investment is classified as an investment in joint ventures as the Group is unable to exercise control over investees solely.

[5] The liquidation process has been completed as of December 31, 2018

[6] Parallel Petroleum LLC is an investment in associate held by ANKOR E&P Holdings Corp.

[7] Deep Basin Partnership and HKMS Partnership are investment in joint ventures held by Harvest Operations Corp.

[8] KNOC-VOGO Eagle Ford LLC is an investment in joint venture with 50% of the shares in KNOC Eagleford Corp., as the Group.

## 15. Investments in Associates and Joint Ventures (cont'd)

Changes in carrying value of investments in associates and joint ventures for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | | |
|---|---|---|---|---|
| | **Beginning balance** | **Acquisition** | **Disposal** | **Dividends received** |
| **Investment in associates** | | | | |
| Kernhem B.V. [1] | ₩ - | ₩ - | ₩ - | ₩ - |
| Oilhub Korea Yeosu Co. Ltd | 53,338,116,553 | - | - | (1,519,599,996) |
| ADA Oil LLP [1] | - | - | - | - |
| Parallel Petroleum LLC [1] | - | | - | - |
| KNOC EF Star LLC | 54,127,002,853 | - | - | - |
| | 107,465,119,406 | - | - | (1,519,599,996) |
| **Investment in joint ventures** | | | | |
| Offshore International Group, Inc. [2] | 132,985,475,273 | - | - | - |
| KADOC Ltd [1,3] | - | - | - | - |
| Korea Energy Terminal Ltd [1] | - | 401,913,626 | (230,528,700) | - |
| Deep Basin Partnership | - | 8,651,901,397 | - | (1,414,645,371) |
| HKMS Partnership | 35,506,905,275 | 2,772,044 | - | (14,322,871,081) |
| KNOC-VOGO Eagle Ford LLC [1,5] | - | - | - | - |
| | 168,492,380,548 | 9,056,587,067 | (230,528,700) | (15,737,516,452) |
| | ₩ 275,957,499,954 | ₩ 9,056,587,067 | ₩ (230,528,700) | ₩ (17,257,116,448) |

| *(in Korean won)* | 2019 | | | |
|---|---|---|---|---|
| | **Share of profit or loss in equity method** | **Changes in equity adjustments** | **Other changes[4]** | **Ending balance** |
| **Investment in associates** | | | | |
| Kernhem B.V. [1] | ₩ - | ₩ - | ₩ - | ₩ - |
| Oilhub Korea Yeosu Co. Ltd | 6,704,467,065 | (1,914,705,083) | 1,871,835,831 | 58,480,114,370 |
| ADA Oil LLP [1] | - | - | - | - |
| Parallel Petroleum LLC [1] | - | - | - | - |
| KNOC EF Star LLC | (15,961,376,341) | - | 2,029,360,377 | 40,194,986,889 |
| | (9,256,909,276) | (1,914,705,083) | 3,901,196,208 | 98,675,101,259 |
| **Investment in joint ventures** | | | | |
| Offshore International Group, Inc. [2] | (7,208,684,954) | (372,598,507) | (34,215,166,226) | 91,189,025,586 |
| KADOC Ltd [1,3] | - | - | - | - |
| Korea Energy Terminal Ltd [1] | (202,657,111) | 31,272,185 | - | - |
| Deep Basin Partnership | 48,063,462,142 | - | (37,978,709,604) | 17,322,008,564 |
| HKMS Partnership | 8,733,946,604 | - | 2,813,615,097 | 32,734,367,939 |
| KNOC-VOGO Eagle Ford LLC [1,5] | - | - | - | - |
| | 49,386,066,681 | (341,326,322) | (69,380,260,733) | 141,245,402,089 |
| | ₩ 40,129,157,405 | ₩ (2,256,031,405) | ₩ (65,479,064,525) | ₩ 239,920,503,348 |

[1] The Group does not apply the equity method as the book value of the investment in associates and joint ventures is less than zero due to the cumulative equity method loss.

[2] The recoverable amount based on value in use calculations was measured and evaluated for Offshore International Group, Inc, which is an investment in joint ventures for the year ended December 31, 2019. Impairment losses on investments in joint ventures amounted to ₩ 39,252 million (Recoverable amount: ₩ 9,119 million, Discount rate: 6.59%, Reason for impairment: decrease in estimated production quantities), and included in other changes.

[3] As the collectability of loans from investments in associates and joint ventures have increased, equity method is not applied to investments in associates and joint ventures for which the investment balance has been reduced to zero. As a result, the Group reclassified the loans previously recognized as net investments in equity method to financial assets at fair value through profit or loss through the judgment of the management. Reversal of loss under equity method of ₩ 52,799 million related to the loans was recognized.

### 15. Investments in Associates and Joint Ventures (cont'd)

[4] Other changes include the effect of changes in exchange rates and impairment losses that were not recognized as the book value of Deep Basin Partners, an investment in joint ventures, until the previous year was less than zero.

[5] KNOC-VOGO Eagle Ford LLC is SPC with 50% of the shares in KNOC Eagleford Corp. KNOC Eagleford Corp. invested in EF Energy LLC through KNOC-VOGO EagleFord LLC. EF Energy LLC is 40% of shares owned by KNOC-VOGO EagleFord LLC and 60% owned by KNOC EagleFord Corp. Since KNOC Eagleford Corp. recognizes EF Energy LLC as the Group, its investment in KNOC-VOGO EagleFord LLC is recognized as '0' because it is offset by the consolidation adjustment process.

| *(in Korean won)* | 2018 | | | |
|---|---|---|---|---|
| | **Beginning balance** | **Acquisition** | **Disposal** | **Dividends received** |
| **Investment in associates** | | | | |
| Kernhem B.V. | ₩ - | ₩ - | ₩ - | ₩ - |
| Oilhub Korea Yeosu Co. Ltd | 50,430,368,454 | - | - | (3,039,200,005) |
| ADA Oil LLP | - | - | - | - |
| Parallel Petroleum LLC | 17,069,280,770 | - | - | - |
| KNOC EF Star LLC | - | - | - | - |
| | 67,499,649,224 | - | - | (3,039,200,005) |
| **Investment in joint ventures** | | | | |
| Offshore International Group, Inc. [3] | 182,781,621,158 | - | - | - |
| KADOC Ltd | - | - | - | - |
| Korea Energy Terminal Ltd | - | - | - | - |
| Deep Basin Partnership | - | 32,706,190,585 | - | - |
| HKMS Partnership | 48,047,426,915 | - | (5,634,598,747) | (13,533,141,710) |
| | 230,829,048,073 | 32,706,190,585 | (5,634,598,747) | (13,533,141,710) |
| | ₩ 298,328,697,297 | ₩ 32,706,190,585 | ₩ (5,634,598,747) | ₩ (16,572,341,715) |

| *(in Korean won)* | 2018 | | | |
|---|---|---|---|---|
| | **Share of profit or loss in equity method [2]** | **Changes in equity adjustments** | **Other changes [1]** | **Ending balance** |
| **Investment in associates** | | | | |
| Kernhem B.V. | ₩ (3,527,077,855) | ₩ 3,527,077,855 | ₩ - | ₩ - |
| Oilhub Korea Yeosu Co. Ltd | 6,049,649,038 | (2,265,926,582) | 2,163,225,648 | 53,338,116,553 |
| ADA Oil LLP | (1,518,969,376) | 1,518,969,376 | - | - |
| Parallel Petroleum LLC | (17,529,708,453) | - | 460,427,683 | - |
| KNOC EF Star LLC | - | - | 54,127,002,853 | 54,127,002,853 |
| | (16,526,106,646) | 2,780,120,649 | 56,750,656,184 | 107,465,119,406 |
| **Investment in joint ventures** | | | | |
| Offshore International Group, Inc. [3] | (55,582,211,471) | - | 5,786,065,586 | 132,985,475,273 |
| KADOC Ltd | - | - | - | - |
| Korea Energy Terminal Ltd | (31,691,567) | 31,691,567 | - | - |
| Deep Basin Partnership | (32,706,190,585) | - | - | - |
| HKMS Partnership | 8,073,081,802 | - | (1,445,862,985) | 35,506,905,275 |
| | (80,247,011,821) | 31,691,567 | 4,340,202,601 | 168,492,380,548 |
| | ₩ (96,773,118,467) | ₩ 2,811,812,216 | ₩ 61,090,858,785 | ₩ 275,957,499,954 |

[1] Include the effect of changes in exchange rates and increase in changes in the scope of consolidation.

[2] Equity method is not applied to investments in associates and joint ventures for which the investment balance has been reduced to zero. As a result, loss on valuation of investments in associates and joint ventures of ₩ 11,098 million have been accounted to loans for the year ended December 31, 2018. Loss on valuation of investments in associates and joint ventures amounting to ₩ 3,415 million related to Group's additional obligation on Deep Basin Partnership has been accounted for as provision.

[3] The recoverable amount based on value in use calculations was measured and evaluated for Offshore International Group, Inc, which is an investment in joint ventures for the year ended December 31, 2018. Impairment losses on investments in joint ventures amounted to ₩ 1,261 million thousand (Recoverable amount: ₩ 132,985 million, Discount rate: 8.59%, Reason for impairment: increase in forecasted cash outflow due to litigation), and included in other changes.

### 15. Investments in Associates and Joint Ventures (cont'd)

The summaries of financial information of major associates and joint ventures for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | | |
|---|---|---|---|---|
| | **Total assets** | **Total liabilities** | **Revenue** | **Profit (loss) for the year** |
| <Investment in associates> | | | | |
| Kernhem B.V. | ₩ 179,309,180,761 | ₩ 260,048,559,166 | ₩ 32,237,000,755 | ₩ 8,834,181,877 |
| Oilhub Korea Yeosu Co., Ltd | 531,040,914,585 | 329,385,347,773 | 74,652,060,604 | 23,118,851,959 |
| Parallel Petroleum LLC | 313,038,649,529 | 334,104,047,894 | 67,420,967,894 | (12,892,203,409) |
| ADA Oil LLP | 73,984,301,364 | 162,562,113,239 | 42,982,667,673 | 14,076,214,354 |
| KNOC EF Star LLC | 484,854,271,594 | 5,023,845 | 14,197,883,153 | (15,961,376,341) |
| <Investment in joint ventures> | | | | |
| Offshore International Group, Inc. | ₩ 736,527,934,938 | ₩ 397,781,811,491 | ₩ 188,667,982,844 | ₩ (14,417,369,913) |
| KADOC Ltd | 757,246,728,169 | 860,552,941,077 | 60,568,655,544 | (33,608,406,610) |
| Korea Energy Terminal Ltd | 12,918,053,721 | 14,485,498,771 | - | (527,110,986) |
| Deep Basin Partnership | 248,543,992,697 | 233,155,551,826 | 35,333,765,217 | 48,063,462,165 |
| HKMS Partnership | 90,587,310,269 | 82,645,076,528 | 23,116,036,086 | 4,157,673,897 |
| KNOC-VOGO Eagle Ford LLC | 1,006,980,858,160 | 599,645,487,886 | - | 29,547,896,696 |

| *(in Korean won)* | 2018 | | | |
|---|---|---|---|---|
| | **Total assets** | **Total liabilities** | **Revenue** | **Profit (loss) for the year** |
| <Investment in associates> | | | | |
| Kernhem B.V. | ₩ 179,935,543,166 | ₩ 258,458,199,107 | ₩ 47,662,436,702 | ₩ (35,759,219,402) |
| Oilhub Korea Yeosu Co., Ltd | 497,821,524,961 | 311,891,354,579 | 70,609,113,337 | 19,373,667,711 |
| Parallel Petroleum LLC | 309,553,483,940 | 312,319,600,928 | 48,850,898,868 | (209,520,734,611) |
| ADA Oil LLP | 76,573,374,439 | 164,698,987,215 | 47,662,436,702 | (44,123,213,703) |
| KNOC EF Star LLC | 484,596,869,177 | 1,366,318 | 14,331,975,134 | 36,378,500,327 |
| <Investment in joint ventures> | | | | |
| Offshore International Group, Inc. | ₩ 755,222,547,260 | ₩ 413,547,701,914 | ₩ 207,168,821,383 | ₩ (102,847,328,205) |
| KADOC Ltd | 534,873,868,479 | 602,400,367,514 | - | (14,797,444,712) |
| Korea Energy Terminal Ltd | 3,488,898,522 | 4,529,232,587 | - | (226,065,481) |
| Deep Basin Partnership | 99,001,492,097 | 136,399,035,113 | 33,858,637,664 | (36,120,961,248) |
| HKMS Partnership | 179,012,874,613 | 175,545,758,983 | 22,578,100,479 | 2,698,975,780 |

## 16. Property, Plant and Equipment

Details of property, plant and equipment as of December 31, 2019 and 2018, are as follows:

*(in Korean won)*

| | 2019 | | | | | |
|---|---|---|---|---|---|---|
| | Acquisition cost | Contributions for construction | Government grants | Accumulated depreciation | Accumulated impairment losses | Book value |
| Land | ₩ 480,854,588,938 | ₩ - | ₩ - | ₩ - | ₩ - | ₩ 480,854,588,938 |
| Buildings | 77,407,452,207 | - | - | (30,119,158,950) | - | 47,288,293,257 |
| Structures | 1,977,284,407,773 | (114,218,857) | - | (785,637,518,393) | - | 1,191,532,670,523 |
| Machinery | 761,686,352,387 | (3,103,564,826) | - | (458,080,500,487) | - | 300,502,287,074 |
| Vehicles | 10,824,603,088 | - | - | (8,883,179,143) | - | 1,941,423,945 |
| Tools & fixtures | 63,438,214,314 | - | - | (56,814,195,882) | (317,964,599) | 6,306,053,833 |
| Construction-in-progress | 228,623,473,504 | - | - | - | - | 228,623,473,504 |
| Right-of-use assets | 438,425,619,585 | - | - | (42,748,588,333) | - | 395,677,031,252 |
| Others | 57,163,260,738 | - | - | (46,508,768,550) | (2,157,949,691) | 8,496,542,497 |
| Oil & gas properties | 21,996,797,205,688 | - | (2,573,235,532) | (12,770,926,682,644) | (3,166,800,170,572) | 6,056,497,116,940 |
| | ₩ 26,092,505,178,222 | ₩ (3,217,783,683) | ₩ (2,573,235,532) | ₩ (14,199,718,592,382) | ₩ (3,169,276,084,862) | ₩ 8,717,719,481,763 |

*(in Korean won)*

| | 2018 | | | | | |
|---|---|---|---|---|---|---|
| | Acquisition cost | Contributions for construction | Government grants | Accumulated depreciation | Accumulated impairment losses | Book value |
| Land | ₩ 464,743,696,853 | ₩ - | ₩ - | ₩ - | ₩ - | ₩ 464,743,696,853 |
| Buildings | 74,296,211,123 | - | - | (27,313,341,310) | - | 46,982,869,813 |
| Structures | 1,909,644,930,155 | (113,979,136) | - | (710,168,880,168) | - | 1,199,362,070,851 |
| Machinery | 731,507,534,134 | (3,310,095,134) | - | (414,527,849,253) | - | 313,669,589,747 |
| Vehicles | 9,986,724,462 | - | - | (7,815,224,660) | - | 2,171,499,802 |
| Tools & fixtures | 59,166,589,138 | - | - | (51,607,944,568) | (294,229,178) | 7,264,415,392 |
| Finance lease asset | 230,027,194,700 | - | - | (12,186,871,831) | - | 217,840,322,869 |
| Construction-in-progress | 148,150,981,966 | - | - | - | - | 148,150,981,966 |
| Others | 54,595,464,162 | - | - | (42,364,129,307) | (2,000,897,264) | 10,230,437,591 |
| Oil & gas properties | 20,568,349,233,113 | - | (3,312,019,239) | (11,349,674,501,719) | (2,951,471,145,635) | 6,263,891,566,520 |
| | ₩ 24,250,468,559,806 | ₩ (3,424,074,270) | ₩ (3,312,019,239) | ₩ (12,615,658,742,816) | ₩ (2,953,766,272,077) | ₩ 8,674,307,451,404 |

## 16. Property, Plant and Equipment (cont'd)

Changes in property, plant and equipment for the years ended December 31, 2019 and 2018, are as follows:

*(in Korean won)*

**2019**

| | Beginning balance | Changes in accounting policies | Acquisition / Capital expenditures | Disposal | Depreciation | Reversal of impairment losses [1] | Others [2] | Ending balance |
|---|---|---|---|---|---|---|---|---|
| Land | ₩ 464,743,696,853 | ₩ - | ₩ - | ₩ (393,254,128) | ₩ - | ₩ - | ₩ 16,504,146,213 | ₩ 480,854,588,938 |
| Buildings | 46,982,869,813 | - | 41,609,299 | (1,108,533,558) | (2,010,194,312) | - | 3,382,542,015 | 47,288,293,257 |
| Structures | 1,199,476,049,987 | - | 260,833,899 | (20,498,853) | (51,333,323,536) | - | 43,263,827,883 | 1,191,646,889,380 |
| (Contributions to construction) | (113,979,136) | - | - | - | 3,833,112 | - | (4,072,833) | (114,218,857) |
| Machinery | 316,979,684,881 | - | 8,027,834,546 | (117,266,395) | (33,715,300,069) | - | 12,430,898,937 | 303,605,851,900 |
| (Contributions to construction) | (3,310,095,134) | - | - | - | 326,257,905 | - | (119,727,597) | (3,103,564,826) |
| Vehicles | 2,171,499,802 | - | 535,198,643 | (4,045,144) | (844,123,152) | - | 82,893,796 | 1,941,423,945 |
| Tools & fixtures | 7,264,415,392 | - | 2,630,265,191 | (10,804,744) | (4,163,739,838) | - | 585,917,832 | 6,306,053,833 |
| Finance lease asset | 217,840,322,869 | (217,840,322,869) | - | - | - | - | - | - |
| Construction-in-progress | 148,150,981,966 | - | 85,884,351,812 | (1,763,802,505) | - | - | (3,648,057,769) | 228,623,473,504 |
| Right-of-use assets | - | 419,659,531,842 | 7,758,591,284 | (22,285,137,201) | (30,228,178,974) | - | 20,772,224,301 | 395,677,031,252 |
| Others | 10,230,437,591 | - | 1,179,973,225 | (12,079,800) | (2,296,211,289) | - | (605,577,230) | 8,496,542,497 |
| Oil & gas properties | 6,267,203,585,759 | - | 392,660,591,332 | (16,729,605,422) | (842,633,538,287) | (151,026,362,671) | 409,595,681,770 | 6,059,070,352,481 |
| (Government grants) | (3,312,019,239) | - | - | - | 862,188,805 | - | (123,405,107) | (2,573,235,541) |
| | ₩ 8,674,307,451,404 | ₩ 201,819,208,973 | ₩ 498,979,249,231 | ₩ (42,445,027,750) | ₩ (966,032,329,635) | ₩ (151,026,362,671) | ₩ 502,117,292,211 | ₩ 8,717,719,481,763 |

[1] Impairment loss is a net amount, taking into account reversal amounts.
[2] Include the effect of changes in exchange rates and others.

*(in Korean won)*

**2018**

| | Beginning balance | Acquisition / Capital expenditures | Disposal | Depreciation | Reversal of impairment losses [1] | Others [2] | Ending balance |
|---|---|---|---|---|---|---|---|
| Land | ₩ 445,332,614,979 | ₩ - | ₩ - | ₩ - | ₩ - | ₩ 19,411,081,874 | ₩ 464,743,696,853 |
| Buildings | 45,803,510,187 | 250,926,232 | - | (1,869,442,291) | - | 2,797,875,685 | 46,982,869,813 |
| Structures | 1,151,977,194,753 | 301,435,734 | - | (47,169,231,243) | - | 94,366,650,743 | 1,199,476,049,987 |
| (Contributions to construction) | (112,741,718) | - | - | 3,618,216 | - | (4,855,634) | (113,979,136) |
| Machinery | 192,263,204,780 | 2,251,914,042 | (40,679,422) | (26,781,650,784) | - | 149,286,896,265 | 316,979,684,881 |
| (Contributions to construction) | (3,471,484,132) | - | - | 307,725,258 | - | (146,336,260) | (3,310,095,134) |
| Vehicles | 2,183,011,613 | 837,208,311 | (3,752,100) | (849,802,546) | - | 4,834,524 | 2,171,499,802 |
| Tools & fixtures | 9,665,009,489 | 2,064,840,107 | (3,374,142) | (4,776,791,956) | - | 314,731,894 | 7,264,415,392 |
| Finance lease asset | 214,580,653,933 | - | - | (5,996,429,244) | - | 9,256,098,180 | 217,840,322,869 |
| Construction-in-progress | 254,103,947,814 | 67,593,490,940 | - | - | - | (173,546,456,788) | 148,150,981,966 |
| Others | 11,758,512,274 | 1,365,333,424 | (15,252,359) | (2,890,655,509) | - | 12,499,761 | 10,230,437,591 |
| Oil & gas properties | 6,703,556,489,430 | 533,636,842,388 | (6,443,691,247) | (979,524,748,269) | (249,682,419,268) | 265,661,112,725 | 6,267,203,585,759 |
| (Government grants) | (3,968,953,333) | - | - | 816,719,747 | - | (159,785,653) | (3,312,019,239) |
| | ₩ 9,023,670,970,069 | ₩ 608,301,991,178 | ₩ (6,506,749,270) | ₩ (1,068,730,688,621) | ₩ (249,682,419,268) | ₩ 367,254,347,316 | ₩ 8,674,307,451,404 |

[1] Impairment loss is a net amount, taking into account reversal amounts.
[2] Include the effect of changes in exchange rates and others.

### 16. Property, Plant and Equipment (cont'd)

Details of impairments recognized by segments for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | **2019**<br>**Oil and Gas**[1] |
|---|---|---|
| **General information** | | |
| Type of assets | | Oil and gas properties |
| Valuation Method | | Value in use |
| **Assumptions** | | |
| Discount rate after tax[2] | | 9%~14% |
| Oil prices[3] | | International indices |
| Production quantities | | Estimated production quantities based on reserve reports |
| Recoverable amounts | ₩ | 517,882,275,984 |
| Impairment losses | | 176,250,829,929 |
| Reason for impairment | | Decrease in forecasted oil prices |

[1] The CGUs of the oil and gas segment are fields or areas.

[2] Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

[3] The oil prices are based on the long-term forecasts from globally recognized research institutions.

| *(in Korean won)* | | **2018**<br>**Oil and Gas**[1] |
|---|---|---|
| **General information** | | |
| Type of assets | | Oil and gas properties |
| Valuation Method | | Value in use |
| **Assumptions** | | |
| Discount rate after tax[2] | | 8.00~14.54% |
| Oil prices[3] | | International indices |
| Production quantities | | Estimated production quantities based on reserve reports |
| Recoverable amounts | ₩ | 638,755,429,389 |
| Impairment losses | | 272,828,899,213 |
| Reason for impairment | | Decrease in forecasted oil prices |

[1] The CGUs of the oil and gas segment are fields or areas.

[2] Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

[3] The oil prices are based on the long-term forecasts from globally recognized research institutions.

### 16. Property, Plant and Equipment (cont'd)

Details of reversal of impairment losses recognized by segments for the years ended December 31, 2019 and 2018, are as follows

| *(in Korean won)* | | 2019 |
|---|---|---|
| | | **Oil and Gas[1]** |
| **General information** | | |
| Type of assets | | Oil and gas properties |
| Valuation Method | | Value in use |
| **Assumptions** | | |
| Discount rate after tax[2] | | 9%~14% |
| Oil prices[3] | | International indices |
| Production quantities | | Estimated production quantities based on reserve reports |
| Reversal of impairment losses | ₩ | 25,224,458,258 |
| Reason for impairment | | Increase in probable reserves and others |

[1] The CGUs of the oil and gas segment are fields or areas.

[2] Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

[3] The oil prices are based on the long-term forecasts from globally recognized research institutions.

| *(in Korean won)* | | 2018 |
|---|---|---|
| | | **Oil and Gas[1]** |
| **General information** | | |
| Type of assets | | Oil and gas properties |
| Valuation Method | | Value in use |
| **Assumptions** | | |
| Discount rate after tax[2] | | 8.00~14.54% |
| Oil prices[3] | | International indices |
| Production quantities | | Estimated production quantities based on reserve reports |
| Reversal of impairment losses | ₩ | 23,146,479,946 |
| Reason for impairment | | Increase in probable reserves and others |

[1] The CGUs of the oil and gas segment are fields or areas.

[2] Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

[3] The oil prices are based on the long-term forecasts from globally recognized research institutions.

### 17. Goodwill

Details of goodwill as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | **2019** | | **2018** |
|---|---|---|---|---|
| Acquisition cost | ₩ | 1,163,295,063,317 | ₩ | 1,107,578,729,113 |
| Accumulated impairment losses | | (1,010,319,143,482) | | (963,785,846,848) |
| Book value | ₩ | 152,975,919,835 | ₩ | 143,792,882,265 |

Changes in goodwill for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | **2019** | | **2018** |
|---|---|---|---|---|
| Beginning balance | ₩ | 143,792,882,265 | ₩ | 147,854,168,663 |
| Other changes [1] | | 9,183,037,570 | | (4,061,286,398) |
| Ending balance | ₩ | 152,975,919,835 | ₩ | 143,792,882,265 |

[1] Include the effect of exchange rate changes.

Changes in accumulated impairment losses for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | **2019** | | **2018** |
|---|---|---|---|---|
| Beginning balance | ₩ | (963,785,846,848) | ₩ | (983,893,958,014) |
| Other changes [1] | | (46,533,296,634) | | 20,108,111,166 |
| Ending balance | ₩ | (1,010,319,143,482) | ₩ | (963,785,846,848) |

[1] Include the effect of exchange rate changes.

For the purpose of impairment testing, carrying amounts of goodwill allocated to the Group's CGUs as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | **2019** | | **2018** |
|---|---|---|---|---|
| Dana Petroleum Limited [1] | ₩ | 129,187,626,950 | ₩ | 120,820,269,965 |
| Altius Holdings Inc. (a subsidiary of KNOC Kaz B.V.) [2] | | 23,788,292,885 | | 22,972,612,300 |
| | ₩ | 152,975,919,835 | ₩ | 143,792,882,265 |

[1] Dana Petroleum Limited's recoverable amount is estimated based on the value in use. The value in use is estimated from the cash inflows, which are discounted at 8% and 12% derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is no impairment loss on goodwill recognized based on the value in use estimated for each CGU for the year ended December 31, 2019.

[2] Altius Holding Inc.'s recoverable amount is estimated based on the value in use. The value in use is estimated from the cash inflows, which are discounted at 6.36%, derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is no impairment loss on goodwill recognized based on the value in use estimated for each CGU for the year ended December 31, 2019.

## 18. Intangible Assets Other Than Goodwill

Details of intangible assets other than goodwill as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | | | |
|---|---|---|---|---|
| | **Acquisition cost** | **Accumulated amortization** | **Accumulated impairment losses** | **Book value** |
| Exploration and evaluation assets | ₩ 3,191,284,101,953 | ₩ - | ₩ (2,797,975,632,548) | ₩ 393,308,469,405 |
| Software | 31,811,939,729 | (29,276,965,574) | - | 2,534,974,155 |
| Mining rights | 2,907,549,721,909 | (1,651,866,802,705) | (251,933,962,336) | 1,003,748,956,868 |
| Development cost | 43,026,248,119 | (38,097,329,112) | - | 4,928,919,007 |
| Land use right | 242,444,478 | (87,646,618) | - | 154,797,860 |
| Others | 92,620,669,009 | (1,159,225,321) | (89,311,085,182) | 2,150,358,506 |
| | ₩ 6,266,535,125,197 | ₩ (1,720,487,969,330) | ₩ (3,139,220,680,066) | ₩ 1,406,826,475,801 |

| *(in Korean won)* | **2018** | | | |
|---|---|---|---|---|
| | **Acquisition cost** | **Accumulated amortization** | **Accumulated impairment losses** | **Book value** |
| Exploration and evaluation assets | ₩ 2,983,794,385,770 | ₩ - | ₩ (2,635,250,888,832) | ₩ 348,543,496,938 |
| Software | 30,176,084,478 | (27,057,279,818) | - | 3,118,804,660 |
| Mining rights | 4,099,957,829,727 | (1,562,112,426,885) | (835,045,070,350) | 1,702,800,332,492 |
| Development cost | 40,971,666,463 | (34,453,473,302) | - | 6,518,193,161 |
| Land use right | 234,132,376 | (78,785,798) | - | 155,346,578 |
| Others | 89,563,774,783 | (1,071,875,219) | (86,260,397,529) | 2,231,502,035 |
| | ₩ 7,244,697,873,597 | ₩ (1,624,773,841,022) | ₩ (3,556,556,356,711) | ₩ 2,063,367,675,864 |

### 18. Intangible Assets Other Than Goodwill (cont'd)

Changes in intangible assets other than goodwill for the years ended December 31, 2019 and 2018, are as follows:

*(in Korean won)*

| | 2019 | | | | | | |
|---|---|---|---|---|---|---|---|
| | Beginning balance | Acquisition / Capital expenditures | Disposal [1] | Amortization | Impairment losses (reversal) | Others [2] | Ending balance |
| Exploration and evaluation assets | ₩ 348,543,496,938 | ₩ 46,459,217,970 | ₩ - | ₩ - | ₩ (2,136,533,745) | ₩ 442,288,242 | ₩ 393,308,469,405 |
| Software | 3,118,804,660 | 636,241,292 | - | (1,378,563,258) | - | 158,491,461 | 2,534,974,155 |
| Mining rights | 1,702,800,332,492 | 685,994,478 | (767,240,772,901) | (77,412,177,985) | 37,260,193,009 | 107,655,387,775 | 1,003,748,956,868 |
| Development cost | 6,518,193,161 | 184,960,458 | - | (2,436,939,409) | - | 662,704,797 | 4,928,919,007 |
| Land use right | 155,346,578 | - | - | (6,105,605) | - | 5,556,887 | 154,797,860 |
| Others | 2,231,502,035 | 85,068,190 | (210,497,973) | - | - | 44,286,254 | 2,150,358,506 |
| | ₩ 2,063,367,675,864 | ₩ 48,051,482,388 | ₩ (767,451,270,874) | ₩ (81,233,786,257) | ₩ 35,123,659,264 | ₩ 108,968,715,416 | ₩ 1,406,826,475,801 |

[1] In accordance with the amendment to the CBSA contract in Iraq, the related mining rights of ₩ 767,241 million have been disposed of.

[2] Include the effect of changes in exchange rates and others.

*(in Korean won)*

| | 2018 | | | | | | |
|---|---|---|---|---|---|---|---|
| | Beginning balance | Acquisition / Capital expenditures | Disposal | Amortization | Impairment losses (reversal) [1] | Others [2] | Ending balance |
| Exploration and evaluation assets | ₩ 513,078,513,938 | ₩ 25,350,226,755 | ₩ - | ₩ - | ₩ (72,109,423,655) | ₩ (117,775,820,100) | ₩ 348,543,496,938 |
| Software | 4,533,203,475 | 552,836,925 | - | (2,218,590,565) | - | 251,354,825 | 3,118,804,660 |
| Mining rights | 2,407,319,513,715 | 130,144,639 | (119,987,657) | (61,918,119,445) | (537,237,488,909) | (105,373,729,851) | 1,702,800,332,492 |
| Development cost | 7,051,132,694 | 1,183,154,472 | - | (2,049,902,890) | - | 333,808,885 | 6,518,193,161 |
| Land use right | 154,469,620 | - | - | (5,763,305) | - | 6,640,263 | 155,346,578 |
| Others | 2,197,553,253 | 42,639,266 | (10,365,926) | (75,615,445) | - | 77,290,887 | 2,231,502,035 |
| | ₩ 2,934,334,386,695 | ₩ 27,259,002,057 | ₩ (130,353,583) | ₩ (66,267,991,650) | ₩ (609,346,912,564) | ₩ (222,480,455,091) | ₩ 2,063,367,675,864 |

[1] Impairment losses on intangible assets of ₩ 72,109 million due to expiration of mining right and relinquishment of exploration have been recognized for the year ended December 31, 2018. In connection with the returning exploration right of Kurdish oil field in Iraq, the Group recognized impairment loss amounting to ₩ 537,238 million for the year ended December 31, 2018.

[2] Include the effect of changes in exchange rates and others.

## 19. Financial Liabilities Measured at Fair Value through Profit or Loss

Details of financial liabilities measured at fair value through profit or loss as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | | **2018** | |
|---|---|---|---|---|
| | **Current** | **Non-current** | **Current** | **Non-current** |
| Non-derivative liabilities | ₩ 13,385,977,456 | ₩ 55,382,409,262 | ₩ 7,775,280,817 | ₩ 50,189,100,054 |
| | ₩ 13,385,977,456 | ₩ 55,382,409,262 | ₩ 7,775,280,817 | ₩ 50,189,100,054 |

The amounts recognized in profit or loss in relation to financial liabilities measured at fair value through profit or loss for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | **2018** |
|---|---|---|
| Loss on valuation of financial liabilities measured at fair value through profit or loss | ₩ 15,615,393,575 | ₩ - |
| | ₩ 15,615,393,575 | ₩ - |

## 20. Trade and Other Payables

Details of trade and other payables as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | | **2018** | |
|---|---|---|---|---|
| | **Current** | **Non-current** | **Current** | **Non-current** |
| Trade account payables | ₩ 155,458,055,112 | ₩ - | ₩ 128,395,267,866 | ₩ - |
| Other account payables | 426,838,223,343 | 31,069,709,323 | 353,032,471,216 | 37,480,683,758 |
| Accrued expenses | 102,733,436,708 | 137,434,555,894 | 105,930,526,172 | 168,139,964,407 |
| Deposit received | - | 5,051,954,246 | - | 4,675,474,756 |
| Other deposits received | - | 14,827,887 | - | 13,212,621 |
| Lease liability | 43,652,767,750 | 375,064,927,912 | - | - |
| Finance lease liability | - | - | 8,327,296,850 | 213,939,957,566 |
| Other payables[1] | 42,974,828,693 | 773,845,605 | 49,004,800,181 | 10,070,218,993 |
| | ₩ 771,657,311,606 | ₩ 549,409,820,867 | ₩ 644,690,362,285 | ₩ 434,319,512,101 |

[1] Details of other payables are as follows:

| *(in Korean won)* | **2019** | | **2018** | |
|---|---|---|---|---|
| | **Current** | **Non-current** | **Current** | **Non-current** |
| Advances from value added tax | ₩ 857,363,867 | ₩ - | ₩ 2,496,888,146 | ₩ - |
| Overseas advances from value added tax | - | - | 6,102,908,615 | - |
| Liabilities from overseas oil fields | 40,531,797,231 | - | 36,505,184,376 | - |
| Other than payables | 1,585,667,595 | 773,845,605 | 3,899,819,044 | 10,070,218,993 |
| | ₩ 42,974,828,693 | ₩ 773,845,605 | ₩ 49,004,800,181 | ₩ 10,070,218,993 |

### 21. Borrowings and Bond Payables

Details of borrowings and bond payables as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | 2018 |
|---|---|---|
| **Current Liabilities** | | |
| Short-term borrowings | ₩ 115,780,000,000 | ₩ 69,322,200,000 |
| Current portion of long-term borrowings | 443,244,598,733 | - |
| Current portion of bond payables | 982,874,600,007 | 1,370,346,750,001 |
| Less: current portion of discount on bond payables | (131,552,154) | (317,442,153) |
| Add: current portion of premium on bond payables | - | 52,525,543 |
| | 1,541,767,646,586 | 1,439,404,033,391 |
| **Non-current Liabilities** | | |
| Long-term borrowings | 1,852,512,931,074 | 2,322,966,402,551 |
| Less: present discounted value | (412,706,551) | (548,106,015) |
| Bond payables | 10,466,083,138,075 | 9,829,122,908,058 |
| Less: discount on bond payables | (25,574,361,292) | (30,039,808,225) |
| Add: premium on bond payables | 4,067,368,894 | - |
| | 12,296,676,370,200 | 12,121,501,396,369 |
| | ₩ 13,838,444,016,786 | ₩ 13,560,905,429,760 |

Details of payment schedule as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | 2018 | |
|---|---|---|---|---|
| | Borrowings | Bond payables | Borrowings | Bond payables |
| Within a year | ₩ 559,024,598,733 | ₩ 982,874,600,007 | ₩ 69,322,200,000 | ₩ 1,370,346,750,001 |
| 1~5 years | 1,647,907,573,778 | 7,181,131,338,076 | 2,098,784,967,274 | 5,481,231,308,056 |
| More than 5 years | 204,605,357,296 | 3,284,951,799,999 | 224,181,435,277 | 4,347,891,600,002 |
| | ₩ 2,411,537,529,807 | ₩ 11,448,957,738,082 | ₩ 2,392,288,602,551 | ₩ 11,199,469,658,059 |

Details of short-term borrowings as of December 31, 2019 and 2018, are as follows:

*(in Korean won)*

| Type | Financial Institutions | Interest rate (%) | Maturity | 2019 |
|---|---|---|---|---|
| Short-term borrowings | The Export-Import Bank of Korea | Libor+0.63 | 2020-06-25 | ₩ 57,890,000,000 |
| | DBS | U3L+0.30 | 2020-03-27 | 57,890,000,000 |
| | | | | ₩ 115,780,000,000 |

### 21. Borrowings and Bond Payables (cont'd)

*(in Korean won)*

| Type | Financial Institutions | Interest rate (%) | Maturity | 2018 |
|---|---|---|---|---|
| Short-term borrowings in foreign currencies | The Export-Import Bank of Korea | Libor+0.63 | 2019-06-26 | ₩ 67,086,000,000 |
| | JP Morgan | Libor+0.70 | 2019-07-29 | 2,236,200,000 |
| | | | | ₩ 69,322,200,000 |

Details of long-term borrowings as of December 31, 2019 and 2018, are as follows:

*(in Korean won and foreign currencies)*

| | | | | 2019 | | 2018 | |
|---|---|---|---|---|---|---|---|
| Type | Financial Institution | Interest rate (%) | Maturity | Amount | Equivalent to Korean won | Amount | Equivalent to Korean won |
| Long- term borrowings | Mizuho Corporate Bank | - | - | - | ₩ - | USD 200,000,000 | ₩ 223,620,000,000 |
| | The Export-Import Bank of Korea | 3ML+0.67 | 2021-11-28 | USD 250,000,000 | 289,450,000,000 | USD 250,000,000 | 279,525,000,000 |
| | The Export-Import Bank of Korea | 3ML +0.78 | 2022-01-31 | USD 100,000,000 | 115,780,000,000 | - | - |
| | The Export-Import Bank of Korea | 1.28 | 2022-09-06 | USD 43,185,352 | 50,000,000,000 | - | - |
| | The Export-Import Bank of Korea | 1.28 | 2022-09-06 | USD 43,185,352 | 50,000,000,000 | - | - |
| | SAER | Treasury 3Y -1.25 | N/A[1] | USD 95,026,813 | 110,022,044,349 | USD 95,026,813 | 106,249,479,861 |
| | SAER | Treasury 3Y -2.25 [1] | N/A[1] | USD 81,692,272 | 94,583,313,101 | USD 105,475,320 | 117,931,955,416 |
| | CIBC and others | - | - | - | - | USD 283,451,135 | 316,926,713,265 |
| | BNP Paribas and others | - | - | - | - | USD 136,107,579 | 152,181,884,080 |
| | KNOC EF STAR LLC | 3.18 | 2021-11-25 | USD 390,915,659 | 452,602,150,002 | USD 404,795,771 | 452,602,151,555 |
| | Kernhem International B.V | 8.125 | 2021-12-04 | USD 16,717,950 | 19,356,042,510 | USD 16,717,950 | 18,692,339,895 |
| | SMBC | 3.12 | 2023-05-11 | USD 229,126,310 | 265,282,441,158 | USD 219,382,914 | 245,292,035,985 |
| | Credit facility | 3.00 | 2022-07-22 | USD 350,178,736 | 405,436,939,954 | - | - |
| | The Export-Import Bank of Korea [2] | 2.27 | 2021-02-24 | USD 382,833,476 | 443,244,598,733 | USD 366,644,166 | 409,944,842,494 |
| | | | | | 2,295,757,529,807 | | 2,322,966,402,551 |
| | Less: present value discount | | | | (412,706,551) | | (548,106,015) |
| | | | | | 2,295,344,823,256 | | 2,322,418,296,536 |
| | Less: current portion | | | | (443,244,598,733) | | - |
| | | | | | ₩ 1,852,100,224,523 | | ₩ 2,322,418,296,536 |

[1] SAER stands for Special Accounting for Energy and Resources. Borrowing from SAER have no specific maturity as they were borrowed under the condition that the Group is not obligated to make repayment of the principal and interest until the Group successfully complete the oil exploration.

[2] As of December 31, 2019, the borrowings were classified as current portion of long-term borrowings on February 24, 2020, but the maturity date has been extended to February 24, 2021 on February 21, 2020 after the reporting period.

## 21. Borrowings and Bond Payables (cont'd)

Details of bond payables as of December 31, 2019 and 2018, are as follows:

| | | | 2019 | | 2018 | |
|---|---|---|---|---|---|---|
| Type | Interest rate (%) | Maturity | Amount | Equivalent to Korean won | Amount | Equivalent to Korean won |
| Floating interest rate bond payables | - | - | - | ₩ - | AUD 225,000,000 | ₩ 177,257,250,004 |
| | - | - | - | - | AUD 325,000,000 | 256,038,250,000 |
| | 3ML+0.60 | 2020-03-27 | USD 500,000,000 | 578,900,000,000 | USD 500,000,000 | 559,050,000,000 |
| | 3ML+0.875 | 2023-07-16 | USD 400,000,000 | 463,120,000,000 | USD 400,000,000 | 447,240,000,000 |
| | 3ML+0.68 | 2021-12-20 | USD 50,000,000 | 57,890,000,000 | USD 50,000,000 | 55,905,000,000 |
| | 3ML+0.68 | 2022-01-22 | USD 150,000,000 | 173,670,000,000 | - | - |
| Fixed interest rate bond payables | 4.38 | 2021-02-08 | HKD 500,000,000 | 74,329,999,997 | HKD 500,000,000 | 71,384,999,998 |
| | 4.50 | 2021-03-04 | HKD 390,000,000 | 57,977,399,995 | HKD 390,000,000 | 55,680,300,005 |
| | 3.95 | 2022-02-10 | HKD 390,000,000 | 57,977,399,995 | HKD 390,000,000 | 55,680,300,005 |
| | 4.00 | 2022-03-28 | EUR 50,000,000 | 64,871,499,995 | EUR 50,000,000 | 63,957,999,996 |
| | 2.85 | 2023-01-24 | HKD 400,000,000 | 59,464,000,004 | HKD 400,000,000 | 57,108,000,005 |
| | 2.40 | 2023-02-04 | EUR 37,000,000 | 48,004,910,001 | EUR 37,000,000 | 47,328,919,996 |
| | 3.00 | 2025-06-24 | EUR 60,000,000 | 77,845,799,999 | EUR 60,000,000 | 76,749,600,002 |
| | 3.09 | 2023-07-03 | EUR 50,000,000 | 64,871,499,995 | EUR 50,000,000 | 63,957,999,996 |
| | - | - | - | - | USD 500,000,000 | 559,050,000,000 |
| | 4.00 | 2024-01-23 | USD 500,000,000 | 578,900,000,000 | USD 500,000,000 | 559,050,000,000 |
| | - | - | - | - | USD 250,000,000 | 279,525,000,000 |
| | 3.25 | 2024-07-10 | USD 550,000,000 | 636,790,000,000 | USD 550,000,000 | 614,955,000,000 |
| | - | - | - | - | AUD 125,000,000 | 98,476,249,997 |
| | 2.18 | 2020-01-29 | HKD 310,000,000 | 46,084,599,999 | HKD 310,000,000 | 44,258,700,002 |
| | 3.10 | 2027-01-21 | USD 50,000,000 | 57,890,000,000 | USD 50,000,000 | 55,905,000,000 |
| | 3.10 | 2027-01-21 | USD 70,000,000 | 81,046,000,000 | USD 70,000,000 | 78,267,000,000 |
| | 2.39 | 2020-01-28 | USD 50,000,000 | 57,890,000,000 | USD 50,000,000 | 55,905,000,000 |
| | 2.11 | 2020-03-16 | KRW 100,000,000,000 | 100,000,000,000 | KRW 100,000,000,000 | 100,000,000,000 |
| | 3.21 | 2030-03-19 | USD 85,000,000 | 98,413,000,000 | USD 85,000,000 | 95,038,500,000 |
| | 2.99 | 2025-03-19 | USD 90,000,000 | 104,202,000,000 | USD 90,000,000 | 100,629,000,000 |
| | 1.99 | 2020-04-23 | KRW 50,000,000,000 | 50,000,000,000 | KRW 50,000,000,000 | 50,000,000,000 |
| | 2.82 | 2025-04-29 | USD 65,000,000 | 75,257,000,000 | USD 65,000,000 | 72,676,500,000 |
| | 3.02 | 2030-04-29 | USD 60,000,000 | 69,468,000,000 | USD 60,000,000 | 67,086,000,000 |
| | 2.03 | 2020-08-26 | KRW 150,000,000,000 | 150,000,000,000 | KRW 150,000,000,000 | 150,000,000,000 |
| | 3.25 | 2025-10-01 | USD 600,000,000 | 694,680,000,000 | USD 600,000,000 | 670,860,000,000 |
| | 3.22 | 2030-11-10 | USD 100,000,000 | 115,780,000,000 | USD 100,000,000 | 111,810,000,000 |
| | 2.13 | 2021-04-14 | USD 500,000,000 | 578,900,000,000 | USD 500,000,000 | 559,050,000,000 |
| | 2.63 | 2026-04-14 | USD 500,000,000 | 578,900,000,000 | USD 500,000,000 | 559,050,000,000 |
| | 2.00 | 2021-10-24 | USD 350,000,000 | 405,230,000,000 | USD 350,000,000 | 391,335,000,000 |
| | 2.50 | 2026-10-24 | USD 650,000,000 | 752,570,000,000 | USD 650,000,000 | 726,765,000,000 |
| | 2.88 | 2022-03-27 | USD 500,000,000 | 578,900,000,000 | USD 500,000,000 | 559,050,000,000 |
| | 3.38 | 2027-03-27 | USD 500,000,000 | 578,900,000,000 | USD 500,000,000 | 559,050,000,000 |
| | 1.86 | 2021-01-30 | SGD 400,000,000 | 343,420,000,000 | SGD 400,000,000 | 327,311,999,998 |
| | 0.37 | 2023-06-01 | CHF 500,000,000 | 597,760,000,004 | CHF 500,000,000 | 568,110,000,001 |
| | 0.24 | 2022-01-21 | JPY 70,000,000,000 | 744,428,999,995 | - | - |
| | 0.00 | 2024-10-04 | CHF 300,000,000 | 358,656,000,002 | - | - |
| | 2.33 | 2021-04-14 | USD 194,649,689 | 225,365,410,040 | USD 195,756,584 | 218,875,436,447 |
| | 3.00 | 2022-09-21 | USD 479,663,240 | 555,354,099,828 | USD 481,549,620 | 538,420,629,820 |
| | 4.20 | 2023-06-01 | USD 393,202,728 | 455,250,118,233 | USD 394,974,530 | 441,621,021,787 |
| | | | | 11,448,957,738,082 | | 11,199,469,658,059 |
| Less: discount on bond payables | | | | (25,705,913,446) | | (30,357,250,378) |
| Add: premium on bond payables | | | | 4,067,368,894 | | 52,525,543 |
| | | | | 11,427,319,193,530 | | 11,169,164,933,224 |
| Less: current portion | | | | (982,874,600,007) | | (1,370,346,750,001) |
| Add: current portion of discount of bond payables | | | | 131,552,154 | | 317,442,153 |
| Less: current portion of premium of bond payables | | | | - | | (52,525,543) |
| | | | | ₩ 10,444,576,145,677 | | ₩ 9,799,083,099,833 |

## 22. Other Financial Liabilities

Details of other financial liabilities as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | 2018 | |
|---|---|---|---|---|
| | **Current** | **Non-current** | **Current** | **Non-current** |
| Financial guarantee liabilities | ₩ 9,125,764,549 | ₩ - | ₩ - | ₩ 8,812,849,665 |
| | ₩ 9,125,764,549 | ₩ - | ₩ - | ₩ 8,812,849,665 |

## 23. Lease

*(a) The Group as a lessee*

In the previous year, the Group only recognized lease assets and liabilities in relation to leases that were classified as ‘finance leases’ under K-IFRS No. 1017 *Leases*. On adoption of K-IFRS No. 1116 *Leases*, the Group additionally recognized right-of-use assets and lease liabilities in relation to leases which had previously been classified as ‘operating leases’ under the principles of K-IFRS No. 1017 *Leases*.

In addition, the Group recognized as the lease contract with a lease term of 12 months or less as a short-term lease of ₩ 9,498,762,607, and as a low value contract with underlying assets below $ 5,000 of ₩ 136,412,045.

Right-of-use assets as of December 31, 2019, consist of:

| *(in Korean won)* | 2019 | | |
|---|---|---|---|
| | **Acquisition cost** | **Accumulated depreciation** | **Book value** |
| Land | ₩ 5,477,616,837 | ₩ (852,762,881) | ₩ 4,624,853,956 |
| Buildings | 277,993,991,583 | (23,517,644,035) | 254,476,347,548 |
| Structures | 9,320,024,960 | (9,320,024,960) | - |
| Machinery | 314,956,566 | (104,986,525) | 209,970,041 |
| Vessels | 10,130,185,334 | (2,036,548,187) | 8,093,637,147 |
| Vehicles | 4,890,023,255 | (1,276,342,592) | 3,613,680,663 |
| Others | 130,298,821,050 | (5,640,279,153) | 124,658,541,897 |
| | ₩ 438,425,619,585 | ₩ (42,748,588,333) | ₩ 395,677,031,252 |

### 23. Lease (cont'd)

Changes in right-of-use assets for the year ended December 31, 2019, are as follows:

| *(in Korean won)* | 2019 | | |
|---|---|---|---|
| | **Beginning balance** | **Changes in accounting policies** | **Increase** |
| Land | ₩ - | ₩ 6,285,119,230 | ₩ - |
| Buildings | - | 254,128,278,492 | 547,789,186 |
| Structures | - | 30,376,515,538 | - |
| Machinery | - | 304,156,967 | - |
| Vessels | - | 3,610,370,377 | 1,572,994,180 |
| Vehicles | - | 1,219,224,272 | 3,610,217,314 |
| Others | - | 123,735,867,033 | 2,027,590,604 |
| | ₩ - | ₩ 419,659,531,909 | ₩ 7,758,591,284 |

| *(in Korean won)* | 2019 | | | |
|---|---|---|---|---|
| | **Depreciation** | **Decrease** | **Others** [1] | **Ending balance** |
| Land | ₩ (858,544,699) | ₩ - | ₩ (801,720,575) | ₩ 4,624,853,956 |
| Buildings | (10,872,524,229) | - | 10,672,804,088 | 254,476,347,537 |
| Structures | (9,383,215,663) | (22,285,137,201) | 1,291,837,326 | - |
| Machinery | (105,698,344) | - | 11,511,417 | 209,970,040 |
| Vessels | (2,050,356,188) | - | 4,960,628,778 | 8,093,637,147 |
| Vehicles | (1,279,318,709) | - | 63,557,798 | 3,613,680,675 |
| Others | (5,678,521,545) | - | 4,573,605,805 | 124,658,541,897 |
| | ₩ (30,228,179,377) | ₩ (22,285,137,201) | ₩ 20,772,224,637 | ₩ 395,677,031,252 |

[1] Include the effect of changes in exchange rates and others.

### 23. Lease (cont'd)

Details of maturity analysis for lease liabilities (2018: financial lease liabilities) as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | 2018 | |
|---|---|---|---|---|
| | **Contractual undiscounted cash flows** | **Present value of contractual cash flows** | **Minimum lease payments** | **Present value of the minimum lease payments** |
| **Main office building of K-IFRS No. 1116** | | | | |
| Within 1 years | ₩ 8,526,999,996 | ₩ 8,327,296,335 | ₩ 8,526,999,996 | ₩ 8,327,296,850 |
| 1-5 years | 37,216,802,079 | 32,541,129,971 | 36,150,927,075 | 31,591,191,902 |
| More than 5 years | 463,391,284,707 | 182,672,425,176 | 472,984,159,707 | 182,348,765,664 |
| | 509,135,086,782 | 223,540,851,482 | 517,662,086,778 | 222,267,254,416 |
| **Initial adoption of K-IFRS No. 1116** | | | | |
| Within 1 years | 36,491,534,472 | 35,325,471,415 | - | - |
| 1-5 years | 69,043,158,712 | 63,882,403,525 | - | - |
| More than 5 years | 126,113,283,689 | 95,968,969,240 | - | - |
| | 231,647,976,873 | 195,176,844,180 | - | - |
| **Total** | | | | |
| Within 1 years | 45,018,534,468 | 43,652,767,750 | 8,526,999,996 | 8,327,296,850 |
| 1-5 years | 106,259,960,791 | 96,423,533,496 | 36,150,927,075 | 31,591,191,902 |
| More than 5 years | 589,504,568,396 | 278,641,394,416 | 472,984,159,707 | 182,348,765,664 |
| | ₩ 740,783,063,655 | ₩ 418,717,695,662 | ₩ 517,662,086,778 | ₩ 222,267,254,416 |

### 23. Lease (cont'd)

Details of lease liabilities as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | 2018 |
|---|---|---|
| Current | ₩ 43,652,767,750 | ₩ 8,327,296,850 |
| Non-current | 375,064,927,912 | 213,939,957,566 |
| | ₩ 418,717,695,662 | ₩ 222,267,254,416 |

Changes in lease liabilities in relation to lease contracts for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | | | | | |
|---|---|---|---|---|---|---|---|
| | Beginning balance | Changes in accounting policies | Increase | Interest expense | Decrease | Others | Ending balance |
| Lease liabilities | ₩ 222,267,254,416 | ₩ 200,697,139,303 | ₩ 7,758,591,284 | ₩ 14,918,929,729 | ₩ (43,579,827,627) | ₩ 16,655,608,557 | ₩ 418,717,695,662 |

| *(in Korean won)* | 2018 | | | | | |
|---|---|---|---|---|---|---|
| | Beginning balance | Changes in accounting policies | Interest expense | Decrease | Others | Ending balance |
| Lease liabilities | ₩ 221,048,356,291 | ₩ - | ₩ 9,745,897,347 | ₩ (8,565,749,523) | ₩ 38,750,301 | ₩ 222,267,254,416 |

The statement of profit or loss shows the following amounts relating to leases:

| *(in Korean won)* | 2019 |
|---|---|
| Depreciation of right-of-use assets | |
| Land | ₩ (858,544,699) |
| Buildings | (10,872,524,229) |
| Structures | (9,383,215,663) |
| Machinery | (105,698,344) |
| Vessels | (2,050,356,188) |
| Vehicles | (1,279,318,709) |
| Others | (5,678,521,545) |
| | ₩ (30,228,179,377) |
| Interest expense relating to lease liabilities (included in finance cost) | ₩ (14,918,929,729) |
| Commitments relating to short-term leases | (9,498,762,607) |
| Commitments relating to leases of low value assets | (136,412,045) |
| Deferred revenue recognized sale and leaseback transaction | 956,613,969 |
| Interest income from leasehold deposits provided | 959,528,169 |
| | ₩ (52,866,141,620) |

**23. Lease (cont'd)**

*(b) The Group as a lessor*

The Group has entered into operating leases on its certain property, plant and equipment. The lease terms are between 1 and 40 years.

Lease income from operating leases where the Group is a lessor, is as follows.

| *(in Korean won)* | | **2019** |
|---|---|---|
| Lease income | ₩ | 64,017,923,241 |
| Related to variable lease payment that does not depend on an index or a rate | | 6,242,117,425 |
| | ₩ | 70,260,040,666 |

The maturity analysis for operating lease payments expected to be received (in undiscounted) as of December 31, 2019, is as follows:

| *(in Korean won)* | | **2019** |
|---|---|---|
| Within one year | ₩ | 23,058,772,589 |
| Between 1 and 5 years | | 7,274,096,432 |
| Later than five years | | 38,196,952,884 |
| | ₩ | 68,529,821,905 |

Lease income from finance leases where the Group is a lessor, is as follows.

| *(in Korean won)* | | **2019** |
|---|---|---|
| Finance income on the net investment in the lease | ₩ | 181,348,821 |
| | ₩ | 181,348,821 |

The maturity analysis for finance lease payments receivable expected to be received (in undiscounted); reconciliation to the net investment in the lease as of December 31, 2019, is as follows:

| *(in Korean won)* | | **2019** |
|---|---|---|
| Within one year | ₩ | 7,317,722,088 |
| Between 1 and 5 years | | 6,087,878,516 |
| Later than five years | | 4,960,597,104 |
| | | 18,366,197,708 |
| Unrealized finance income | | (1,263,402,386) |
| Net investment in the lease | ₩ | 17,102,795,322 |

## 24. Employee Benefits

*Defined contribution pension plan*

The Group operates both defined contribution and defined benefit pension plans based on choice of directors and employees. Contributions to the DC plan are separately managed by the plan's administrator. When employees terminate their employment before the benefits have vested, the Group's obligation to make contribution to the plan decreases on a pro rata basis.

Details of expenses relating to defined contribution plans for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | 2019 | | 2018 |
|---|---|---|---|---|
| Cost of sales | ₩ | 543,803,596 | ₩ | 541,947,880 |
| Selling and administrative expenses | | 698,604,876 | | 766,901,200 |
| | ₩ | 1,242,408,472 | ₩ | 1,308,849,080 |

Total expense recognized in profit or loss for defined contribution plans is excluded from ₩ 13 million capitalized as other construction costs (property, plant and equipment).

Total expenses of ₩ 1,242 million and ₩ 1,309 million for the years ended December 31, 2019 and 2018, respectively, are contributions paid by the Group based on the payment rate defined in employee benefits. As of December 31, 2019, unpaid contributions amounting to ₩ 533 million.

*Defined benefit pension plan*

The latest actuarial calculation on both plan assets and defined benefit obligation was performed as of December 31, 2019. The Group uses the projected unit credit method to determine the present value of its defined benefit obligations, the related current service costs and past service cost.

The components of defined benefits liabilities as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | 2019 | | 2018 |
|---|---|---|---|---|
| Present value of defined benefit obligation from funded plans | ₩ | 106,177,091,120 | ₩ | 92,282,603,218 |
| Fair value of plan assets | | (92,723,152,505) | | (83,532,790,891) |
| | ₩ | 13,453,938,615 | ₩ | 8,749,812,327 |

### 24. Employee Benefits (cont'd)

Changes in the present value of defined benefit obligations for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | **2019** | | **2018** |
|---|---|---|---|---|
| Beginning balance | ₩ | 92,282,603,218 | ₩ | 85,105,138,066 |
| Current service cost | | 8,874,687,581 | | 8,487,037,751 |
| Interest cost | | 3,402,821,953 | | 3,641,230,446 |
| Remeasurement components | | 2,751,967,063 | | 380,568,575 |
| Actual payments | | (4,181,051,016) | | (5,331,371,620) |
| Past service cost resulting from plan amendments, curtailments or settlement | | 3,046,062,321 | | - |
| Ending balance | ₩ | 106,177,091,120 | ₩ | 92,282,603,218 |

Changes in the fair value of plan assets for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | **2019** | | **2018** |
|---|---|---|---|---|
| Beginning balance | ₩ | 83,532,790,891 | ₩ | 76,811,595,104 |
| Expected return on plan assets[1] | | 1,666,387,949 | | 1,474,809,997 |
| Benefit paid by the plan | | (4,000,055,550) | | (5,352,967,300) |
| Contributions paid into the plan | | 11,524,029,215 | | 10,599,353,090 |
| Ending balance | ₩ | 92,723,152,505 | ₩ | 83,532,790,891 |

[1] Actual returns on plan assets consist of interest income of ₩ 3,137 million and loss from remeasurement of ₩ 1,470 million, respectively, for the year ended December 31, 2019.

Details of the fair value of plan assets as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **Expected rate of return[2]** | | **Fair value of plan assets** | | | |
|---|---|---|---|---|---|---|
| | **2019** | **2018** | | **2019** | | **2018** |
| Others[1] | 3.69% | 4.31% | ₩ | 92,723,152,505 | ₩ | 83,532,790,891 |

[1] Others are comprised of 9.3% of deposit and 90.7% of local and overseas securities, and debt securities as of December 31, 2019.

[2] The expected rate of return is calculated based on the weighted average of expected rate of returns for each type of assets. The management evaluates the expected rate of returns based on the historical rate of return trends and the analysis of the predicted market during the period when the defined benefits liabilities exist.

### 24. Employee Benefits (cont'd)

Principal actuarial assumptions as of December 31, 2019 and 2018, are as follows:

| *(in percentage, %)* | **2019** | **2018** |
|---|---|---|
| Discount rate | 3.48 | 3.80 |
| Expected rate of return on plan assets | 3.69 | 4.31 |
| Future salary growth | 4.50 | 4.47 |

Details of expenses relating to defined benefit plans for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | **2019** | | **2018** |
|---|---|---|---|---|
| Current service cost | ₩ | 8,874,687,581 | ₩ | 8,487,037,751 |
| Past service cost | | 3,046,062,321 | | - |
| Interest cost | | 3,402,821,953 | | 3,641,230,446 |
| Expected return on plan assets | | (3,136,622,990) | | (3,310,579,749) |
| Transfer to other account | | (246,032,561) | | (205,623,734) |
| | ₩ | 11,940,916,304 | ₩ | 8,612,064,714 |

Expenses described above are recognized as the following items in the financial statements.

| *(in Korean won)* | | **2019** | | **2018** |
|---|---|---|---|---|
| Cost of sales | ₩ | 4,369,984,316 | ₩ | 2,997,480,931 |
| Selling and administrative expenses | | 7,570,931,988 | | 5,614,583,783 |
| Others[1] | | 246,032,561 | | 205,623,734 |
| | ₩ | 12,186,948,865 | ₩ | 8,817,688,448 |

[1] Amount is attributed to reclassification and it was reflected in the consolidated statement of financial position as other construction expenses (property, plant and equipment).

Remeasurement components recognized in other comprehensive income for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | **2019** | | **2018** |
|---|---|---|---|---|
| ement components | ₩ | (2,751,967,063) | ₩ | (380,568,575) |
| lan assets | | (1,470,235,038) | | (1,835,769,752) |
| tax effect | | 1,021,772,911 | | 536,354,074 |
| | ₩ | (3,200,429,190) | ₩ | (1,679,984,253) |

On the other hand, the amount is included in retained earnings in the consolidated statement of financial position. The remeasurement components recognized in other comprehensive income for the year ended December 31, 2019 are ₩ 3,200 million (after income tax effect of ₩ 1,022 million) and remeasurement components recognized in other comprehensive income for the year ended December 31, 2018 are ₩ 1,680 million (after income tax effect of ₩ 536 million).

### 25. Provisions

Details of provisions as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | | 2018 | | |
|---|---|---|---|---|---|---|
| | Current | Non-current | Total | Current | Non-current | Total |
| Decommissioning cost[1,3] | ₩ 20,038,914,374 | ₩ 2,135,809,540,095 | ₩ 2,155,848,454,469 | ₩ 16,210,513,686 | ₩ 1,956,857,084,519 | ₩ 1,973,067,598,205 |
| Social Overhead Capital[2] | 10,254,072,407 | - | 10,254,072,407 | 12,465,831,150 | - | 12,465,831,150 |
| Allowance for salaries | 4,380,766,760 | - | 4,380,766,760 | 49,304,084 | - | 49,304,084 |
| Provision for litigations | - | 10,165,423,343 | 10,165,423,343 | - | 8,866,454,140 | 8,866,454,140 |
| Onerous contract | 11,310,190,359 | 88,139,212,702 | 99,449,403,061 | 8,784,336,639 | 121,123,638,146 | 129,907,974,785 |
| Others[3] | 14,398,950,848 | 2,198,686,537 | 16,597,637,385 | 18,908,483,507 | 38,214,160,813 | 57,122,644,320 |
| | ₩ 60,382,894,748 | ₩ 2,236,312,862,677 | ₩ 2,296,695,757,425 | ₩ 56,418,469,066 | ₩ 2,125,061,337,618 | ₩ 2,181,479,806,684 |

[1] The Group recognized provisions for future dismantling, removing and restoring obligations of wells and related facilities. Most of the costs incur at or after the completion of production and the management recognized its best estimations as provisions.

[2] The Group is committed to providing construction services with regards to the Kurdish regional government's Social Overhead Capital to obtain rights on certain exploratory areas. This commitment has been classified as a provision due to its uncertain timing of related cash outflows.

[3] The reclassifications from non-current to current amounted to ₩ 10,993 million and ₩ 13,680 million for the years ended December 31, 2019 and 2018, respectively.

Changes in provisions for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | | | | | |
|---|---|---|---|---|---|---|---|
| | Beginning balance | Changes in accounting policies [4] | Provision [1] | Payment | Reversal | Others [2] | Ending balance |
| Decommissioning cost | ₩ 1,973,067,598,205 | ₩ - | ₩ 53,255,315,050 | ₩ (37,013,324,879) | ₩ (6,945,023,876) | ₩ 173,483,889,969 | ₩ 2,155,848,454,469 |
| Social Overhead Capital | 12,465,831,150 | - | 89,612,001 | (2,738,147,589) | - | 436,776,845 | 10,254,072,407 |
| Allowance for salaries | 49,304,084 | - | 4,359,067,934 | - | - | (27,605,258) | 4,380,766,760 |
| Provision for litigations [3] | 8,866,454,140 | - | 990,824,065 | - | - | 308,145,138 | 10,165,423,343 |
| Onerous contract | 129,907,974,785 | (4,313,513,149) | 1,585,885,767 | (7,666,908,391) | (24,786,154,683) | 4,722,118,732 | 99,449,403,061 |
| Others | 57,122,644,320 | - | 2,213,593,071 | (7,932,703,634) | - | (34,805,896,372) | 16,597,637,385 |
| | ₩ 2,181,479,806,684 | ₩ (4,313,513,149) | ₩ 62,494,297,888 | ₩ (55,351,084,493) | ₩ (31,731,178,559) | ₩ 144,117,429,054 | ₩ 2,296,695,757,425 |

[1] Include the provisions.

[2] Include decrease in provisions of ₩ 8,648 million and the effect of changes in exchange rates regarding disposal of assets.

[3] The Group recognized provision in relation to litigation amount and statutory interest on the partial loss of litigation on the return of normal wage.

[4] Amounts were reclassified from the onerous contract to lease liability due to a change in accounting policies.

### 25. Provisions (cont'd)

| *(in Korean won)* | 2018 | | | | |
|---|---|---|---|---|---|
| | **Beginning balance** | **Provision** [1] | **Payment** | **Others** [2] | **Ending balance** |
| Decommissioning cost | ₩ 1,984,042,672,774 | ₩ 77,844,592,362 | ₩ (20,368,032,937) | ₩ (68,451,633,994) | ₩ 1,973,067,598,205 |
| Social Overhead Capital | 77,110,518,133 | 718,561,367 | (58,563,694,602) | (6,799,553,748) | 12,465,831,150 |
| Allowance for salaries | 667,181,340 | - | (636,658,755) | 18,781,499 | 49,304,084 |
| Provision for litigations [3] | - | 11,958,166,832 | - | (3,091,712,692) | 8,866,454,140 |
| Onerous contract [4] | 7,612,599,424 | 123,254,750,902 | (1,332,192,978) | 372,817,437 | 129,907,974,785 |
| Others | 45,263,890,105 | 20,710,729,679 | (9,008,188,361) | 156,212,897 | 57,122,644,320 |
| | ₩ 2,114,696,861,776 | ₩ 234,486,801,142 | ₩ (89,908,767,633) | ₩ (77,795,088,601) | ₩ 2,181,479,806,684 |

[1] Include the provisions.

[2] Include decrease in provisions of ₩ 2,988 million and the effect of changes in exchange rates regarding disposal of assets.

[3] The Group recognized provision in relation to litigation amount and statutory interest on the partial loss of litigation on the return of normal wage.

[4] The Group recognized provision amounting to ₩ 122,363 million for the year ended December 31, 2018 as a result of having an obligation to pay for the oil pipelines even after the end of production of Vietnam 11-2.

### 26. Government Grants

In accordance with the accounting standards and the provisions in the standard for public enterprise and quasi-government, government grants relating to property, plant and equipment are presented as the deduction from related assets.

Details of assets and liabilities of government grants as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | |
|---|---|---|
| | **Assets** | **Liabilities** |
| Cash | ₩ 11,100,917 | ₩ - |
| Others | 2,573,235,532 | - |
| | ₩ 2,584,336,449 | ₩ - |

| *(in Korean won)* | 2018 | |
|---|---|---|
| | **Assets** | **Liabilities** |
| Cash | ₩ 77,710,041 | ₩ - |
| Others | 3,312,019,239 | - |
| | ₩ 3,389,729,280 | ₩ - |

### 26. Government Grants (cont'd)

Changes in assets and liabilities of government grants for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | | | | |
|---|---|---|---|---|---|---|
| | Beginning balance | Additional grants | Offset with depreciation | Revenue recognized | Others [1] | Ending balance |
| Cash | ₩ 77,710,041 | ₩ 1,421,000,000 | ₩ - | ₩ (5,466,365,576) | ₩ 3,978,756,452 | ₩ 11,100,917 |
| Others | 3,312,019,239 | - | (862,188,805) | - | 123,405,098 | 2,573,235,532 |
| | ₩ 3,389,729,280 | ₩ 1,421,000,000 | ₩ (862,188,805) | ₩ (5,466,365,576) | ₩ 4,102,161,550 | ₩ 2,584,336,449 |

[1] Include the effect of changes in exchange rates, return of government grants and others.

| *(in Korean won)* | 2018 | | | | | |
|---|---|---|---|---|---|---|
| | Beginning balance | Additional grants | Offset with depreciation | Revenue recognized | Others [1] | Ending balance |
| Cash | ₩ 44,734,303 | ₩ 1,396,000,000 | ₩ - | ₩ (1,327,324,822) | ₩ (35,699,440) | ₩ 77,710,041 |
| Others | 3,968,953,333 | - | (816,719,747) | - | 159,785,653 | 3,312,019,239 |
| | ₩ 4,013,687,636 | ₩ 1,396,000,000 | ₩ (816,719,747) | ₩ (1,327,324,822) | ₩ 124,086,213 | ₩ 3,389,729,280 |

[1] Include the effect of changes in exchange rates, return of government grants and others.

Details of government grants income recognized for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | 2018 |
|---|---|---|
| Government grants income | ₩ 5,466,365,576 | ₩ 1,327,324,822 |
| Offset with depreciation | 862,188,805 | 816,719,747 |
| | ₩ 6,328,554,381 | ₩ 2,144,044,569 |

Details of the government grants business by category and changes in government grants for the years ended December 31, 2019 and 2018, are as follows:

*(in Korean won)*

| 2019 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Business | Details | Period | Budget | Carried over from prior year | Increase | | | Decrease | | | Others | Carried forward to subsequent year |
| | | | | | | Issuance | | Interest | Return | | Interest | | |
| | | | | | | Group paid | Government grants | Group paid | Group paid | Government grants | Group paid | | |
| Korea Institute of Energy Technology Evaluation and Planning | A Study on the Development and Empirical Study of the Production Enhancement of the Low-Rise Carbonate Layers in UAE | Building a Model of Integrated Stationary Deposition Rock | 2019.2.1 ~ 2019.11.30 | 92,000,000 | - | 46,000,000 | 46,000,000 | 476,005 | 46,000,000 | 46,000,000 | 476,005 | - | - |

### 26. Government Grants (cont'd)

*(in Korean won)*

| 2018 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Business** | **Details** | **Period** | **Budget** | **Carried over from prior year** | **Increase** | | | **Decrease** | | **Others** | **Carried forward to subsequent year** |
| | | | | | | **Issuance** | | **Interest** | **Return** | | | |
| | | | | | | **Group paid** | **Government grants** | **Group paid** | **Group paid** | **Government grants** | | |
| Korea Institute of Energy Technology Evaluation and Planning | A Study on the Development and Empirical Study of the Production Enhancement of the Low-Rise Carbonate Layers in UAE | Building a Model of Integrated Stationary Deposition Rock | 2018.4.1 ~ 2019.1.31 | 42,000,000 | - | 21,000,000 | 21,000,000 | 492,122 | 21,492,122 | 21,000,000 | - | - |

### 27. Contributions for Construction

Details of contributions for construction as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | **2018** |
|---|---|---|
| Others [1] | ₩ 330,091,017 | ₩ 311,343,474 |
| | ₩ 330,091,017 | ₩ 311,343,474 |

[1] The amounts were offset against the depreciation of the related assets for the year ended December 31, 2019 and 2018, from cash equivalents transferred from SK Energy in accordance with the expansion construction of connecting line between the Group (Ulsan branch) and SK Energy.

### 28. Non-Financial Liabilities

Details of non-financial liabilities as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | | **2018** | |
|---|---|---|---|---|
| | **Current** | **Non-current** | **Current** | **Non-current** |
| Advance received | ₩ 23,136,687,444 | ₩ - | ₩ 23,035,625,755 | ₩ - |
| Unearned revenue | 61,973,658,781 | 23,461,366,740 | 68,935,910,750 | 34,495,217,879 |
| Withholdings | 65,160,003,401 | - | 80,148,817,747 | - |
| Others | 110,768,741 | 34,285,362,446 | 2,401,323,882 | 34,027,336,847 |
| | ₩ 150,381,118,367 | ₩ 57,746,729,186 | ₩ 174,521,678,134 | ₩ 68,522,554,726 |

### 29. Share Capital

Details of share capital as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | | 2018 | | |
|---|---|---|---|---|---|---|
| | Government | Non-government | Total | Government | Non-government | Total |
| Share capital | ₩ 10,515,105,780,075 | ₩ - | ₩ 10,515,105,780,075 | ₩ 10,481,533,780,075 | ₩ - | ₩ 10,481,533,780,075 |
| | ₩ 10,515,105,780,075 | ₩ - | ₩ 10,515,105,780,075 | ₩ 10,481,533,780,075 | ₩ - | ₩ 10,481,533,780,075 |

The changes in share capital for the year ended December 31, 2019, are as follows:

| *(in Korean won)* | Description | Amount |
|---|---|---|
| Beginning balance | | ₩ 10,481,533,780,075 |
| 2019-04-19 | Contribution for oil field development | 13,672,000,000 |
| 2019-05-23 | Contribution for oil stockpiling business | 12,390,000,000 |
| 2019-08-22 | Contribution for oil stockpiling business | 1,080,000,000 |
| 2019-09-17 | Contribution for oil stockpiling business | 510,000,000 |
| 2019-11-25 | Contribution for oil stockpiling business | 5,310,000,000 |
| 2019-12-11 | Contribution for oil stockpiling business | 610,000,000 |
| Ending balance | | ₩ 10,515,105,780,075 |

### 30. Accumulated Deficit and Dividend

Details of accumulated deficit as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | 2018 |
|---|---|---|
| Undisposed accumulated deficit | ₩ (9,393,324,831,534) | ₩ (8,627,443,113,991) |

Changes in accumulated deficit for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | 2018 |
|---|---|---|
| Beginning balance | ₩ (8,627,443,113,991) | ₩ (8,172,145,455,088) |
| Adjustment on the adoption of K-IFRS No. 1109 (after tax) | - | 377,105,179,418 |
| Net loss for the year | (762,681,288,353) | (830,722,853,870) |
| Remeasurement components of defined benefits plan | (3,200,429,190) | (1,679,984,451) |
| Ending balance | ₩ (9,393,324,831,534) | ₩ (8,627,443,113,991) |

### 30. Accumulated Deficit and Dividend (cont'd)

Changes in remeasurement components for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | 2019 | | 2018 |
|---|---|---|---|---|
| Beginning balance | ₩ | (14,791,909,146) | ₩ | (13,111,924,695) |
| Changes during the current year | | (4,222,202,101) | | (2,216,338,541) |
| Income tax effects | | 1,021,772,911 | | 536,354,090 |
| Ending balance | ₩ | (17,992,338,336) | ₩ | (14,791,909,146) |

### 31. Statements of Disposition of Accumulated Deficit

Consolidated statements of disposition of accumulated deficit for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | 2019 | | 2018 |
|---|---|---|---|---|
| I. Undisposed deficit | | | | |
| Undisposed accumulated deficit carried over from prior years | ₩ | (8,627,443,113,991) | ₩ | (8,172,145,455,088) |
| Adjustment on the adoption of K-IFRS No. 1109 (after tax) | | - | | 377,105,179,418 |
| Loss for the year | | (762,681,288,353) | | (830,722,853,870) |
| Remeasurement components | | (3,200,429,190) | | (1,679,984,451) |
| II. Undisposed deficit to be carried forward to the subsequ year | ₩ | (9,393,324,831,534) | ₩ | (8,627,443,113,991) |

Dates of disposition for the years ended December 31, 2019 and 2018 are July 24, 2020, and February 28, 2019, respectively.

## 32. Other Components of Equity

Details of other components of equity as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | 2019 | | 2018 |
|---|---|---|---|---|
| Other capital surpluses[1] | ₩ | 24,934,262,869 | ₩ | 24,934,262,869 |
| Accumulated other comprehensive loss | | (1,180,692,068,420) | | (1,057,698,519,294) |
| | ₩ | (1,155,757,805,551) | ₩ | (1,032,764,256,425) |

[1] Details of other capital surpluses as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | 2019 | | 2018 |
|---|---|---|---|---|
| Assets contributed | ₩ | 24,954,221,211 | ₩ | 24,954,221,211 |
| Loss on capital reduction | | (19,958,342) | | (19,958,342) |
| | ₩ | 24,934,262,869 | ₩ | 24,934,262,869 |

Details of accumulated other comprehensive loss as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | 2019 | | 2018 |
|---|---|---|---|---|
| Loss on valuation of equity instruments measured at fair value through other comprehensive income | ₩ | (569,312,432,955) | ₩ | (542,224,942,856) |
| Equity adjustments in equity method | | 24,395,737,781 | | 26,651,769,429 |
| Foreign currency translation differences for foreign operations | | (640,764,450,823) | | (657,769,724,816) |
| Gains on valuation of derivative instruments | | 4,989,077,577 | | 115,644,378,949 |
| | ₩ | (1,180,692,068,420) | ₩ | (1,057,698,519,294) |

## 33. Revenue

Details of revenues (based on customer locations) except for other income, other profit and financial income (Notes 35, 36, and 37) for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | 2019 | | | | |
|---|---|---|---|---|---|---|
| | | Domestic | | Overseas | | Total |
| Sales of goods and finished goods | ₩ | 149,323,867,319 | ₩ | 2,530,369,714,845 | ₩ | 2,679,693,582,164 |
| Revenues from services provided | | 36,396,460,697 | | 163,149,981,930 | | 199,546,442,627 |
| Income on government grants | | 5,466,365,576 | | - | | 5,466,365,576 |
| Others | | 1,165,754,501 | | 44,120,814,732 | | 45,286,569,233 |
| | ₩ | 192,352,448,093 | ₩ | 2,737,640,511,507 | ₩ | 2,929,992,959,600 |

### 33. Revenue (cont'd)

| *(in Korean won)* | 2018 | | |
|---|---|---|---|
| | Domestic | Overseas | Total |
| Sales of goods and finished goods | ₩ 162,650,841,452 | ₩ 2,749,122,948,078 | ₩ 2,911,773,789,530 |
| Revenues from services provided | 39,347,716,344 | 138,979,083,451 | 178,326,799,795 |
| Income on government grants | 1,327,324,822 | - | 1,327,324,822 |
| Others | 1,274,782,185 | 56,562,569,958 | 57,837,352,143 |
| | ₩ 204,600,664,803 | ₩ 2,944,664,601,487 | ₩ 3,149,265,266,290 |

### 34. Selling and Administrative Expenses

| *(In Korean won)* | 2019 | 2018 |
|---|---|---|
| Salaries | ₩ 100,704,455,485 | ₩ 92,110,887,191 |
| Post-employment benefits | 9,621,482,551 | 6,588,051,487 |
| Employee benefits | 12,454,874,364 | 13,675,899,803 |
| Insurance | 2,391,010,258 | 2,975,850,738 |
| Depreciation | 18,377,153,596 | 14,536,500,119 |
| Amortization of intangible assets other than goodwill | 3,808,668,508 | 4,266,326,942 |
| Commission expense | 27,296,294,826 | 23,609,616,358 |
| Advertising expense | 667,137,630 | 447,796,936 |
| Training | 1,338,705,884 | 1,387,749,744 |
| Vehicle | 1,169,775,294 | 1,236,623,022 |
| Publication | 249,571,167 | 506,161,007 |
| Promotional expense | 134,210,458 | 135,313,211 |
| Rental expense | 1,530,977,066 | 5,490,100,474 |
| Communication | 478,528,210 | 855,492,878 |
| Freight expense | - | 1,122,163 |
| Taxes and dues | 1,918,187,952 | 4,151,844,986 |
| Supplies expense | 1,527,590,550 | 1,210,498,478 |
| Utilities expense | 1,096,977,316 | 1,197,456,105 |
| Repairs | 4,071,598,362 | 5,716,625,826 |
| Ordinary research and development expense | 2,799,743,321 | 1,962,301,570 |
| Travel expense | 1,764,013,756 | 2,035,026,251 |
| Clothing expense | 22,358,624 | 15,658,061 |
| Association expense | 401,683,818 | 286,940,239 |
| Sales promotional expense | (93,027,403) | 149,021,221 |
| Sales commissions | 99,826,667,823 | 239,696,216,574 |
| Others | 12,551,801,518 | 9,726,506,287 |
| | ₩ 306,110,440,934 | ₩ 433,971,587,671 |

### 34. Selling and Administrative Expenses (cont'd)

Details of accumulated other selling and administrative expenses for the years ended December 31, 2019 and 2018, are as follows:

| *(In Korean won)* | | **2019** | | **2018** |
|---|---|---:|---|---:|
| Rewards expense | ₩ | 62,371,915 | ₩ | 42,156,564 |
| Litigation expense | | 3,388,258,126 | | 651,205,986 |
| Promotion expense | | 397,665,029 | | 244,174,472 |
| Overhead expense for production | | 6,500,312,536 | | 5,295,246,157 |
| Miscellaneous expense | | 2,203,193,912 | | 3,493,723,108 |
| | ₩ | 12,551,801,518 | ₩ | 9,726,506,287 |

### 35. Other Income and Expenses

Details of other income for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | **2019** | | **2018** |
|---|---|---:|---|---:|
| Reversal of other provisions | ₩ | 2,454,517,994 | ₩ | - |
| Reversal of other bad debt allowance | | 3,495,036,527 | | 8,356,085,894 |
| Gains on exemption of debts | | 76,223,080,929 | | - |
| Compensation and indemnity | | 9,747,888 | | 11,433,646 |
| Rental income | | 533,336,117 | | 422,131,195 |
| Other income from overseas fields | | 3,867,437,620 | | 3,308,510,874 |
| Others | | 7,014,187,007 | | 64,390,610,990 |
| | ₩ | 93,597,344,082 | ₩ | 76,488,772,599 |

Details of other expenses for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | **2019** | | **2018** |
|---|---|---:|---|---:|
| Transfer to other provision | ₩ | 938,611,291 | ₩ | 13,039,492,808 |
| Other bad debt expense | | 3,186,538,955 | | 765,168,480 |
| Donations | | 888,857,187 | | 1,999,823,638 |
| Losses on valuation of supplies | | 407,928,589 | | 345,743,605 |
| Other expenses from overseas fields | | 5,863 | | 167,004,590 |
| Others | | 2,837,312,186 | | 21,474,040,534 |
| | ₩ | 8,259,254,071 | ₩ | 37,791,273,655 |

### 36. Other Profit and Loss

Details of other profit and loss for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | **2019** | | **2018** |
|---|---|---|---|---|
| Gains on disposal of property, plant and equipment | ₩ | 12,234,503,767 | ₩ | 7,660,786,299 |
| Gains on disposal of intangible assets other than goodwill | | 87,120,730,552 | | 6,763,819 |
| Gains on transactions of derivative (other than finance income) | | 159,775,646 | | - |
| Reversal of impairment losses on property, plant and equipment | | 25,224,458,258 | | 23,146,479,941 |
| Reversal of impairment losses on intangible assets other than goodwill | | 53,230,301,443 | | - |
| Gains on foreign currency translation (other than finance income) | | 22,942,425,015 | | 26,654,135,840 |
| Gains on foreign currency transactions | | 47,825,588,716 | | 33,080,183,490 |
| Gains on insurance contracts | | 15,584,042,427 | | - |
| Other gains (other than finance income) | | 14,461,524,928 | | 8,490,972,496 |
| Losses on disposal of property, plant and equipment | | (17,491,127,469) | | (154,437,052) |
| Losses on transactions of derivative (other than finance cost) | | (159,775,646) | | (2,905,539,060) |
| Impairment losses on property, plant and equipment | | (176,250,820,929) | | (272,828,899,217) |
| Impairment losses on intangible assets other than goodwill | | (18,106,642,179) | | (609,346,912,576) |
| Losses on foreign currency translation (other than finance cost) | | (21,518,126,092) | | (19,636,929,194) |
| Losses on foreign currency transactions (other than finance cost) | | (43,341,210,015) | | (41,456,005,785) |
| Other losses | | (4,010,661,677) | | (2,033,843,197) |
| | ₩ | (2,095,013,255) | ₩ | (849,323,244,196) |

Details of accumulated other gains (other than finance income) for the years ended December 31, 2019 and 2018, are as follows:

| *(In Korean won)* | | **2019** | | **2018** |
|---|---|---|---|---|
| Gains on stockpile oil quantity adjustment | ₩ | 13,333,276,766 | ₩ | 1,138,622,085 |
| Gains on duty from stockpile lease | | 79,902,533 | | 4,313,013,893 |
| Miscellaneous gains | | 1,048,345,629 | | 3,039,336,518 |
| | ₩ | 14,461,524,928 | ₩ | 8,490,972,496 |

Details of accumulated other losses for the years ended December 31, 2019 and 2018, are as follows:

| *(In Korean won)* | | **2019** | | **2018** |
|---|---|---|---|---|
| Losses on duty from stockpile lease | ₩ | 2,209,395,110 | ₩ | 40,376,664 |
| Losses on cancellation of debt exemption | | 1,065,761,174 | | 11,033,258 |
| Miscellaneous losses | | 735,505,393 | | 1,982,433,275 |
| | ₩ | 4,010,661,677 | ₩ | 2,033,843,197 |

## 37. Finance income

Details of finance income for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | **2018** |
|---|---|---|
| Interest income | ₩ 22,512,597,370 | ₩ 22,655,696,529 |
| Dividend income | 10,232,181 | 10,295,683 |
| Gains on transactions of financial assets measured at fair value through profit or loss | 2,072,434,884 | - |
| Gains on valuation of financial assets measured at fair value through profit or loss | 167,773,467,775 | 87,037,043,388 |
| Gains on valuation of derivative financial instruments | 18,630,088,549 | 23,218,443,225 |
| Gains on transactions of derivative financial instruments | 11,338,703,001 | 4,421,358,354 |
| Gains on foreign currency translation | 136,666,853,054 | 55,441,206,189 |
| Gains on foreign currency transactions | 43,063,896,401 | 38,457,374,028 |
| | ₩ 402,068,273,215 | ₩ 231,241,417,396 |

Details of interest income by sources included in finance income for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | **2018** |
|---|---|---|
| Cash and cash equivalents | ₩ 16,205,685,110 | ₩ 11,621,482,822 |
| Loans and receivables | 6,306,912,260 | 3,124,402,957 |
| Financial assets measured at fair value through profit or loss | - | 7,909,810,750 |
| | ₩ 22,512,597,370 | ₩ 22,655,696,529 |

### 38. Finance costs

Details of finance costs for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | 2018 |
|---|---|---|
| Interest expenses | ₩ 474,593,305,053 | ₩ 426,020,666,500 |
| Losses on valuation of financial assets measured at fair value through profit or loss | 82,191,492,544 | 5,058,940,998 |
| Losses on valuation of financial liabilities measured at fair value through profit or loss | 15,615,393,575 | - |
| Losses on valuation of derivative financial instruments | 2,518,652,850 | - |
| Losses on transactions of derivative financial instruments | - | 1,088,097,827 |
| Losses on foreign currency translation | 65,411,763,076 | 209,389,524,458 |
| Losses on foreign currency transactions | 13,650,654,166 | 26,539,963,639 |
| Other financial costs | 77,451,325,484 | 115,393,451,884 |
| | ₩ 731,432,586,748 | ₩ 783,490,645,306 |

Details of interest expenses by sources included in finance costs for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | 2018 |
|---|---|---|
| Short-term borrowings | ₩ 5,998,164,131 | ₩ 5,258,874,497 |
| Long-term borrowings | 82,006,064,345 | 65,408,344,720 |
| Bond payables | 316,132,779,675 | 328,635,550,169 |
| Derivative liabilities | 54,747,916,675 | 14,929,367,130 |
| Lease liability | 14,918,929,729 | - |
| Finance lease liability | - | 9,745,897,347 |
| Other financial liabilities | 789,450,498 | 2,042,632,637 |
| | ₩ 474,593,305,053 | ₩ 426,020,666,500 |

## 39. Income Tax Expense

The components of income tax expense for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | 2019 | | 2018 |
|---|---|---|---|---|
| Current income tax | ₩ | 165,120,598,417 | ₩ | 168,414,741,348 |
| Tax directly charged to equity | | 34,114,477,553 | | (151,321,246,819) |
| Changes in deferred taxes arising from temporary differences | | 289,478,488,607 | | 307,398,698,209 |
| Adjustment for prior periods | | 45,099,027,827 | | (96,158,259,104) |
| Income tax expense | ₩ | 533,812,592,404 | ₩ | 228,333,933,634 |

Reconciliations of expected income tax expense computed by applying the statutory income tax rate to profit (loss) before income tax to the actual income tax expense for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | 2019 | | 2018 |
|---|---|---|---|---|
| Profit (loss) before income tax | ₩ | 379,060,620,135 | ₩ | (931,207,088,334) |
| Income tax expense computed at the statutory rate[1] | | 91,732,670,073 | | (225,352,115,377) |
| Adjustments | | | | |
| Adjustments to prior year tax return | | (957,903,194) | | (930,001,068) |
| Non-taxable income | | (18,961,389,592) | | (762,260,333) |
| Non-deductible expenses | | 24,198,713,324 | | (15,913,933,780) |
| Temporary differences not recognized in deferred tax assets | | 249,616,165,355 | | 309,722,658,943 |
| Differences in tax rates in overseas entities | | 288,843,951,397 | | 227,486,797,634 |
| Effect of changes in tax rates | | (145,758,642,786) | | (17,991,916,745) |
| | | 488,713,564,577 | | 276,259,229,274 |
| Effect from temporary differences not recognized in prior years | | 45,099,027,827 | | (47,925,295,640) |
| Income tax expense | ₩ | 533,812,592,404 | ₩ | 228,333,933,634 |
| Effective tax rate | | - | | - |

[1] The expected applicable statutory tax rate for the years ended December 31, 2019 and 2018, is both 24.2%, which is the Korea statutory corporate income tax rate where the Group is domiciled.

### 39. Income Tax Expense(Cont'd)

Income tax recognized as accumulated other comprehensive income for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | 2018 |
|---|---|---|
| Financial assets measured at fair value through other comprehensive income | ₩ - | ₩ (115,657,711,569) |
| Net change in the unrealized fair value of derivative using cash flow hedge accounting | 33,092,704,642 | (36,199,889,123) |
| Remeasurement components | 1,021,772,911 | 536,353,877 |
| | ₩ 34,114,477,553 | ₩ (151,321,246,815) |

Changes in deferred income tax assets (liabilities) recognized in the consolidated statements of financial position for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | | | |
|---|---|---|---|---|---|
| | Beginning balance | Amounts recognized in profit or loss | Amounts recognized in other comprehensive income | Others | Ending balance |
| **Deferred income tax on temporary differences** | | | | | |
| Contributions for construction | ₩ 689,076,085 | ₩ (718,380,768) | ₩ - | ₩ 29,304,683 | ₩ - |
| Investment in associates and others | 41,261,540,597 | (43,490,186,499) | - | 1,757,941,235 | (470,704,667) |
| Financial guarantee liabilities | 98,389,028,086 | (102,558,039,278) | - | 4,184,137,039 | 15,125,847 |
| Allowance for doubtful accounts | 62,597,695,028 | (40,766,186,488) | - | 2,497,172,386 | 24,328,680,926 |
| Financial assets measured at fair value through other comprehensive income | (21,412,227,719) | 22,340,344,535 | - | (910,726,713) | 17,390,103 |
| Intangible assets other than goodwill | 317,695,240,079 | (317,633,219,360) | - | 13,419,378,681 | 13,481,399,400 |
| Accrued expenses | 15,702,777,532 | (16,370,577,536) | - | 667,800,004 | - |
| Asset retirement obligation | 36,256,829,958 | (39,358,643,182) | - | 1,552,417,774 | (1,549,395,450) |
| Property, plant and equipment | (1,569,762,086) | 31,413,357,607 | - | (267,288,309) | 29,576,307,212 |
| Land | (64,962,508,952) | 67,725,202,123 | - | (2,762,693,171) | - |
| Loss on valuation of derivative | (13,412,499,508) | (3,899,647,947) | 19,736,552,670 | (582,887,033) | 1,841,518,182 |
| Defined benefit liabilities | 4,761,545,132 | (8,454,368,988) | 1,021,772,655 | 219,121,004 | (2,451,930,197) |
| Others | (74,985,082,805) | 84,850,258,180 | - | (3,233,886,357) | 6,631,289,018 |
| | 401,011,651,427 | (366,920,087,601) | 20,758,325,325 | 16,569,791,223 | 71,419,680,374 |
| Deferred assets of subsidiaries | 605,588,612,356 | 73,053,469,159 | 13,356,151,505 | 20,920,510,422 | 712,918,743,442 |
| Deferred tax liabilities of subsidiaries | (185,533,918,235) | (29,726,348,460) | - | (6,387,500,016) | (221,647,766,711) |
| | 420,054,694,121 | 43,327,120,699 | 13,356,151,505 | 14,533,010,406 | 491,270,976,731 |
| | ₩ 821,066,345,548 | ₩ (323,592,966,902) | ₩ 34,114,476,830 | ₩ 31,102,801,629 | ₩ 562,690,657,105 |

Temporary differences not recognized in deferred tax assets, tax loss carryforwards and tax deduction are ₩ 16,239,568 million as of December 31, 2019.

## 39. Income Tax Expense(Cont'd)

| *(in Korean won)* | 2018 | | | | |
|---|---|---|---|---|---|
| | **Beginning balance** | **Amounts recognized in profit or loss** | **Amounts recognized in other comprehensive income** | **Others** | **Ending balance** |
| **Deferred income tax on temporary differences** | | | | | |
| Contributions for construction | ₩ 867,382,656 | ₩ (212,673,686) | ₩ - | ₩ 34,367,115 | ₩ 689,076,085 |
| Investment in associates and others | 33,023,590,281 | 6,690,291,628 | - | 1,547,658,688 | 41,261,540,597 |
| Financial guarantee liabilities | 11,638,007,477 | (12,844,559,104) | - | 299,483,830 | (907,067,797) |
| Allowance for doubtful accounts | 149,986,168,764 | (92,430,755,415) | - | 5,042,281,679 | 62,597,695,028 |
| Financial assets measured at fair value through other comprehensive income | 160,559,835,413 | (70,304,421,105) | (115,657,712,112) | 3,990,070,085 | (21,412,227,719) |
| Intangible assets other than goodwill | 193,868,790,222 | 113,539,357,337 | - | 10,287,092,520 | 317,695,240,079 |
| Accrued expenses | 44,504,264,277 | (30,251,933,178) | - | 1,450,446,433 | 15,702,777,532 |
| Asset retirement obligation | 43,429,996,273 | (8,921,852,969) | - | 1,748,686,654 | 36,256,829,958 |
| Property, plant and equipment | 9,818,180,843 | (11,627,788,851) | - | 239,845,922 | (1,569,762,086) |
| Land | (62,065,115,534) | (189,051,345) | - | (2,708,342,073) | (64,962,508,952) |
| Loss on valuation of derivative | (4,655,120,898) | (8,125,587,865) | (292,698,505) | (339,092,240) | (13,412,499,508) |
| Defined benefit liabilities | 2,663,394,376 | 1,414,151,773 | 536,353,338 | 147,645,645 | 4,761,545,132 |
| Others | (3,115,330,752) | 27,123,351,161 | - | 302,992,669 | 24,311,013,078 |
| | 580,524,043,398 | (86,141,471,619) | (115,414,057,279) | 22,043,136,927 | 401,011,651,427 |
| Deferred assets of subsidiaries | 638,390,482,186 | (23,755,546,561) | (35,907,190,123) | 26,860,866,854 | 605,588,612,356 |
| Differences in fair value and book value from business combination and others | (47,820,529,025) | 4,056,653,307 | - | (2,018,766,914) | (45,782,642,632) |
| Deferred tax liabilities of subsidiaries | (84,996,664,031) | (50,237,085,773) | - | (4,517,525,799) | (139,751,275,603) |
| | 505,573,289,130 | (69,935,979,027) | (35,907,190,123) | 20,324,574,141 | 420,054,694,121 |
| | ₩ 1,086,097,332,528 | ₩ (156,077,450,646) | ₩ (151,321,247,402) | ₩ 42,367,711,068 | ₩ 821,066,345,548 |

Details of deferred income tax assets (liabilities) recognized in the consolidated statements of financial position as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | **2018** |
|---|---|---|
| Deferred income tax assets | ₩ 784,338,423,816 | ₩ 1,006,600,263,783 |
| Deferred income tax liabilities | (221,647,766,711) | (185,533,918,235) |
| | ₩ 562,690,657,105 | ₩ 821,066,345,548 |

### 40. Expenses classified by nature

Expenses classified by nature for the year ended December 31, 2019, are as follows:

| *(in Korean won)* | 2019 | | | |
|---|---|---|---|---|
| | **Changes in inventories** | **Selling and administrative expenses** | **Cost of sales** | **Total** |
| Changes in inventories - merchandise | ₩ 4,623,193,955 | ₩ - | ₩ - | ₩ 4,623,193,955 |
| Changes in inventories - finished goods | (5,440,776,878) | - | - | (5,440,776,878) |
| Changes in inventories - others | 1,838,057,359 | - | - | 1,838,057,359 |
| Purchases of inventories | - | - | 44,886,072,373 | 44,886,072,373 |
| Raw materials used | - | - | 4,903,613,990 | 4,903,613,990 |
| Salaries | - | 100,704,455,485 | 198,242,784,353 | 298,947,239,838 |
| Severance and retirement benefits | - | 9,621,482,551 | 5,637,267,678 | 15,258,750,229 |
| Other employee benefits | - | 12,454,874,364 | 8,544,833,775 | 20,999,708,139 |
| Insurance | - | 2,391,010,258 | 17,260,150,506 | 19,651,160,764 |
| Depreciation | - | 18,377,153,596 | 946,841,765,323 | 965,218,918,919 |
| Amortization of other than goodwill | - | 3,808,668,508 | 77,385,850,492 | 81,194,519,000 |
| Commissions and fees | - | 27,296,294,826 | 42,916,303,162 | 70,212,597,988 |
| Advertising | - | 667,137,630 | 85,911,331 | 753,048,961 |
| Education and training | - | 1,338,705,884 | 983,651,365 | 2,322,357,249 |
| Vehicle maintenance | - | 1,169,775,294 | 663,342,775 | 1,833,118,069 |
| Books and printing | - | 249,571,167 | 12,615,305 | 262,186,472 |
| Business development | - | 134,210,458 | 48,034,268 | 182,244,726 |
| Rent | - | 1,530,977,066 | 29,579,778,697 | 31,110,755,763 |
| Communications | - | 478,528,210 | 624,647,286 | 1,103,175,496 |
| Transport | - | - | 166,498,570,132 | 166,498,570,132 |
| Taxes and dues | - | 1,918,187,952 | 52,823,893,025 | 54,742,080,977 |
| Supplies | - | 1,527,590,550 | 9,428,055,149 | 10,955,645,699 |
| Utilities | - | 1,096,977,316 | 63,721,425,138 | 64,818,402,454 |
| Repairs | - | 4,071,598,362 | 143,317,219,027 | 147,388,817,389 |
| Research and development | - | 2,799,743,321 | - | 2,799,743,321 |
| Travel | - | 1,764,013,756 | 540,254,856 | 2,304,268,612 |
| Clothing expenses | - | 22,358,624 | 119,818,551 | 142,177,175 |
| Investigation and analysis | - | - | 98,734,052 | 98,734,052 |
| Association fee | - | 401,683,818 | 15,973,590 | 417,657,408 |
| Sales promotion | - | (93,027,403) | 884,142,145 | 791,114,742 |
| Sales commissions | - | 99,826,667,823 | - | 99,826,667,823 |
| Other selling and administrative expenses | - | 12,551,801,518 | - | 12,551,801,518 |
| Others | - | - | 235,327,888,373 | 235,327,888,373 |
| | ₩ 1,020,474,436 | ₩ 306,110,440,934 | ₩ 2,051,392,596,717 | ₩ 2,358,523,512,087 |

### 40. Expenses classified by nature(Cont'd)

Expenses classified by nature for the year ended December 31, 2018, are as follows:

| *(in Korean won)* | 2018 | | | |
|---|---|---|---|---|
| | Changes in inventories | Selling and administrative expenses | Cost of sales | Total |
| Changes in inventories - merchandise | ₩ (2,166,130,660) | ₩ - | ₩ - | ₩ (2,166,130,660) |
| Changes in inventories - finished goods | (1,423,269,453) | - | - | (1,423,269,453) |
| Changes in inventories - others | 146,485,514 | - | - | 146,485,514 |
| Purchases of inventories | - | - | 34,182,167,445 | 34,182,167,445 |
| Raw materials used | - | - | 3,766,232,879 | 3,766,232,879 |
| Salaries | - | 92,110,887,191 | 178,494,238,476 | 270,605,125,667 |
| Severance and retirement benefits | - | 6,588,051,487 | 3,801,892,117 | 10,389,943,604 |
| Other employee benefits | - | 13,675,899,803 | 8,089,982,740 | 21,765,882,543 |
| Insurance | - | 2,975,850,738 | 20,045,705,872 | 23,021,556,610 |
| Depreciation | - | 14,536,500,119 | 1,054,183,402,682 | 1,068,719,902,801 |
| Amortization of other than goodwill | - | 4,266,326,942 | 62,001,664,794 | 66,267,991,736 |
| Commissions and fees | - | 23,609,616,358 | 46,026,326,472 | 69,635,942,830 |
| Advertising | - | 447,796,936 | 67,314,561 | 515,111,497 |
| Education and training | - | 1,387,749,744 | 881,094,086 | 2,268,843,830 |
| Vehicle maintenance | - | 1,236,623,022 | 656,060,103 | 1,892,683,125 |
| Books and printing | - | 506,161,007 | 18,992,234 | 525,153,241 |
| Business development | - | 135,313,211 | 53,165,341 | 188,478,552 |
| Rent | - | 5,490,100,474 | 46,705,749,168 | 52,195,849,642 |
| Communications | - | 855,492,878 | 516,253,564 | 1,371,746,442 |
| Transport | - | 1,122,163 | 74,768,221,914 | 74,769,344,077 |
| Taxes and dues | - | 4,151,844,986 | 51,843,676,323 | 55,995,521,309 |
| Supplies | - | 1,210,498,478 | 3,204,195,711 | 4,414,694,189 |
| Utilities | - | 1,197,456,105 | 56,999,220,911 | 58,196,677,016 |
| Repairs | - | 5,716,625,826 | 140,774,981,569 | 146,491,607,395 |
| Research and development | - | 1,962,301,570 | 460,573,477 | 2,422,875,047 |
| Travel | - | 2,035,026,251 | 512,399,202 | 2,547,425,453 |
| Clothing expenses | - | 15,658,061 | 113,702,614 | 129,360,675 |
| Investigation and analysis | - | - | 86,338,340 | 86,338,340 |
| Association fee | - | 286,940,239 | 16,259,441 | 303,199,680 |
| Sales promotion | - | 149,021,221 | 637,599,753 | 786,620,974 |
| Sales commissions | - | 239,696,216,574 | - | 239,696,216,574 |
| Other selling and administrative expenses | - | 9,726,506,287 | - | 9,726,506,287 |
| Others | - | - | 386,468,357,062 | 386,468,357,062 |
| | ₩ (3,442,914,599) | ₩ 433,971,587,671 | ₩ 2,175,375,768,851 | ₩ 2,605,904,441,923 |

### 41. Categories of financial instruments

Details of current financial assets by category as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | | |
|---|---|---|---|---|
| | Fair value through profit or loss | Amortized costs | Fair value – Hedging instruments | Total |
| Cash and cash equivalents | ₩ - | ₩ 725,056,410,891 | ₩ - | ₩ 725,056,410,891 |
| Derivative assets | 17,172,238,357 | - | 23,544,577,919 | 40,716,816,276 |
| Other current financial assets | - | 503,309,681 | - | 503,309,681 |
| Short-term loans | - | 2,586,817,903 | - | 2,586,817,903 |
| Current portion of financial assets at fair value through profit or loss | 268,670,204,196 | - | - | 268,670,204,196 |
| Trade and other receivables | - | 484,674,617,029 | - | 484,674,617,029 |
| | ₩ 285,842,442,553 | ₩ 1,212,821,155,504 | ₩ 23,544,577,919 | ₩ 1,522,208,175,976 |

The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

| *(in Korean won)* | 2018 | | |
|---|---|---|---|
| | Amortized costs | Fair value – Hedging instruments | Total |
| Cash and cash equivalents | ₩ 778,120,148,878 | ₩ - | ₩ 778,120,148,878 |
| Derivative assets | - | 70,812,301,106 | 70,812,301,106 |
| Other current financial assets | 16,290,733,056 | - | 16,290,733,056 |
| Trade and other receivables | 444,109,507,070 | - | 444,109,507,070 |
| | ₩ 1,238,520,389,004 | ₩ 70,812,301,106 | ₩ 1,309,332,690,110 |

The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

### 41. Categories of financial instruments(Cont'd)

Details of non-current financial assets by category as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | | | |
|---|---|---|---|---|---|
| | **Fair value through profit or loss** | **Fair value through other comprehen-sive income** | **Amortized costs** | **Fair value – Hedging instruments** | **Total** |
| Financial assets at fair value through profit or loss[1] | ₩ 1,495,749,044,152 | ₩ - | ₩ - | ₩ - | ₩ 1,495,749,044,152 |
| Financial assets at fair value through other comprehensive income | - | 6,458,433,615 | - | - | 6,458,433,615 |
| Long-term loans | - | - | 140,150,063,302 | - | 140,150,063,302 |
| Long-term financial instruments | - | - | 5,676,009,105 | - | 5,676,009,105 |
| Derivative assets | - | - | - | 36,886,513,959 | 36,886,513,959 |
| Long-term trade and other receivables | - | - | 44,162,826,491 | - | 44,162,826,491 |
| | ₩ 1,495,749,044,152 | ₩ 6,458,433,615 | ₩ 189,988,898,898 | ₩ 36,886,513,959 | ₩ 1,729,082,890,624 |

[1] Loans to related parties and accrued income from related parties are included.

| *(in Korean won)* | 2018 | | | | |
|---|---|---|---|---|---|
| | **Fair value through profit or loss** | **Fair value through other comprehen-sive income** | **Amortized costs** | **Fair value – Hedging instruments** | **Total** |
| Financial assets at fair value through profit or loss[1] | ₩ 534,982,771,949 | ₩ - | ₩ - | ₩ - | ₩ 534,982,771,949 |
| Financial assets at fair value through other comprehensive income | - | 32,219,497,617 | - | - | 32,219,497,617 |
| Long-term loans | - | - | 150,660,251,045 | - | 150,660,251,045 |
| Derivative assets | 18,999,326,795 | - | - | 43,388,264,597 | 62,387,591,392 |
| Long-term financial instruments | - | - | 5,085,188,402 | - | 5,085,188,402 |
| Long-term trade and other receivables | - | - | 33,836,113,280 | - | 33,836,113,280 |
| | ₩ 553,982,098,744 | ₩ 32,219,497,617 | ₩ 189,581,552,727 | ₩ 43,388,264,597 | ₩ 819,171,413,685 |

[1] Loans to related parties and accrued income from related parties are included.

The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

### 41. Categories of financial instruments(Cont'd)

Details of current financial liabilities by category as of December 31, 2019 and 2018, are as follows:

*(in Korean won)*

| | 2019 | | | |
|---|---|---|---|---|
| | Fair value through profit or loss | Amortized costs | Fair value – Hedging instruments | Total |
| Financial liabilities at fair value through profit or loss | ₩ 13,385,977,456 | ₩ - | ₩ - | ₩ 13,385,977,456 |
| Current portion of long-term borrowings | - | 443,244,598,733 | - | 443,244,598,733 |
| Current portion of bond payables | - | 982,743,047,853 | - | 982,743,047,853 |
| Current portion of derivative liabilities | 1,270,493,722 | - | 10,222,388,191 | 11,492,881,913 |
| Other current financial liabilities | - | 9,125,764,549 | - | 9,125,764,549 |
| Trade and other payables | - | 771,657,311,606 | - | 771,657,311,606 |
| Short-term borrowings | - | 115,780,000,000 | - | 115,780,000,000 |
| | ₩ 14,656,471,178 | ₩ 2,322,550,722,741 | ₩ 10,222,388,191 | ₩ 2,347,429,582,110 |

The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

*(in Korean won)*

| | 2018 | | | |
|---|---|---|---|---|
| | Fair value through profit or loss | Amortized costs | Fair value – Hedging instruments | Total |
| Financial liabilities at fair value through profit or loss | ₩ 7,775,280,817 | ₩ - | ₩ - | ₩ 7,775,280,817 |
| Current portion of bond payables | - | 1,370,081,833,391 | - | 1,370,081,833,391 |
| Current portion of derivative liabilities | - | - | 73,956,922,538 | 73,956,922,538 |
| Trade and other payables | - | 644,690,362,285 | - | 644,690,362,285 |
| Short-term borrowings | - | 69,322,200,000 | - | 69,322,200,000 |
| | ₩ 7,775,280,817 | ₩ 2,084,094,395,676 | ₩ 73,956,922,538 | ₩ 2,165,826,599,031 |

The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

### 41. Categories of financial instruments(Cont'd)

Details of non-current financial liabilities by category as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | | |
|---|---|---|---|---|
| | Fair value through profit or loss | Amortized costs | Fair value – Hedging instruments | Total |
| Financial liabilities at fair value through profit or loss | ₩ 55,382,409,262 | ₩ - | ₩ - | ₩ 55,382,409,262 |
| Long-term borrowings | - | 1,852,100,224,523 | - | 1,852,100,224,523 |
| Bond payables | - | 10,444,576,145,677 | - | 10,444,576,145,677 |
| Derivative liabilities | 90,948,710 | - | 91,091,601,451 | 91,182,550,161 |
| Long-term trade and other payables | - | 549,409,820,867 | - | 549,409,820,867 |
| | ₩ 55,473,357,972 | ₩ 12,846,086,191,067 | ₩ 91,091,601,451 | ₩ 12,992,651,150,490 |

The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

| *(in Korean won)* | 2018 | | | |
|---|---|---|---|---|
| | Fair value through profit or loss | Amortized costs | Fair value – Hedging instruments | Total |
| Financial liabilities at fair value through profit or loss | ₩ 50,189,100,054 | ₩ - | ₩ - | ₩ 50,189,100,054 |
| Long-term borrowings | - | 2,322,418,296,536 | - | 2,322,418,296,536 |
| Bond payables | - | 9,799,083,099,833 | - | 9,799,083,099,833 |
| Derivative liabilities | - | - | 45,549,580,106 | 45,549,580,106 |
| Other non-current financial liabilities | - | 8,812,849,665 | - | 8,812,849,665 |
| Long-term trade and other payables | - | 434,319,512,101 | - | 434,319,512,101 |
| | ₩ 50,189,100,054 | ₩ 12,564,633,758,135 | ₩ 45,549,580,106 | ₩ 12,660,372,438,295 |

The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

## 41. Categories of financial instruments(Cont'd)

Net gains or losses by financial instruments for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | 2018 |
|---|---|---|
| Financial assets measured at fair value through profit of loss | | |
| Gain on valuation, net | ₩ 85,581,975,231 | ₩ 54,564,402,822 |
| Gain on transactions | 2,072,434,884 | - |
| Interest income | - | 7,909,810,750 |
| Gain on foreign currency translation, net | 16,102,208,624 | - |
| Financial assets measured at amortized costs | | |
| Interest income | 22,512,597,370 | 14,745,885,779 |
| Gain on foreign currency transactions, net | 36,889,675,353 | 26,031,155,565 |
| Loss on foreign currency translation, net | (36,532,658,552) | (15,735,143,688) |
| Bad debt expenses | (3,186,538,955) | - |
| Reversal of bad debt allowance | 3,495,036,527 | - |
| Financial assets measured at fair value through other comprehensive income | | |
| Dividend income | 10,232,367 | 10,295,683 |
| Other comprehensive loss, net of tax | (27,087,489,925) | (177,207,309,287) |
| Financial assets designated as hedging instruments | | |
| Gain on transactions | - | 4,421,358,354 |
| Gain on valuation | (16,111,435,699) | 4,521,583,203 |
| Gain (loss) on foreign currency translation, net | 14,995,058,552 | (6,207,052,422) |
| Other comprehensive gain (loss), net of tax | (34,911,286,327) | 81,655,150,080 |
| Financial liabilities measured at fair value through profit or loss | | |
| Gain (loss) on valuation | (15,615,393,575) | 46,110,559,663 |
| Financial liabilities measured at amortized cost | | |
| Interest cost[1] | (474,248,120,081) | (426,020,666,500) |
| Loss on foreign currency transactions, net | (2,992,054,091) | (7,347,581,729) |
| Gain (loss) on foreign currency translation, net | 72,007,244,827 | (51,240,814,343) |
| Other financial cost[2] | 24,625,957,678 | (41,718,347,442) |
| Financial liabilities designated as hedging instruments | | |
| Gain (loss) on transactions, net | 11,338,703,001 | (1,088,097,827) |
| Loss on foreign currency transactions, net | - | (6,766,163,276) |
| Gain (loss) on foreign currency translation, net | 6,107,535,252 | (80,765,307,993) |
| Other comprehensive income (loss), net of tax | (75,744,015,045) | 17,701,405,024 |
| | ₩ (390,690,332,584) | ₩ (556,424,877,584) |

[1] Excludes interest cost on provisions amounting to ₩ 345 million and ₩ 1,610 million for the years ended December 31, 2019 and 2018, respectively.

[2] Excludes increase in other provisions amounting to ₩ 52,825 million and ₩ 73,675 million for the years ended December 31, 2019 and 2018, respectively.

## 42. Netting Agreements

*Offsetting of financial assets and financial liabilities*

As of December 31, 2019 and 2018, financial assets and financial liabilities subject to offsetting, enforceable master netting arrangements and similar agreements are as follows:

*(in Korean won)*

2019

| | Gross amounts recognized as financial instruments | Gross amounts of recognized financial instruments set off in the statement of financial position | Net amounts of financial instruments presented in the statement of financial position | Related amounts not set off in the statement of financial position | | Net amount |
|---|---|---|---|---|---|---|
| | | | | Financial instruments | Collateral received or pledged | |
| **Financial assets** | | | | | | |
| Derivative[1] | ₩ 56,612,713,477 | ₩ - | ₩ 56,612,713,477 | ₩ (56,612,713,477) | ₩ - | ₩ - |
| | ₩ 56,612,713,477 | ₩ - | ₩ 56,612,713,477 | ₩ (56,612,713,477) | ₩ - | ₩ - |
| **Financial liabilities** | | | | | | |
| Derivative[1] | ₩ 102,675,432,074 | ₩ - | ₩ 102,675,432,074 | ₩ (56,612,713,477) | ₩ - | ₩ 46,062,718,597 |
| | ₩ 102,675,432,074 | ₩ - | ₩ 102,675,432,074 | ₩ (56,612,713,477) | ₩ - | ₩ 46,062,718,597 |

[1] Some of derivative contracts are made under International Swaps and Derivative Association (ISDA) master netting agreements. In general, under such agreements the amounts owed by each counter party on a single day in respect of all transactions outstanding in the same currency are aggregated into a single net amount that is payable by one party to the other. In certain circumstances (i.e. when a default occurs), all standing transactions under the agreement are terminated, the termination value is assessed and only a single amount is payable in settlement of all transactions.

*(in Korean won)*

2018

| | Gross amounts recognized as financial instruments | Gross amounts of recognized financial instruments set off in the statement of financial position | Net amounts of financial instruments presented in the statement of financial position | Related amounts not set off in the statement of financial position | | Net amount |
|---|---|---|---|---|---|---|
| | | | | Financial instruments | Collateral received or pledged | |
| **Financial assets** | | | | | | |
| Derivative[1] | ₩ 114,200,565,702 | ₩ - | ₩ 114,200,565,702 | ₩ (114,200,565,702) | ₩ - | ₩ - |
| | ₩ 114,200,565,702 | ₩ - | ₩ 114,200,565,702 | ₩ (114,200,565,702) | ₩ - | ₩ - |
| **Financial liabilities** | | | | | | |
| Derivative[1] | ₩ 119,506,502,644 | ₩ - | ₩ 119,506,502,644 | ₩ (114,200,565,702) | ₩ - | ₩ 5,305,936,942 |
| | ₩ 119,506,502,644 | ₩ - | ₩ 119,506,502,644 | ₩ (114,200,565,702) | ₩ - | ₩ 5,305,936,942 |

[1] Some of derivative contracts are made under International Swaps and Derivative Association (ISDA) master netting agreements. In general, under such agreements the amounts owed by each counter party on a single day in respect of all transactions outstanding in the same currency are aggregated into a single net amount that is payable by one party to the other. In certain circumstances (i.e. when a default occurs), all standing transactions under the agreement are terminated, the termination value is assessed and only a single amount is payable in settlement of all transactions.

## 43. Risk Management

(a) Capital management

The primary objective of the Group's capital management is to ensure that it maintains a strong credit rating and healthy capital ratios in order to support its business and maximize the owners' value. To maintain the sound capital structure, management periodically reviews the Group's capital structure through short- and long-term borrowings and issuance of share capital. The Group's capital structure consists of equity and net debt, net of cash and cash equivalents and borrowing. No changes were made in the objectives, policies or processes for managing capital for the year ended December 31, 2019.

The Group's debt-to-equity ratios as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | **2018** |
|---|---|---|
| Total borrowings and debt securities (A) | ₩ 13,838,444,016,786 | ₩ 13,560,905,429,760 |
| Cash and cash equivalents (B) | 725,056,410,891 | 778,120,148,878 |
| Net borrowings and debt securities (A – B = C) | 13,113,387,605,895 | 12,782,785,280,882 |
| Total equity (D) | 530,846,395,550 | 764,064,978,700 |
| Total invested capital (C + D = E) | ₩ 13,644,234,001,445 | ₩ 13,546,850,259,582 |
| Net borrowings and debt securities-to-total invested capital ratio (C/E) | 96.11% | 94.36% |

(b) Financial risk management

The Group is exposed to various risks related to its financial instruments such as credit risk, market risk (currency risk, interest rate risk and price risk) and liquidity risk.

(i) Risk management structure

The board of directors is responsible for implementing and monitoring the Group's risk management structure and the management regularly updates the policies for each risk and confirms the validity of the policies. The purpose of the risk management policies is to identify the risks that could potentially affect the Group's financial results and reduce, to an acceptable level, avoid or eliminate those risks. The policies are reviewed regularly to reflect the current market conditions and the Group's activities. The Group makes constant efforts to improve the policies by monitoring on real time basis and with support from the outside experts. The audit committee oversees the Group's compliance to the risk management policies and procedures and reviews the effectiveness of the structure.

### 43. Risk Management(Cont'd)

(ii) Credit risk

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations, and arises principally from the Group's receivables from customers, investment securities, derivatives and financial guarantee contracts.

Credit risk also arises from transactions with financial institutions, and such transactions include transactions of cash and cash equivalents, various deposits, and financial instruments such as derivative contracts. The Group manages its exposure to this credit risk by only entering into transactions with banks that have high international credit ratings. The Group implements a credit risk management policy under which the Group only transacts business with counterparties that have a certain level of credit rate evaluated based on financial condition, historical experience, and other factors.

Book values of the financial assets and guarantee amounts by the contract represent the maximum amounts exposed to the credit risk. Details of the Group's level of maximum exposure to credit risk as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | **2018** |
|---|---|---|
| Cash and cash equivalents | ₩ 725,056,410,891 | ₩ 778,120,148,878 |
| Derivative assets | 77,603,330,235 | 114,200,565,702 |
| Financial assets at amortized costs | 677,753,643,511 | 649,981,792,853 |
| Financial assets measured at fair value through profit or loss | 1,764,419,248,348 | 534,982,771,949 |
| Financial guarantee contracts | 36,658,248,549 | 35,401,267,665 |

Details of maturities for financial assets measured at amortized costs and their impaired amounts as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | | **2018** | |
|---|---|---|---|---|
| | **Balance** | **Impairment** | **Balance** | **Impairment** |
| Not past due | ₩ 1,156,966,311,934 | ₩ (565,239,418,546) | ₩ 1,160,188,593,121 | ₩ (550,831,049,264) |
| 0 ~ 30 days | 7,495,166,854 | - | 12,924,155,633 | - |
| 31 ~ 60 days | 8,139,725,471 | - | 11,919,620,225 | - |
| More than 60 days | 137,277,621,083 | (66,885,763,284) | 91,215,560,863 | (75,435,087,725) |
| | ₩ 1,309,878,825,342 | ₩ (632,125,181,830) | ₩ 1,276,247,929,842 | ₩ (626,266,136,989) |

### 43. Risk Management(Cont'd)

Details of changes in allowance for impairment of financial assets measured at amortized costs for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | **2018** |
|---|---|---|
| Beginning balance | ₩ 626,266,136,989 | ₩ 741,870,030,554 |
| Initial adoption of K-IFRS No. 1109 | - | (118,737,587,064) |
| Impairment loss | 3,186,538,955 | 765,168,480 |
| Reversal of impairment loss | (3,495,036,527) | (8,356,085,894) |
| Write-off | (19,139,537,000) | (11,528,569) |
| Others [1] | 25,307,079,413 | 10,736,139,482 |
| Ending balance | ₩ 632,125,181,830 | ₩ 626,266,136,989 |

[1] Include the effect of changes in exchange rates and others.

Aging of past due but not impaired financial assets as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | | | | | |
|---|---|---|---|---|---|---|
| | **Book value** | **Less than 6 months** | **6~12 Months** | **1~2 years** | **2~5 years** | **More than 5 years** |
| Financial assets measured at amortized cost | ₩86,026,750,125 | ₩61,412,135,028 | ₩12,451,094,234 | ₩5,111,812,023 | ₩6,940,099,146 | ₩ 111,609,694 |

| *(in Korean won)* | **2018** | | | | | |
|---|---|---|---|---|---|---|
| | **Book value** | **Less than 6 months** | **6~12 Months** | **1~2 years** | **2~5 years** | **More than 5 years** |
| Financial assets measured at amortized cost | ₩40,624,248,806 | ₩19,576,505,184 | ₩13,858,426,959 | ₩4,280,663,807 | ₩2,908,652,856 | ₩ - |

**43. Risk Management(Cont'd)**

(iii) Market risk

① Crude oil price risk

Crude oil price risk is the risk that the profit or cash flows will fluctuate due to changes in the international market prices of crude oil. The Group entered into derivative contracts according to the expected fluctuations of changes in the international market prices of crude oil to avoid the crude oil price risk and secure the product margin. With all other variables held constant, the changes in Company's profit before tax for the years ended December 31, 2019 and 2018, from crude oil price fluctuations are as follows:

| *(in Korean won)* | 2019 | | 2018 | |
|---|---|---|---|---|
| | Increase by 10% | Decrease by 10% | Increase by 10% | Decrease by 10% |
| Increase (decrease) of profit before tax | ₩ 240,076,760,867 | ₩ (240,076,760,867) | ₩ 242,710,154,294 | ₩ (242,710,154,294) |

② Interest rate risk

The Group is exposed to interest rate risk due to its borrowings with floating interest rates. Assuming a 100 basis points increase or decrease in interest rates as of December 31, 2019, the Group's total equity and its profit or loss will also increase or decrease. The Group mitigates risks from fluctuation in interest rate through interest rate swap contracts.

Except for the effect of derivative transactions, this analysis considers the Group's total exposed risks associated with the fluctuation in interest rate. This analysis assumes that all other variables are held constant and the same method is applied as the method used in the prior periods. The details of increase or decrease in the total equity and profit or loss are as follows:

| *(in Korean won)* | 2019 | | 2018 | |
|---|---|---|---|---|
| | Increase by 10% | Decrease by 10% | Increase by 10% | Decrease by 10% |
| Increase (decrease) of profit before tax | ₩ (20,039,662,441) | ₩ 20,039,662,441 | ₩ (19,508,418,237) | ₩ 19,508,418,237 |

③ Foreign currency risk

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 is exposed to currency risk from the sales, purchases and borrowings not in United States dollar. The Group reduces currency risk from fluctuations in foreign exchange rates by carrying out and interest rate swap and currency swaps.

### 43. Risk Management(Cont'd)

Without considering the effect of the derivative aforementioned, the Group's exposures to foreign currency risk as of December 31, 2019 and 2018, are as follows:

*(in foreign currencies and Korean won)*

| | | 2019 | | 2018 | |
|---|---|---|---|---|---|
| | **Currency unit** | **Foreign currencies** | **Equivalent to Korean won** | **Foreign currencies** | **Equivalent to Korean won** |
| **Financial assets** | | | | | |
| denominated in foreign currencies | KRW | 287,313,762,103 | ₩ 287,313,762,103 | 333,940,894,904 | ₩ 333,940,894,904 |
| | VND | 33,545,748,294 | 1,677,722,133 | - | - |
| | EGP | 85,300,000 | 6,152,769,182 | 214,400,000 | 13,352,439,648 |
| | | | ₩ 295,144,253,418 | | ₩ 347,293,334,552 |
| **Financial liabilities** | | | | | |
| denominated in foreign currencies | KRW | 1,208,015,872,660 | ₩ 1,208,015,872,660 | 978,325,079,760 | ₩ 978,325,079,760 |
| | EUR | 422,823,600 | 543,801,454,808 | 377,123,321 | 479,344,141,943 |
| | SGD | 403,304,284 | 344,008,236,414 | 403,107,939 | 325,945,912,062 |
| | HKD | 2,044,091,981 | 303,874,713,869 | 2,044,015,739 | 288,365,596,876 |
| | CHF | 801,117,083 | 957,751,495,463 | 501,082,736 | 562,592,736,400 |
| | AUD | - | - | 679,423,998 | 528,913,464,401 |
| | JPY | 70,086,700,276 | 742,489,391,453 | - | - |
| | VND | 80,095,685,087 | 4,005,822,211 | - | - |
| | NOK | 62,300,000 | 8,179,648,596 | 98,700,000 | 12,679,958,403 |
| | CAD | 1,411,833 | 1,251,628,112 | - | - |
| | | | ₩ 4,113,378,263,586 | | ₩ 3,176,166,889,845 |

The exchange rates applied for the years ended and as of December 31, 2019 and 2018, are as follows:

| *(in US dollar per one foreign currency)* | **Average rates** | | **Reporting date spot rate** | |
|---|---|---|---|---|
| | **2019** | **2018** | **2019** | **2018** |
| KRW | 0.0009 | 0.0009 | 0.0009 | 0.0009 |
| EUR | 1.1196 | 1.1810 | 1.1108 | 1.1440 |
| SGD | 0.7331 | 0.7414 | 0.7367 | 0.7318 |
| HKD | 0.1276 | 0.1276 | 0.1284 | 0.1277 |
| CHF | 1.0066 | 1.0221 | 1.0326 | 1.0162 |
| AUD | 0.6951 | 0.7479 | 0.6879 | 0.7046 |
| AED | 0.2722 | 0.2723 | 0.2722 | 0.2723 |
| JPY | 0.0092 | 0.0091 | 0.0092 | 0.0091 |
| EGP | 0.0595 | 0.0561 | 0.0623 | 0.0557 |
| NOK | 0.1137 | 0.1230 | 0.1134 | 0.1149 |
| CAD | 0.7537 | 0.7719 | 0.7657 | 0.7337 |

### 43. Risk Management(Cont'd)

The Group and its subsidiaries use various functional currencies depending on their primary economic environment in which the entities operate. The functional currencies of Harvest Operations Corp., Dana Petrolum Limited, and KNOC Kaz B.V. are CAD, GBP and KZT, respectively. A sensitivity analysis below indicates the effect on the Group's profit before tax from the fluctuations in each function currency exchange rate. As of December 31, 2019 and 2018, the effect of a 5% increase or decrease in each functional currency exchange rate on profit before tax assuming all other variables held constant is as follows:

*(in Korean won)*

| | | 2019 | | 2018 | |
|---|---|---|---|---|---|
| | | **Increase by 5%** | **Decrease by 5%** | **Increase by 5%** | **Decrease by 5%** |
| Increase (decrease) of profit before tax | KRW | ₩ (46,347,228,156) | ₩ 46,347,228,156 | ₩ (9,324,609,281) | ₩ 9,324,609,281 |
| | HKD | (15,296,750,744) | 15,296,750,744 | (14,188,742,789) | 14,188,742,789 |
| | CHF | (48,212,257,328) | 48,212,257,328 | (27,681,816,826) | 27,681,816,826 |
| | EUR | (27,374,424,158) | 27,374,424,158 | (23,539,948,718) | 23,539,948,718 |
| | AUD | - | - | (26,024,661,698) | 26,024,661,698 |
| | JPY | (37,376,177,196) | 37,376,177,196 | - | - |
| | SGD | (17,317,032,336) | 17,317,032,336 | (16,037,844,873) | 16,037,844,873 |
| | Others | (282,231,048) | 282,231,048 | (623,904,759) | 623,904,759 |

### 43. Risk Management(Cont'd)

(iv) Liquidity risk

The details of contractual maturities of financial liabilities and other contractual obligations as of December 31, 2019, are as follows:

| *(in Korean won)* | 2019 | | | | | |
|---|---|---|---|---|---|---|
| | **Book value** | **Contractual cash flows[1]** | **Less than 1 year** | **1 ~ 2 years** | **2 ~ 5 years** | **More than 5 years** |
| Short-term borrowings | ₩ 115,780,000,000 | ₩ 116,838,200,136 | ₩ 116,838,200,136 | ₩ - | ₩ - | ₩ - |
| Current portion of long-term borrowings [2] | 443,244,598,733 | 444,760,737,913 | 444,760,737,913 | - | - | - |
| Bond payables | 11,427,319,193,530 | 13,065,960,663,574 | 1,259,749,094,798 | 2,055,152,116,934 | 6,259,859,731,384 | 3,491,199,720,458 |
| Long-term borrowings [2] | 1,852,100,224,523 | 1,930,417,517,791 | 48,227,373,673 | 1,183,078,297,989 | 494,721,136,779 | 204,390,709,350 |
| Lease liabilities | 418,717,695,662 | 740,782,424,549 | 45,018,724,868 | 23,433,173,129 | 82,825,958,156 | 589,504,568,396 |
| Trade and other payables [2] | 1,321,067,132,473 | 1,321,067,132,474 | 1,179,893,802,904 | 6,359,277,431 | 6,548,972,328 | 128,265,079,811 |
| Derivative liabilities | 102,675,432,074 | 219,260,710,879 | 1,996,743,038 | 34,440,537,930 | 92,940,391,789 | 89,883,038,122 |
| Financial liabilities measured at fair value through profit or loss | 68,768,386,718 | 126,081,417,655 | - | 22,429,725,416 | 25,607,921,956 | 78,043,770,283 |
| Financial guarantee liabilities [3] | 9,125,764,549 | 9,125,764,525 | 9,125,764,525 | - | - | - |
| | ₩ 15,758,798,428,262 | ₩ 17,974,294,569,496 | ₩ 3,105,610,441,855 | ₩ 3,324,893,128,829 | ₩ 6,962,504,112,392 | ₩ 4,581,286,886,420 |

[1] Contractual cash flows include the estimated interest payments but exclude the effects of offsetting contracts.

[2] Loans from Special Accounting for Energy and Resources ("SAER") included in borrowings have no specific maturity as entities were borrowed under the condition that the Group is not obligated to make repayment of the principal and interest until the Group successfully complete the oil exploration.

[3] Financial guarantee is allocated at the earliest period that the maximum amount could be requested.

### 43. Risk Management(Cont'd)

The Group had a working capital (current assets minus current liabilities) deficit of ₩ 895,790 million as of December 31, 2019. The Group's management currently anticipates that expected future capital contributions from the Government and the cash flows that the Group generates from its operations, together with its existing cash and cash equivalents and credit sources, will be sufficient to meet its currently anticipated needs for working capital, capital expenditures and business expansion throughout the foreseeable future.

(v) Other price risk

Other price risk is the risk that the fair value or cash flows of financial instruments will fluctuate because of changes in market prices other than interest rate risk and foreign currency risk. The Group's marketable available-for-sale equity securities are exposed to market price risk arising from the fluctuation in the price of the securities. However, the Group's management believes that the effect of the fluctuation in the price of the securities on the financial statements is not significant.

(c) Fair value measurement

A number of the Group's accounting policies and disclosures require the measurement of fair values, for both financial and non-financial assets and liabilities. The Group has an established control framework with respect to the measurement of fair values. This includes a valuation team that has overall responsibility for overseeing all significant fair value measurements, including Level 3 fair values, and reports directly to the CFO.

The valuation team regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as broker quotes or pricing services, is used to measure fair values, then the valuation team assesses the evidence obtained from the third parties to support the conclusion that such valuations meet the requirements of K-IFRS, including the level in the fair value hierarchy in which such valuations should be classified.

When measuring the fair value of an asset or a liability, the Group uses market observable data as far as possible. Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows.

· Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.
· Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices).
· Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

If the inputs used to measure the fair value of an asset or a liability fall into different levels of the fair value hierarchy, then the fair value measurement is categorized in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement.

## 43. Risk Management(Cont'd)

(i) Fair value and book value of financial assets and liabilities as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | | 2018 | |
|---|---|---|---|---|
| | Book value | Fair value | Book value | Fair value |
| **Assets recognized at fair value** | | | | |
| Financial assets measured at fair value through other comprehensive income | ₩ 6,458,433,615 | ₩ 6,458,433,615 | ₩ 32,219,497,617 | ₩ 32,219,497,617 |
| Financial assets measured at fair value through profit or loss | 1,764,419,248,348 | 1,764,419,248,348 | 534,982,771,949 | 534,982,771,949 |
| Currency forwards | 26,888,469,307 | 26,888,469,307 | - | - |
| Currency swap | 13,852,377,213 | 13,852,377,213 | 25,925,031,107 | 25,925,031,107 |
| Interest rate swap | 161,161,777 | 161,161,777 | 6,014,151,165 | 6,014,151,165 |
| Other derivative | 36,701,321,938 | 36,701,321,938 | 101,260,710,226 | 101,260,710,226 |
| | ₩ 1,848,481,012,198 | ₩ 1,848,481,012,198 | ₩ 700,402,162,064 | ₩ 700,402,162,064 |
| **Assets recognized at amortized costs** | | | | |
| Cash and cash equivalent | ₩ 725,056,410,891 | ₩ 725,056,410,891 | ₩ 778,120,148,878 | ₩ 778,120,148,878 |
| Loans | 142,736,881,205 | 142,736,881,205 | 150,660,251,045 | 150,660,251,045 |
| Long-term financial instruments | 5,676,009,105 | 5,676,009,105 | 5,085,188,402 | 5,085,188,402 |
| Other financial assets | 503,309,681 | 503,309,681 | 16,290,733,056 | 16,290,733,056 |
| Trade receivables and other receivables | 528,837,443,520 | 528,837,443,520 | 477,945,620,350 | 477,945,620,350 |
| | ₩ 1,402,810,054,402 | ₩ 1,402,810,054,402 | ₩ 1,428,101,941,731 | ₩ 1,428,101,941,731 |
| **Liabilities recognized at fair value** | | | | |
| Currency forwards | ₩ - | ₩ - | ₩ 233,258,134 | ₩ 233,258,134 |
| Currency swap | 72,488,781,303 | 72,488,781,303 | 108,032,688,791 | 108,032,688,791 |
| Interest swap | 26,207,647,354 | 26,207,647,354 | 11,114,948,365 | 11,114,948,365 |
| Financial liabilities measured at fair value through profit or loss | 68,768,386,718 | 68,768,386,718 | 57,964,380,871 | 57,964,380,871 |
| Other derivative | 3,979,003,417 | 3,979,003,417 | 125,607,354 | 125,607,354 |
| | ₩ 171,443,818,792 | ₩ 171,443,818,792 | ₩ 177,470,883,515 | ₩ 177,470,883,515 |
| **Liabilities recognized at amortized costs** | | | | |
| Bond payables without collateral | ₩ 11,427,319,193,530 | ₩ 11,427,319,193,530 | ₩ 11,169,164,933,224 | ₩ 11,169,164,933,224 |
| Bank borrowings without collateral | 2,411,124,823,256 | 2,411,124,823,256 | 2,391,740,496,536 | 2,391,740,496,536 |
| Trade and payables | 1,321,067,132,473 | 1,321,067,132,473 | 1,079,009,874,386 | 1,079,009,874,386 |
| Others | 9,125,764,549 | 9,125,764,549 | 8,812,849,665 | 8,812,849,665 |
| | ₩ 15,168,636,913,808 | ₩ 15,168,636,913,808 | ₩ 14,648,728,153,811 | ₩ 14,648,728,153,811 |

**43. Risk Management(Cont'd)**

The fair values of the financial assets and liabilities measured at amortized costs do not significantly differ from their book values.

(ii) Fair value hierarchy

The following table provides an analysis of financial instruments that are measured subsequent to initial recognition at fair value, classified as Level 1, 2, or 3, based on the degree to which the fair value is observable.

| | |
|---|---|
| Level 1: | Unadjusted quoted prices in active markets for identical assets or liabilities; |
| Level 2: | Inputs other than quoted prices that are observable for the asset or liability either directly or indirectly; and |
| Level 3: | Inputs that are not based on observable market data. |

Fair values of financial instruments by hierarchy level as of December 31, 2019, are as follows:

| *(in Korean won)* | 2019 | | | |
|---|---|---|---|---|
| | **Level 1** | **Level 2** | **Level 3** | **Total** |
| **Financial assets at fair value** | | | | |
| Through other comprehensive income | ₩ 123,121,459 | ₩ - | ₩ 6,335,312,156 | ₩ 6,458,433,615 |
| Through profit or loss | - | 268,670,204,196 | 1,495,749,044,152 | 1,764,419,248,348 |
| Derivative assets | - | 60,431,091,949 | 17,172,238,286 | 77,603,330,235 |
| | ₩ 123,121,459 | ₩ 329,101,296,145 | ₩ 1,519,256,594,594 | ₩ 1,848,481,012,198 |
| **Financial liabilities at fair value** | | | | |
| Derivative liabilities | ₩ - | ₩ 102,675,432,074 | ₩ - | ₩ 102,675,432,074 |
| Through profit or loss | - | - | 68,768,386,718 | 68,768,386,718 |
| | ₩ - | ₩ 102,675,432,074 | ₩ 68,768,386,718 | ₩ 171,443,818,792 |

### 44. Transaction with Government and Public Institution

Transactions with government and public institution for the years ended December 31, 2019 and 2018, are as follows:

*(in Korean won)*

| | | Income | | Expenses | |
|---|---|---|---|---|---|
| | Transaction | 2019 | 2018 | 2019 | 2018 |
| KOREA GAS CORPORATION | Sales | ₩ 91,410,158,836 | ₩ 112,977,540,669 | ₩ - | ₩ - |
| Ministry of Trade, Industry and Energy. | Gains on exemption of debts | 76,223,080,929 | - | - | - |
| Ministry of Trade, Industry and Energy | Loss on cancellation of debt exemption | - | - | 1,065,761,174 | 11,033,258 |
| Ministry of Trade, Industry and Energy | Government grants income | 5,466,365,576 | 1,327,324,822 | - | - |
| | | ₩ 173,099,605,341 | ₩ 114,304,865,491 | ₩ 1,065,761,174 | ₩ 11,033,258 |

The outstanding assets and liabilities, arising from the transactions with government and public institution at December 31, 2019 and 2018, are as follows:

*(in Korean won)*

| | | **Receivables** | | **Payables** | |
|---|---|---|---|---|---|
| | **Transaction** | **2019** | **2018** | **2019** | **2018** |
| KOREA GAS CORPORATION | Trade receivables | ₩ 5,920,959,097 | ₩ 10,909,038,611 | ₩ - | ₩ - |
| Ministry of Trade, Industry and Energy. | Borrowings based on Accounting for Energy and Resources | - | - | 204,605,357,450 | 224,181,435,276 |
| Ministry of Trade, Industry and Energy | Government grants for others | - | - | 2,573,235,542 | 3,312,019,237 |
| | | ₩ 5,920,959,097 | ₩ 10,909,038,611 | ₩ 207,178,592,883 | ₩ 227,493,454,513 |

## 45. Related Parties

The Group's major related parties as of December 31, 2019, are as follows:

| Type | Related parties |
|---|---|
| Associates | Oilhub Korea Yeosu Co., Ltd.<br>Kernhem B.V.<br>ADA Oil LLP<br>Parallel Petroleum LLC<br>KNOC EF Star LLC and its subsidiaries |
| Joint ventures | KNOC Inam Ltd<br>KNOC Kamchatka Petroleum Ltd.<br>KNOC Bazian Ltd.<br>KNOC Nigerian West Oil Company Ltd.<br>KNOC Nigerian East Oil Company Ltd.<br>Korea kamchatka Co. Ltd<br>KC kazakh B.V<br>Offshore International Group, Inc.<br>KNOC Ferghana Ltd.<br>KNOC Ferghana2 Ltd.<br>KADOC Ltd.<br>Korea Energy Terminal Co., Ltd<br>Deep Basin Partnership<br>HKMS Partnership<br>KNOC-VOGO Eagle Ford LLC |

### 45. Related Parties(Cont'd)

Significant transactions with related parties for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | Sales and others | | Purchases and others | |
|---|---|---|---|---|---|
| | Transaction | 2019 | 2018 | 2019 | 2018 |
| Oilhub Korea Yeosu Co., Ltd. | Revenues from rental services | ₩ 1,567,551,293 | ₩ 1,458,025,311 | ₩ - | ₩ - |
| | Interest expense | - | - | 805,576,952 | - |
| | Acquisition of right-of-use assets | - | - | 31,668,352,864 | - |
| | Expenses from rental services | - | - | - | 13,943,446,770 |
| Kernhem B.V. | Interest on loans | 2,633,894,184 | - | - | - |
| | Other bad debt expenses | - | - | 2,633,894,184 | - |
| | Reversal of bad debt allowance | 2,629,628,173 | 4,208,439,521 | - | - |
| ADA Oil LLP | Interest on loans | 552,644,771 | - | - | - |
| | Other bad debt expenses | - | - | 552,644,771 | - |
| | Reversal of bad debt allowance | 865,408,354 | 1,754,654,528 | - | - |
| KNOC Nigerian West Oil Company Ltd. | Gain on valuation of financial asset measured at fair value through profit or loss | - | 18,588,468,200 | - | - |
| | Loss on valuation of financial asset measured at fair value through profit or loss | - | - | 37,120,683,552 | - |
| KNOC Nigerian East Oil Company Ltd. | Gain on valuation of financial asset measured at fair value through profit or loss | - | 22,338,015,525 | - | - |
| | Loss on valuation of financial asset measured at fair value through profit or loss | - | - | 39,319,500,482 | - |
| Offshore International Group, Inc. | Interest on loans | 1,857,714,950 | 2,522,635,529 | - | - |
| KNOC Ferghana2 Ltd. | Loss on valuation of financial asset measured at fair value through profit or loss | - | - | 5,751,308,509 | 863,240,365 |
| KADOC Ltd. | Gain on valuation of financial asset measured at fair value through profit or loss | 12,090,737,904 | 7,909,810,750 | - | - |
| KNOC Aral Ltd. | Reversal of bad debt allowance | - | 77,122,492 | - | - |
| Parallel Petroleum LLC | Interest on loans | - | 307,771,240 | - | - |
| | Other finance expenses | - | - | - | 5,921,111,508 |
| Deep Basin Partnership | Other expenses | - | - | 351,486,849 | 1,802,514,893 |
| | Other income | 621,375,388 | - | - | - |
| HKMS Partnership | Other expenses | - | - | - | 354,977,862 |
| | Other income | 216,115,380 | - | - | - |
| KNOC EF STAR LLC | Interest expense | - | - | 14,197,883,161 | - |
| | | ₩ 23,035,070,397 | ₩ 59,164,943,096 | ₩ 132,401,331,324 | ₩ 22,885,291,398 |

### 45. Related Parties(Cont'd)

The outstanding receivables and payables, except for loans, arising from the transactions with related parties as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | Receivables | | Payables | |
|---|---|---|---|---|---|
| | **Transaction** | **2019** | **2018** | **2019** | **2018** |
| Oilhub Korea Yeosu Co., Ltd. | Account payables | ₩ - | ₩ - | ₩ - | ₩ 1,860,742,914 |
| | Lease liabilities | - | - | 17,756,095,979 | - |
| KNOC Nigerian West Oil Company Ltd. | Accrued interest | - | 21,859,324,700 | - | - |
| KNOC Nigerian East Oil Company Ltd. | Accrued interest | - | 24,252,145,516 | - | - |
| Offshore International Group, Inc. | Accrued interest | 57,573,631 | 66,545,010 | - | - |
| KADOC Ltd. | Accrued interest | 41,995,191,781 | 28,957,687,376 | - | - |
| ADA Oil LLP | Other payables | - | - | 118,003,312 | - |
| | Trade receivables | 1,317,507 | 167,458 | - | - |
| Deep Basin Partnership | Trade payables | - | - | - | 9,540,220,317 |
| HKMS Partnership | Trade payables | - | - | - | 708,915,160 |
| KNOC EF STAR LLC | Accrued expenses | - | - | 1,086,982,062 | - |
| | | ₩ 42,054,082,919 | ₩ 75,135,870,060 | ₩ 18,961,081,353 | ₩ 12,109,878,391 |

The Group recognized reversal of other bad debt expenses of ₩ 3,495 million on receivables arising from the transaction with related parties for the year ended December 31, 2019.

Loans to related parties as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | **2019** | **2018** |
|---|---|---|
| **Joint ventures** | | |
| KNOC Nigerian West Oil Company Ltd. | ₩ 118,095,600 | ₩ 48,553,559,284 |
| KNOC Nigerian East Oil Company Ltd. | 106,807,050 | 55,842,191,996 |
| Offshore International Group, Inc. | 32,707,850,000 | 39,482,906,358 |
| KADOC Ltd. | 514,706,627,297 | 302,848,849,830 |
| Korea Energy Terminal Co., Ltd | 2,586,817,903 | - |
| | ₩ 550,226,197,850 | ₩ 446,727,507,468 |

**45. Related Parties(Cont'd)**

For the year ended December 31, 2019, the Group provided associates and joint ventures with additional loans of ₩ 158,604 million and received ₩ 40,891 million as the repayment of loans. Also, the Group recognized loss on valuation of ₩ 82,191 million and increased amount due to change in foreign currency amounting to ₩ 15,268 million have been recognized.

Borrowings from the related parties as of December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | 2019 | 2018 |
|---|---|---|---|
| **Associates** | | | |
| KNOC EF Star LLC | ₩ | 452,602,150,002 | 452,602,151,555 |

The Group entered into Commercial Storage Agreement with Oilhub Korea Yeosu Co., Ltd., its associates, and leased storage with a volume of 240,000cbm per year. The agreement is to be terminated on April 1, 2021.

In accordance with the lease agreement entered into with the associates, the Group recognized right-of-use asset of ₩ 30,377 million and lease liability of ₩ 30,377 million for the year ended January 1, 2019, repayment of lease liability of ₩ 14,552 million, and interest expense of ₩ 806 million for the year ended December 31, 2019.

As of December 31, 2019, the Group does not provide any guarantees to the related parties.

As of December 31, 2019, the Group is not provided with any guarantees from the related parties.

The compensations to the parent company's key management personnel of the Group for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | | 2019 | | 2018 |
|---|---|---|---|---|
| Salaries | ₩ | 444,403,410 | ₩ | 351,387,680 |
| Severance and retirement benefits | | 43,449,303 | | 25,368,460 |
| | ₩ | 487,852,713 | ₩ | 376,756,140 |

JB Patriot Investment Type Private Investment Limited Liability Company entered into an agreement of acquiring redeemable preferred shares with KNOC Eagle Ford Corporation and KNOC EF Star LLC, its subsidiary. The Group entered into the cash deficiency support agreement with KNOC Eagle Ford Corporation and its associates.

The Group entered into a USD 70 million loan agreement with maturity date of Feb 19, 2021 with Offshore International Group Inc., an investment in joint venture. As of December 31, 2019, Offshore International Group Inc. had ₩ 32,708 million drawn under the loan agreement.

## 46. Additional Cash Flow Statement Information

*Non-Cash Transactions*

Significant non-cash investment and finance transactions excluded from statements of cash flows for the years ended December 31, 2019 and 2018, are as follows:

| *(in Korean won)* | 2019 | 2018 |
|---|---|---|
| Bond payables transferred to current portion | ₩ 989,538,588,269 | ₩ 1,403,666,484,755 |
| Mining rights transferred to financial assets measured at fair value through profit or loss [1] | 854,313,296,086 | |
| Long-term borrowings transferred to current portion | 233,130,000,000 | - |
| Effect of changes in accounting policies | 196,383,626,154 | - |
| Construction in progress transferred to other accounts | 8,398,458,920 | 182,482,864,079 |
| Provisions transferred to current portion | 13,884,326,780 | 13,679,658,105 |
| Increase (decrease) in other account payables due to acquisition of fixed assets | 12,162,807,934 | - |

[1] In accordance with the amendment to the CBSA contract in Iraq, the related mining rights were transferred to financial assets measured at fair value through profit or loss.

## 46. Additional Cash Flow Statement Information(Cont'd)

Details of change in liabilities in financing activities are as follows:

| *(in Korean won)* | 2019 | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | Non-cash transaction | | | | |
| | Beginning balance | Cash flow | Change in exchange rate | Change in fair value | Changes in accounting policies | Others[1] | Ending balance |
| Lease liability | ₩ 222,267,254,416 | ₩ (28,660,897,898) | ₩ (5,719,062,327) | ₩ - | ₩ 196,383,626,154 | ₩ 34,446,775,317 | ₩ 418,717,695,662 |
| Short-term borrowings | 69,322,200,000 | 44,294,700,000 | 2,163,100,000 | - | - | - | 115,780,000,000 |
| Long term borrowings | 2,322,418,296,536 | 118,867,922,763 | 87,749,156,982 | - | - | (676,935,151,758) | 1,852,100,224,523 |
| Current portion of long-term borrowings | - | (234,684,729,761) | (3,005,242,788) | - | - | 680,934,571,282 | 443,244,598,733 |
| Bond payables | 9,799,083,099,968 | 1,270,571,087,904 | 312,996,778,724 | - | - | (938,074,820,919) | 10,444,576,145,677 |
| Current portion of bond payables[2] | 1,370,081,833,056 | (1,428,624,174,169) | 41,134,987,292 | - | - | 1,000,150,401,674 | 982,743,047,853 |
| Liabilities held to hedge risk of bond payable[2] | 59,563,155,142 | - | 17,001,972,398 | (39,883,170,473) | - | 40,921,373,168 | 77,603,330,235 |
| Assets held to hedge risk of bond payable[2] | 119,147,637,496 | (62,222,394,529) | (1,224,341,078) | 59,997,945,375 | - | (13,023,415,166) | 102,675,432,098 |

[1] Includes liquidity transfer and amortization to present value etc.

[2] The assets and liabilities above are comprised of currency swap and interest swap derivative and included in the cash flow of related bond payables.

## 47. Contingencies and Commitments

Details of the Group's significant pending litigations as of December 31, 2019, are as follows:

*(in Korean won)*

| Plaintiff | Defendant | Description[1] | Amount | Process |
|---|---|---|---|---|
| Hanhwa Corp. | The Group | Claiming refunds of the premium paid to the Group acquire interests in Yemen 4 oil field[2] | ₩ 5,978,735,700 | In third trial |
| Hyundai Heavy Industries | The Group | Claiming refunds of the acquisition costs and premium paid to the Group acquire interests in Yemen 4 oil field[3] | 35,655,165,149 | In third trial |
| SK Engineering & Construction Co.,Ltd. and POSCO Engineering & Construction Co., Ltd. | The Group | Claiming additional construction charge due to price escalation | 7,568,394,000 | In first trial |
| SK Engineering & Construction Co.,Ltd. and POSCO Engineering & Construction Co., Ltd. | The Group | Claiming adjustment of contracted amount due to design change and extension of construction period and additional construction charge thereto. | 12,577,605,543 | In first trial |

[1] There are 4 cases againt the Group other than the litagations listed above amounting to total of ₩ 15,724 million, 2 of which are recognized as provision for litigations, and are described in Note 25, and there are 9 cases as the Group as plaintiff amounting total of ₩ 12,037 million.

[2] The Group paid all claim amounts in February 2015 based on the loss of the first trial and received portion of statutory interest in January 2016 based on the partial loss of the second trial. The third trial is in the process as of December 31, 2019 by appealing to the decision of the second trial.

[3] The Group received the return of the claim in March 2017 based on the win of the second trial and third trial is in the process as of December 31, 2019 by appealing to the decision.

Also, the Group is in the process of litigation with Dr. Owolabi claiming compensation for cooperation of acquiring Nigerian mining rights. The Group does not believe it has a present obligation and has not recognized any provisions for this lawsuit as of December 31, 2019.

The Group has provided loan guarantees to non-related parties as of December 31, 2019 and 2018, as follows:

*(in US dollar)*

| Description of guarantee | Guaranteed Party | Issued Date | Guarantee period | 2019 | 2018 |
|---|---|---|---|---|---|
| Payment guarantee for Parallel business | Samsung C&T Corporation and others | 2014-07-10 | Until loans fully repaid | ₩ 7,881,987 | ₩ 7,881,987 |
| | | 2016-06-20 | | 23,780,000 | 23,780,000 |

### 47. Contingencies and Commitments(Cont'd)

As of December 31, 2019, the Group's significant commitments with the financial institutions are as follows:

*(in US dollar, Korean won)*

| Detail of contract [1] | Financial institutions | | Credit line amount | | Executed amount |
|---|---|---|---|---|---|
| Trade finance | Development Bank of Singapore[2] | $ | 100,000,000 | $ | - |
| | Bank of America[2] | | 190,000,000 | | - |
| | ING Bank[2] | | 100,000,000 | | - |
| | Standard Chartered Bank[2] | | 150,000,000 | | - |
| | | $ | 540,000,000 | $ | - |
| Credit line | BNP Paribas | $ | 400,000,000 | $ | - |
| | Development Bank of Singapore[2] | | 100,000,000 | | 50,000,000 |
| | Mizuho Corporate Bank | | 100,000,000 | | - |
| | Bank of America[2] | | 190,000,000 | | - |
| | ING Bank[2] | | 100,000,000 | | - |
| | Credit Agricole | | 100,000,000 | | - |
| | Standard Chartered Bank[2] | | 150,000,000 | | - |
| | The Export-Import Bank of Korea | | 700,000,000 | | 284,000,000 |
| | | $ | 1,840,000,000 | $ | 334,000,000 |
| Bank overdraft | Woori Bank | ₩ | 10,000,000,000 | ₩ | - |

[1] The above commitments do not include the commitments for borrowing until the Group successfully complete the oil exploration.

[2] A portion of or all of lines of credit for trade finance and financial loans have been integrated and the integrated line of credit is ₩ 560 million.

As of December 31, 2019, the Group has received guarantees provided by non-related parties for the Group's obligations and indebtedness, as follows:

As of December 31, 2019, the Group has received the payment guarantee amount of ₩ 5,285 million from the Seoul Guarantee Insurance Company on 23 cases of repayment of leasehold deposits provided in relation to a lease contract.

The Group holds one-time right to purchase up to 30% of Korea GS E&P Pte. Ltd. which is owned by GS Energy Co. until February 2020. The exercise price is net of participation of GS Energy Co. in the business, cumulative expense and revenue until the date of the exercise. Accordingly, the Group recognized derivative assets amounting to ₩ 17,172 million.

### 47. Contingencies and Commitments(Cont'd)

On November 13, 2019, KNOC signed a Joint Venture Agreement with SK Gas Co., LTD and MOL Chemical Tanker to promote Ulsan North Port. Under this agreement, the total investment is expected to be ₩ 616,005 million, and each participant commits to invest to the extent of its participatory interests that could not be procured through external borrowing.

As of December 31, 2019, other significant commitments and contingencies of the Group's subsidiaries are as follows:

(i) Dana Petroleum Limited("Dana") and its subsidiaries

Dana Petroleum Limited, a subsidiary, has adjusted an overdraft limit from ₩ 600 million to ₩ 485.9 million for the agreement of Reserve Based Lending ("RBL"), and there is no exercised amount as of December 31, 2019. Debt capacity of RBL is determined based on the present value of future cash flow generated by production assets and development assets approved by the Field Development Plan (FDP), and the debt capacity is established through the redetermination of applying the banks assumptions.

The Group provided a performance guarantee of GBP 125 million to Nexen and others for the expenses that will incur for restoration of the sites, decommissioning, dismantling and removal of the facilities and structures. Also, the Group provided a performance guarantee of NOK 75 million to ExxonMobile E&P Norway AS for transferring restoring obligation of Jotun.

The Group, in relation to the acquisition of Dana Petroleum Limited's equity interest, has provided a guarantee for any potential environmental and bodily damages during the exploration and production activities by Dana Petroleum Norway AS to the Norwegian government.

(ii) Harvest Operations Corp. and its subsidiaries

Guarantees provided by the Group for Harvest Operations Corp. as of December 31, 2019 are as follows:

*(in foreign currencies)*

| Beneficiary | Description | Amount | Maturity |
|---|---|---|---|
| Harvest Operations Corp. | Guarantees for borrowing from banks | CAD 500,000,000 | 2021.02.24[1] |
| Harvest Operations Corp. | Guarantees for borrowing from banks | CAD 500,000,000 | 2022.07.29 |
| Harvest Operations Corp. | Guarantees for issuing of bonds | USD 195,770,000 | 2021.04.14 |
| Harvest Operations Corp. | Guarantees for issuing of bonds | USD 285,000,000 | 2022.09.21 |
| Harvest Operations Corp. | Guarantees for issuing of bonds | USD 200,000,000 | 2022.09.21 |
| Harvest Operations Corp. | Guarantees for borrowing from banks | CAD 300,000,000 | 2023.05.30 |
| Harvest Operations Corp. | Guarantees for issuing of bonds | USD 397,500,000 | 2023.06.01 |

[1] After the reporting period, the maturity date has been extended from February 24, 2020 to February 24, 2021 on February 21, 2020.

### 47. Contingencies and Commitments(Cont'd)

(iii) ANKOR E&P Holdings Corp. ("ANKOR") and its subsidiaries

The Group provided a payment guarantee for ANKOR, its subsidiary, in relation to the borrowings from The Expert-Import Bank of Korea and others up to the limit of ₩ 83 million.

The Group provided a performance guarantee of ₩ 121 million to Chubb Limited and others for the future restoration of oil and gas sites held by ANKOR.

(iv) KNOC Yemen Ltd.

The Group is in the process of arranging the liquidation of KNOC Yemen Ltd. with YICOM, an acquirer. According to the arrangement, the Group may have a possibility of settlement, of which the amount cannot be estimated

(v) KNOC Eagle Ford and its subsidiaries

JB Patriot Investment Type Private Investment Limited Liability Company, non-controlling interest of KNOC Eagle Ford Corporation entered into an agreement of acquiring redeemable preferred shares with KNOC Eagle Ford Corporation and KNOC EF Star LLC, its subsidiary. The Group entered into the cash deficiency support agreement with KNOC Eagle Ford Corporation. In the case of a breach of covenants, JB Patriot Investment Type Private Investment Limited Liability Company is entitled to exercise a drag along right to require the KNOC Eagle Ford Corporation to sell the entire common shares held by KNOC Eagle Ford Corporation together with the preferred shares.

Details of agreements with financial facilities of KNOC Eagle Ford and its subsidiaries are as follows:

*(in US dollar)*

| Agreement | Financial Institution | Credit line amount | Executed amount |
|---|---|---|---|
| Credit line | Bank of America | ₩ 25,000,000 | ₩ - |
| | Sumitomo Mitsui Banking Corporation | 70,000,000 | - |
| | Societe Generale Bank | 30,000,000 | - |
| | | ₩ 125,000,000 | ₩ - |

### 48. Events After the Reporting Period

To participate in the ADNOC Onshore business, the Group decided to exercise the right to purchase shares of GS E&P held by GS Energy Corporation in accordance with the resolution of the board of directors on February 24, 2020. On February 27, 2020, the Group entered into a contract to acquire 3,000 shares of 10,000 shares of common shares and 211,320,000 shares of 704,400,000 shares of preferred shares.

After the reporting period, there is a possibility of volatility in international oil prices resulting from the worldwide spread of Corona19, which may affect the prospects of long-term oil prices used to calculate financial information.

### 49. Date of Authorization of Issue

The consolidated financial statements were authorized for issue by the Board of Directors on February 28, 2020. As described in Note 50, the audited consolidated financial statements have been restated and authorized for issue by the Board of Directors on July 24, 2020.

### 50. Restatement of Consolidated Financial Statements

The consolidated financial statements were authorized for issue by the Board of Directors on February 28, 2020 but were restated to de-recognize part of deferred tax assets utilising future taxable profit which is not probable to be offset against deductible temporary differences. It has resulted in a decrease in the net asset as of December 31, 2019 by ₩ 69,344 million and an increase in the loss for the year ended by ₩ 69,814 million. Details of the impact are as follows:

| *(In Korean won)* | Before adjustment | After adjustment |
|---|---|---|
| **Statements of financial position** | | |
| Non-current assets | ₩ 17,017,792,606,413 | ₩ 16,948,448,610,267 |
| Deferred tax assets | 853,682,419,962 | 784,338,423,816 |
| Equity | 600,190,391,696 | 530,846,395,550 |
| Accumulated deficit | (9,307,633,460,802) | (9,377,447,616,190) |
| Accumulated other comprehensive loss | (1,181,162,227,662) | (1,180,692,068,420) |
| **Statements of comprehensive income (loss)** | | |
| Income tax expense | 463,998,437,016 | 533,812,592,404 |
| Foreign currency translation differences for foreign operations | 33,806,265,068 | 34,276,424,310 |

# Independent Auditors' Report

The Board of Directors and Shareholder
Korea National Oil Corporation:

*Opinion*

We have audited the consolidated financial statements of Korea National Oil Corporation and its subsidiaries (the "Group") which comprise the consolidated statements of financial position as of December 31, 2018 and 2017, the consolidated statements of comprehensive loss, changes in equity and cash flows for the years then ended, and notes, comprising significant accounting policies and other explanatory information.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2018 and 2017, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions..

*Basis for Opinion*

We conducted our audits in accordance with Korean Standards on Auditing (KSAs). Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in the Republic of Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

*Emphasis of matters*

Without qualifying our opinion, we draw attention to following:

(1) Uncertainty of Deterioration in Operating Condition of Oil Market

As described in Note 48, imbalance between supply and demand continues to drive low oil prices in the international crude oil market and oil prices are unlikely to increase in a short period of time. There is a significant uncertainty with respect to the Group's future business results depending on the extent of recovery of oil prices. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

(2) Correction of Errors

As described in Note 49, the consolidated financial statements as of and for the year ended December 31, 2017 have been restated to correct a subsidiary's accounting error in relation to investments in associates. As a result, the Group's net asset decreased by ₩ 53,183 million as of December 31, 2017 and loss for the year increased by ₩ 3,031 million for the year then ended.

(3) Basis of preparation

As described in Note 2, the Group applies Korean International Financial Reporting Standards, as prescribed in the Act on External Audits of Corporations in the Republic of Korea, for specific accounting treatments that are not prescribed in the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions.

*Other matter*

The procedures and practices utilized in the Republic of Korea to audit such consolidated financial statements may differ from those generally accepted and applied in other countries.

*Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements*

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions, 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.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

*Auditors' Responsibilities for the Audit of the Consolidated Financial Statements*

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with KSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with KSAs, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit 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 Group's internal control.

- Evaluate the appropriateness of accounting policies used in the preparation of the consolidated financial statements and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Group to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

KPMG Samjong Accounting Corp.

Seoul, Korea
March 9, 2019

This report is effective as of March 9, 2019, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that the above audit report has not been updated to reflect the impact of such subsequent events or circumstances, if any.

# KOREA NATIONAL OIL CORPORATION AND SUBSIDIARIES
## Consolidated Statements of Financial Position
### As of December 31, 2018 and 2017

| *In thousands of Korean won* | ***Notes*** | **2018** | **2017 (Restated)** |
|---|---|---|---|
| **Assets** | | | |
| Cash and cash equivalents | 8,41,43 | ₩ 778,120,149 | 791,075,068 |
| Current financial assets | 9,10,13,14,15,41,42,43 | 87,103,034 | 27,339,489 |
| Trade and other receivables, net | 11,41,43 | 444,109,507 | 556,269,282 |
| Inventories, net | 16 | 95,619,590 | 88,273,335 |
| Current income tax assets | | 53,461,320 | 37,055,001 |
| Current non-financial assets | 18 | 66,830,233 | 117,277,633 |
| Assets held for sale | 6,17 | - | 3,471,555 |
| **Current assets** | | 1,525,243,833 | 1,620,761,363 |
| Non-current financial assets, net | 9,10,12,13,14,41,42,43 | 785,335,300 | 622,446,995 |
| Long-term trade and other receivables | 11,41,43,49 | 33,836,113 | 97,767,935 |
| Property, plant and equipment, net | 20,49 | 8,674,307,451 | 9,023,670,970 |
| Goodwill | 21 | 143,792,883 | 147,854,169 |
| Intangible assets other than goodwill, net | 22 | 2,063,367,676 | 2,934,334,387 |
| Investments in associates and joint ventures | 19 | 275,957,500 | 298,328,697 |
| Deferred tax assets | 39,49 | 1,006,600,264 | 1,218,914,526 |
| Non-current non-financial assets | 18 | 3,730,560,030 | 3,547,621,283 |
| **Non-current assets** | | 16,713,757,217 | 17,890,938,962 |
| **Total assets** | | ₩ 18,239,001,050 | 19,511,700,325 |

*See accompanying notes to the consolidated financial statements.*

# KOREA NATIONAL OIL CORPORATION AND SUBSIDIARIES

## Consolidated Statements of Financial Position, Continued

**As of December 31, 2018 and 2017**

| *In thousands of Korean won* | *Notes* | | 2018 | 2017 (Restated) |
|---|---|---|---|---|
| **Liabilities** | | | | |
| Trade and other payables | 23,41,43,45 | ₩ | 644,690,362 | 786,399,194 |
| Current financial liabilities | 10,24,25,41,42, 43,45,49 | | 1,521,136,237 | 3,265,368,380 |
| Current income tax liabilities | 49 | | 29,929,264 | 9,459,404 |
| Current non-financial liabilities | 29,49 | | 174,521,678 | 108,686,434 |
| Current provisions | 27 | | 56,418,469 | 94,440,202 |
| **Current liabilities** | | | 2,426,696,010 | 4,264,353,614 |
| Long-term trade and other payables | 23,41,43,45 | | 434,319,512 | 503,799,162 |
| Non-current financial liabilities | 10,24,25,28,29,41, 42,43,45,49 | | 12,226,052,926 | 10,155,681,912 |
| Non-current non-financial liabilities | 29 | | 68,522,555 | 42,607,876 |
| Employee benefits, net | 26 | | 8,749,812 | 8,293,543 |
| Deferred tax liabilities | 39 | | 185,533,918 | 132,817,193 |
| Non-current provisions | 27 | | 2,125,061,338 | 2,020,256,660 |
| **Non-current liabilities** | | | 15,048,240,061 | 12,863,456,346 |
| **Total liabilities** | | ₩ | 17,474,936,071 | 17,127,809,960 |
| **Equity** | | | | |
| Share capital | 30 | | 10,481,533,780 | 10,434,864,780 |
| Accumulated deficit | 31,49 | | (9,201,495,688) | (8,363,377,364) |
| Other components of equity | 33 | | (1,032,764,257) | (589,302,687) |
| **Equity attributable to the owner of the Company** | | | 247,273,835 | 1,482,184,729 |
| **Non-controlling interests** | | | 516,791,144 | 901,705,636 |
| **Total equity** | | ₩ | 764,064,979 | 2,383,890,365 |
| **Total equity and liabilities** | | ₩ | 18,239,001,050 | 19,511,700,325 |

*See accompanying notes to the consolidated financial statements.*

# KOREA NATIONAL OIL CORPORATION AND SUBSIDIARIES
## Consolidated Statements of Comprehensive Loss
### For the years ended December 31, 2018 and 2017

| *In thousands of Korean won* | *Notes* | | 2018 | 2017<br>(Restated) |
|---|---|---|---|---|
| **Continuing Operations** | | | | |
| **Revenue** | 6,34 | ₩ | 3,149,265,266 | 2,312,485,962 |
| **Cost of sales** | 6,40 | | 2,171,932,854 | 1,850,289,885 |
| **Gross profit** | 6 | | 977,332,412 | 462,196,077 |
| Selling and administrative expenses | 6,26,40 | | 433,971,588 | 286,324,859 |
| **Operating profit** | 6 | | 543,360,824 | 175,871,218 |
| Other non-operating income | 6,35 | | 76,488,773 | 152,268,721 |
| Other non-operating expenses | 6,35 | | 37,791,274 | 207,235,979 |
| Other loss, net | 6,36 | | (849,323,244) | (463,149,784) |
| Finance income | 6,10,37,41 | | 231,241,417 | 304,558,480 |
| Finance costs | 6,10,38,41 | | 783,490,645 | 713,173,619 |
| Loss on investments in associates and joint ventures, net | 6,19 | | (112,547,149) | (127,756,892) |
| **Loss before income tax** | 6 | | (932,061,298) | (878,617,855) |
| Income tax expense (benefit) | 39,49 | | 228,333,934 | (194,163,332) |
| **Loss from continuing operations** | | | (1,160,395,232) | (684,454,523) |
| **Discontinued operations** | | | | |
| Profit (loss) from discontinued operations, net of tax | | | 854,210 | (52,337,450) |
| **Loss for the year** | | ₩ | (1,159,541,022) | (736,791,973) |
| **Other comprehensive income (loss)** | | | | |
| **Items that will never be reclassified subsequently to profit or loss** | | | | |
| Actuarial gains (losses) on defined benefit plans, net of tax | 26,31 | | (1,679,984) | 3,141,590 |
| Retained earnings adjustments in equity method, net of tax | | | (46,222) | (48,043) |
| Net change in fair value of financial assets measured at fair value through other comprehensive income | | | (177,207,309) | - |
| **Items that are or may be reclassified subsequently to profit or loss** | | | | |
| Net change in the unrealized fair value of available-for-sale financial assets, net of tax | 12,41 | | - | (5,920,445) |
| Net change in fair value of available-for-sale financial assets reclassified to profit or loss, net of tax | 12,41 | | - | (58,177,009) |
| Equity adjustments arising from investments in equity-method investees, net of tax | 19 | | 2,811,814 | 5,278,959 |
| Net change in the unrealized fair value of derivative using cash flow hedge accounting, net of tax | 10,41 | | 99,356,555 | (48,425,006) |
| Net change in fair value of derivative using cash flow hedge accounting reclassified to profit or loss, net of tax | 10,41 | | - | 1,093,830 |
| Foreign currency translation differences for foreign operations | | | 40,863,017 | (278,714,661) |
| **Other comprehensive loss for the year, net of tax** | | | (35,902,129) | (381,770,785) |
| **Total comprehensive loss for the year** | | ₩ | (1,195,443,151) | (1,118,562,758) |
| **Income (loss) attributable to:** | | | | |
| Owners of the Company | | | (1,205,946,786) | (851,371,547) |
| Non-controlling interests | | | 46,405,764 | 114,579,574 |
| **Loss for the year** | | | (1,159,541,022) | (736,791,973) |
| **Total comprehensive income (loss) attributable to:** | | | | |
| Owners of the Company | | | (1,274,009,425) | (1,123,125,566) |
| Non-controlling interests | | | 78,566,274 | 4,562,808 |
| **Total comprehensive loss for the year** | | ₩ | (1,195,443,151) | (1,118,562,758) |

*See accompanying notes to the consolidated financial statements.*

# KOREA NATIONAL OIL CORPORATION AND SUBSIDIARIES

## Consolidated Statements of Changes in Equity

**For the years ended December 31, 2018 and 2017**

| *In thousands of Korean won* | Attributable to owners of the Company | | | | | |
|---|---|---|---|---|---|---|
| | Share capital | Accumulated deficit | Other components of equity | Subtotal | Non-controlling interests | Total equity |
| **Balance as of January 1, 2017 before adjustment** | ₩ 10,346,851,780 | (7,633,552,073) | (314,455,121) | 2,398,844,586 | 1,109,887,776 | 3,508,732,362 |
| **Correction of Errors** | - | 118,452,709 | - | 118,452,709 | (175,201,927) | (56,749,218) |
| **Balance as of January 1, 2017 after adjustment** | 10,346,851,780 | (7,515,099,364) | (314,455,121) | 2,517,297,295 | 934,685,849 | 3,451,983,144 |
| **Total comprehensive income (loss) for the year** | | | | | | |
| Income (loss) for the year | - | (851,371,547) | - | (851,371,547) | 114,579,574 | (736,791,973) |
| **Items that will not be reclassified subsequently to profit or loss** | | | | | | |
| Defined benefit plan actuarial gains, net of tax | - | 3,141,590 | - | 3,141,590 | - | 3,141,590 |
| Retained earnings adjustments in equity method, net of tax | - | (48,043) | - | (48,043) | - | (48,043) |
| **Items that may be reclassified subsequently to profit or loss** | | | | | | |
| Net change in the unrealized fair value of available-for-sale financial assets, net of tax | - | - | (5,920,445) | (5,920,445) | - | (5,920,445) |
| Net change in fair value of available-for-sale financial assets reclassified to profit or loss, net of tax | - | - | (58,177,009) | (58,177,009) | - | (58,177,009) |
| Equity adjustments arising from investments in equity-method investees, net of tax | - | - | 5,278,959 | 5,278,959 | - | 5,278,959 |
| Net change in the unrealized fair value of derivative using cash flow hedge accounting, net of tax | - | - | (48,425,006) | (48,425,006) | - | (48,425,006) |
| Net change in fair value of derivative using cash flow hedge accounting reclassified to profit or loss, net of tax | - | - | 1,093,830 | 1,093,830 | - | 1,093,830 |
| Foreign currency translation differences for foreign operations | - | - | (168,697,895) | (168,697,895) | (110,016,766) | (278,714,661) |
| Total comprehensive income (loss) for the year | - | (848,278,000) | (274,847,566) | (1,123,125,566) | 4,562,808 | (1,118,562,758) |
| **Transactions with owners of the Company, recognized directly in equity** | | | | | | |
| Issuance of share capital | 88,013,000 | - | - | 88,013,000 | - | 88,013,000 |
| Dividends paid | - | - | - | - | (35,007,112) | (35,007,112) |
| Distribution to non-controlling interests | - | - | - | - | (2,535,909) | (2,535,909) |
| Total transactions with owners of the Company | 88,013,000 | - | - | 88,013,000 | (37,543,021) | 50,469,979 |
| **Balance as of December 31, 2017** | ₩ 10,434,864,780 | (8,363,377,364) | (589,302,687) | 1,482,184,729 | 901,705,636 | 2,383,890,365 |

*See accompanying notes to the consolidated financial statements.*

# KOREA NATIONAL OIL CORPORATION AND SUBSIDIARIES

## Consolidated Statements of Changes in Equity, Continued

### For the years ended December 31, 2018 and 2017

| *In thousands of Korean won* | Attributable to owners of the Company | | | | | |
|---|---|---|---|---|---|---|
| | **Share capital** | **Accumulated deficit** | **Other components of equity** | **Subtotal** | **Non-controlling interests** | **Total equity** |
| **Balance as of January 1, 2018 before adjustment** | ₩ 10,434,864,780 | (8,363,377,364) | (589,302,687) | 1,482,184,729 | 901,705,636 | 2,383,890,365 |
| **Adjustment on initial adoption of K-IFRS No. 1109** | - | 369,554,668 | (377,105,179) | (7,550,511) | - | (7,550,511) |
| **Balance as of January 1, 2018 after adjustment** | 10,434,864,780 | (7,993,822,696) | (966,407,866) | 1,474,634,218 | 901,705,636 | 2,376,339,854 |
| **Total comprehensive income (loss) for the year** | | | | | | |
| Income (loss) for the year | - | (1,205,946,786) | - | (1,205,946,786) | 46,405,764 | (1,159,541,022) |
| **Items that will not be reclassified subsequently to profit or loss** | | | | | | |
| Defined benefit plan actuarial gains, net of tax | - | (1,679,984) | - | (1,679,984) | - | (1,679,984) |
| Retained earnings adjustments in equity method, net of tax | - | (46,222) | - | (46,222) | - | (46,222) |
| Net change in fair value of financial assets measured at fair value through other comprehensive income | - | - | (177,207,309) | (177,207,309) | - | (177,207,309) |
| **Items that may be reclassified subsequently to profit or loss** | | | | | | |
| Equity adjustments arising from investments in equity-method investees, net of tax | - | - | 2,811,814 | 2,811,814 | - | 2,811,814 |
| Net change in the unrealized fair value of derivative using cash flow hedge accounting, net of tax | - | - | 99,356,555 | 99,356,555 | - | 99,356,555 |
| Foreign currency translation differences for foreign operations | - | - | 8,702,507 | 8,702,507 | 32,160,510 | 40,863,017 |
| Total comprehensive income (loss) for the year | - | (1,207,672,992) | (66,336,433) | (1,274,009,425) | 78,566,274 | (1,195,443,151) |
| **Transactions with owners of the Company, recognized directly in equity** | | | | | | |
| Issuance of share capital | 46,669,000 | - | - | 46,669,000 | - | 46,669,000 |
| Dividends paid | - | - | - | - | (37,431,457) | (37,431,457) |
| Distribution to non-controlling interests | - | - | (19,958) | (19,958) | (2,433,809) | (2,453,767) |
| Change in the scope of consolidation | - | - | - | - | (423,615,500) | (423,615,500) |
| Total transactions with owners of the Company | 46,669,000 | - | (19,958) | 46,649,042 | (463,480,766) | (416,831,724) |
| **Balance as of December 31, 2018** | ₩ 10,481,533,780 | (9,201,495,688) | (1,032,764,257) | 247,273,835 | 516,791,144 | 764,064,979 |

*See accompanying notes to the consolidated financial statements.*

# KOREA NATIONAL OIL CORPORATION AND SUBSIDIARIES
## Consolidated Statements of Cash Flows, Continued
**For the years ended December 31, 2018 and 2017**

| *In thousands of Korean won* | 2018 | 2017 |
|---|---|---|
| **Cash flows from operating activities** | | |
| Loss for the year | ₩ (1,159,541,022) | (736,791,973) |
| Adjustment for: | | |
| Severance and retirement benefits | 8,817,689 | 10,013,447 |
| Depreciation | 1,068,719,905 | 806,411,988 |
| Amortization of intangible assets other than goodwill | 66,267,992 | 98,482,908 |
| Reversal of other bad debt allowance | (8,356,086) | (7,937,647) |
| Gains on exemption of debts | - | (76,743,985) |
| Loss on cancellation of debt exemption | 11,034 | 2,701,210 |
| Non-operating income from overseas oil fields (other income) | (1,538,147) | (3,914,767) |
| Other income | (1,379,735) | - |
| Transfer to other provision (other expenses) | 13,039,493 | - |
| Other bad debt expense | 765,168 | 180,185,957 |
| Gains on disposal of property, plant and equipment | (7,660,786) | (2,130,079) |
| Gains on disposal of intangible assets other than goodwill | (6,764) | - |
| Reversal of impairment losses on property, plant and equipment | (23,146,480) | (163,644,901) |
| Gains on foreign currency translation (other profit or loss) | (26,654,136) | (39,594,669) |
| Losses on disposal of property, plant and equipment | 154,437 | 182,050 |
| Losses on disposal of intangible assets other than goodwill | - | 3,524,172 |
| Losses on valuation of inventories | - | 6,820,816 |
| Impairment losses on property, plant and equipment | 272,828,899 | 363,206,306 |
| Impairment losses on intangible assets other than goodwill | 609,346,913 | 227,051,386 |
| Impairment losses on goodwill | - | 87,470,422 |
| Losses on foreign currency translation (other profit or loss) | 19,636,929 | 45,109,552 |
| Income tax expense (benefit) | 228,333,934 | (199,940,426) |
| Interest income | (22,655,697) | (50,601,455) |
| Dividends income | (10,296) | (9,991) |
| Gains on transaction of derivative (finance income) | (4,421,358) | (1,168,345) |
| Gains on valuation of derivative (finance income) | (23,218,443) | - |
| Gains on repayment of financial liabilities | - | (1,583,427) |
| Gains on foreign currency translation (finance income) | (55,441,206) | (143,659,143) |
| Interest expense | 426,020,667 | 401,018,825 |
| Impairment losses on available-for-sale financial assets | - | 71,585,757 |
| Losses on transaction of derivative (finance cost) | 1,088,098 | 11,604,928 |
| Loss on valuation of derivative (finance cost) | - | 25,305,094 |
| Losses on valuation of financial instruments at fair value through profit or loss | - | 2,761,972 |
| Losses on valuation of financial asset measured at fair value through profit or loss (finance cost) | 5,058,941 | - |
| Gains on valuation of financial asset measured at fair value through profit or loss (finance income) | (87,037,043) | - |
| Losses on foreign currency translation (finance cost) | 209,389,524 | 93,114,772 |
| Financial guarantee expenses (finance cost) | 14,593,662 | - |
| Other finance costs (interest expense) | 27,124,686 | 26,610,339 |
| Interest costs on provision for decommissioning | 73,675,104 | 73,316,028 |
| Transfer to other provision (sales commissions) | 122,362,849 | - |
| Gains on disposal of asset held for sale | (2,058,658) | - |
| Share of gain in associates and joint ventures | (6,049,649) | (6,684,312) |
| Share of loss in associates and joint ventures | 117,335,392 | 128,914,973 |
| Impairment losses on investments in associates and joint ventures | 1,261,406 | 5,526,231 |
| | 3,016,198,238 | 1,973,305,986 |

*See accompanying notes to the consolidated financial statements.*

# KOREA NATIONAL OIL CORPORATION AND SUBSIDIARIES

## Consolidated Statements of Cash Flows, Continued

**For the years ended December 31, 2018 and 2017**

| *In thousands of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Changes in: | | | |
| Inventories | ₩ | (7,534,144) | 21,542,265 |
| Trade and other receivables | | 93,793,171 | (84,476,210) |
| Other receivables from operating activities | | 47,237,271 | (67,541,088) |
| Trade and other payables | | (247,322,811) | 89,645,401 |
| Other payables from operating activities | | 76,421,609 | 17,104,940 |
| Defined benefit liability | | (5,298,202) | (4,700,902) |
| Provisions | | (75,578,295) | (61,140,231) |
| | | (118,281,401) | (89,565,825) |
| **Cash generated from operating activities** | | 1,738,375,815 | 1,146,948,188 |
| Dividend received | | 3,026,197 | 24,242,702 |
| Interest paid | | (511,015,935) | (472,962,743) |
| Interest received | | 110,942,172 | 68,773,996 |
| Income tax paid | | (75,232,301) | (71,619,869) |
| **Net cash provided by operating activities** | ₩ | 1,266,095,948 | 695,382,274 |
| **Cash flows from investing activities:** | | | |
| Acquisition of investments in associates and joint ventures | | (43,614,436) | (19,932,880) |
| Proceeds from disposal of property, plant and equipment | | 6,187,227 | 216,130,892 |
| Acquisition of property, plant and equipment | | (598,040,058) | (801,791,485) |
| Proceeds from disposal of intangible assets other than goodwill | | 17,129 | 11,920 |
| Acquisition of intangible assets other than goodwill | | (27,259,002) | (27,933,109) |
| Proceeds from disposal of asset held for sale | | 5,623,855 | - |
| Acquisition of non-current non-financial assets | | (27,458,035) | (92,476,135) |
| Acquisition of available-for-sale financial investments | | - | (17,744) |
| Increase in leasehold deposits provided | | (2,853,866) | (21,506,145) |
| Decrease in leasehold deposits provided | | 3,074,997 | 1,066,154 |
| Increase in long-term and short-term financial assets | | (149,791,630) | (206,429,516) |
| Decrease in long-term and short-term financial assets | | 151,609,019 | 206,192,617 |
| Increase in short-term and long-term loans | | (120,228,582) | (59,686,502) |
| Decrease of short-term and long-term loans | | 27,536,759 | 23,259,743 |
| Increase in leasehold deposits received | | 46,364 | 476,210 |
| **Net cash used in investing activities** | ₩ | (775,150,259) | (782,635,980) |

*See accompanying notes to the consolidated financial statements.*

# KOREA NATIONAL OIL CORPORATION AND SUBSIDIARIES

## Consolidated Statements of Cash Flows, Continued

**For the years ended December 31, 2018 and 2017**

| *In thousands of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| **Cash flow from financing activities** | | | |
| Proceeds from increase in share capital | ₩ | 46,669,000 | 88,013,000 |
| Proceeds from short-term borrowings | | 200,567,278 | 152,272,880 |
| Repayments of short-term borrowings | | (409,580,273) | (801,762,951) |
| Proceeds from issue of bond payables | | 1,821,361,623 | 2,209,147,968 |
| Repayments of bond payables | | (2,381,291,977) | (1,946,543,420) |
| Proceeds from long-term borrowings | | 528,487,814 | 801,623,878 |
| Repayments of long-term borrowings | | (276,917,860) | (242,928,670) |
| Dividends paid | | (37,431,456) | (35,007,112) |
| Repayments of finance lease liability | | (8,565,750) | (7,855,845) |
| Net cash outflow due to other distribution to non-controlling interests | | (2,433,809) | (2,535,909) |
| **Net cash provided by (used in) financing activities** | ₩ | (519,135,410) | 214,423,819 |
| **Net increase (decrease) in cash and cash equivalents before net effect of foreign exchange differences** | ₩ | (28,189,721) | 127,170,113 |
| Effect of exchange rate fluctuations on cash held | | 15,267,778 | (152,866,817) |
| **Net decrease in cash and cash equivalents** | | (12,921,943) | (25,696,704) |
| Cash and cash equivalents as of January 1 | | 791,119,802 | 816,816,506 |
| **Cash and cash equivalents as of December 31 before deduction of government grants** | | 778,197,859 | 791,119,802 |
| Government grants | | (77,710) | (44,734) |
| **Cash and cash equivalents as of December 31 after deduction of government grants** | ₩ | 778,120,149 | 791,075,068 |

*See accompanying notes to the consolidated financial statements.*

## 1. Reporting Entity

Description of the controlling company

Korea National Oil Corporation (the "Company" or the "Parent Company") was incorporated on March 3, 1979 to engage in the development of oil fields, distribution of crude oil, maintenance of petroleum reserve stock and improvement of the petroleum distribution infrastructure under the Korea National Oil Corporation Act. The Company's head office is located at 305, Jongga-Ro, Jung-Gu, Ulsan in Korea. The Company also has 9 petroleum stockpile sites, 1 domestic gas field management office, 1 overseas office in Kazakhstan and overseas subsidiaries and affiliates in the United States and other countries.

As of December 31, 2018, the Company's share capital is ₩10,481,534 million, which is wholly owned by the government of the Republic of Korea.

The consolidated financial statements comprise the Company and its subsidiaries (together referred to as the "Group" and individually as "Group entities") and the Group's interests in associates and joint ventures.

The list of subsidiaries as of December 31, 2018 and 2017 is disclosed in Note 5.

## 2. Basis of Preparation

(a) Statement of compliance

The consolidated financial statements have been prepared in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions. Pursuant to the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions, the Group applies Korean International Financial Reporting Standards ("K-IFRS"), as prescribed in the Act on External Audits of Corporations in the Republic of Korea, for specific accounting treatments that are not prescribed in the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions.

Accounting treatments differently applied from K-IFRS in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions are as follows;

(i) Government grants – Article 44
Government grants related to assets are presented as a deduction of related assets and the government grants are offset the depreciation costs of the related assets over the useful lives of the related assets. Government grants received from an operation that the Group acts as a government agency are accounted for revenue.

(ii) Unused government grants and consignment expenditures – Article 44.2
Unused government grants as of the reporting date are presented as a deduction of cash and cash equivalents in accordance with Accounting Affairs of Public Corporations and Quasi-governmental Institutions.

## 2. Basis of Preparation, Continued

(b) Basis of measurement

The consolidated financial statements have been prepared on the historical cost basis, except for the following material items in the statement of financial position:

- ✓ derivative financial instruments measured at fair value
- ✓ financial assets measured at fair value through profit or loss
- ✓ financial assets measured at fair value through other comprehensive income
- ✓ financial liabilities measured at fair value through profit or loss
- ✓ Investments in associates and joint ventures measured at fair value
- ✓ liabilities for defined benefit plans recognized at the net of the total present value of defined benefit obligations less the fair value of plan assets

(c) 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 accompanying consolidated financial statements are prepared in the Company's functional currency, the United States dollar, and presented in Korean won, the Group's presentation currency, for the financial reporting purposes in accordance with K-IFRS No. 1021, 'The Effects of Changes in Foreign Exchange Rates'. The Group is required to present its financial statements in Korean won in accordance with regulations in Korea.

Assets and liabilities for each statement of financial position presented (i.e. including comparatives) were translated at the closing rate at the date of that statement of financial position, income and expenses for each statement presenting profit or loss and other comprehensive income (i.e. including comparatives) were translated at the average exchange rates of the period and all resulting exchange differences were recognized in other comprehensive income.

## 2. Basis of Preparation, Continued

### (d) Use of estimates and judgments

The preparation of the consolidated financial statements in conformity with K-IFRS requires management to make judgments, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

(i) Management's judgment
Information about critical judgments in applying accounting policies that have the most significant effect on the amounts recognized in the consolidated financial statements is included in the following notes:

Note 5: Scope of consolidation – whether the Group has de facto control
Note 19: Investments in Associates and Joint Ventures – classification of a joint arrangement

(ii) Assumptions and estimation uncertainties
Information about assumptions and estimation uncertainties that have a significant risk of resulting in a material adjustment within the next financial year are included in the following notes:

Note 19: Investments in Associates and Joint Ventures – main assumptions for recoverable amounts
Note 20: Property, Plant and Equipment – estimation of factors for depreciation and recoverable amount
Note 21: Goodwill – main assumptions for recoverable amounts
Note 22: Intangible assets other than goodwill – main assumptions for recoverable amounts
Note 26: Employee Benefits – main actuarial assumptions
Note 27 and 46: Provisions and Contingencies – assumptions for possibility of cash outflows and their amounts
Note 39: Income tax expense (benefit) – possibility of realization of deferred tax assets

## 2. Basis of Preparation, Continued

(d) Use of estimates and judgments, continued

(iii) Measurement of fair value

A number of the Group's accounting policies and disclosures require the measurement of fair values, for both financial and non-financial assets and liabilities. The Group has an established control framework with respect to the measurement of fair values. This includes a valuation team that has overall responsibility for overseeing all significant fair value measurements, including Level 3 fair values, and reports directly to the CFO.

The valuation team regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as broker quotes or pricing services, is used to measure fair values, then the valuation team assesses the evidence obtained from the third parties to support the conclusion that such valuations meet the requirements of K-IFRS, including the level in the fair value hierarchy in which such valuations should be classified.

When measuring the fair value of an asset or a liability, the Group uses market observable data as far as possible. Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows.

· Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.
· Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices).
· Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

If the inputs used to measure the fair value of an asset or a liability fall into different levels of the fair value hierarchy, then the fair value measurement is categorized in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement.

Information about the assumptions made in measuring fair values is included in the following notes:

Note 41 – Categories of Financial Instruments
Note 43 – Risk Management

## 3. Changes in Accounting Policies

The Group has initially adopted K-IFRS No. 1115 "Revenue from Contracts with Customers" and K-IFRS No. 1109 "Financial Instruments" beginning on January 1, 2018. The effects of initially adopting these standards mainly include the followings:

(a) K-IFRS No. 1115 “Revenue from Contract with Customers”

K-IFRS No. 1115 “Revenue from Contracts with Customers” provides an unified five-step model for determining the timing, measurement and recognition of revenue. It replaced previous revenue recognition guidance, including K-IFRS No. 1018 “Revenue”, K-IFRS No. 1011 “Construction Contracts”, K-IFRS No. 2031 “Revenue- Barter Transactions Involving Advertising Services”, K-IFRS No. 2113 “Customer Loyalty Programs”, K-IFRS No. 2115 “Agreements for the Construction of Real Estate”, and K-IFRS No. 2118 “Transfers of Assets from Customers”.

The Group applied the modified retrospective approach by recognizing the cumulative impact of initially applying the revenue standard as of January 1, 2018, the date of initial application, and the Group also decided to apply the practical expedients as allowed under K-IFRS No. 1115 by applying the new standard only to those contracts that are not considered as completed contracts at the date of initial application. Accordingly, the consolidated financial statements for comparative periods have not been restated and prepared in accordance with K-IFRS No. 1011 “Construction Contracts” and K-IFRS No.1018 “Revenue” and interpretations thereof. There are no impact to the beginning and the ending balance of the consolidated statements of financial position of the Group due to application of K-IFRS No. 1115 for the year ended December 31, 2018, and the impact to the consolidated statement of comprehensive loss are as follows:

- Consolidated statement of comprehensive loss for the year ended December 31, 2018

*In millions of Korean won*

| | Notes | | Amount before adoption of K-IFRS No. 1115 | Adjustments | Amount after adoption of K-IFRS No. 1115 |
|---|---|---|---|---|---|
| Sales revenue | **(i), (ii)** | ₩ | 3,212,399 | (63,134) | 3,149,265 |
| Cost of sales | **(i), (ii)** | | 2,235,067 | (63,134) | 2,171,933 |
| Loss for the year | | | (1,159,541) | - | (1,159,541) |
| Total comprehensive loss | | | (1,195,443) | - | (1,195,443) |

(i) Sale of goods

The contracts which the Group entered with customers for the sale of crude oil and others contain a single performance obligation. Depending on sales contract with customers, performance obligation can be distinguished as ‘performance obligation satisfied at a point in time’ and ‘performance obligation satisfied over time’. In the case of ‘performance obligation satisfied at a point in time’, the Group has concluded that revenue to be recognized at the time of delivery because control of goods is transferred at a point in time upon delivery. Also, in the case of ‘performance obligation satisfied over time’, although revenue should be recognized by measuring progress towards complete satisfaction of a performance obligation, the Group has decided to apply practical expedient allowed under K-IFRS No. 1115 in relation to measuring progress. Therefore, the application of K-IFRS No. 1115 has no effect on the timing of revenue recognition.

## 3. Changes in Accounting Policies, Continued

(a) K-IFRS No. 1115 "Revenue from Contract with Customers", continued

(i) Sale of goods, continued

- Resale agreements

Some contracts with customers include purchase of goods and resale agreements with the same counterparties. As a result of the application of K-IFRS No. 1115, the Group has adjusted its revenue recognition policy to recognize the net amount (difference between sales and purchases) as revenue, regarding the sales transaction of uncontrolled inventories as providing custodial service. As a result, sales and cost of sales reduced by ₩62,075 million respectively in 2018.

- Considerations payable to customers

Considerations payable to customers should be deducted from the amount of revenue earned unless payment is made in relation to goods or service provided by the customer as a separable performance obligation. The Group deducted the cost of gas treatment, which has the characteristic of compensation for customers' expenses arising from the supply of goods, from the transaction price. Accordingly, both sales and cost of sales decreased by ₩26 million respectively in 2018.

(ii) Rendering of services

The Group provides services such as lending stockpile oil resources, storing oil resources, and leasing related facilities. Service contract contains a large number of performance obligations whose promises with customers are distinct within the context of the contract and separately identifiable. The Group has determined that service contract contains 'performance obligation satisfied over time', and decided to apply practical expedient of measuring progress allowed under K-IFRS No. 1115. Therefore, the application of K-IFRS No. 1115 has no effect on the timing of revenue recognition. However, the impact on the amount of revenue recognized is as follows;

- Transaction that does not arise from a contract with a customer

The Group has adjusted the revenue related to the operation of the oil fields and wells, which was recognized as sales under the previous revenue standards, as a reduction of the cost of sales because the Group concluded that it is not a contract with a customer. As a result, sales revenue amounting to ₩1,033 million and cost of sales amounting to ₩1,033 million decreased.

### 3. Changes in Accounting Policies, Continued

(b) K-IFRS No. 1109 "Financial Instruments"

K-IFRS No. 1109 "Financial Instruments" regulates requirements for measurement and recognition of certain contracts in relation to trading financial assets and liabilities or nonfinancial items. For annual period beginning on or after January 1, 2018, it replaced existing guidance in K-IFRS No. 1039 "Financial Instruments: Recognition and Measurement" including three factors of accounting for financial instrument, which are classification and measurement, impairment and hedging accounting. The Group applied retrospectively application with exemptions where a company is not required to restate the comparative information for prior periods in relation to classification and measurement changes.

The following table summarizes the impact of initial adoption of K-IFRS No. 1109 on accumulated deficit as of January 1, 2018.

*In millions of Korean won*

| | Notes | | Adjustments |
|---|---|---|---|
| Accumulated deficit as of January 1, 2018 under K-IFRS No. 1039 | | ₩ | (8,363,377) |
| Reclassification of available-for-sale to financial asset measured at fair value through other comprehensive income | (i) | | 377,105 |
| Increase in loss allowance of trade receivables | (ii) | | (7,551) |
| Accumulated deficit as of January 1, 2018 under K-IFRS No. 1109 | | ₩ | (7,993,823) |

The details of new significant accounting policies and the nature and effect of the changes to previous accounting policies are set out below.

(i) Classification and measurement of financial assets and financial liabilities

When applying K-IFRS No. 1109, the classification of financial assets will be driven by the Group's business model for managing the financial assets and contractual cash flow nature.

## 3. Changes in Accounting Policies, Continued

(b) K-IFRS No. 1109 "Financial Instruments", continued

(i) Classification and measurement of financial assets and financial liabilities, continued

The following table shows the classification of financial assets measured subsequently at amortized cost, at fair value through other comprehensive income and at fair value through profit or loss. If a hybrid contract contains a host that is a financial asset, the classification of the hybrid contract shall be determined for the entire contract without separating the embedded derivative.

| **Business model** | **Contractual cash flows are solely payments of principal and interests** | **All other cases** |
|---|---|---|
| To collect contractual cash flows | Amortized cost(*1) | Fair value through profit or loss(*2) |
| Both to collect contractual cash flows and sell financial assets | Fair value through other comprehensive income(*1) | |
| For trading, and others | Fair value through profit or loss | |

(*1) The Group may irrevocably designate as at fair value through profit or loss to eliminate or significantly reduce an accounting mismatch.
(*2) The Group may irrevocably designate equity investments that is not held for trading as at fair value through other comprehensive income.

Under K-IFRS No. 1109, the Group includes the transaction cost of financial assets not measured at fair value through profit or loss in fair value of initial recognition. Under K-IFRS No. 1109, debt instruments are subsequently measured at fair value through profit or loss (FVPL), amortized cost, or fair value through other comprehensive income (FVOCI). The classification is based on two criteria of contractual cash flow characteristics which indicates whether financial instruments consist 'solely payments of principal and interest' (SPPI condition) and business model for ways in which the financial assets are managed.

## 3. Changes in Accounting Policies, Continued

(b) K-IFRS No. 1109 "Financial Instruments", continued

(i) Classification and measurement of financial assets and financial liabilities, continued

The result of new classification and measurement of the Group's debt instruments are as follows:

- Debt instruments measured at amortized cost which meet SPPI condition and within a business model whose objective is to hold financial assets in order to collect contractual cash flow. This category includes the Group's trade and other receivables, some long-term trade and other receivables, other current financial assets of current financial assets, and some long-term loans included in non-current financial assets.

- Debt instruments measured at fair value through profit or loss within a business model whose objective is to hold financial assets in order to collect contractual cash flow but which does not meet SPPI conditions. This category includes some loans and long-term accrued income for loans.

Current and non-current financial assets are classified as follows and subsequently measured:

- Equity instruments measured at fair value through other comprehensive income whose gains or losses on derecognition are not recycled to profit or loss. This category only includes equity instruments which the Group has intention to hold for anticipated future period and made irrevocable election at the time of recognition or transaction. The Group classifies listed and unlisted equity instruments as equity instruments measured at fair value through other comprehensive income. Equity instruments measured at fair value through other comprehensive income are not subject to impairment assessment under K-IFRS No. 1109. Under K-IFRS No. 1039, related listed and unlisted equity instruments of the Group were classified as available-for-sale financial assets.

- Equity instruments measured at fair value through profit or loss. This category includes derivative and debt instruments whose contractual cash flow characteristics do not meet SPPI condition or not within a business model whose objective is to collect contractual cash flow or to collect contractual cash flow and to sell.

## 3. Changes in Accounting Policies, Continued

(b) K-IFRS No. 1109 "Financial Instruments", continued

(i) Classification and measurement of financial assets and financial liabilities, continued

The Group assessed business model applying to financial assets as of January 1, 2018, the date of initial application, and classified the financial assets in accordance with K-IFRS No. 1109. The effect of reclassification is as follows:

*In millions of Korean won*

| **Financial assets as of January 1, 2018** | | **Fair value through profit or loss** | **Fair value through other comprehensive income(*2)** | **Amortized costs(*2)** | **Total** |
|---|---|---|---|---|---|
| Under K-IFRS No. 1039(*1) | ₩ | 51,834 | 90,807 | 1,952,258 | 2,094,899 |
| Reclassification of loans and other receivables to financial assets measured at fair value through profit or loss | | 383,501 | - | (383,501) | - |
| Under K-IFRS No. 1109(*1) | ₩ | 435,335 | 90,807 | 1,568,757 | 2,094,899 |

(*1) Amount before adjustments related to impairment of financial assets.
(*2) As of January 1, 2018, available-for-sales financial assets are presented as fair value through other comprehensive income and loans and receivables are presented as amortized costs.

The effect on the Group's equity due to the changes above is as follows:

*In millions of Korean won*

| | | **Other component of equity** | | |
|---|---|---|---|---|
| **Balance as of January 1, 2018** | | **Net change in fair value of available-for-sale financial assets** | **Fair value through other comprehensive income** | **Accumulated deficit** |
| Under K-IFRS No. 1039 | ₩ | 12,088 | - | (8,363,377) |
| Reclassification of available-for-sale to financial asset measured at fair value through other comprehensive income | | (12,088) | (365,017) | 377,105 |
| Under K-IFRS No. 1109 | ₩ | - | (365,017) | (7,986,272) |

## 3. Changes in Accounting Policies, Continued

(b) K-IFRS No. 1109 "Financial Instruments", continued

(i) Classification and measurement of financial assets and financial liabilities, continued

As of January 1, 2018, the date of initial application, the measurement categories and carrying amounts of financial assets in accordance with K-IFRS No. 1039 "Financial Instruments: Recognition and Measurement" and K-IFRS No. 1109 "Financial Instruments" are as follows:

*In millions of Korean won*

| | **Classification under K-IFRS No. 1039** | **Carrying amount under K-IFRS No. 1039** | **Classification under K-IFRS No. 1109** | **Carrying amount under K-IFRS No. 1109** |
|---|---|---|---|---|
| Cash and cash equivalents | Loans and receivables | ₩ 791,075 | Amortized cost | ₩ 791,075 |
| Short-term loans | Loans and receivables | 5,814 | Amortized cost | 5,814 |
| Short-term financial instruments | Loans and receivables | 2,074 | Amortized cost | 2,074 |
| Derivative assets | Derivative designated as hedging instruments | 51,834 | Fair value through profit or loss<br>Hedging instrument | 51,834 |
| Other current assets | Loans and receivables | 14,919 | Amortized cost | 14,919 |
| Equity instruments(*1) | Available-for-sale financial assets | 90,807 | Fair value through other comprehensive income | 90,807 |
| Long-term loans(*2) | Loans and receivables | 479,465 | Amortized cost | 160,196 |
| | | | Fair value through profit or loss | 319,269 |
| Long-term financial instruments | Loans and receivables | 4,873 | Amortized cost | 4,873 |
| Trade receivables and other receivables(*2) | Loans and receivables | 654,038 | Amortized cost | 589,806 |
| | | | Fair value through profit or loss | 64,232 |

(*1) As a result of the adoption of K-IFRS No. 1109, the Group determined to measure equity securities at fair value through profit or loss, and as of the date of initial application (January 1, 2018), accumulated other comprehensive income and accumulated deficit both amounting to ₩377,105 million have decreased.

(*2) Includes long-term loans and accrued income for loans measured at fair value through profit loss, because the criteria for determining whether business model for way in which the financial assets are managed and financial instruments consist of 'solely payment of principal and interest' (SPPI condition) were not met.

K-IFRS No. 1109 "Financial Instruments" retains most of the existing requirements of K-IFRS No. 1039 "Financial Instruments: Recognition and Measurement" for the classification and measurement of financial liabilities. Accordingly, the application of K-IFRS No. 1109 "Financial Instruments" has no significant effect on the Group's accounting policies related to financial liabilities.

## 3. Significant Accounting Policies, Continued

(b) K-IFRS No. 1109 "Financial Instruments", continued

(ii) Impairment of financial assets

K-IFRS No. 1109 replaces the incurred loss model in the existing standard with a forward-looking expected credit loss model for debt instruments measured at amortized cost or fair value through other comprehensive income, lease receivables, contractual assets, loan commitments, and financial guarantee contracts.

Under K-IFRS No. 1109, impairment losses are likely to be recognized earlier than using the incurred loss model under the existing guidance in K-IFRS No. 1039 as loss allowances will be measured either 12-month or lifetime expected credit loss based on the extent of increase in credit risk.

If credit risk has increased significantly since the initial recognition, a loss allowance for lifetime expected credit loss is required to be measured at the end of every reporting period. If credit risk has not increased significantly since the initial recognition, a loss allowance is measured based on 12-month expected credit loss. If the financial instrument has low credit risk at the end of the reporting period, the Group may assume that the credit risk has not increased significantly since initial recognition. However, a loss allowance for lifetime expected credit losses is required for contract assets or trade receivables that do not contain a significant financing component.

As of January 1, 2018, the date of initial application, the Group recognized an increase in loss allowances and accumulated deficit amounting to ₩7,551 million, respectively.

## 4. Significant Accounting Policies

The significant accounting policies applied by the Group in preparation of its consolidated financial statements are included below. The accounting policies set out below have been applied consistently to all periods presented in these consolidated financial statements, except for changes in accounting policies as explained in note 3.

(a) Basis of consolidation

(i) Non-controlling interests

Non-controlling interests are measured at their proportionate share of the acquiree's identifiable net assets at the date of acquisition. Changes in the Group's interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

(ii) Subsidiaries

Subsidiaries are entities controlled by the Group. The Group controls an entity when it 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. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

(iii) Loss of control

When the Group loses control over a subsidiary, it derecognizes the assets and liabilities of the subsidiary, and any related non-controlling interests and other components of equity. Any resulting gain or loss is recognized in profit or loss. Any interest retained in the former subsidiary is measured at fair value when control is lost.

## 4. Significant Accounting Policies, Continued

(a) Basis of consolidation, continued

(iv) Interests in equity-accounted investees

The Group's interests in equity-accounted investees comprise interests in associates and a joint venture. Associates are those entities in which the Group has significant influence, but not control or joint control, over the financial and operating policies. A joint venture is an arrangement in which the Group has joint control, whereby the Group has rights to the net assets of the arrangement, rather than rights to its assets and obligations for its liabilities.

Interests in associates and the joint venture are accounted for using the equity method. They are initially recognized at cost, which includes transaction costs. Subsequent to initial recognition, the consolidated financial statements include the Group's share of the profit or loss and OCI of equity-accounted investees, until the date on which significant influence or joint control ceases.

(v) Transactions eliminated on consolidation

Intra-group balances and transactions, and any unrealized income and expenses arising from intra-group transactions, are eliminated. Unrealized gains arising from transactions with equity-accounted investees are eliminated against the investment to the extent of the Group's interest in the investee. Unrealized losses are eliminated in the same way as unrealized gains, but only to the extent that there is no evidence of impairment.

(b) Discontinued operations

The Group classifies its business segment or subsidiary as discontinued operation when it disposes a separate line of business or a segment, meets the criteria for assets held for sale, or acquires a subsidiary for sole purpose of sale. The consolidated statements of comprehensive income should be restated as if the operations have been discontinued from the beginning of the comparative fiscal period.

(c) Cash and cash equivalents

Cash and cash equivalents comprise cash on hand, demand deposits, and short-term investments in highly liquid securities that are readily convertible to known amounts of cash with maturities of three months or less from the acquisition date and which are subject to an insignificant risk of changes in value. Equity investments are excluded from cash and cash equivalents unless they are, in substance, cash equivalents, for example in the case of preferred shares when it has a short maturity with a specified redemption date.

## 4. Significant Accounting Policies, Continued

### (d) Inventories

Inventories are measured at the lower of cost and net realizable value. The cost of inventories is based on the moving-weighted average method, and includes expenditures for acquiring the inventories, production or conversion costs and other costs incurred in bringing them to their existing location and condition. Net realizable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and selling expenses.

The amount of any write-down of inventories to net realizable value and all losses of inventories are recognized as an expense in the period the write-down or loss occurs. The amount of any reversal of any write-down of inventories, arising from an increase in net realizable value, are recognized as a reduction in the amount of inventories recognized as an expense in the period in which the reversal occurs.

### (e) Non-derivative financial assets – From January 1, 2018

#### (i) Classification and initial measurement

Trade receivables and issued debt securities are initially recognized at the point in time of issuance. Other financial assets and financial liabilities are recognized when, and only when, the Group becomes a party to the contractual provisions of the instrument.

Except for trade receivables containing a significant financing component, at initial recognition, the Group measures a financial asset or financial liability at its fair value plus or minus, in the case of a financial asset or financial liability not at fair value through profit or loss, transaction cost that are directly attributable to the acquisition or issue of the financial asset or financial liability.

## 4. Significant Accounting Policies, Continued

(e) Non-derivative financial assets, continued

(ii) Classification and subsequent measurement

① Financial assets

At the point in time of initial recognition, the Group classify financial assets as amortized cost, debt instrument measured at fair value through other comprehensive income, equity instrument measured at fair value through other comprehensive income or fair value through profit or loss. Unless the Group changes the business model for managing financial assets, financial assets are not reclassified subsequent to the initial recognition. In the case above, all of affected financial assets are reclassified on the first day of first reporting period after the change of the business model.

A financial asset is measured at amortized cost if it meets both of the following conditions and is not designated as at fair value through profit or loss.

- It is held within a business model whose objective is to hold assets to collect contractual cash flows, and

- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

A debt instrument is measured at fair value through other comprehensive income if it meets both of the following conditions and is not designated as at fair value through profit or loss.

- It is held within a business model whose objective is achieved by both collection of contractual cash flows and selling financial assets, and

- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

## 4. Significant Accounting Policies, Continued

(e) Non-derivative financial assets, continued

(ii) Classification and subsequent measurement, continued

① Financial assets, continued

The Group may make an irrevocable election at initial recognition for particular investments in equity instruments not held for trading that would otherwise be measured at fair value through profit or loss to present subsequent changes in fair value in other comprehensive income. This election is made on an instrument-by-instrument basis.

All financial assets not classified as measured at amortized cost or fair value through other comprehensive income as described above are measured at fair value through profit or loss. These financial assets include all derivative financial assets (see Note 39). On initial recognition, the Group may irrevocably designate a financial asset that otherwise meets the requirements to be measured at amortized cost or at fair value through other comprehensive income as at fair value through profit or loss if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise.

② Financial assets: business model

The Group evaluates the purpose of the business model on a portfolio level of financial assets because it best reflects the way in which the business is managed and information is provided to its management. These information consider the following:

- The stated accounting policies and objectives of the portfolio and actual operation of these policies. These include management's strategy to obtain contractual interest income, to maintain a particular interest yield profile, to match the duration of the financial assets to the duration of the liabilities that those assets are funding, to collect expected contractual cash flows and selling financial assets, or to exercise.

- how the performance of the financial assets held within that business model are evaluated and reported to the key management personnel;

- the risks that affect the performance of the business model (and the financial assets held within that business model) and, in particular, the way in which those risks are managed;

- how managers of the business are compensated (for example, whether the compensation is based on the fair value of the assets managed or on the contractual cash flows collected);

- the frequency, value and timing of sales in prior periods, the reasons for those sales and expectations about future sales activity.

The transaction that transfers a financial asset to a third party in a transaction that does not meet the derecognition criteria is not considered as a sale.

A portfolio which meets the definition of held for trading or whose performance of a portfolio is evaluated on a fair value basis is measured at fair value through profit or loss.

## 4. Significant Accounting Policies, Continued

(e) Non-derivative financial assets, continued

(ii) Classification and subsequent measurement, continued

③ Financial assets: Evaluation on whether contractual cash flow is comprised of solely principal and interest

Principal is defined as a fair value of the financial asset at initial recognition. Interest is comprised of a consideration for the time value of money, for the credit risk associated with the principal amount outstanding during a particular period of time and for other basic lending risks and costs (i.e. liquidity risk and operating cost), as well as a profit margin.

When determining whether the contractual cash flow consist of solely payment of principal and interest, the Group considers the contractual terms of the instrument. If a financial asset contains a contractual term that could change the timing or amount of contractual cash flows, the Group must determine whether the contractual cash flows that could arise over the life of the instrument due to that contractual term are solely payments of principal and interest on the principal amount outstanding.

When evaluating the matter above, the Group considers the following:

- contingent nature which changes the amount or timing of the cash flow,
- clause which adjusts coupon interest rate including variable interest rate nature,
- prepayable nature and rollover nature, and
- contractual term in which limits the Group's claim on cash flow arising from specified assets (for example, a 'non-recourse' financial asset)

If prepayment amount substantially represents the contractual unpaid principal and accrued (but unpaid) contractual interest, including reasonable additional compensation for the early termination of the contract, the prepayment nature is same as the condition which pays the principal and interest on a particular day.

In addition, for a financial asset acquired at a significant discount or premium on a contractual face value, prepayment amount substantially represents the contractual face value and accrued contractual interest (but unpaid), which may include reasonable additional compensation for the early termination of the contract. The Group determines that the conditions are met when the fair value of the prepayment feature on initial recognition of the financial asset is insignificant.

## 4. Significant Accounting Policies, Continued

(e) Non-derivative financial assets, continued

(ii) Classification and subsequent measurement, continued

④ Financial assets: subsequent measurement and gains and losses

| | |
|---|---|
| Financial assets measured at fair value through profit or loss | The assets are subsequently measured at their fair value. Net gains or losses including interest and dividend income are recognized in profit or loss. For derivative instruments designated as hedging instruments, however, please refer to Note 4. (f). |
| Financial assets measured at amortized costs | The assets are measured at amortized costs by using the effective interest method. Amortized costs are decreased by impairment loss. Interest income, gains or losses on foreign currency translation, and impairment losses are recognized in profit or loss. Gains or losses arising from derecognition are recognized in profit or loss. |
| Debt instruments measured at fair value through other comprehensive income | The assets are subsequently measured at fair value. Interest income is calculated by using the effective interest rate method, and gains or losses on foreign currency translation are recognized in profit or loss. Gains or losses on derecognition are reclassified from other comprehensive income to profit or loss. |
| Equity instruments measured at fair value through other comprehensive income | The assets are subsequently measure at fair value. Dividends on such investment are recognized in profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains or losses are recognized in other comprehensive income and never reclassified to profit or loss. |

(iii) Derecognition of non-derivative financial assets

*Financial assets*
The Group derecognizes non-derivative financial assets when the contractual rights to the cash flows from the financial asset expire, or the Group transfers the rights to receive the contractual cash flows from the financial asset as well as substantially all the risks and rewards of ownership of the financial asset. Any interest in a transferred financial asset that is created or retained by the Group is recognized as a separate asset or liability.

If the Group retains substantially all the risks and rewards of ownership of the transferred financial assets, the Group continues to recognize the transferred financial assets and recognizes financial liabilities for the consideration received.

(iv) Offsetting a financial asset and a financial liability

Financial assets and financial liabilities are offset and the net amount is presented in the separate statement of financial position only when the Group currently has a legally enforceable right to offset the recognized amounts, and there is the intention to settle on a net basis or to realize the asset and settle the liability simultaneously.

## 4. Significant Accounting Policies, Continued

### (f) Derivative financial instruments

Derivative are initially recognized at fair value. Subsequent to initial recognition, derivative are measured at fair value, and changes therein are recognized as describe below.

### (i) Hedge accounting

The Group holds forward exchange contracts, currency swaps and commodity future contracts to manage foreign exchange risk and commodity fair value risk. The Group designated derivative as hedging instruments to hedge the risk of changes in the fair value of assets, liabilities or firm commitments (a fair value hedge) and foreign currency risk of highly probable forecasted transactions or firm commitments (a cash flow hedge).

On initial designation of the hedge, the Group formally documents the relationship between the hedging instruments and hedged items, including the risk management objectives and strategy in undertaking the hedge transaction, together with the methods that will be used to assess the effectiveness of the hedging relationship.

*Fair value hedge*
Changes in the fair value of a derivative hedging instrument designated as a fair value hedge are recognized in profit or loss. The gain or loss from remeasuring the hedging instrument at fair value for a derivative hedging instrument and the gain or loss on the hedged item attributable to the hedged risk are recognized in profit or loss in the same line item of the consolidated statement of comprehensive income.

The Group discontinues fair value hedge accounting if the hedging instrument expires or is sold, terminated or exercised, or if the hedge no longer meets the criteria for hedge accounting. Any adjustment arising from gain or loss on the hedged item attributable to the hedged risk is amortized to profit or loss from the date the hedge accounting is discontinued.

*Cash flow hedge*
When a derivative is designated to hedge the variability in cash flows attributable to a particular risk associated with a recognized asset or liability or a highly probable forecasted transaction that could affect profit or loss, the effective portion of changes in the fair value of the derivative is recognized in other comprehensive income, net of tax, and presented in the hedging reserve in equity. Any ineffective portion of changes in the fair value of the derivative is recognized immediately in profit or loss. If the hedging instrument no longer meets the criteria for hedge accounting, expires or is sold, terminated, exercised, or the designation is revoked, then hedge accounting is discontinued prospectively. The cumulative gain or loss on the hedging instrument that has been recognized in other comprehensive income is reclassified to profit or loss in the periods during which the forecasted transaction occurs. If the forecasted transaction is no longer expected to occur, then the balance in other comprehensive income is recognized immediately in profit or loss.

## 4. Significant Accounting Policies, Continued

(f) Derivative financial instruments, continued

(ii) Embedded derivative

In case of which the embedded derivative instrument is not closely related to the economic characteristics and risks of the host contract and a separate instrument with the same terms as the embedded derivative meets the definition of a derivative, if a hybrid contract contains a host that is not an asset at fair value through profit or loss, an embedded derivative is accounted for separately from the host. Changes of an embedded derivative separated from the host are recognized in profit or loss.

(iii) Other derivative

Changes in the fair value of a derivative that is not designated as a hedging instrument are recognized immediately in profit or loss.

(g) Impairment of financial assets – From January 1, 2018

(i) Financial assets and contract assets

The Group recognizes loss allowances for expected credit losses on:
- financial assets measured at amortized cost, and
- contract assets defined under K-IFRS No. 1115.

The Group measures the loss allowance based on the amount of lifetime expected credit loss except the following financial assets measured based on 12-month expected credit loss.

- debt securities and bank deposit that credit risk (i.e. risk of a default throughout the expected life of a financial asset) has not increased significantly since the initial recognition.

Loss allowances on trade receivables and contract asset are always measured based on the lifetime expected credit loss.

When determining whether the credit risk of a financial asset has increased significantly since initial recognition and when estimating expected credit losses, the Group considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis, based on the Group's historical experience and informed credit assessment and including forward-looking information.

## 4. Significant Accounting Policies, Continued

(g) Impairment of financial assets, continued

(i) Financial assets and contract assets, continued

The Group considers a financial asset to be in default under following circumstances:

- when the borrower is unlikely to pay its credit obligations to the Group in full, without recourse by the Group to action, and
- when financial assets is past due more than certain period of time.

Lifetime expected credit losses are the expected credit losses that result from all possible default events over the expected life of a financial instrument. 12-month expected credit losses are the portion of lifetime expected credit losses that result from default that are possible within the 12 months after the reporting date. The maximum period considered when estimating expected credit losses is the maximum contractual period over which the Group is exposed to credit risk.

(ii) Measurement of expected credit losses

Expected credit losses are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls such as the difference between the cash flows due to the entity in accordance with the contract and the cash flows that the Group expects to receive. Expected credit losses are discounted by the financial asset's effective interest rate.

(iii) Credit-impaired financial assets

At each reporting date, the Group assesses whether financial assets measured at amortized cost and debt instrument measured at fair value through other comprehensive income are credit-impaired. A financial asset is 'credit-impaired' when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred.

Objective evidence that a financial asset or group of financial assets are impaired includes:
- significant financial difficulty of the issuer or borrower
- a breach of contract, such as a default or delinquency in interest or principal payments
- the lender, for economic or legal reasons relating to the borrower's financial difficulty, granting to the borrower a concession that the lender would not otherwise consider it becoming probable that the borrower will enter bankruptcy or other financial reorganization
- the disappearance of an active market for that financial asset because of financial difficulties

(iv) Presentation of loss allowance on the consolidated statement of financial position

Loss allowance on the financial assets measured at amortized costs are deducted from the carrying amount of a financial asset.

(v) Write-off

The gross carrying amount of a financial asset is written off when the Group has no reasonable expectations of recovering a financial asset in entirety or a portion. The Group expects no significant recovery from the amount written off. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the Group's procedures for recovery of amounts due.

## 4. Significant Accounting Policies, Continued

(h) Property, plant and equipment

Property, plant and equipment are initially measured at cost and after initial recognition, are carried at cost less accumulated depreciation and accumulated impairment losses. The cost of property, plant and equipment includes expenditures arising directly from the construction or acquisition of the asset, any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management and the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

The following costs are capitalized as oil and gas properties.

- the costs incurred in development stage for constructing facilities and drilling wells for production
- the costs of acquiring production areas or fields with proved reserves
- the construction costs and other expenditures for initiating production
- the estimated costs for decommissioning

Additionally, the Group depreciates the acquisition costs of oil and gas properties which are aggregated on an area-by-area basis or field-by-field basis. For the costs of oil and gas properties which are aggregated on an area-by-area basis, the Group depreciates the acquisition costs using proved reserves as the total estimated production when applying the unit-of-production depreciation method. For the costs of oil and gas properties which are aggregated on a field-by-field basis, the Group depreciates the acquisition costs using proved developed reserves as the total estimated production when applying the unit-of-production depreciation method.

## 4. Significant Accounting Policies, Continued

(h) Property, plant and equipment, continued

Costs related to undeveloped oil and gas properties are not immediately included in the depletable pool of developed assets but are transferred to the depletable pool as the reserves become proved (for area-by-area basis) or developed (for field-by-filed basis) through drilling activities.

Subsequent costs are recognized in the carrying amount of property, plant and equipment at cost or, if appropriate, as separate items if it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognized. The costs of the day-to-day servicing are recognized in profit or loss as incurred.

Property, plant and equipment, except for land and oil and gas properties, are depreciated on a straight-line basis over estimated useful lives that appropriately reflect the pattern in which the asset's future economic benefits are expected to be consumed.

| | **Useful lives** |
|---|---|
| Buildings | 20 ~ 40 years |
| Structures | 20 ~ 40 years |
| Machineries | 5 ~ 20 years |
| Tools and fixtures | 5 years |
| Vehicles | 5 years |

Gains and losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of property, plant and equipment and are recognized in profit or loss. Depreciation methods, useful lives and residual values are reviewed at the end of each reporting date and adjusted, if appropriate. The change is accounted for as a change in an accounting estimate.

(i) Intangible assets

Intangible assets with finite useful lives acquired separately are carried at cost. Intangible assets acquired in a business combination are initially recognized at their fair value at the acquisition date (which is regarded as their cost). Subsequent to initial recognition, intangible assets acquired in a business combination are reported at cost less accumulated amortization and accumulated impairment losses.

Prior to acquiring the legal rights to explore an area, all costs related to exploration and evaluation of an area are charged directly to the statement of comprehensive loss. Once the legal rights to explore are acquired, all costs associated with acquisition of exploration rights, geological, geophysical and geographical research, drilling costs and evaluation of technical and commercial viability of economic production are capitalized as exploration and evaluation assets. All such costs are subject to review for impairment when facts and circumstances suggest that the carrying amount of the assets exceeds their recoverable amount. When technical feasibility and commercial viability are established, the relevant expenditure is transferred to oil and gas properties after impairment is assessed and any resulting impairment loss is recognized. If no potentially commercial petroleum is discovered from exploration drilling, the relating exploration and evaluation assets are written off through the statement of comprehensive loss.

## 4. Significant Accounting Policies, Continued

(i) Intangible assets, continued

The useful lives of intangible assets are assessed as either finite or indefinite. Intangible assets with finite lives are amortized over the useful economic life and assessed for impairment whenever there is an indication that the intangible asset may be impaired. The amortization period and the amortization method for intangible assets with a finite useful lives are reviewed at least each financial year end. Changes in the expected useful life or the expected pattern of consumption of future economic benefits embodied in the asset is accounted for by changing the amortization period or method, as appropriate, and are treated as changes in accounting estimates. The amortization expense on intangible assets with finite lives is recognized in the statement of comprehensive income in the expense category consistent with the function of the intangible asset.

Intangible assets with indefinite useful lives such as membership are not amortized, but are tested for impairment annually. Intangible assets with definite useful lives are amortized on a straight-line basis over estimated useful lives of 5 to 20 years.

Gains or losses arising from derecognition of an intangible asset, measured as the difference between the net disposal proceeds and the carrying amount of the asset, and are recognized in income or loss when the asset is derecognized.

(j) Oil stockpiles

The Group stockpiles crude oil and petroleum products to stabilize domestic demand and market prices and classifies those assets as oil stockpiles (non-current non-financial assets) and measured using the moving-average cost method. The Group performs annual impairment test for oil stockpiles.

(k) Borrowing costs

The Group capitalizes borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset as part of the cost of that asset. Other borrowing costs are recognized in expense as incurred. A qualifying asset is an asset that requires a substantial period of time to get ready for its intended use or sale. Financial assets and inventories that are manufactured or otherwise produced over a short period of time are not qualifying assets. Assets that are ready for their intended use or sale when acquired are not qualifying assets.

To the extent that the Group borrows funds specifically for the purpose of obtaining a qualifying asset, the Group determines the amount of borrowing costs eligible for capitalization as the actual borrowing costs incurred on that borrowing during the period less any investment income on the temporary investment of those borrowings. To the extent that the Group borrows funds generally and uses them for the purpose of obtaining a qualifying asset, the Group shall determine the amount of borrowing costs eligible for capitalization by applying a capitalization rate to the expenditures on that asset. The capitalization rate shall be the weighted average of the borrowing costs applicable to the borrowings of the Group that are outstanding during the period, other than borrowings made specifically for the purpose of obtaining a qualifying asset. The amount of borrowing costs that the Group capitalizes during a period shall not exceed the amount of borrowing costs incurred during that period.

## 4. Significant Accounting Policies, Continued

(l) Impairment of non-financial assets

The carrying amounts of the Group's non-financial assets, other than assets arising from employee benefits, inventories, deferred tax assets and non-current assets held for sale, are reviewed at the end of the reporting period to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. Intangible assets that have indefinite useful lives or that are not yet available for use, irrespective of whether there is any indication of impairment, are tested for impairment annually by comparing their recoverable amount to their carrying amount.

For impairment testing, assets are grouped together into the smallest group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets ("CGUs"). The recoverable amount of an asset or CGU is the greater of its value in use and its fair value less costs to sell. The value in use is estimated by applying a pre-tax discount rate that reflect current market assessments of the time value of money and the risks specific to the asset or CGU for which estimated future cash flows have not been adjusted, to the estimated future cash flows expected to be generated by the asset or CGU.

An impairment loss is recognized in profit or loss if the carrying amount of an asset or a CGU exceeds its recoverable amount.

(m) Lease

The Group classifies and accounts for leases as either a finance or operating lease, depending on the terms. Leases where the Group assumes substantially all of the risks and rewards of ownership are classified as finance leases. All other leases are classified as operating leases.

(i) Finance leases

At the commencement of the lease term, the Group recognizes as finance assets and finance liabilities in its consolidated statements of financial position, the lower amount of the fair value of the leased property and the present value of the minimum lease payments, each determined at the inception of the lease. Any initial direct costs are added to the amount recognized as an asset.

Minimum lease payments are apportioned between the finance charge and the reduction of the outstanding liability. The finance charge is allocated to each period during the lease term so as to produce a constant periodic rate of interest on the remaining balance of the liability. Contingent rents are charged as expenses in the periods in which they are incurred.

The depreciable amount of a leased asset is allocated to each accounting period during the period of expected use on a systematic basis consistent with the depreciation policy the lessee adopts for depreciable assets that are owned. If there is no reasonable certainty that the lessee will obtain ownership by the end of the lease term, the asset is fully depreciated over the shorter of the lease term and its useful life. Also, The Group reviews to determine whether the leased asset may be impaired.

(ii) Operating leases

Leases where the lessor retains a significant portion of the risks and rewards of ownership are classified as operating leases. Payments made under operating leases (net of any incentives received from the lessor) are recognized in profit or loss on a straight-line basis over the period of the lease.

## 4. Significant Accounting Policies, Continued

(m) Lease, continued

(iii) Determining whether an arrangement contains a lease

Determining whether an arrangement is, or contains, a lease shall be based on the substance of the arrangement and requires an assessment of whether fulfillment of the arrangement is dependent on the use of a specific asset or assets (the asset) and the arrangement conveys a right to use the asset.

At inception or reassessment of the arrangement containing a lease, the Group separates payments and other consideration required by such an arrangement into those for the lease and those for other elements on the basis of their relative fair values. If the Group concludes for a financial lease that it is impracticable to separate the payments reliably, the Group recognizes an asset and a liability at an amount equal to the fair value of the underlying asset that was identified as the subject of the lease. Subsequently, the liability shall be reduced as payments are made and an imputed finance charge on the liability recognized using the purchaser's incremental borrowing rate of interest

(n) Non-current assets held for sale

Non-current assets, or disposal groups comprising assets and liabilities, that are expected to be recovered primarily through sale rather than through continuing use, are classified as held for sale. In order to be classified as held for sale, the asset (or disposal group) must be available for immediate sale in its present condition and its sale must be highly probable. The assets or disposal group that are classified as non-current assets held for sale are measured at the lower of their carrying amount and fair value less cost to sell.

The Group recognizes an impairment loss for any initial or subsequent write-down of an asset (or disposal group) to fair value less costs to sell, and a gain for any subsequent increase in fair value less costs to sell, up to the cumulative impairment loss previously recognized in accordance with K-IFRS No. 1036, ‘Impairment of Assets’.

A non-current asset that is classified as held for sale or part of a disposal group classified as held for sale is not depreciated (or amortized).

## 4. Significant Accounting Policies, Continued

(o) Non-derivative financial liabilities

The Group classifies non-derivative financial liabilities into financial liabilities at fair value through profit or loss or other financial liabilities in accordance with the substance of the contractual arrangement and the definitions of financial liabilities. The Group recognizes financial liabilities in the consolidated statement of financial position when the Group becomes a party to the contractual provisions of the financial liability.

(i) Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss include financial liabilities held for trading or designated as such upon initial recognition. Subsequent to initial recognition, financial liabilities at fair value through profit or loss are measured at fair value, and changes therein are recognized in profit or loss. Upon initial recognition, transaction costs that are directly attributable to the acquisition are recognized in profit or loss as incurred.

(ii) Other financial liabilities

Non-derivative financial liabilities other than financial liabilities at fair value through profit or loss are classified as other financial liabilities. At the date of initial recognition, other financial liabilities are measured at fair value minus transaction costs that are directly attributable to the acquisition. Subsequent to initial recognition, other financial liabilities are measured at amortized cost using the effective interest method.

(iii) Derecognition of financial liabilities

The Group derecognizes a financial liability from the consolidated statement of financial position when it is extinguished (i.e. when the obligation specified in the contract is discharged, cancelled or expires). When cash flow of a financial liability substantially changes due to contract amendment, the Group derecognizes a financial liability and newly recognizes financial liability at fair value based on the amended contract. The difference between carrying amount and consideration paid (including any transferred non-cash assets or liabilities assumed) is recognized through profit or loss when derecognizing a financial liability.

(p) Employee benefits

(i) Short-term employee benefits

Short-term employee benefits are employee benefits that are due to be settled within 12 months after the end of the period in which the employees render the related service. When an employee has rendered service to the Group during an accounting period, the Group recognizes the undiscounted amount of short-term employee benefits expected to be paid in exchange for that service.

(ii) Retirement benefits: defined contribution plans

When an employee has rendered service to the Group during a period, the Group recognizes the contribution payable to a defined contribution plan in exchange for that service as a liability (accrued expense), after deducting any contribution already paid. If the contribution already paid exceeds the contribution due for service before the end of the reporting period, the Group recognizes that excess as an asset (prepaid expense) to the extent that the prepayment will lead to a reduction in future payments or a cash refund.

## 4. Significant Accounting Policies, Continued

(p) Employee benefits, continued

(iii) Retirement benefits: defined benefit plans

A defined benefit plan is a post-employment benefit plan other than a defined contribution plan. The Group's net obligation in respect of defined benefit plans is calculated by estimating the amount of future benefit that employees have earned in return for their service in the current and prior periods; that benefit is discounted to determine its present value. The fair value of plan assets is deducted. The calculation is performed annually by an independent actuary using the projected unit credit method.

The discount rate is the yield at the reporting date on high-quality corporate bonds that have maturity dates approximating the terms of the Group's obligations and that are denominated in the same currency in which the benefits are expected to be paid. The Group recognizes all actuarial gains and losses arising from actuarial assumption changes and experiential adjustments in other comprehensive income when incurred.

Re-measurements of net defined benefit liabilities, which comprise actuarial gains and losses, the return on plan assets (excluding interest) and the effect of the asset ceiling (if any, excluding interest), are recognized immediately in other comprehensive income. The Group determines the net interest expense (income) on the net defined benefit liability (asset) for the period by applying the discount rate used to measure the defined benefit obligation at the beginning of the annual period to the then-net defined benefit liability (asset), taking into account any changes in the net defined benefit liability (asset) during the period as a result of contributions and benefit payments, net interest expense and other expenses related to defined benefit plans are recognized in profit or loss.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss in curtailment is recognized immediately in profit or loss. The Group recognizes gains and losses on the settlement of a defined benefit plan when the settlement occurs.

## 4. Significant Accounting Policies, Continued

(q) Provisions

Provisions are recognized when the Group has a present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

The risks and uncertainties that inevitably surround many events and circumstances are taken into account in reaching the best estimate of a provision. Where the effect of the time value of money is material, provisions are determined at the present value of the expected future cash flows.

Where some or all of the expenditures required to settle a provision are expected to be reimbursed by another party, the reimbursement shall be recognized when, and only when, it is virtually certain that reimbursement will be received if the entity settles the obligation. The reimbursement shall be treated as a separate asset.

Provisions are reviewed at the end of each reporting period and adjusted to reflect the current best estimates. If it is no longer probable that an outflow of resources embodying economic benefits will be required to settle the obligation, the provision is reversed.

When there is a legal or contractual obligation for dismantling, removing facilities and restoring sites on which they are located to their original condition at the end of the useful lives of the facilities, the present value of the estimated future restoration costs are capitalized at the acquisition date as additions to the cost of oil and gas properties and are accounted for as a provision. The Group subsequently depreciates the restoration costs using the unit-of-production method and the difference between estimated restoration costs and their present value is charged to current operations by applying the effective-interest-rate method.

(r) Share capital

Common stock is classified as equity and the incremental costs arising directly attributable to the issuance of common stock less their tax effects are deducted from equity.

(s) Foreign currencies

Transactions in foreign currencies are translated to the respective functional currencies of Group entities at exchange rates at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are retranslated to the functional currency using the reporting date’s exchange rate. Non-monetary assets and liabilities denominated in foreign currencies that are measured at fair value are retranslated to the functional currency at the exchange rate at the date that the fair value was determined. Non-monetary assets and liabilities denominated in foreign currencies that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the dates of the transactions.

Foreign currency differences arising on retranslation are recognized in profit or loss, except for differences arising on the retranslation of available-for-sale equity instruments, a financial liability designated as a hedge of the net investment in a foreign operation, or qualifying cash flow hedges, which are recognized in other comprehensive income. When gains or losses on non-monetary items are recognized in other comprehensive income, exchange components of those gains or losses are recognized in other comprehensive income. Conversely, when gains or losses on non-monetary items are recognized in profit or loss, exchange components of those gains or losses are recognized in profit or loss.

## 4. Significant Accounting Policies, Continued

(t) Revenue

Under the new standard, K-IFRS No. 1115, the Group recognizes revenue base on the five-step approach (Step 1: Identify the contract(s) with a customer, Step 2: Identify the performance obligations in the contract, Step 3: Determine the transaction price, Step 4: Allocate the transaction price to the performance obligations in the contract, Step 5: Recognize revenue when the entity satisfied a performance obligation) is applied for all types of contracts or agreements. Revenue is measured based on the consideration defined by the contracts with customers, and the amount collected as an agent of a third party is excluded. In addition, the Group recognizes revenue when the control over the goods or service is transferred to the customer.

(u) Finance income and finance costs

The Group's finance income and finance costs include:

- interest income;
- interest expense;
- dividend income;
- the foreign currency gain or loss on financial assets and financial liabilities;
- the net gain or loss on financial assets measured at fair value through profit or loss;
- hedge ineffectiveness recognized in profit or loss; and
- the net gain or loss on the disposal of investments in debt securities measured at fair value through other comprehensive income.

Interest income or expense is recognized using the effective interest method. Dividend income is recognized in profit or loss on the date on which the Group's right to receive payment is established. The ‘effective interest rate’ is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument to:

- the gross carrying amount of the financial asset; or
- the amortized cost of the financial liability.

In calculating interest income and expense, the effective interest rate is applied to the gross carrying amount of the asset (when the asset is not credit-impaired) or to the amortized cost of the liability. However, for financial assets that have become credit-impaired subsequent to initial recognition, interest income is calculated by applying the effective interest rate to the amortized cost of the financial asset. If the asset is no longer credit-impaired, then the calculation of interest income reverts to the gross basis.

## 4. Significant Accounting Policies, Continued

(v) Income taxes

Income tax expense comprises current and deferred tax. Current tax and deferred tax are recognized in profit or loss except to the extent that it relates to a business combination, or items recognized directly in equity or in other comprehensive income.

(i) Current tax

Current tax is the expected tax payable or receivable on the taxable profit or loss for the year, using tax rates enacted or substantively enacted at the end of the reporting period and any adjustment to tax payable in respect of previous years. The taxable profit is different from the accounting profit for the period since the taxable profit is calculated excluding the temporary differences, which will be taxable or deductible in determining taxable profit (tax loss) of future periods, and non-taxable or non-deductible items from the accounting profit.

(ii) Deferred tax

The measurement of deferred tax assets and deferred tax liabilities reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities. The Group recognizes a deferred tax liability for all taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures, except to the extent that the Group is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, the Group recognizes a deferred tax asset for all deductible temporary differences to the extent that it is probable that the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

The carrying amount of a deferred tax asset is reviewed at the end of each reporting period and reduces the carrying amount to the extent that it is no longer probable that sufficient taxable profit will be available to allow the benefit of part or all of that deferred tax asset to be utilized. Deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the period when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

Deferred tax assets and liabilities are offset only if there is a legally enforceable right to offset the related current tax liabilities and assets, and they relate to income taxes levied by the same tax authority and they intend to settle current tax liabilities and assets on a net basis.

## 4. Significant Accounting Policies, Continued

(w) New standards and interpretations not yet adopted

The following new standards have been published and are mandatory for the Group for annual period beginning after January 1, 2018 and the Group has not early adopted them.

K-IFRS No. 1116 "Leases"

K-IFRS No. 1116 "Leases" will replace K-IFRS No. 1017 "Leases" and K-IFRS No. 2104 "Determining whether an Arrangement contains a Lease". It is effective for annual periods beginning on or after January 1, 2019, with early adoption permitted. The Group plans to apply K-IFRS No. 1116 for the year beginning January 1, 2019.

K-IFRS No. 1116 introduces a single accounting model that requires a lessee to recognize lease related asset and liability in the financial statements. A lessee is required to recognize a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments. The lessee may elect not to apply the requirements to short-term lease with a term of 12 months or less at the commencement date or low value assets.

To assess the financial impact of the initial adoption of K-IFRS No. 1116, the Group is analyzing the impact on the consolidated financial statements for 2019 based on the current situation and available information as of December 31, 2018. However it is practically difficult to provide a reasonable estimate of the financial impact.

The following new standards and amendments are expected not to have a significant impact on the separate financial statements of the Group.

- K-IFRS No. 2123 "Uncertainty over Tax Treatments"
- Amendment to K-IFRS No.1109 "Financial Assets" (Prepayment Features with Negative Compensation)
- Amendment to K-IFRS No.1028 "Investments in Associates and Joint Ventures" (Long-term Interests in Associates and Joint Ventures)
- Amendment to K-IFRS No.1019 "Employee Benefits"
- Annual Improvements to K-IFRS (2015 – 2017 cycle)
- Amendment to Conceptual Framework for Financial Reporting
- K-IFRS No. 1117 "Insurance Contracts"

## 5. Subsidiaries

(a) The list of subsidiaries directly owned by the Company as of December 31, 2018 and 2017 are as follows:

| | | | **Ownership (%)** | |
|---|---|---|---|---|
| **Subsidiary name** | **Principal activity** | **Country of incorporation** | **December 31, 2018** | **December 31, 2017** |
| ANKOR E&P Holdings Corp. | Exploration and production (“E&P”) | United States | 100.00 | 100.00 |
| Dana Petroleum Limited | E&P | United Kingdom | 100.00 | 100.00 |
| KNOC Eagle Ford Corporation | E&P | United States | 100.00 | 100.00 |
| Harvest Operations Corp. | E&P | Canada | 100.00 | 100.00 |
| KNOC Kaz B.V. | E&P | Netherlands | 100.00 | 100.00 |
| KNOC Exploracao e Producao de Petro do Brasil Ltda(*) | E&P | Brazil | 100.00 | 100.00 |
| KNOC NEMONE Ltd.(*) | E&P | Indonesia | 100.00 | 100.00 |
| KNOC NEMTWO Ltd.(*) | E&P | Indonesia | 100.00 | 100.00 |
| KNOC Sumatra Ltd. | E&P | Indonesia | 100.00 | 100.00 |
| KNOC Yemen Ltd. | E&P | Yemen | 60.00 | 60.00 |
| KNOC Trading Singapore Pte. Ltd. | Trading and Marketing | Singapore | 100.00 | 100.00 |

(*) The liquidation process has been completed as of December 31, 2018.

## 5. Subsidiaries, Continued

(b) Financial information of subsidiaries

(i) Financial information of subsidiaries as of and for the year ended December 31, 2018 is as follows:

*In millions of Korean won*

| Company | | Assets | Liabilities | Revenue | Net profit (loss) |
|---|---|---|---|---|---|
| ANKOR E&P Holdings Corp.(*4) | ₩ | 466,125 | 229,614 | 121,845 | (37,799) |
| Dana Petroleum Limited(*1) | | 2,962,433 | 1,653,661 | 1,490,813 | 160,352 |
| KNOC Eagle Ford Corporation(*4) | | 2,626,975 | 635,210 | 451,620 | 153,665 |
| Harvest Operations Corp.(*4) | | 2,441,861 | 2,900,997 | 242,824 | (322,993) |
| KNOC Kaz B.V.(*1)(*4) | | 756,302 | 574,616 | 272,417 | (4,141) |
| KNOC Exploracao e Producao de Petro do Brasil Ltda(*2) | | - | - | - | (10) |
| KNOC NEMONE Ltd.(*2) | | - | - | - | - |
| KNOC NEMTWO Ltd.(*2) | | - | - | - | - |
| KNOC Sumatra Ltd. | | 661 | - | - | - |
| KNOC Yemen Ltd.(*3) | | 14 | - | - | - |
| KNOC Trading Singapore Pte. Ltd. | | 375 | 10 | 358 | (44) |

(*1) The amounts presented are after reflecting the difference between the fair value and the book value that arose during the business combination.

(*2) The liquidation process has been completed as of December 31, 2018.

(*3) Entity is in the process of liquidation as of December 31, 2018.

(*4) The financial information is based on the consolidated financial statements of the subsidiaries.

(ii) Financial information of subsidiaries as of and for the year ended December 31, 2017 is as follows:

*In millions of Korean won*

| Company | | Assets | Liabilities | Revenue | Net profit (loss) |
|---|---|---|---|---|---|
| ANKOR E&P Holdings Corp.(*3) | ₩ | 494,537 | 236,829 | 88,378 | (80,029) |
| Dana Petroleum Limited(*1) | | 3,398,242 | 2,290,141 | 712,145 | 10,755 |
| KNOC Eagle Ford Corporation(*3) | | 2,401,577 | 217,888 | 375,150 | 48,696 |
| Harvest Operations Corp.(*3) | | 2,657,014 | 2,804,010 | 248,619 | (246,056) |
| KNOC Kaz B.V.(*1)(*3) | | 844,974 | 570,320 | 196,132 | (127,015) |
| KNOC Exploracao e Producao de Petro do Brasil Ltda(*2) | | 10 | 305 | - | 224 |
| KNOC NEMONE Ltd.(*2) | | - | - | - | - |
| KNOC NEMTWO Ltd.(*2) | | - | - | - | - |
| KNOC Sumatra Ltd. | | 634 | - | - | (165) |
| KNOC Yemen Ltd.(*2) | | 13 | - | - | 155,817 |
| KNOC Trading Singapore Pte. Ltd. | | 407 | 6 | 409 | 88 |

(*1) The amounts presented are after reflecting the difference between the fair value and the book value that arose during the business combination.

(*2) Entities are in the process of liquidation as of December 31, 2017.

(*3) The financial information is based on the consolidated financial statements of the subsidiaries.

## 5. Subsidiaries, Continued

(b) Financial information of subsidiaries, continued

(iii) The financial information of the subsidiaries that are related to the Group's non-controlling interests as of December 31, 2018 is as follows:

*In millions of Korean won*

| Company | | Eagle Ford MS LLC and Eagle Ford Energy LLC |
|---|---|---|
| Non-controlling interests | | 20% |
| Non-current assets | ₩ | 2,343,955 |
| Current assets | | 97,045 |
| Non-current liabilities | | (41,459) |
| Current liabilities | | (9,981) |
| Net assets | | 2,389,560 |
| Book value of the non-controlling interests | | 516,791 |
| Revenue | | 468,495 |
| Net income | | 180,539 |
| Total comprehensive income | | 180,539 |
| Net income distributed to non-controlling interests (*) | | 36,053 |
| Total comprehensive income distributed to non-controlling interests | | 68,214 |

(*) Excludes net income distributed to non-controlling interest which has been excluded due to the change in the scope of consolidation.

(iv) The financial information of the subsidiaries that are related to the Group's non-controlling interests as of December 31, 2017 is as follows:

*In millions of Korean won*

| Company | | Eagle Ford MS LLC and Eagle Ford Energy LLC | KNOC EF Star LLC(*) |
|---|---|---|---|
| Non-controlling interests | | 20% | - |
| Non-current assets | ₩ | 2,170,701 | 412,489 |
| Current assets | | 136,441 | 30,442 |
| Non-current liabilities | | (31,395) | - |
| Current liabilities | | (3,959) | (50) |
| Net assets | | 2,271,788 | 442,881 |
| Book value of the non-controlling interests | | 454,358 | 412,489 |
| Revenue | | 441,982 | 15,045 |
| Net income | | 55,759 | 14,921 |
| Total comprehensive income | | 55,759 | - |
| Net income distributed to non-controlling interests | | 11,152 | - |
| Total comprehensive income distributed to non-controlling interests | | 11,152 | - |

(*) A non-controlling interest has no voting right as non-cumulative and non-participating redeemable preferred shares (see Note 46).

## 5. Subsidiaries, Continued

(c) The changes in the scope of consolidation are as follows:

| | **Changes** | **Cause of the change** |
|---|---|---|
| KNOC EF Star LLC and its subsidiaries(*1) | Excludes from consolidation | Loss of control |
| KNOC Exploracao e Producao de Petro do Brasil Ltda(*2) | Excludes from consolidation | Completion of liquidation |
| KNOC NEMONE Ltd.(*2) | Excludes from consolidation | Completion of liquidation |
| KNOC NEMTWO Ltd.(*2) | Excludes from consolidation | Completion of liquidation |

(*1) KNOC EF Star LLC is a subsidiary of KNOC Eagle Ford Corporation, a subsidiary of the Company. Due to lose of control during the year ended December 31, 2018, it has been excluded from the scope of consolidation and classified as an associate.

(*2) Liquidation process has been completed for the year ended December 31, 2018.

## 6. Segment and Other Information

(a) For management purposes, the Group is organized into business units based on their goods and services. The Group's operating segments are 1) oil and gas, 2) petroleum distribution, 3) oil stockpiling, 4) financing, 5) drillship chartering and 6) others.

| **Segments** | **Goods and services** | **Location of business** |
|---|---|---|
| Oil and gas | Exploration, development and production of domestic and overseas resources and sales of crude oil | Domestic and overseas |
| Petroleum distribution | Distribution business of gasoline and gas oil and oil trading | Domestic and overseas |
| Oil stockpiling | Purchase and lending of oil stockpiles, management, operation and lending of oil stockpiling facilities | Domestic |
| Financing (*) | Financing for companies engaged in energy and natural resources development activities | Domestic |
| Drillship chartering (*) | Drillship chartering business | Domestic and overseas |
| Others | Oil information services, other research services, etc. | Domestic and overseas |

(*) Financing and drillship chartering segments have been classified as discontinued operations during the year ended December 31, 2017 (see Note 7).

## 6. Segment and Other Information, Continued

(b) Segment results for the year

(i) For the year ended December 31, 2018

| *In millions of Korean won* | Oil and gas | Petroleum distribution | Oil stockpiling | Others | Reportable segment total | Reconciling items(*) | Drillship chartering (Discontinued) | Group total |
|---|---|---|---|---|---|---|---|---|
| Revenue | ₩ 2,924,848 | 41,723 | 178,327 | 4,367 | 3,149,265 | - | - | 3,149,265 |
| Cost of sales | 1,958,194 | 35,995 | 175,626 | 2,118 | 2,171,933 | - | 1,515 | 2,173,448 |
| Gross profit (loss) | 966,654 | 5,728 | 2,701 | 2,249 | 977,332 | - | (1,515) | 975,817 |
| Selling and administrative expenses | 361,147 | 340 | - | - | 361,487 | 72,485 | - | 433,972 |
| Reportable segment operating profit (loss) | 605,507 | 5,388 | 2,701 | 2,249 | 615,845 | (72,485) | (1,515) | 541,845 |
| Other income | | | | | 76,489 | - | - | 76,489 |
| Other expenses | | | | | 37,791 | - | - | 37,791 |
| Other gain (loss), net | | | | | (849,323) | - | 2,369 | (846,954) |
| Finance income | | | | | 231,242 | - | - | 231,242 |
| Finance costs | | | | | 783,491 | - | - | 783,491 |
| Loss on investments in associates and joint ventures, net | | | | | (112,547) | - | - | (112,547) |
| Profit (loss) before income tax ₩ | | | | | (859,576) | (72,485) | 854 | (931,207) |
| Depreciation and amortization | ₩ 1,046,995 | 7 | 75,269 | 9 | 1,122,280 | 12,707 | 1 | 1,134,988 |
| Impairment losses on property, plant and equipment | 272,829 | - | - | - | 272,829 | - | - | 272,829 |
| Reversal of impairment losses on property, plant and equipment | 23,146 | - | - | - | 23,146 | - | - | 23,146 |
| Impairment losses on intangible assets other than goodwill | 609,347 | - | - | - | 609,347 | - | - | 609,347 |

(*) Primarily consists of operating profit (loss) including depreciation and amortization that are not allocated to the segments.

## 6. Segment and Other Information, Continued

(b) Segment results for the year, continued

(ii) For the year ended December 31, 2017

| *In millions of Korean won* | | Oil and gas | Petroleum distribution | Oil stockpiling | Others | Reportable segment total | Reconciling items(*) | Financing (Discontinued) | Drillship chartering (Discontinued) | Group total |
|---|---|---|---|---|---|---|---|---|---|---|
| Revenue | ₩ | 2,004,759 | 187,984 | 112,146 | 7,597 | 2,312,486 | - | 314 | - | 2,312,800 |
| Cost of sales | | 1,495,275 | 179,369 | 171,824 | 3,822 | 1,850,290 | - | - | 9,132 | 1,859,422 |
| Gross profit (loss) | | 509,484 | 8,615 | (59,678) | 3,775 | 462,196 | - | 314 | (9,132) | 453,378 |
| Selling and administrative expenses | | 208,658 | 369 | - | - | 209,027 | 77,298 | 244 | - | 286,569 |
| Reportable segment operating profit (loss) | | 300,826 | 8,246 | (59,678) | 3,775 | 253,169 | (77,298) | 70 | (9,132) | 166,809 |
| Other income | | | | | | 152,269 | - | - | - | 152,269 |
| Other expenses | | | | | | 207,236 | - | - | - | 207,236 |
| Other gain (loss), net | | | | | | (463,150) | - | - | (49,053) | (512,203) |
| Finance income | | | | | | 304,558 | - | - | - | 304,558 |
| Finance costs | | | | | | 713,174 | - | - | - | 713,174 |
| Loss on investments in associates and joint ventures, net | | | | | | (127,757) | - | - | - | (127,757) |
| Profit (loss) before income tax | ₩ | | | | | (801,321) | (77,298) | 70 | (58,185) | (936,734) |
| Depreciation and amortization | ₩ | 812,180 | 10 | 75,282 | 10 | 887,482 | 13,452 | - | 3,961 | 904,895 |
| Impairment losses on property, plant and equipment | | 320,267 | - | - | - | 320,267 | - | - | 42,940 | 363,207 |
| Reversal of impairment losses on property, plant and equipment | | 163,645 | - | - | - | 163,645 | - | - | - | 163,645 |
| Impairment losses on intangible assets other than goodwill | | 227,051 | - | - | - | 227,051 | - | - | - | 227,051 |
| Impairment losses on goodwill | | 87,470 | - | - | - | 87,470 | - | - | - | 87,470 |

(*) Primarily consists of operating profit (loss) including depreciation and amortization that are not allocated to the segments.

## 6. Segment and Other Information, Continued

(c) Segment assets and liabilities

(i) As of December 31, 2018

| *In millions of Korean won* | | Oil and gas | Petroleum distribution | Oil stockpiling | Reportable segment total | Reconciling items(*2) | Group total |
|---|---|---|---|---|---|---|---|
| Assets | ₩ | 11,389,050 | 96,188 | 5,905,504 | 17,390,742 | - | 17,390,742 |
| Adjustments: | | | | | | | |
| Headquarters' land, buildings, tools & fixtures | | - | - | - | - | 217,840 | 217,840 |
| Headquarters' software and memberships | | - | - | - | - | 11,593 | 11,593 |
| Headquarters' loans to employees | | - | - | - | - | 105,486 | 105,486 |
| Headquarters' deferred tax assets | | - | - | - | - | 401,012 | 401,012 |
| Headquarters' derivative assets | | - | - | - | - | 26,419 | 26,419 |
| Headquarters' financial assets and etc. | | - | - | - | - | 85,909 | 85,909 |
| | ₩ | 11,389,050 | 96,188 | 5,905,504 | 17,390,742 | 848,259 | 18,239,001 |
| Liabilities | ₩ | 16,799,431 | 153,203 | 60,825 | 17,013,459 | - | 17,013,459 |
| Adjustments: | | | | | | | |
| Headquarters' derivative liabilities | | - | - | - | - | 113,194 | 113,194 |
| Headquarters' financial liabilities and etc. | | - | - | - | - | 348,283 | 348,283 |
| | ₩ | 16,799,431 | 153,203 | 60,825 | 17,013,459 | 461,477 | 17,474,936 |
| Investments in associates and others(*1) | ₩ | 744,483 | 53,338 | - | 797,821 | - | 797,821 |
| Acquisitions of property, plant and equipment | | 541,446 | - | 66,855 | 608,301 | - | 608,301 |
| Acquisitions of intangible assets other than goodwill | | 26,731 | - | - | 26,731 | 528 | 27,259 |

(*1) Investments in associates and others consist of investments in associates and joint ventures and loans to related parties, accrued interest and financial assets measured at fair value through profit or loss.

(*2) Primarily consists of loans for employees, deferred tax assets and others which are not allocated to the reportable segments.

## 6. Segment and Other Information, Continued

(c) Segment assets and liabilities, continued

(ii) As of December 31, 2017

| *In millions of Korean won* | Oil and gas | Petroleum distribution | Oil stockpiling | Reportable segment total | Recon-ciling items(*2) | Drillship chartering (Discontinued) (*3) | Group total |
|---|---|---|---|---|---|---|---|
| Assets | ₩ 12,585,859 | 90,160 | 5,597,713 | 18,273,732 | - | 3,472 | 18,277,204 |
| Adjustments: | | | | | | | |
| Headquarters' land, buildings, tools & fixtures | - | - | - | - | 278,750 | - | 278,750 |
| Headquarters' software and memberships | - | - | - | - | 13,059 | - | 13,059 |
| Headquarters' loans to employees | - | - | - | - | 102,842 | - | 102,842 |
| Headquarters' deferred tax assets | - | - | - | - | 580,524 | - | 580,524 |
| Headquarters' derivative assets | - | - | - | - | 48,379 | - | 48,379 |
| Headquarters' financial assets and etc. | - | - | - | - | 210,942 | - | 210,942 |
| | ₩ 12,585,859 | 90,160 | 5,597,713 | 18,273,732 | 1,234,496 | 3,472 | 19,511,700 |
| Liabilities | ₩ 16,539,496 | 95,249 | 80,331 | 16,715,076 | - | - | 16,715,076 |
| Adjustments: | | | | | | | |
| Headquarters' derivative liabilities | - | - | - | - | 82,712 | - | 82,712 |
| Headquarters' financial liabilities and etc. | - | - | - | - | 330,022 | - | 330,022 |
| | ₩ 16,539,496 | 95,249 | 80,331 | 16,715,076 | 412,734 | - | 17,127,810 |
| Investments in associates and others(*1) | ₩ 660,535 | 50,430 | - | 710,965 | - | - | 710,965 |
| Acquisitions of property, plant and equipment | 486,072 | - | 113,642 | 599,714 | 232,648 | - | 832,362 |
| Acquisitions of intangible assets other than goodwill | 27,223 | - | - | 27,223 | 1,625 | - | 28,848 |

(*1) Investments in associates and others consist of investments in associates and joint ventures and loans to related parties and accrued interest.

(*2) Primarily consists of loans for employees, deferred tax assets and others which are not allocated to the reportable segments.

(*3) Assets in drillship chartering segment amounting to ₩3,472 million have been classified as assets held for sale.

(d) Information about main customers

Customers whose revenue is 10% or more of consolidated revenue for the year ended December 31, 2018 are BP P.L.C. and Shell Co. amounting to ₩522,857 million and ₩567,294 million, respectively. No customer's revenue is more than 10% of consolidated revenue for the year ended December 31, 2017. Furthermore, revenues from these customers for the year ended December 31, 2018 are related to oil and gas segment.

## 6. Segment and Other Information, Continued

(e) Information about geographical areas

(i) Revenue by geographic area for the years ended December 31, 2018 and 2017 is as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Domestic | ₩ | 592,870 | 694,935 |
| Canada | | 242,824 | 248,619 |
| United Kingdom | | 1,490,813 | 712,145 |
| United States | | 573,465 | 463,528 |
| Kazakhstan | | 249,293 | 192,850 |
| Others | | - | 409 |
| Reportable segment operating revenue | ₩ | 3,149,265 | 2,312,486 |
| Financing segment (discontinued) | | - | 314 |
| | ₩ | 3,149,265 | 2,312,800 |

In presenting information about geographical areas, segment revenue is based on the geographical location of the Group's entities which recorded the related revenue.

(ii) Non-current assets by geographic area as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | December 31, 2017 |
|---|---|---|---|
| Domestic | ₩ | 6,510,278 | 6,326,504 |
| Canada | | 1,789,099 | 1,966,834 |
| United Kingdom | | 2,465,429 | 2,994,323 |
| United States | | 2,750,173 | 2,581,594 |
| Kazakhstan | | 275,187 | 325,109 |
| Iraq | | 740,315 | 1,333,008 |
| Yemen | | 4,120 | 3,948 |
| Peru | | 48,352 | 45,297 |
| Libya | | 42,329 | 43,668 |
| Vietnam | | 262,690 | 331,524 |
| Others | | 14 | 1 |
| | ₩ | 14,887,986 | 15,951,810 |

Non-current assets by geographic area include property, plant and equipment, goodwill, intangible assets other than goodwill, investments in associates and joint ventures, and non-financial assets.

## 7. Discontinued Operations

In 2017, financing and drillship chartering segments, which have been part of the Company, were classified as discontinued operations as 1) the Company transferred its responsibilities related to financing for companies engaged in energy and natural resources development activities to another government agency in 2017 and 2) management committed to a plan to sell the primary assets of drillship chartering segment. For the year ended December 31, 2018, the Company recognized profit and loss due to disposal of drillship and others, which had been classified as asset held for sale as of December 31, 2017.

(a) Details of profit or loss from discontinued operations are as follows:

(i) For the year ended December 31, 2018

| *In millions of Korean won* | | Drillship chartering |
|---|---|---|
| Revenue (*) | ₩ | 2,369 |
| Expenses | | 1,515 |
| Profit from discontinued operations | ₩ | 854 |

(*) Includes gain from disposal of vessel classified as asset held for sale as of December 31, 2017, amounting to ₩2,059 million.

(ii) For the year ended December 31, 2017

| *In millions of Korean won* | | Financing | Drillship chartering | Total |
|---|---|---|---|---|
| Revenues | ₩ | 314 | - | 314 |
| Expenses (*) | | 244 | 58,184 | 58,428 |
| Profit (loss) before income tax | | 70 | (58,184) | (58,114) |
| Income tax expense (benefit) | | 17 | (5,794) | (5,777) |
| Profit (loss) from discontinued operations | ₩ | 53 | (52,390) | (52,337) |

(*) Impairment loss on property, plant and equipment in drillship chartering segment amounting to ₩ 42,940 million and loss from valuation of supplies amounting to ₩ 6,821 million are included.

## 7. Discontinued Operations, Continued

(b) Details of cash flows from discontinued operations are as follows:

(i) For the year ended December 31, 2018

| *In millions of Korean won* | | Drillship chartering |
|---|---|---|
| Cash flow from operating activities | ₩ | (1,204) |
| Cash flow from investing activities | | 5,624 |
| Total cash flow, net | ₩ | 4,420 |

(ii) For the year ended December 31, 2017

| *In millions of Korean won* | | Financing | Drillship chartering | Total |
|---|---|---|---|---|
| Cash flow from operating activities | ₩ | 70 | (4,462) | (4,392) |

(c) There is no balance of asset and liability in relation to discontinued operations as of December 31, 2018.

## 8. Cash and Cash Equivalents

Cash and cash equivalents in the consolidated statements of cash flows include cash and bank deposit and exclude government grants. Cash and cash equivalents in the consolidated statements of cash flows for the years ended December 31, 2018 and 2017 are comprised of the following items in the consolidated statements of financial position.

| *In millions of Korean won* | | December 31, 2018 | December 31, 2017 |
|---|---|---|---|
| Cash in hands | ₩ | 88 | 100 |
| Other on demand deposits | | 276,720 | 211,415 |
| Short-term deposits classified as cash equivalents | | 202,523 | 312,706 |
| Short-term investments classified as cash equivalents | | 298,867 | 266,899 |
| Government grants | | (78) | (45) |
| | ₩ | 778,120 | 791,075 |

## 9. Restricted Deposits

Details of restricted deposits as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|
| | | Current | Non-current | Current | Non-current |
| Compensations for fishermen | ₩ | - | - | 2,056 | - |
| Asset retirement obligation | | - | 2,490 | - | 2,317 |
| Deposits for foreign workers | | - | 3 | - | 4 |
| | ₩ | - | 2,493 | 2,056 | 2,321 |

## 10. Financial Assets Measured at Fair Value through Profit or Loss (Including Derivatives)

(a) Details of financial assets measured at fair value through profit or loss as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|
| | | Current | Non-current | Current | Non-current |
| **Fair value through profit or loss** | | | | | |
| Debt securities(*) | ₩ | - | 534,983 | - | - |

(*) Debt instruments are comprised of loans to related parties and accrued interests. For the year ended December 31, 2018, gain and loss on valuation of financial assets measured at fair value through profit or loss amounting to ₩40,926 million and ₩5,059 million, respectively.

(b) Details of derivatives as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|
| | | Current | Non-current | Current | Non-current |
| **Derivative assets** | | | | | |
| Currency swaps | ₩ | 5,520 | 20,405 | - | 44,269 |
| Interest rate swaps | | - | 6,014 | 1,161 | 2,949 |
| Currency forwards | | - | - | 2,596 | - |
| Other derivatives (*) | | 65,292 | 35,969 | 775 | 84 |
| | ₩ | 70,812 | 62,388 | 4,532 | 47,302 |
| **Derivative liabilities** | | | | | |
| Currency swaps | ₩ | 67,766 | 40,267 | 18,830 | 45,832 |
| Interest swaps | | 5,954 | 5,161 | - | - |
| Currency forwards | | 233 | - | - | - |
| Other derivatives | | 4 | 122 | 74,682 | 2,397 |
| | ₩ | 73,957 | 45,550 | 93,512 | 48,229 |

(*) The Company holds right to purchase shares of Korea GS E&P Pte. Ltd. and, accordingly, recognized non-current derivative assets amounting to ₩18,999 million (see Note 46).

## 10. Financial Assets Measured at Fair Value through Profit or Loss (Including Derivative), Continued

(c) Details of currency swap contracts as of December 31, 2018 are as follows:

*In millions of Korean won and thousands of foreign currencies*

| | | | Contract amount | | | | Contract interest rate per annum (%) | |
|---|---|---|---|---|---|---|---|---|
| **Type** | **Counter party** | **Maturity** | **Currency** | **Sell** | **Currency** | **Buy** | **Sell** | **Buy** |
| Cash flow hedge | HSBC | 2021-02-08 | HKD | 500,000 | USD | 64,185 | 4.38 | 5.03 |
| | BNP | 2021-03-04 | HKD | 390,000 | USD | 50,081 | 4.50 | 5.20 |
| | HSBC | 2022-02-10 | HKD | 390,000 | USD | 50,282 | 3.95 | 4.45 |
| | BNP | 2022-03-28 | EUR | 50,000 | USD | 65,075 | 4.00 | 4.55 |
| | HSBC | 2023-01-26 | HKD | 400,000 | USD | 51,600 | 2.85 | 3.17 |
| | DBS | 2023-02-04 | EUR | 37,000 | USD | 49,765 | 2.40 | 3.19 |
| | HSBC | 2025-06-24 | EUR | 60,000 | USD | 80,070 | 3.00 | 4.06 |
| | HSBC | 2023-07-03 | EUR | 50,000 | USD | 65,670 | 3.09 | 4.31 |
| | HSBC | 2019-10-08 | AUD | 125,000 | USD | 109,563 | 4.25 | 2.11 |
| | HSBC | 2019-10-08 | AUD | 75,000 | USD | 65,738 | 2.79 | 2.18 |
| | ANZ | 2019-10-08 | AUD | 150,000 | USD | 131,475 | 2.79 | 2.14 |
| | SC | 2020-01-29 | HKD | 310,000 | USD | 39,985 | 2.18 | 2.42 |
| | HSBC | 2020-08-26 | KRW | 150,000 | USD | 125,565 | 2.03 | 2.41 |
| | CITI | 2019-02-05 | AUD | 325,000 | USD | 230,555 | 2.98 | 2.15 |
| | DBS | 2021-01-30 | SGD | 400,000 | USD | 350,951 | 1.86 | 2.96 |
| | BNP/SC/KDB | 2023-06-01 | CHF | 500,000 | USD | 499,940 | 0.38 | 3.69 |
| | CIBC | 2019-01-25 | CAD | 260,999 | USD | 350,000 | 1.34 | 1.34 |
| | BNS | 2019-02-05 | CAD | 14,914 | USD | 20,000 | 1.34 | 1.34 |

## 10. Financial Assets Measured at Fair Value through Profit or Loss (Including Derivative), Continued

(d) Details of interest rate swap contracts as of December 31, 2018 are as follows:

*In thousands of foreign currencies*

| Type | Counterparty | Terms | Contract amount | Contract interest rate per annum(%) | |
|---|---|---|---|---|---|
| | | | | Sell | Buy |
| Cash flow hedge | BOA | 2020-03-27 | USD 500,000 | U3L+60bp | 2.46 |
| | SG | 2023-07-16 | USD 400,000 | U3L+90bp | 3.70 |
| | HSBC | 2023-05-11 | CAD 300,000 | 1.95 | 2.82 |

(e) Details of the currency forward contracts as of December 31, 2018 are as follows:

*In thousands of foreign currencies*

| Type | Counter party | Contract date | Maturity | Contract amount | | | | Contract currency rate |
|---|---|---|---|---|---|---|---|---|
| | | | | Currency | Sell | Currency | Buy | |
| Cash flow hedge | ABN AMRO | 2018-12-03 | 2019-01-10 | USD | 1,275 | GBP | 1,000 | 1.2750 |
| | CIBC | 2018-08-08 | 2019-01-15 | USD | 10,381 | GBP | 8,000 | 1.2976 |
| | CIBC | 2018-12-06 | 2019-01-22 | USD | 8,922 | GBP | 7,000 | 1.2746 |
| | CBA | 2018-11-15 | 2019-02-04 | USD | 1,283 | GBP | 1,000 | 1.2832 |
| | LLOYDS | 2018-12-04 | 2019-02-11 | USD | 8,915 | GBP | 7,000 | 1.2736 |
| | BNPP | 2018-08-08 | 2019-02-15 | USD | 9,092 | GBP | 7,000 | 1.2988 |
| | DNB | 2018-12-05 | 2019-03-11 | USD | 2,560 | GBP | 2,000 | 1.2799 |
| | ING | 2018-12-10 | 2019-03-14 | USD | 3,820 | GBP | 3,000 | 1.2732 |
| | CIBC | 2018-08-08 | 2919-03-15 | USD | 6,497 | GBP | 5,000 | 1.2994 |
| | BNPP | 2018-11-15 | 2019-03-22 | USD | 10,280 | GBP | 8,000 | 1.2850 |
| | DNB | 2018-11-27 | 2019-04-11 | USD | 3,853 | GBP | 3,000 | 1.2842 |
| | ABN AMRO | 2018-11-15 | 2019-04-15 | USD | 10,384 | GBP | 8,000 | 1.2980 |
| | BNPP | 2018-12-10 | 2019-04-16 | USD | 3,825 | GBP | 3,000 | 1.2750 |
| | RBS | 2018-11-27 | 2019-05-07 | USD | 5,136 | GBP | 4,000 | 1.2840 |
| | ABN AMRO | 2018-11-15 | 2019-05-15 | USD | 12,928 | GBP | 10,000 | 1.2928 |
| | CBA | 2018-12-10 | 2019-06-07 | USD | 11,469 | GBP | 9,000 | 1.2743 |
| | ING | 2018-11-15 | 2019-06-17 | USD | 10,383 | GBP | 8,000 | 1.2979 |
| | ABN AMRO | 2018-12-10 | 2019-07-08 | USD | 5,100 | GBP | 4,000 | 1.2750 |
| | CIBC | 2018-11-15 | 2019-07-15 | USD | 7,799 | GBP | 6,000 | 1.2999 |
| | LLOYDS | 2018-12-10 | 2019-08-08 | USD | 11,444 | GBP | 9,000 | 1.2715 |
| | CBA | 2018-11-15 | 2019-08-16 | USD | 11,688 | GBP | 9,000 | 1.2987 |
| | DNB | 2018-12-10 | 2019-09-09 | USD | 16,519 | GBP | 13,000 | 1.2707 |
| | LLOYDS | 2018-10-30 | 2019-09-16 | USD | 3,893 | GBP | 3,000 | 1.2975 |
| | ING | 2018-12-10 | 2019-10-08 | USD | 7,627 | GBP | 6,000 | 1.2712 |
| | LLOYDS | 2018-10-30 | 2019-10-15 | USD | 3,900 | GBP | 3,000 | 1.3000 |
| | BNPP | 2018-12-10 | 2019-11-08 | USD | 12,738 | GBP | 10,000 | 1.2738 |
| | LLOYDS | 2018-12-12 | 2019-12-09 | USD | 12,732 | GBP | 10,000 | 1.2732 |

## 10. Financial Assets Measured at Fair Value through Profit or Loss (Including Derivative), Continued

(f) Details of other derivatives (crude oil swaps) as of December 31, 2018 are as follows:

*In BBL, MBTU, US dollar*

| Type | Counterparty | Terms | Contract amount | Exercise price |
|---|---|---|---|---|
| Held for trading | CITI | 2019-03-31 | 192,000 | 62.25 |
| | CITI | 2019-06-30 | 144,000 | 62.25 |
| | CITI | 2019-09-30 | 96,000 | 60.78 |
| | CITI | 2019-12-31 | 48,000 | 60.78 |
| | BNP | 2020-03-31 | 67,000 | 59.47 |
| | BNP | 2020-06-30 | 33,000 | 59.47 |
| | SG | 2020-06-30 | 33,000 | 57.13 |
| | SG | 2020-09-30 | 33,000 | 57.13 |
| | SG | 2020-12-31 | 32,000 | 57.13 |
| Cash flow hedge | SC | 2019-04-01 | 9,000 | 54.28 |
| | SC | 2020-07-14 | 35,000 | 59.50 |
| | CITI | 2020-09-30 | 17,000 | 57.14 |
| | CITI | 2020-12-31 | 16,000 | 57.14 |
| | GS | 2019-03-31 | 15,000 | 51.00 |
| | GS | 2019-03-31 | 15,000 | 52.00 |
| | DNB | 2019-12-31 | 600,000 | 62.63 |
| | CIBC | 2019-08-19 | 318,548 | 63.72 |
| | DNB | 2019-03-19 | 119,346 | 64.39 |
| | DNB | 2019-12-31 | 360,000 | 64.98 |
| | CIBC | 2019-12-31 | 360,000 | 66.24 |
| | SG | 2019-03-29 | 72,000 | 51.59 |
| | SG | 2019-06-28 | 66,000 | 51.34 |
| | SG | 2019-09-30 | 33,000 | 51.07 |
| | GS | 2020-01-14 | 902,000 | 2.81(*) |
| | SC | 2019-04-01 | 142,000 | 2.91(*) |
| | SG | 2019-03-29 | 193,000 | 2.94(*) |
| | SG | 2019-03-30 | 166,000 | 2.97(*) |
| | SG | 2019-03-31 | 1,603,000 | 3.40(*) |

(*) The contracts above are derivatives settled based on Henry Hub gas price with exercise prices determined in USD/MBTU.

## 10. Financial Assets Measured at Fair Value through Profit or Loss (Including Derivative), Continued

(g) Details of other derivatives (zero cost collar options) as of December 31, 2018 are as follows:

*In BBL, US dollar*

| Type | Counterparty | Terms | Contract amount | Exercise Price | |
|---|---|---|---|---|---|
| | | | | Call | Put |
| Held for trading | GS | 2019-03-31 | 48,000 | 68.65 | 60.00 |
| | GS | 2019-06-30 | 48,000 | 68.65 | 60.00 |
| | GS | 2019-09-30 | 48,000 | 67.00 | 60.00 |
| | GS | 2019-12-31 | 48,000 | 66.85 | 60.00 |
| Cash flow hedge | Citi | 2019-03-29 | 38,000 | 57.05 | 52.25 |
| | GS | 2019-06-28 | 38,000 | 55.30 | 51.80 |
| | GS | 2019-06-28 | 38,000 | 55.30 | 51.80 |
| | GS | 2019-09-30 | 38,000 | 63.50 | 53.00 |
| | GS | 2019-09-30 | 38,000 | 63.50 | 53.00 |
| | GS | 2019-09-30 | 38,000 | 63.50 | 53.00 |
| | BNP | 2019-03-19 | 21,000 | 69.10 | 59.00 |
| | BNP | 2019-06-30 | 28,000 | 69.10 | 59.00 |
| | BNP | 2019-09-30 | 38,000 | 65.00 | 59.00 |
| | BNP | 2019-12-31 | 48,000 | 65.00 | 59.00 |
| | BNP | 2020-03-31 | 27,000 | 72.00 | 59.00 |
| | SC | 2019-03-31 | 15,000 | 53.60 | 51.50 |
| | GS | 2019-06-30 | 30,000 | 54.65 | 51.90 |
| | GS | 2019-09-30 | 16,000 | 53.55 | 51.90 |
| | GS | 2019-03-31 | 52,000 | 64.30 | 59.10 |
| | GS | 2019-06-30 | 43,000 | 61.20 | 59.10 |
| | SC | 2019-09-30 | 15,000 | 71.00 | 63.50 |
| | SC | 2019-12-31 | 24,000 | 69.25 | 63.50 |
| | GS | 2020-03-31 | 17,000 | 69.90 | 60.00 |
| | GS | 2020-06-30 | 11,000 | 68.25 | 60.00 |
| | GS | 2020-09-30 | 6,000 | 66.60 | 60.00 |
| | GS | 2019-03-29 | 26,000 | 53.15 | 51.50 |
| | GS | 2019-03-29 | 166,000 | 63.42 | 57.00 |
| | GS | 2019-06-28 | 146,000 | 61.50 | 57.00 |
| | GS | 2019-06-28 | 96,000 | 75.00 | 63.50 |
| | GS | 2019-09-30 | 127,000 | 59.40 | 57.00 |
| | GS | 2019-06-28 | 96,000 | 69.75 | 63.50 |
| | GS | 2020-06-30 | 77,000 | 68.85 | 60.00 |
| | SC | 2019-04-01 | 96,000 | 76.60 | 63.50 |
| | SC | 2020-04-01 | 116,000 | 70.50 | 60.00 |
| | SG | 2019-09-30 | 96,000 | 72.00 | 63.50 |
| | SG | 2019-12-31 | 108,000 | 57.40 | 57.00 |
| | SG | 2020-09-30 | 39,000 | 66.91 | 60.00 |
| | DNB | 2019-12-31 | 600,000 | 65.50 | 56.00 |
| | DNB | 2019-12-31 | 486,662 | 69.10 | 56.00 |
| | CIBC | 2019-12-31 | 305,000 | 73.60 | 56.00 |

## 10. Financial Assets Measured at Fair Value through Profit or Loss (Including Derivative), Continued

(g) Details of other derivatives (zero cost collar options) as of December 31, 2018 are as follows, continued:

*In BBL, US dollar*

| Type | Counterparty | Terms | Contract amount | Exercise Price | |
|---|---|---|---|---|---|
| | | | | Call | Put |
| Cash flow hedge | DNB | 2019-12-31 | 261,218 | 86.72 | 56.00 |
| | CBA | 2019-12-31 | 280,000 | 84.50 | 65.00 |
| | BNPP | 2019-12-31 | 280,000 | 88.30 | 65.00 |
| | BNPP | 2019-12-31 | 298,212 | 91.90 | 65.00 |

(h) Details of other derivative (right to purchase shares) as of December 31, 2018 are as follows:

*In millions of Korean won*

| Type | Counterparty | Maturity | Transaction details | Excercise price | Valuation price |
|---|---|---|---|---|---|
| Right to purchase shares | Korea GS E&P | 2020-02-27 | 30% shares | In accordance with exercise price clause | ₩ 18,999 |

(i) Gains and losses on valuation and transaction of derivative for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | Net income effects of valuations | | Net income effects of transactions | | Other comprehensive income (loss) (*) | |
|---|---|---|---|---|---|---|
| | 2018 | 2017 | 2018 | 2017 | 2018 | 2017 |
| Currency swaps | ₩ 4,354 | (10,749) | 3,333 | (11,605) | (4,666) | 5,935 |
| Interest rate swaps | - | - | - | - | (8,493) | 2,468 |
| Currency forwards | - | - | (2,738) | - | (2,724) | (4,444) |
| Other derivatives | 18,864 | (14,556) | (167) | (2,477) | 115,240 | (51,290) |
| | ₩ 23,218 | (25,305) | 428 | (14,082) | 99,357 | (47,331) |

(*) Changes in accumulated other comprehensive income (loss) are net of tax effect amounting to (-)₩36,199 million and ₩15,308 million for the years ended December 31, 2018 and 2017, respectively.

## 11. Trade and Other Receivables

Details of trade and other receivables as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | December 31, 2018 | | | | December 31, 2017 | | | |
|---|---|---|---|---|---|---|---|---|
| | Gross amounts | Allowance for doubtful accounts | Present value discount | Book value | Gross amounts | Allowance for doubtful accounts | Present value discount | Book value |
| **Current** | | | | | | | | |
| Trade receivables | ₩ 210,641 | (8,928) | - | 201,713 | 267,828 | (693) | - | 267,135 |
| Other receivables | 242,397 | - | - | 242,397 | 289,145 | (11) | - | 289,134 |
| | 453,038 | (8,928) | - | 444,110 | 556,973 | (704) | - | 556,269 |
| **Non-current** | | | | | | | | |
| Other receivables | 56,653 | (4,956) | (17,861) | 33,836 | 115,807 | - | (18,039) | 97,768 |
| | ₩ 509,691 | (13,884) | (17,861) | 477,946 | 672,780 | (704) | (18,039) | 654,037 |

## 12. Financial Assets Measured at Fair Value Through Other Comprehensive Income (Available-for-sale Financial Instruments)

(a) Details of financial assets measured at fair value through other comprehensive income as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | Carrying amount | | Fair value | |
|---|---|---|---|---|---|
| | Ownership interest(%) | December 31, 2018 | December 31, 2017 | December 31, 2018 | December 31, 2017 |
| **Non-marketable** | | | | | |
| Yemen LNG Company Limited | 1.06 | ₩ 4,306 | 4,669 | 4,306 | 4,669 |
| Petronado S.A. | 5.64 | - | - | - | - |
| Micronic Korea(*1)(*2) | 16.70 | 855 | 820 | 855 | 820 |
| Troika Resource Investment PEF | 14.47 | 2,579 | 3,244 | 2,579 | 3,244 |
| Global Dynasty Natural Resource PEF | 15.67 | - | 2,991 | - | 2,991 |
| **Marketable** | | | | | |
| EP Energy | 12.82 | 24,479 | 79,083 | 24,479 | 79,083 |
| | | ₩ 32,219 | 90,807 | 32,219 | 90,807 |

(*1) The dividend incomes associated with Micronic Korea for the years ended December 31, 2018 and 2017 are both ₩10 million.

(*2) The carrying amount of non-marketable securities without a quoted price in an active market or a reliable fair value measurement held by the Group that were measured at cost as of December 31, 2017 is ₩820 million.

## 12. Financial Assets Measured at Fair Value Through Other Comprehensive Income (Available-for-sale Financial Instruments), Continued

(b) Changes in financial assets measured at fair value through other comprehensive income for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Beginning balance | ₩ | 90,807 | 269,278 |
| Acquisitions | | - | 18 |
| Valuation adjustments(*1) | | (61,550) | (84,561) |
| Impairment losses(*2) | | - | (71,586) |
| Effect of movements in exchange rates | | 2,962 | (22,342) |
| | ₩ | 32,219 | 90,807 |

(*1) Related income tax effect is not recognized for the year ended December 31 ,2018 due to unrecognized deferred tax asset as the amount is not expected be realized in a foreseeable future. The amount for the year ended December 31, 2017 is presented without the tax effect amounting to ₩20,464 million which have been recognized directly in equity. The Group recognized valuation losses on EP Energy, Yemen LNG Company Limited, Troika Resource Investment PEF and Global Dynasty Resource PEF amounting to ₩57,127 million, ₩557 million, ₩794 million and ₩3,072 million, respectively, for the year ended December 31, 2018.

(*2) The Group recognized impairment losses on EP Energy, Troika Resource Investment PEF and Global Dynasty Resource PEF amounting to ₩71,445 million, ₩7 million and ₩134 million, respectively, for the year ended December 31, 2017.

## 13. Loans

Details of loans as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | | | December 31, 2017 | | |
|---|---|---|---|---|---|---|---|
| | | **Face value** | **Provision for loans** | **Carrying amount** | **Face value** | **Provision for loans** | **Carrying amount** |
| Short term Loans | | | | | | | |
| Loans to related parties (*1) | ₩ | - | - | - | 5,814 | - | 5,814 |
| | | - | - | - | 5,814 | - | 5,814 |
| Long term Loans | | | | | | | |
| Loans for tuitions (*2) | ₩ | 375 | - | 375 | 295 | - | 295 |
| Loans for housing (*3) | | 105,096 | - | 105,096 | 102,627 | - | 102,627 |
| Loans for vehicle (*4) | | 274 | - | 274 | 300 | - | 300 |
| General loans | | 6,409 | (977) | 5,432 | 108,554 | (45,098) | 63,456 |
| Loans to related parties (*1) | | 650,545 | (611,062) | 39,483 | 1,008,855 | (696,068) | 312,787 |
| | | 762,699 | (612,039) | 150,660 | 1,220,631 | (741,166) | 479,465 |
| | ₩ | 762,699 | (612,039) | 150,660 | 1,226,445 | (741,166) | 485,279 |

(*1) The Group provided Offshore International Group and 14 other related parties with loans at interest rates of 3.00 ~ 7.80%. The Group recognized reversal of bad debt allowance amounting to ₩77 million and financial guarantee expenses amounting to ₩5,921 million for the year ended December 31, 2018 and bad debt expenses on loans to related parties amounting to ₩47,280 million and loss under equity method amounting to ₩18,706 million for the year ended December 31, 2017 (see Note 44). In addition, part of loans to related parties has been classified as financial assets measured at fair value through profit or loss due to adoption of K-IFRS No. 1109 at January 1, 2018 (see Note 10).

(*2) The Group provides employees who worked over a year with interest-free loans for their children's tuitions. The loans are repaid from their monthly wages.

(*3) The Group provides employees without housing with loans for housing at market interest rates. The loans are due 5~10 years and repaid by lump sum at maturity.

(*4) The Group provides non-interest bearing loans to overseas secondees who newly purchase or lease a vehicle. The loans are due when the secondees return to the Headquarters.

## 14. Financial Instruments

Details of financial Instruments as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|
| | | Current | Non-current | Current | Non-current |
| Term deposit | ₩ | - | 5,085 | 2,074 | 4,873 |

## 15. Other Financial Assets

Details of other current financial assets as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | December 31, 2017 |
|---|---|---|---|
| Overseas field operations quick assets | ₩ | 16,291 | 14,919 |

## 16. Inventories

Details of inventories as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | | | December 31, 2017 | | |
|---|---|---|---|---|---|---|---|
| | | Acquisition cost | Provision for losses on valuation | Carrying amount | Acquisition cost | Provision for losses on valuation | Carrying amount |
| Raw materials(*1) | ₩ | 4,790 | (368) | 4,422 | 3,113 | (441) | 2,672 |
| Merchandises | | 11,622 | (194) | 11,428 | 8,842 | - | 8,842 |
| Work-in-progress | | 97 | - | 97 | 71 | - | 71 |
| Finished goods | | 9,522 | - | 9,522 | 7,738 | - | 7,738 |
| Supplies(*2) | | 66,931 | - | 66,931 | 66,013 | - | 66,013 |
| Goods in-transit | | 3,220 | - | 3,220 | 2,937 | - | 2,937 |
| | ₩ | 96,182 | (562) | 95,620 | 88,714 | (441) | 88,273 |

(*1) The reversal of the losses on the valuation of inventories recognized in cost of sales for the year ended December 31, 2018 is ₩73 million, and the reversal of losses on the valuation of inventories recognized in cost of sales for the year ended December 31, 2017 is ₩77 million.

(*2) As drillship chartering segment has been classified as discontinued operations, loss on valuation has been recognized amounting to ₩6,821 million and carrying amount of supplies related to the vessels has been classified as assets held for sale for the year ended December 31, 2017. (see Note 17)

## 17. Assets Held for Sale

For the year ended December 31, 2017, management committed to a plan to sell the primary asset, Doo Sung (a vessel), within drillship chartering segment. The assets held for sale were measured at the lower of the carrying amount and fair value less cost to sell based on an appraisal value, and the Group recognized the gain on disposal amounting to ₩2,059 million upon the disposal of the asset for the year ended December 31, 2018.

Details of assets held for sale as of December 31, 2017 are as follows:

*In millions of Korean won*

| | | Acquisition Cost | Accumulated Depreciation | Accumulated Impairment loss | Carrying Amount |
|---|---|---|---|---|---|
| Vessels | ₩ | 114,625 | (70,925) | (40,228) | 3,472 |
| Tools and fixtures | | 4,629 | (4,174) | (455) | - |
| Supplies | | 6,462 | - | (6,462) | - |
| | ₩ | 125,716 | (75,099) | (47,145) | 3,472 |

## 18. Non-Financial Assets

Details of non-financial assets as of December 31, 2018 and 2017 are as follows:

*In millions of Korean won*

| | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|
| | | Current | Non-current | Current | Non-current |
| Advance payments | ₩ | 48,021 | - | 98,531 | - |
| Prepaid expenses | | 18,809 | 8,488 | 18,747 | 7,629 |
| Oil stockpiles | | - | 3,722,072 | - | 3,539,992 |
| | ₩ | 66,830 | 3,730,560 | 117,278 | 3,547,621 |

## 19. Investments in Associates and Joint Ventures

(a) Details of investments in associates and joint ventures as of December 31, 2018 and 2017 are as follows:

(i) As of December 31, 2018

*In millions of Korean won*

| Entity | Principal activity | Country | Equity interest (%) | Acquisition cost | Book value |
|---|---|---|---|---|---|
| <Investments in associates> | | | | | |
| Kernhem B.V. | Exploration and Production("E&P") | Netherlands | 36.67 | ₩ 11,424 | - |
| Oilhub Korea Yeosu Co., Ltd. | Storing of oil | Korea | 29.00 | 37,799 | 53,338 |
| ADA Oil LLP(*1) | E&P | Kazakhstan | 12.50 | 19,623 | - |
| Parallel Petroleum LLC(*2) | E&P | United States | 10.00 | 42,897 | - |
| KNOC EF Star LLC(*4) | E&P | United States | 100.00 | 29,071 | 54,127 |
| | | | | 140,814 | 107,465 |
| <Investments in joint ventures> | | | | | |
| KNOC Inam Ltd. | Exploration | Malaysia | 40.00 | - | - |
| KNOC Kamchatka Petroleum Ltd.(*3) | Exploration | Cyprus | 55.00 | 1 | - |
| KC karpovsky B.V.(*5) | Exploration | Netherlands | 35.00 | 10 | - |
| KNOC Bazian Ltd.(*3) | Exploration | Malaysia | 66.72 | - | - |
| KNOC Nigerian West Oil Company Ltd.(*3) | Exploration | Nigeria | 75.00 | 67 | - |
| KNOC Nigerian East Oil Company Ltd.(*3) | Exploration | Nigeria | 75.00 | 67 | - |
| KNOC Aral Ltd.(*3)(*5) | Exploration | Malaysia | 51.00 | - | - |
| Korea kamchatka Co., Ltd. | Exploration | Cyprus | 50.00 | 7,599 | - |
| KC kazakh B.V. | Exploration | Netherlands | 35.00 | 253 | - |
| Offshore International Group, Inc. | E&P | United States | 50.00 | 710,132 | 132,985 |
| KNOC Ferghana Ltd. | Exploration | Malaysia | 50.00 | 1 | - |
| KNOC Ferghana2 Ltd.(*3) | Exploration | Malaysia | 65.00 | - | - |
| KADOC Ltd.(*3) | E&P | Malaysia | 75.00 | 1 | - |
| Korea Oil Terminal Co., Ltd.(*3) | Storing of oil | Korea | 82.26 | 4,138 | - |
| Deep Basin Partnership(*3) | E&P | Canada | 83.40 | 241,701 | - |
| HKMS Partnership(*3) | Gas processing plant operation | Canada | 68.15 | 60,716 | 35,507 |
| | | | | 1,024,686 | 168,492 |
| | | | | ₩ 1,165,500 | 275,957 |

(*1) Classified as an investment in associate as the Group's associate, Kernhem B.V. holds 75% of the equity interest and by effective equity interest, the Group has the ability to exercise significant influence over the entity.

(*2) Classified as an investment in associate as the Group can designate one director in its board of directors. Despite the percentage of ownership is below 20%, the Group has the ability to exercise significant influence over the entity.

(*3) Despite the percentage of ownership of over 50%, the investment is classified as an investment in joint ventures as the Group is unable to exercise control over investees solely.

(*4) Despite the percentage of ownership of the Group is 100%, it is excluded from the scope of consolidation due to reassessment of control.

(*5) The entities completed the liquidation for the year ended December 31, 2018.

.

## 19. Investments in Associates and Joint Ventures, Continued

(a) Details of investments in associates and joint ventures as of December 31, 2018 and 2017 are as follows, continued:

(ii) As of December 31, 2017

*In millions of Korean won*

| Entity | Principal activity | Country | Equity interest (%) | | Acquisition cost | Book value |
|---|---|---|---|---|---|---|
| <Investments in associates> | | | | | | |
| Kernhem B.V. | Exploration and Production("E&P") | Netherlands | 36.67 | ₩ | 10,947 | - |
| Oilhub Korea Yeosu Co., Ltd. | Storing of oil | Korea | 29.00 | | 36,221 | 50,430 |
| ADA Oil LLP(*1) | E&P | Kazakhstan | 12.50 | | 18,803 | - |
| Parallel Petroleum LLC(*2) | E&P | United States | 10.00 | | 41,106 | 17,070 |
| | | | | | 107,077 | 67,500 |
| <Investments in joint ventures> | | | | | | |
| KNOC Inam Ltd. | Exploration | Malaysia | 40.00 | | - | - |
| KNOC Kamchatka Petroleum Ltd.(*3) | Exploration | Cyprus | 55.00 | | 1 | - |
| KC karpovsky B.V. | Exploration | Netherlands | 35.00 | | 10 | - |
| KNOC Bazian Ltd.(*3) | Exploration | Malaysia | 66.72 | | - | - |
| KNOC Nigerian West Oil Company Ltd.(*3) | Exploration | Nigeria | 75.00 | | 64 | - |
| KNOC Nigerian East Oil Company Ltd.(*3) | Exploration | Nigeria | 75.00 | | 64 | - |
| KNOC Aral Ltd.(*3) | Exploration | Malaysia | 51.00 | | - | - |
| Korea kamchatka Co., Ltd. | Exploration | Cyprus | 50.00 | | 7,282 | - |
| KC kazakh B.V. | Exploration | Netherlands | 35.00 | | 243 | - |
| Offshore International Group, Inc. | E&P | United States | 50.00 | | 680,471 | 182,782 |
| KNOC Ferghana Ltd. | Exploration | Malaysia | 50.00 | | 1 | - |
| KNOC Ferghana2 Ltd.(*3) | Exploration | Malaysia | 65.00 | | - | - |
| KADOC Ltd.(*3) | E&P | Malaysia | 75.00 | | 1 | - |
| Korea Oil Terminal Co., Ltd.(*3) | Storing of oil | Korea | 82.26 | | 3,965 | - |
| Deep Basin Partnership(*3) | E&P | Canada | 82.59 | | 199,759 | - |
| HKMS Partnership(*3) | Gas processing plant operation | Canada | 70.47 | | 63,667 | 48,047 |
| | | | | | 955,528 | 230,829 |
| | | | | ₩ | 1,062,605 | 298,329 |

(*1) Classified as an investment in associate as the Group's associate, Kernhem B.V. holds 75% of the equity interest and by effective equity interest, the Group has the ability to exercise significant influence over the entity.

(*2) Classified as an investment in associate as the Group can designate one director in its board of directors. Despite the percentage of ownership is below 20%, the Group has the ability to exercise significant influence over the entity.

(*3) Despite the percentage of ownership of over 50%, the investment is classified as an investment in joint ventures as the Group is unable to exercise control over investees solely.

## 19. Investments in Associates and Joint Ventures, Continued

(b) Changes in carrying value of investments in associates and joint ventures for the years ended December 31, 2018 and 2017 are as follows:

(i) For the year ended December 31, 2018

*In millions of Korean won*

| Entity | Beginning balance | Acquisition | Disposal | Dividends received | Share of profit or loss in equity method (*1) | Retained earnings under equity method | Changes in equity adjustments in equity method | Impairment losses (*2) | Other changes (*3) | Ending balance |
|---|---|---|---|---|---|---|---|---|---|---|
| <Investment in associates> | | | | | | | | | | |
| Kernhem B.V. | ₩ - | - | - | - | (3,527) | - | 3,527 | - | - | - |
| Oilhub Korea Yeosu Co.,Ltd. | 50,430 | - | - | (3,039) | 6,050 | (46) | (2,266) | - | 2,209 | 53,338 |
| ADA Oil LLP | - | - | - | - | (1,519) | - | 1,519 | - | - | - |
| Parallel Petroleum LLC | 17,070 | - | - | - | (17,530) | - | - | - | 460 | - |
| KNOC EF Star LLC | - | - | - | - | - | - | - | - | 54,127 | 54,127 |
| | 67,500 | - | - | (3,039) | (16,526) | (46) | 2,780 | - | 56,796 | 107,465 |
| <Investment in joint ventures> | | | | | | | | | | |
| KNOC Inam Ltd. | - | - | - | - | - | - | - | - | - | - |
| KNOC Kamchatka Petroleum Ltd. | - | - | - | - | - | - | - | - | - | - |
| KC karpovsky B.V. | - | - | - | - | - | - | - | - | - | - |
| KNOC Bazian Ltd. | - | - | - | - | - | - | - | - | - | - |
| KNOC Nigerian West Oil Company Ltd. | - | - | - | - | - | - | - | - | - | - |
| KNOC Nigerian East Oil Company Ltd. | - | - | - | - | - | - | - | - | - | - |
| KNOC Aral Ltd. | - | - | - | - | - | - | - | - | - | - |
| Korea kamchatka Co., Ltd. | - | - | - | - | - | - | - | - | - | - |
| KC kazakh B.V. | - | - | - | - | - | - | - | - | - | - |
| Offshore International Group, Inc. | 182,782 | - | - | - | (55,582) | - | - | (1,261) | 7,046 | 132,985 |
| KNOC Ferghana Ltd. | - | - | - | - | - | - | - | - | - | - |
| KNOC Ferghana2 Ltd. | - | - | - | - | - | - | - | - | - | - |
| KADOC Ltd. | - | - | - | - | - | - | - | - | - | - |
| Korea Oil Terminal Co., Ltd. | - | - | - | - | (32) | - | 32 | - | - | - |
| Deep Basin Partnership | - | 32,706 | - | - | (32,706) | - | - | - | - | - |
| HKMS Partnership | 48,047 | - | (5,635) | (13,533) | 8,073 | - | - | - | (1,445) | 35,507 |
| | 230,829 | 32,706 | (5,635) | (13,533) | (80,247) | - | 32 | (1,261) | 5,601 | 168,492 |
| | ₩ 298,329 | 32,706 | (5,635) | (16,572) | (96,773) | (46) | 2,812 | (1,261) | 62,397 | 275,957 |

(*1) Equity method is not applied to investments in associates and joint ventures for which the investment balance has been reduced to zero. As a result, losses of ₩11,098 million under equity method have been accounted to loans for the year ended December 31, 2018. Loss under equity method amounting to ₩3,415 million related to Group's additional obligation on Deep Basin Partnership has been accounted for as provision.

(*2) Details of the impairment loss as of December 31, 2018 are as follows:

*In millions of Korean won*

| CGU | Recoverable amounts | Valuation of recoverable Method | Discount rate | Primary Assumption | Impairment loss | Reason for impairment |
|---|---|---|---|---|---|---|
| Offshore International Group, Inc. | ₩ 132,985 | Value in use | 8.59% | Estimated production quantities based on reserve reports and long-term oil price forecast by major forecasting Institutions | ₩ (1,261) | Increase in forecasted cash outflow due to litigation |

(*3) Include the effect of changes in exchange rates.

## 19. Investments in Associates and Joint Ventures, Continued

(b) Changes in carrying value of investments in associates and joint ventures for the years ended December 31, 2018 and 2017 are as follows, continued:

(ii) For the year ended December 31, 2017

*In millions of Korean won*

| Entity | Beginning balance | Acquisition | Dividends received | Share of profit or loss in equity method (*1) | Changes in equity adjustments in equity method | Impairment losses (*2) | Other changes (*3) | Ending balance |
|---|---|---|---|---|---|---|---|---|
| <Investment in associates> | | | | | | | | |
| Kernhem B.V. | ₩ - | - | - | 477 | (477) | - | - | - |
| Oilhub Korea Yeosu Co. Ltd. | 44,239 | - | - | 6,054 | 5,836 | - | (5,699) | 50,430 |
| ADA Oil LLP | 1,169 | - | - | (1,083) | (11) | - | (75) | - |
| Parallel Petroleum LLC | 23,557 | - | - | (4,027) | - | - | (2,460) | 17,070 |
| | 68,965 | - | - | 1,421 | 5,348 | - | (8,234) | 67,500 |
| <Investment in joint ventures> | | | | | | | | |
| KNOC Inam Ltd. | - | - | - | - | - | - | - | - |
| KNOC Kamchatka Petroleum Ltd. | - | - | - | - | - | - | - | - |
| KC karpovsky B.V. | - | - | - | - | - | - | - | - |
| KNOC Bazian Ltd. | - | - | - | - | - | - | - | - |
| KNOC Nigerian West Oil Company Ltd. | - | - | - | - | - | - | - | - |
| KNOC Nigerian East Oil Company Ltd. | - | - | - | - | - | - | - | - |
| KNOC Aral Ltd. | - | - | - | - | - | - | - | - |
| Korea kamchatka Co., Ltd. | - | - | - | - | - | - | - | - |
| KC kazakh B.V. | - | - | - | - | - | - | - | - |
| Offshore International Group, Inc. | 247,660 | - | - | (33,297) | - | (5,526) | (26,055) | 182,782 |
| KNOC Ferghana Ltd. | - | - | - | - | - | - | - | - |
| KNOC Ferghana2 Ltd. | - | - | - | - | - | - | - | - |
| KADOC Ltd. | - | - | - | - | - | - | - | - |
| Korea Oil Terminal Co., Ltd. | - | 473 | - | (404) | (69) | - | - | - |
| Deep Basin Partnership | 40,217 | 18,738 | (9,611) | (47,205) | - | - | (2,139) | - |
| HKMS Partnership | 56,141 | 722 | (14,934) | 8,634 | - | - | (2,516) | 48,047 |
| | 344,018 | 19,933 | (24,545) | (72,272) | (69) | (5,526) | (30,710) | 230,829 |
| | ₩ 412,983 | 19,933 | (24,545) | (70,851) | 5,279 | (5,526) | (38,944) | 298,329 |

(*1) Equity method is not applied to investments in associates and joint ventures for which the investment balance has been reduced to zero. As a result, losses of ₩18,706 million under equity method have been accounted to loans for the year ended December 31, 2017. Loss under equity method amounting to ₩35,449 million related to Group's additional obligation on Deep Basin Partnership has been accounted for as provision.

(*2) Details of the impairment loss as of December 31, 2017 are as follows:

*In millions of Korean won*

| CGU | Recoverable amounts | Valuation of recoverable Method | Discount rate | Primary Assumption | Impairment loss | Reason for impairment |
|---|---|---|---|---|---|---|
| Offshore International Group, Inc. | ₩ 182,782 | Value in use | 8.28% | Estimated production quantities based on reserve reports and long-term oil price forecasts by major forecasting Institutions | ₩ (5,526) | Decrease in international oil prices, changes in reserves and others |

(*3) Include the effect of changes in exchange rates.

## 19. Investments in Associates and Joint Ventures, Continued

(c) The summaries of financial information of major associates and joint ventures for the years ended December 31, 2018 and 2017 are as follows:

(i) For the year ended December 31, 2018

| *In millions of Korean won* | | **Total assets** | **Total liabilities** | **Revenue** | **Net income (loss)** |
|---|---|---|---|---|---|
| <Investment in associates> | | | | | |
| Kernhem B.V. | ₩ | 179,936 | 258,458 | 47,662 | (35,759) |
| Oilhub Korea Yeosu Co., Ltd. | | 497,822 | 311,981 | 70,609 | 19,374 |
| ADA Oil LLP | | 76,573 | 164,699 | 47,662 | (44,123) |
| Parallel Petroleum LLC | | 309,553 | 312,320 | 48,851 | (209,521) |
| KNOC EF Star LLC | | 484,597 | 1 | 14,332 | 36,379 |
| <Investment in joint ventures> | | | | | |
| KNOC Nigerian West Oil Company Ltd. | | 71,249 | 137,663 | - | 12,398 |
| KNOC Nigerian East Oil Company Ltd. | | 79,650 | 152,017 | - | 18,985 |
| Offshore International Group, Inc. | | 755,223 | 413,548 | 207,169 | (102,847) |
| KADOC Ltd. | | 534,874 | 602,400 | - | (14,797) |
| Korea Oil Terminal Co., Ltd. | | 3,489 | 4,529 | - | (226) |
| Deep Basin Partnership | | 99,001 | 136,399 | 33,859 | (36,121) |
| HKMS Partnership | | 179,013 | 175,546 | 22,578 | 2,699 |

(ii) For the year ended December 31, 2017

| *In millions of Korean won* | | **Total assets** | **Total liabilities** | **Revenue** | **Net income (loss)** |
|---|---|---|---|---|---|
| <Investment in associates> | | | | | |
| Kernhem B.V. | ₩ | 180,599 | 230,387 | 31,885 | (5,435) |
| Oilhub Korea Yeosu Co., Ltd. | | 511,353 | 337,455 | 74,838 | 20,877 |
| ADA Oil LLP | | 78,933 | 132,246 | 31,885 | (6,911) |
| Parallel Petroleum LLC | | 367,166 | 258,795 | 7,118 | (19,528) |
| <Investment in joint ventures> | | | | | |
| KNOC Nigerian West Oil Company Ltd. | | 147,185 | 227,588 | - | (9,481) |
| KNOC Nigerian East Oil Company Ltd. | | 241,808 | 329,639 | - | (10,614) |
| Offshore International Group, Inc. | | 771,078 | 335,429 | 144,109 | (66,594) |
| KADOC Ltd. | | 355,192 | 405,489 | - | (12,359) |
| Korea Oil Terminal Co., Ltd. | | 3,693 | 4,507 | - | (721) |
| Deep Basin Partnership | | 99,629 | 135,074 | 44,474 | (82,654) |
| HKMS Partnership | | 94,140 | 93,246 | 24,147 | 811 |

## 20. Property, Plant and Equipment

(a) Details of property, plant and equipment as of December 31, 2018 and 2017 are as follows:

(i) As of December 31, 2018

| *In millions of Korean won* | | **Acquisition cost** | **Contributions for construction** | **Government grants** | **Accumulated depreciation** | **Accumulated impairment losses** | **Book value** |
|---|---|---:|---:|---:|---:|---:|---:|
| Land | ₩ | 464,744 | - | - | - | - | 464,744 |
| Buildings | | 74,296 | - | - | (27,313) | - | 46,983 |
| Structures | | 1,909,645 | (114) | - | (710,169) | - | 1,199,362 |
| Machinery | | 731,508 | (3,310) | - | (414,528) | - | 313,670 |
| Vehicles | | 9,987 | - | - | (7,815) | - | 2,172 |
| Tools & fixtures | | 59,167 | - | - | (51,608) | (294) | 7,265 |
| Finance lease asset | | 230,027 | - | - | (12,187) | - | 217,840 |
| Construction-in-progress | | 148,151 | - | - | - | - | 148,151 |
| Others | | 54,594 | - | - | (42,364) | (2,001) | 10,229 |
| Oil & gas properties (*) | | 20,568,349 | - | (3,312) | (11,349,675) | (2,951,471) | 6,263,891 |
| | ₩ | 24,250,468 | (3,424) | (3,312) | (12,615,659) | (2,953,766) | 8,674,307 |

(ii) As of December 31, 2017

| *In millions of Korean won* | | **Acquisition cost** | **Contributions for construction** | **Government grants** | **Accumulated depreciation** | **Accumulated impairment losses** | **Book value** |
|---|---|---:|---:|---:|---:|---:|---:|
| Land | ₩ | 445,333 | - | - | - | - | 445,333 |
| Buildings | | 70,223 | - | - | (24,419) | - | 45,804 |
| Structures | | 1,786,554 | (113) | - | (634,577) | - | 1,151,864 |
| Machinery | | 563,786 | (3,471) | - | (371,523) | - | 188,792 |
| Vehicles | | 9,289 | - | - | (7,106) | - | 2,183 |
| Tools & fixtures | | 56,501 | - | - | (46,530) | (306) | 9,665 |
| Finance lease asset | | 220,420 | - | - | (5,839) | - | 214,581 |
| Construction-in-progress | | 254,104 | - | - | - | - | 254,104 |
| Others | | 53,412 | - | - | (39,568) | (2,086) | 11,758 |
| Oil & gas properties | | 19,718,592 | - | (3,969) | (10,076,816) | (2,938,220) | 6,699,587 |
| | ₩ | 23,178,214 | (3,584) | (3,969) | (11,206,378) | (2,940,612) | 9,023,671 |

## 20. Property, Plant and Equipment, Continued

(b) Changes in property, plant and equipment for the years ended December 31, 2018 and 2017 are as follows:

(i) For the year ended December 31, 2018

| *In millions of Korean won* | Beginning balance | Acquisitions | Disposals | Depreciation | Impairment losses | Reversal of impairment losses | Reclassifications | Others (*) | Ending balance |
|---|---|---|---|---|---|---|---|---|---|
| Land | ₩ 445,333 | - | - | - | - | - | - | 19,411 | 464,744 |
| Buildings | 45,804 | 251 | - | (1,869) | - | - | 851 | 1,946 | 46,983 |
| Structures | 1,151,977 | 301 | - | (47,169) | - | - | 37,495 | 56,872 | 1,199,476 |
| (Contributions to construction) | (113) | - | - | 4 | - | - | - | (5) | (114) |
| Machinery | 192,263 | 2,252 | (41) | (26,782) | - | - | 139,527 | 9,761 | 316,980 |
| (Contributions to construction) | (3,471) | - | - | 308 | - | - | - | (147) | (3,310) |
| Vehicles | 2,183 | 837 | (4) | (850) | - | - | 18 | (12) | 2,172 |
| Tools & fixtures | 9,665 | 2,065 | (3) | (4,777) | - | - | 88 | 227 | 7,265 |
| Finance lease asset | 214,581 | - | - | (5,996) | - | - | - | 9,255 | 217,840 |
| Construction-in-progress | 254,104 | 67,593 | - | - | - | - | (182,483) | 8,937 | 148,151 |
| Others | 11,758 | 1,365 | (15) | (2,891) | - | - | 215 | (203) | 10,229 |
| Oil & gas properties | 6,703,556 | 533,637 | (6,444) | (979,525) | (272,829) | 23,146 | 191,153 | 74,509 | 6,267,203 |
| (Government grants) | (3,969) | - | - | 817 | - | - | - | (160) | (3,312) |
|  | ₩ 9,023,671 | 608,301 | (6,507) | (1,068,730) | (272,829) | 23,146 | 186,864 | 180,391 | 8,674,307 |

(*) Include the effect of changes in exchange rates and others.

## 20. Property, Plant and Equipment, Continued

(b) Changes in property, plant and equipment for the years ended December 31, 2018 and 2017 are as follows, continued:

(ii) For the year ended December 31, 2017

| *In millions of Korean won* | Beginning balance | Acquisitions | Disposals (*2) | Depreciation | Impairment losses | Reversal of impairment losses | Reclassifi-cations | Others (*3) | Ending balance |
|---|---|---|---|---|---|---|---|---|---|
| Land | ₩ 550,989 | - | (45,542) | - | - | - | - | (60,114) | 445,333 |
| Buildings | 170,561 | 974 | (108,429) | (1,907) | - | - | (1,929) | (13,466) | 45,804 |
| Structures | 1,300,380 | 67,644 | (3,999) | (46,454) | - | - | (1,630) | (163,964) | 1,151,977 |
| (Contributions to construction) | (131) | - | - | 4 | - | - | - | 14 | (113) |
| Machinery | 248,662 | 13,744 | (19,839) | (27,467) | - | - | 4,601 | (27,438) | 192,263 |
| (Contributions to construction) | (4,254) | - | - | 316 | - | - | - | 467 | (3,471) |
| (Government grants) | (2) | - | 2 | - | - | - | - | - | - |
| Vessels(*1) | 53,183 | - | - | (3,641) | (42,460) | - | (3,664) | (3,418) | - |
| Vehicles | 3,054 | 268 | (36) | (866) | - | - | - | (237) | 2,183 |
| Tools & fixtures(*1) | 17,197 | 708 | (59) | (6,324) | (480) | - | 90 | (1,467) | 9,665 |
| Finance lease asset | - | 232,648 | - | (6,163) | - | - | - | (11,904) | 214,581 |
| Construction-in-progress | 274,357 | 33,977 | (45) | - | - | - | (29,008) | (25,177) | 254,104 |
| Others | 8,658 | 857 | (5) | (3,629) | - | - | 38 | 5,839 | 11,758 |
| Oil & gas properties | 7,558,076 | 481,542 | (432) | (711,533) | (320,266) | 163,645 | 29,615 | (497,091) | 6,703,556 |
| (Government grants) | (5,802) | - | - | 1,240 | - | - | - | 593 | (3,969) |
|  | ₩ 10,174,928 | 832,362 | (178,384) | (806,424) | (363,206) | 163,645 | (1,887) | (797,363) | 9,023,671 |

(*1) Impairment loss on vessels and tools & fixtures due to discontinued drillship chartering segment has been recognized during the year ended December 31, 2017. Details are as follows:

*In millions of Korean won*

|  | Characteristics of asset | Valuation method of recoverable amount | Recoverable amount | Discount rate after tax | Primary assumptions | Impairment losses | Cause of impairment |
|---|---|---|---|---|---|---|---|
| Drillship chartering | Vessels and tools & fixtures | Fair value less cost to sell | ₩ 3,472 | - | Appraisal value when scrapped | ₩ (42,940) | Discontinued operation |

(*2) For the years ended December 31, 2017, the Group sold the headquarters' land, building, and fixtures and leased back. The contracted sale price is ₩220,000 million, and the Group holds a right to purchase corresponding assets within 5 years from the commencement date. The Group has accounted the sale-and-leaseback transaction above as finance lease, and deferred gain on disposal of property, plant and equipment amounting to ₩34,364 million and recognized over the lease term. (see Note 23)

(*3) Include the effect of changes in exchange rates and others.

## 20. Property, Plant and Equipment, Continued

(c) Details of impairments recognized by segments for the years ended December 31, 2018 and 2017 are as follows :

(i) For the year ended December 31, 2018

| *In millions of Korean won* | | **Oil and Gas(*1)** |
|---|---|---|
| **General information** | | |
| Type of assets | | Oil and gas properties |
| Recognition of impairment losses | | 28 CGUs and individual assets |
| Valuation Method | | Value in use |
| **Assumptions** | | |
| Discount rate after tax(*2) | | 8.00~14.54% |
| Oil prices(*3) | | International indices |
| Production quantities | | Estimated production quantities based on reserve reports |
| Recoverable amounts | ₩ | 638,755 |
| Impairment losses | | 272,829 |
| Reason for impairment | | Decrease in forecasted oil prices and probable reserves, and returning mining rights |

(*1) The CGUs of the oil and gas segment are fields or areas.

(*2) Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

(*2) The oil prices are based on the long-term forecasts from globally recognized research institutions.

(ii) For the year ended December 31, 2017

| *In millions of Korean won* | | **Oil and Gas(*1)** |
|---|---|---|
| **General information** | | |
| Type of assets | | Oil and gas properties |
| Recognition of impairment losses | | 26 CGUs and individual assets |
| Valuation method | | Value in use, fair value less cost to sell(*2) |
| **Assumptions** | | |
| Discount rate after tax(*3) | | 8.00~20.30% |
| Oil prices(*4) | | International indices |
| Production quantities | | Estimated production quantities based on reserve reports |
| Recoverable amounts | ₩ | 658,155 |
| Impairment losses | | 320,266 |
| Reason for impairment | | Decrease in forecasted oil prices and probable reserves |

(*1) The CGUs of the oil and gas segment are fields or areas.

(*2) Each individual asset in Canada has been measured at fair value less cost to sell based on disposal contracts.

(*3) Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

(*4) The oil prices are based on the long-term forecasts from globally recognized research institutions.

## 20. Property, Plant and Equipment, Continued

(d) Details of reversal of impairment losses recognized by segments for the year ended December 31, 2018 and 2017 are as follows :

(i) For the year ended December 31, 2018

| *In millions of Korean won* | | Oil and Gas(*1) |
|---|---|---|
| **General information** | | |
| Type of assets | | Oil and gas properties |
| Recognition of reversal of impairment losses | | 6 CGUs and individual assets |
| Valuation Method | | Value in use |
| **Assumptions** | | |
| Discount rate after tax(*2) | | 8.00~14.54% |
| Oil prices(*3) | | International indices |
| Production quantities | | Estimated production quantities based on reserve reports |
| Reversal of impairment losses | ₩ | 23,146 |
| Reason for reversal of impairment losses | | Increase in probable reserves and others |

(*1) The CGUs of the oil and gas segment are fields or areas.

(*2) Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

(*3) The oil prices are based on the long-term forecasts from globally recognized research institutions.

(ii) For the year ended December 31, 2017

| *In millions of Korean won* | | Oil and Gas(*1) |
|---|---|---|
| **General information** | | |
| Type of assets | | Oil and gas properties |
| Recognition of reversal of impairment losses | | 10 CGUs and individual assets |
| Valuation Method | | Value in use, fair value less cost to sell (*2) |
| **Assumptions** | | |
| Discount rate after tax(*3) | | 8.50~20.30% |
| Oil prices(*4) | | International indices |
| Production quantities | | Estimated production quantities based on reserve reports |
| Reversal of impairment losses | ₩ | 163,645 |
| Reason for reversal of impairment losses | | Increase in probable reserves and others |

(*1) The CGUs of the oil and gas segment are fields or areas.

(*2) Each individual asset in Canada has been measured at fair value less cost to sell based on disposal contracts.

(*3) Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

(*4) The oil prices are based on the long-term forecasts from globally recognized research institutions.

## 21. Goodwill

(a) Details of goodwill as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | December 31, 2017 |
|---|---|---|---|
| Acquisition cost | ₩ | 1,107,579 | 1,131,748 |
| Accumulated impairment losses | | (963,786) | (983,894) |
| | ₩ | 143,793 | 147,854 |

(b) Changes in goodwill for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Beginning balance | ₩ | 147,854 | 244,329 |
| Impairment losses (*1) | | - | (87,470) |
| Other changes (*2) | | (4,061) | (9,005) |
| | ₩ | 143,793 | 147,854 |

(*1) The Group recognized impairment on goodwill of Harvest Operations Corp. amounting ₩87,470 million due to decrease in the price of gas and oil and others.

(*2) Include the effect of exchange rate changes.

(c) Changes in accumulated impairment losses for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Beginning balance | ₩ | (983,894) | (927,875) |
| Impairment losses | | - | (87,470) |
| Other changes (*) | | 20,108 | 31,451 |
| | ₩ | (963,786) | (983,894) |

(*) Include the effect of exchange rate changes.

## 21. Goodwill, Continued

(d) For the purpose of impairment testing, carrying amounts of goodwill allocated to Group's CGUs and groups of CGUs as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | **December 31, 2018** | **December 31, 2017** |
|---|---|---|---|
| Oil and gas properties segment | | | |
| Oil and gas properties of Dana Petroleum Limited by country (*1) | ₩ | 120,820 | 122,454 |
| Altius Holdings Inc. (a subsidiary of KNOC Kaz B.V.) (*2) | | 22,973 | 25,400 |
| | ₩ | 143,793 | 147,854 |

(*1) Dana Petroleum Limited's recoverable amount is estimated based on the value in use. The value in use is estimated from the cash inflows, which are discounted at 8% and 12% derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is no impairment loss on goodwill recognized based on the value in use estimated for each CGU for the year ended December 31, 2018.

(*2) Altius Holding Inc.'s recoverable amount is estimated based on the value in use. The value in use is estimated from the cash inflows, which are discounted at 8.39%, derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is no impairment loss on goodwill recognized based on the value in use estimated for each CGU for the year ended December 31, 2018.

## 22. Intangible Assets Other Than Goodwill

(a) Details of intangible assets other than goodwill as of December 31, 2018 and 2017 are as follows:

(i) As of December 31, 2018

| *In millions of Korean won* | | Acquisition cost | Accumulated amortization | Accumulated impairment losses | Book value |
|---|---|---|---|---|---|
| Exploration and evaluation assets | ₩ | 2,983,794 | - | (2,635,251) | 348,543 |
| Software | | 30,176 | (27,057) | - | 3,119 |
| Mining rights | | 4,099,958 | (1,562,112) | (835,045) | 1,702,801 |
| Development cost | | 40,972 | (34,454) | - | 6,518 |
| Land use right | | 234 | (80) | - | 154 |
| Others | | 89,564 | (1,072) | (86,260) | 2,232 |
| | ₩ | 7,244,698 | (1,624,775) | (3,556,556) | 2,063,367 |

(ii) As of December 31, 2017

| *In millions of Korean won* | | Acquisition cost | Accumulated amortization | Accumulated impairment losses | Book value |
|---|---|---|---|---|---|
| Exploration and evaluation assets | ₩ | 3,085,261 | - | (2,572,182) | 513,079 |
| Software | | 28,315 | (23,782) | - | 4,533 |
| Mining rights | | 3,941,282 | (1,438,868) | (95,095) | 2,407,319 |
| Development cost | | 38,070 | (31,018) | - | 7,052 |
| Land use right | | 224 | (70) | - | 154 |
| Others | | 85,870 | (1,009) | (82,664) | 2,197 |
| | ₩ | 7,179,022 | (1,494,747) | (2,749,941) | 2,934,334 |

## 22. Intangible Assets Other Than Goodwill, Continued

(b) Changes in intangible assets other than goodwill for the years ended December 31, 2018 and 2017 are as follows:

(i) For the year ended December 31, 2018

*In millions of Korean won*

| | Beginning balance | Acquisitions | Disposals | Amortization | Impairment losses(*1) | Reclassifications | Others (*2) | Ending balance |
|---|---|---|---|---|---|---|---|---|
| Exploration and evaluation assets | ₩ 513,079 | 25,350 | - | - | (72,109) | - | (117,777) | 348,543 |
| Software | 4,533 | 553 | - | (2,219) | - | 136 | 116 | 3,119 |
| Mining rights | 2,407,319 | 130 | (120) | (61,917) | (537,238) | (187,040) | 81,667 | 1,702,801 |
| Development cost | 7,052 | 1,183 | - | (2,050) | - | 40 | 293 | 6,518 |
| Land use right | 154 | - | - | (6) | - | - | 6 | 154 |
| Others | 2,197 | 43 | (10) | (76) | - | - | 78 | 2,232 |
| | ₩ 2,934,334 | 27,259 | (130) | (66,268) | (609,347) | (186,864) | (35,617) | 2,063,367 |

(*1) The Group recognized impairment loss amounting to ₩72,109 million due to relinquishment of explorations in continental shelf and decrease in estimated reserve amount of exploration in United Kingdom. In addition, the Group recognized impairment loss amounting to ₩537,238 million due to returning exploration right of Kurdish oil field in Iraq and others.

*In millions of Korean won*

| Segments | Characteristics of asset | Valuation method of recoverable amount | Recoverable amount | Discount rate after tax | Primary assumptions | Impairment losses | Cause of impairment |
|---|---|---|---|---|---|---|---|
| Oil and Gas | Mining rights | Value in use | ₩ 735,943 | 12.59% | Negotiations with the Kurdish government of Iraq | ₩ 534,709 | Change in future cash flow due to returning mining rights |

(*2) Include the effect of changes in exchange rates and others.

(ii) For the year ended December 31, 2017

*In millions of Korean won*

| | Beginning balance | Acquisitions | Disposals | Amortization | Impairment losses(*1) | Reclassifications | Others (*2) | Ending balance |
|---|---|---|---|---|---|---|---|---|
| Exploration and evaluation assets | ₩ 746,284 | 27,171 | (3,356) | - | (221,323) | (1,940) | (33,757) | 513,079 |
| Software | 7,074 | 91 | (4) | (2,657) | - | 736 | (707) | 4,533 |
| Mining rights | 2,822,938 | - | (8) | (93,346) | (5,728) | - | (316,537) | 2,407,319 |
| Development cost | 8,349 | 1,573 | - | (2,372) | - | 429 | (927) | 7,052 |
| Land use right | 182 | - | - | (6) | - | - | (22) | 154 |
| Others | 2,573 | 13 | - | (103) | - | - | (286) | 2,197 |
| | ₩ 3,587,400 | 28,848 | (3,368) | (98,484) | (227,051) | (775) | (352,236) | 2,934,334 |

(*1) Include the write-off of ₩227,051 million, which have been recognized due to relinquishment of explorations in continental shelf and decrease in estimated reserve amount of exploration in United Kingdom. Also, gains on debt exemption of ₩17,119 million from loans and accrued interest based on Accounting for Energy and Resources have been recognized.

(*2) Include the effect of changes in exchange rates and others.

## 23. Trade and Other Payables

(a) Details of trade and other payables as of December 31, 2018 and 2017 are as follows:

| | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|
| *In millions of Korean won* | | Current | Non-current | Current | Non-current |
| Trade account payables | ₩ | 128,395 | - | 140,950 | - |
| Other account payables | | 353,032 | 37,481 | 502,444 | 46,474 |
| Accrued expenses | | 105,931 | 168,140 | 98,358 | 196,583 |
| Deposit received | | - | 4,675 | - | 4,480 |
| Other deposits received | | - | 13 | - | 14 |
| Finance lease liability | | 8,327 | 213,940 | 8,327 | 212,721 |
| Other payables | | 49,005 | 10,071 | 36,320 | 43,527 |
| | ₩ | 644,690 | 434,320 | 786,399 | 503,799 |

(b) Details of finance lease liability are as follows:

(i) Lease Contract

As of January 31, 2017, the Group has entered into a contract with KOCREF CR-REIT 38 to sell the headquarters building in Ulsan and lease back for use. The Group holds bargain purchase option which is exercisable after 5 years, and lease payments are renewed every 5 years. In compliance to the obligation to domicile in Ulsan under the legislation, the Group has accounted the contract for right to use the headquarters building as finance lease. Meanwhile, lessor holds the legal title of finance lease asset amounting to ₩217,840 million (see Note 20).

(ii) Details of finance lease liability as of December 31, 2018 and 2017 are as follows:

| | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|
| *In millions of Korean won* | | Minimum lease payments | Present value of minimum lease payments | Minimum lease payments | Present value of minimum lease payments |
| Within a year | ₩ | 8,527 | 8,327 | 8,527 | 8,327 |
| 1~5 years | | 36,151 | 31,591 | 35,085 | 30,682 |
| More than 5 years | | 472,984 | 182,349 | 482,577 | 182,039 |
| | ₩ | 517,662 | 222,267 | 526,189 | 221,048 |

(iii) Details of liquidity classification of finance lease liability as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | December 31, 2017 |
|---|---|---|---|
| Current | ₩ | 8,327 | 8,327 |
| Non-current | | 213,940 | 212,721 |
| | ₩ | 222,267 | 221,048 |

## 24. Financial Liabilities Measured at Fair Value through Profit or Loss

Details of financial liabilities measured at fair value through profit or loss excluding derivative instruments as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|
| | | Current | Non-current | Current | Non-current |
| **Financial liabilities measured at fair value through profit or loss(*)** | ₩ | 7,775 | 50,189 | - | - |
| Non-derivative liabilities | | | | | |
| **Financial liabilities recognized through profit or loss** | | | | | |
| Non-derivative liabilities | | - | - | 13,272 | 59,610 |

(*) Gain on valuation of financial liabilities measured at fair value through profit or loss amounting to ₩46,111 million has been recognized for the year ended December 31, 2018.

## 25. Borrowings and Bond Payables

(a) Details of borrowings and bond payables as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | December 31, 2017 |
|---|---|---|---|
| **Current Liabilities** | | | |
| Short-term borrowings | ₩ | 69,322 | 53,570 |
| Current portion of long-term borrowings | | - | 782,304 |
| Less: current portion of present discounted value | | - | (4) |
| Current portion of bond payables | | 1,370,347 | 2,324,147 |
| Less: current portion of discount on bond payables | | (317) | (1,433) |
| Add: current portion of premium on bond payables | | 53 | - |
| | | 1,439,405 | 3,158,584 |
| **Non-current Liabilities** | | | |
| Long-term borrowings | | 2,322,966 | 1,035,265 |
| Less: present discounted value | | (548) | (243) |
| Bond payables | | 9,829,123 | 9,044,863 |
| Less: discount on bond payables | | (30,040) | (32,899) |
| Add: premium on bond payables | | - | 857 |
| | | 12,121,501 | 10,047,843 |
| | ₩ | 13,560,906 | 13,206,427 |

(b) Details of payment schedule as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|
| | | Borrowings | Bond payables | Borrowings | Bond payables |
| Within a year | ₩ | 69,322 | 1,370,347 | 835,874 | 2,324,147 |
| 1~5 years | | 2,098,785 | 5,481,231 | 819,860 | 4,709,238 |
| More than 5 years | | 224,181 | 4,347,892 | 215,405 | 4,335,625 |
| | ₩ | 2,392,288 | 11,199,470 | 1,871,139 | 11,369,010 |

## 25. Borrowings and Bond payables, Continued

(c) Details of short-term borrowings as of December 31, 2018 and 2017 are as follows:

*In millions of Korean won*

| Type | Financial Institutions | Interest rate (%) | Maturity | | December 31, 2018 | December 31, 2017 |
|---|---|---|---|---|---|---|
| Short- term borrowings in foreign currencies | The Export-Import Bank of Korea | Libor+0.63 | 2019-06-26 | ₩ | 67,086 | - |
| | JP Morgan | Libor+0.70 | 2019-07-29 | | 2,236 | - |
| | The Export-Import Bank of Korea | - | - | | - | 53,570 |
| | | | | ₩ | 69,322 | 53,570 |

(d) Details of long-term borrowings as of December 31, 2018 and 2017 are as follows:

*In millions of Korean won and thousands of foreign currencies*

| | | | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|---|---|
| Type | Financial Institution | Interest rate (%) | Maturity | Amount | Equivalent to Korean won | Amount | Equivalent to Korean won |
| Long- term borrowings in foreign currencies | Development Bank of Singapore | - | - | - | ₩ - | USD 50,000 | ₩ 53,570 |
| | Mizuho Corporate Bank | 3M Libor+0.75 | 2020-04-03 | USD 200,000 | 223,620 | USD 200,000 | 214,280 |
| | The Export-Import Bank of Korea | 3M Libor+0.67 | 2021-11-28 | USD 250,000 | 279,525 | - | - |
| | SAER | Treasury 3Y -1.25 | N/A(*1) | USD 95,027 | 106,249 | USD 95,939 | 102,788 |
| | SAER | Treasury 3Y -2.25 | N/A(*1) | USD 105,475 | 117,932 | USD 105,111 | 112,616 |
| | BNP Paribas and others | - | - | - | - | USD 660,170 | 707,306 |
| | BNP Paribas and others | Libor,Nibor, Euribor +1.75~2.25 | 2023-06-30 | USD 136,108 | 152,182 | - | - |
| | CIBC and others | 3.28 | 2020-02-24 | USD 283,451 | 316,927 | USD 150,983 | 161,764 |
| | The Export Import Bank of Korea | 2.27 | 2020-02-24 | USD 366,644 | 409,945 | USD 397,522 | 425,905 |
| | JP Morgan | - | - | - | - | USD 10,000 | 10,714 |
| | Bank of America | - | - | - | - | USD 10,000 | 10,714 |
| | SMBC | 3.21 | 2023-05-11 | USD 219,383 | 245,292 | - | - |
| | Kernhem International B.V. | 8.13 | 2021-12-04 | USD 16,718 | 18,692 | USD 16,718 | 17,912 |
| | EF Star LLC | 3.18 | 2021-11-25 | USD 404,796 | 452,602 | - | - |
| | | | | | 2,322,966 | | 1,817,569 |
| Less: present value discount | | | | | (548) | | (247) |
| | | | | | 2,322,418 | | 1,817,322 |
| Less: current portion | | | | | - | | (782,304) |
| Less: current portion of present value discount | | | | | - | | 4 |
| | | | | | ₩ 2,322,418 | | ₩ 1,035,022 |

(*1) SAER stands for Special Accounting for Energy and Resources. Loans from SAER included in borrowings have no specific maturity as they were borrowed under the condition that the Group is not obligated to make repayment of the principal and interest until the exploration is proven to be successful.

## 25. Borrowings and Bond payables, Continued

(e) Details of bond payables as of December 31, 2018 and 2017 are as follows:

*In millions of Korean won and thousands of foreign currencies*

| | | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|---|
| **Type** | **Interest rate (%)** | **Maturity** | **Amount** | **Equivalent to Korean won** | **Amount** | **Equivalent to Korean won** |
| Floating interest rate bond payables | - | - | - | ₩ - | USD 200,000 | ₩ 214,280 |
| | - | - | - | - | USD 300,000 | 321,420 |
| | - | - | - | - | AUD 55,000 | 45,933 |
| | - | - | - | - | USD 330,000 | 353,562 |
| | A3B+1.08 | 2019-10-08 | AUD 225,000 | 177,257 | AUD 225,000 | 187,911 |
| | - | - | - | - | USD 50,000 | 53,570 |
| | - | - | - | - | USD 250,000 | 267,850 |
| | A3B+1.28 | 2019-02-05 | AUD 325,000 | 256,038 | AUD 325,000 | 271,427 |
| | 3M Libor+0.60 | 2020-03-27 | USD 500,000 | 559,050 | USD 500,000 | 535,700 |
| | 3M Libor+0.88 | 2023-07-16 | USD 400,000 | 447,240 | - | - |
| | 3M Libor+0.68 | 2021-12-20 | USD 50,000 | 55,905 | - | - |
| Fixed interest rate bond payables | 4.38 | 2021-02-08 | HKD 500,000 | 71,385 | HKD 500,000 | 68,535 |
| | 4.50 | 2021-03-04 | HKD 390,000 | 55,680 | HKD 390,000 | 53,457 |
| | 3.95 | 2022-02-10 | HKD 390,000 | 55,680 | HKD 390,000 | 53,457 |
| | 4.00 | 2022-03-28 | EUR 50,000 | 63,958 | EUR 50,000 | 63,963 |
| | - | - | - | - | HKD 400,000 | 54,828 |
| | 2.85 | 2023-01-24 | HKD 400,000 | 57,108 | HKD 400,000 | 54,828 |
| | - | - | - | - | USD 70,000 | 74,998 |
| | 2.40 | 2023-02-04 | EUR 37,000 | 47,329 | EUR 37,000 | 47,332 |
| | 3.00 | 2025-06-24 | EUR 60,000 | 76,750 | EUR 60,000 | 76,755 |
| | 3.09 | 2023-07-03 | EUR 50,000 | 63,958 | EUR 50,000 | 63,963 |
| | - | - | - | - | CHF 240,000 | 262,733 |
| | 2.75 | 2019-01-23 | USD 500,000 | 559,050 | USD 500,000 | 535,700 |
| | 4.00 | 2024-01-23 | USD 500,000 | 559,050 | USD 500,000 | 535,700 |
| | 3.25 | 2024-07-10 | USD 550,000 | 614,955 | USD 550,000 | 589,270 |
| | 2.75 | 2019-01-23 | USD 250,000 | 279,525 | USD 250,000 | 267,850 |
| | 4.25 | 2019-10-08 | AUD 125,000 | 98,477 | AUD 125,000 | 104,395 |
| | 3.10 | 2027-01-21 | USD 50,000 | 55,904 | USD 50,000 | 53,570 |
| | 3.10 | 2027-01-21 | USD 70,000 | 78,267 | USD 70,000 | 74,998 |
| | 2.39 | 2020-01-28 | USD 50,000 | 55,905 | USD 50,000 | 53,570 |
| | 2.18 | 2020-01-29 | HKD 310,000 | 44,259 | HKD 310,000 | 42,492 |
| | 2.11 | 2020-03-16 | KRW 100,000 | 100,000 | KRW 100,000 | 100,000 |
| | 3.21 | 2030-03-19 | USD 85,000 | 95,039 | USD 85,000 | 91,069 |
| | 2.99 | 2025-03-19 | USD 90,000 | 100,629 | USD 90,000 | 96,426 |
| | 1.99 | 2020-04-23 | KRW 50,000 | 50,000 | KRW 50,000 | 50,000 |
| | 2.82 | 2025-04-29 | USD 65,000 | 72,677 | USD 65,000 | 69,641 |
| | 3.02 | 2030-04-29 | USD 60,000 | 67,086 | USD 60,000 | 64,284 |
| | 2.03 | 2020-08-26 | KRW 150,000 | 150,000 | KRW 150,000 | 150,000 |
| | 3.25 | 2025-10-01 | USD 600,000 | 670,860 | USD 600,000 | 642,840 |
| | 3.22 | 2030-11-10 | USD 100,000 | 111,810 | USD 100,000 | 107,140 |
| | 2.13 | 2021-04-14 | USD 500,000 | 559,050 | USD 500,000 | 535,700 |
| | 2.63 | 2024-04-14 | USD 500,000 | 559,050 | USD 500,000 | 535,700 |
| | 2.00 | 2021-10-24 | USD 350,000 | 391,335 | USD 350,000 | 374,990 |
| | 2.50 | 2026-10-24 | USD 650,000 | 726,765 | USD 650,000 | 696,410 |
| | 2.88 | 2022-03-27 | USD 500,000 | 559,050 | USD 500,000 | 535,700 |
| | 3.38 | 2027-03-27 | USD 500,000 | 559,050 | USD 500,000 | 535,700 |
| | 1.86 | 2021-01-30 | SGD 400,000 | 327,312 | - | - |

## 25. Borrowings and Bond payables, Continued

(e) Details of bond payables as of December 31, 2018 and 2017 are as follows, continued:

*In millions of Korean won and thousands of foreign currencies*

| | | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|---|
| Type | Interest rate (%) | Maturity | Amount | Equivalent to Korean won | Amount | Equivalent to Korean won |
| Fixed interest rate bond payables | 0.37 | 2023-06-01 | CHF 500,000 | 568,110 | - | - |
| | - | - | - | - | USD 629,991 | 674,972 |
| | 2.33 | 2021-04-14 | USD 195,757 | 218,875 | USD 195,686 | 209,659 |
| | 3.00 | 2022-09-21 | USD 481,550 | 538,421 | USD 480,430 | 514,732 |
| | 4.20 | 2023-06-01 | USD 394,975 | 441,621 | - | - |
| | | | | 11,199,470 | | 11,369,010 |
| Less: discount on bond payables | | | | (30,357) | | (34,332) |
| Add: premium on bond payables | | | | 53 | | 857 |
| | | | | 11,169,166 | | 11,335,535 |
| Less: current portion | | | | (1,370,347) | | (2,324,147) |
| Add: current portion of discount of bond payables | | | | 317 | | 1,433 |
| Less: current portion of premium of bond payables | | | | (53) | | - |
| | | | | ₩ 9,799,083 | | ₩ 9,012,821 |

## 26. Employee Benefits

The Group sponsors defined contribution plans and defined benefit plans which are subject to the employees' option.

(a) Defined contribution pension plan
The Group operates a defined contribution plan ("DC plan") which is subject to the employees' option. Contributions to the DC plan are separately managed by the plan's administrator. When employees terminate their employment before the benefits have vested, the Group's obligation to make contribution to the plan decreases on a pro rata basis.

Details of expenses relating to defined contribution plans for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Cost of sales | ₩ | 542 | 1,057 |
| Selling and administrative expenses | | 767 | 1,613 |
| Loss from discontinued operations | | - | 64 |
| | ₩ | 1,309 | 2,734 |

Total expenses of ₩1,309 million and ₩2,734 million for the years ended December 31, 2018 and 2017, respectively are contributions paid by the Group based on the payment rate defined in employee benefits. No contributions remain unpaid as of December 31, 2018.

## 26. Employee Benefits, Continued

(b) Defined benefit pension plan

The latest actuarial calculation on both plan assets and defined benefit obligation was performed as of December 31, 2018. The Group uses the projected unit credit method to determine the present value of its defined benefit obligations and the related current service costs.

(i) The components of defined benefits liabilities as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | **December 31, 2018** | **December 31, 2017** |
|---|---|---|---|
| Present value of defined benefit obligation from funded plans | ₩ | 92,283 | 85,105 |
| Fair value of plan assets | | (83,533) | (76,811) |
| | ₩ | 8,750 | 8,294 |

(ii) Changes in the present value of defined benefit obligations for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | **2018** | **2017** |
|---|---|---|---|
| Beginning balance | ₩ | 85,105 | 82,997 |
| Current service cost | | 8,487 | 9,041 |
| Interest cost | | 3,641 | 3,335 |
| Remeasurement components | | 381 | (5,509) |
| Actual payments | | (5,331) | (4,759) |
| | ₩ | 92,283 | 85,105 |

(iii) Changes in the fair value of plan assets for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | **2018** | **2017** |
|---|---|---|---|
| Beginning balance | ₩ | 76,811 | 68,267 |
| Expected return on plan assets(*) | | 3,311 | 2,765 |
| Remeasurement components | | (1,835) | (1,364) |
| Benefit paid by the plan | | (5,353) | (4,759) |
| Contributions paid into the plan | | 10,599 | 11,902 |
| | ₩ | 83,533 | 76,811 |

(*) Actual returns on plan assets for the years ended December 31, 2018 and 2017 are ₩1,715 million and ₩1,401 million, respectively.

## 26. Employee Benefits, Continued

(b) Defined benefit pension plan, continued

(iv) Details of the fair value of plan assets as of December 31, 2018 and 2017 are as follows:

| | **Expected rate of return(*2)** | | | **Fair value of plan assets** | |
|---|---|---|---|---|---|
| *In millions of Korean won* | **December 31, 2018** | **December 31, 2017** | | **December 31, 2018** | **December 31, 2017** |
| Others(*1) | 4.31% | 4.05% | ₩ | 83,533 | 76,811 |

(*1) Others are comprised of 87.69% of deposit and 12.31% of local and overseas securities as of December 31, 2018.

(*2) The expected rate of return is calculated based on the weighted average of expected rate of returns for each type of assets. The management evaluates the expected rate of returns based on the historical rate of return trends and the analysis of the predicted market during the period when the defined benefits liabilities exist.

(v) Principal actuarial assumptions as of December 31, 2018 and 2017 are as follows:

| | **December 31, 2018** | **December 31, 2017** |
|---|---|---|
| Discount rate | 3.80% | 4.31% |
| Expected rate of return on plan assets | 4.31% | 4.05% |
| Future salary growth | 4.47% | 4.99% |

(vi) Details of expenses relating to defined benefit plans for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | **2018** | **2017** |
|---|---|---|---|
| Current service cost | ₩ | 8,487 | 9,041 |
| Interest cost | | 3,641 | 3,335 |
| Expected return on plan assets | | (3,311) | (2,765) |
| Transfer to other account | | (206) | (294) |
| | ₩ | 8,611 | 9,317 |

Expenses described above are recognized as the following items in the financial statements.

| *In millions of Korean won* | | **2018** | **2017** |
|---|---|---|---|
| Cost of sales | ₩ | 2,996 | 2,884 |
| Selling and administrative expenses | | 5,615 | 6,151 |
| Others | | 206 | 294 |
| Loss on discontinued operations | | - | 282 |
| | ₩ | 8,817 | 9,611 |

## 26. Employee Benefits, Continued

(b) Defined benefit pension plan, continued

(vii) Remeasurement components recognized in other comprehensive income for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Defined benefit obligations | ₩ | (381) | 5,509 |
| Return on plan assets | | (1,835) | (1,364) |
| Income tax effect | | 536 | (1,003) |
| | ₩ | (1,680) | 3,142 |

## 27. Provisions

(a) Details of provisions as of December 31, 2018 and 2017 are as follows:

| | | December 31, 2018 | | | December 31, 2017 | | |
|---|---|---|---|---|---|---|---|
| *In millions of Korean won* | | Current | Non-current | Total | Current | Non-current | Total |
| Decommissioning cost(*1)(*3) | ₩ | 16,211 | 1,956,857 | 1,973,068 | 14,669 | 1,969,374 | 1,984,043 |
| Social Overhead Capital(*2) | | 12,466 | - | 12,466 | 77,111 | - | 77,111 |
| Allowance for salaries | | 49 | - | 49 | 667 | - | 667 |
| Provision for litigations | | - | 8,866 | 8,866 | - | - | - |
| Onerous contract | | 1,410 | 4,156 | 5,566 | 1,249 | 6,363 | 7,612 |
| Others(*3) | | 26,283 | 155,182 | 181,465 | 744 | 44,520 | 45,264 |
| | ₩ | 56,419 | 2,125,061 | 2,181,480 | 94,440 | 2,020,257 | 2,114,697 |

(*1) The Group recognized provisions for future dismantling, removing and restoring obligations of wells and related facilities. Most of the costs incur at or after the completion of production and the management recognized its best estimations as provisions.

(*2) The Group is committed to providing construction services with regards to the Kurdish regional government's Social Overhead Capital to obtain rights on certain exploratory areas (see Note 46). This commitment has been classified as a provision due to its uncertain timing of related cash outflows.

(*3) The reclassifications from non-current to current amounted to ₩13,680 million and ₩10,710 million for the years ended December 31, 2018 and 2017, respectively.

## 27. Provisions, Continued

(b) Changes in provisions for the years ended December 31, 2018 and 2017 are as follows :

(i) For the year ended December 31, 2018

| *In millions of Korean won* | Beginning balance | Provision | Accretion expenses | Transfer(*1) | Payment | Others(*4) | Ending Balance |
|---|---|---|---|---|---|---|---|
| Decommissioning cost | ₩ 1,984,043 | 4,169 | 73,675 | (2,988) | (20,368) | (65,463) | 1,973,068 |
| Social Overhead Capital | 77,111 | - | 719 | - | (58,564) | (6,800) | 12,466 |
| Allowance for salaries | 667 | - | - | - | (637) | 19 | 49 |
| Provision for litigations(*2) | - | 11,958 | - | - | - | (3,092) | 8,866 |
| Onerous contract | 7,612 | - | 892 | - | (1,332) | (1,606) | 5,566 |
| Others(*3) | 45,264 | 143,074 | - | - | (9,008) | 2,135 | 181,465 |
|  | ₩ 2,114,697 | 159,201 | 75,286 | (2,988) | (89,909) | (74,807) | 2,181,480 |

(*1) The Group transferred restoring obligations to contract party regarding disposal of an oil and gas property.

(*2) The Group recognized provision in relation to litigation amount and statutory interest on the partial loss of litigation on the return of normal wage (see Note 46).

(*3) The Group recognized provision amounting to ₩122,363 million for the year ended December 31, 2018 as a result of having an obligation to pay for the oil pipelines even after the end of production of Vietnam 11-2.

(*4) Include the effect of changes in exchange rates and others.

(ii) For the year ended December 31, 2017

| *In millions of Korean won* | Beginning balance | Provision | Accretion expenses | Transfer(*1) | Payment | Others(*2) | Ending Balance |
|---|---|---|---|---|---|---|---|
| Decommissioning cost | ₩ 2,030,237 | 9,124 | 73,316 | (460) | (10,162) | (118,012) | 1,984,043 |
| Social Overhead Capital | 133,175 | - | 1,131 | - | (43,600) | (13,595) | 77,111 |
| Allowance for salaries | 2,043 | 233 | - | - | - | (1,609) | 667 |
| Provision for litigations | 4,474 | - | - | - | (6,643) | 2,169 | - |
| Onerous contract | - | - | 923 | - | (1,253) | 7,942 | 7,612 |
| Others(*3) | 16,808 | 42,008 | - | - | (924) | (12,628) | 45,264 |
|  | ₩ 2,186,737 | 51,365 | 75,370 | (460) | (62,582) | (135,733) | 2,114,697 |

(*1) The Group transferred restoring obligations to contract party regarding disposal of an oil and gas property.

(*2) Include the effect of changes in exchange rates and others.

(*3) Additional obligation of Deep Basin Partnership to the Group amounting to ₩35,449 million has been accounted for as other provision.

## 28. Other Financial Liabilities

Details of other financial guarantee liabilities as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | December 31, 2017 |
|---|---|---|---|
| Financial guarantee liabilities | ₩ | 8,813 | - |

## 29. Non-Financial Liabilities

Details of non-financial liabilities as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|
| | | Current | Non-current | Current | Non-current |
| Advance received | ₩ | 23,036 | - | 13,866 | - |
| Unearned revenue | | 68,936 | 34,496 | 25,207 | 9,123 |
| Withholdings | | 80,149 | - | 68,303 | - |
| Others (*) | | 2,401 | 34,027 | 1,310 | 33,485 |
| | ₩ | 174,522 | 68,523 | 108,686 | 42,608 |

(*) Others include current portion and non-current portion of deferred gain on disposal of property, plant and equipment in connection to the sale of headquarters building of the Company amounting to ₩918 million and ₩34,027 million, respectively, for the year ended December 31, 2018, and ₩879 million and ₩33,485 million, respectively, for the year ended December 31, 2017.

## 30. Share Capital

The Group's total share capital is invested solely by the Korean government in accordance with the Korea National Oil Corporation Act and the authorized share capital is ₩13 trillion as of December 31, 2018. The changes in share capital for the year ended December 31, 2017 are as follows:

| *In millions of Korean won* | Description | | Amount |
|---|---|---|---|
| Beginning balance | | ₩ | 10,434,865 |
| 2018-03-29 | Contribution for oil stockpiling business | | 7,286 |
| 2018-03-30 | Contribution for oil field development | | 16,400 |
| 2018-06-22 | Contribution for oil stockpiling business | | 13,904 |
| 2018-11-29 | Contribution for oil stockpiling business | | 9,079 |
| Ending balance | | ₩ | 10,481,534 |

## 31. Accumulated Deficit

(a) Details of accumulated deficit as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | **December 31, 2018** | **December 31, 2017** |
|---|---|---|---|
| Undisposed accumulated deficit | ₩ | (9,201,496) | (8,363,377) |

(b) Changes in accumulated deficit for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | **2018** | **2017** |
|---|---|---|---|
| Beginning balance | ₩ | (8,363,377) | (7,633,552) |
| Correction of errors | | - | 118,453 |
| Adjustment on the adoption of K-IFRS No. 1109 | | 369,554 | - |
| Net loss for the year attributed to owner of the Company | | (1,205,947) | (851,372) |
| Changes in equity method retained earnings | | (46) | (48) |
| Remeasurement components of defined benefits plan | | (1,680) | 3,142 |
| Ending balance | ₩ | (9,201,496) | (8,363,377) |

(c) Changes in remeasurement components for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | **2018** | **2017** |
|---|---|---|---|
| Beginning balance | ₩ | (18,526) | (21,668) |
| Changes during the current year | | (2,216) | 4,145 |
| Income tax effects | | 536 | (1,003) |
| Ending balance | ₩ | (20,206) | (18,526) |

## 32. Consolidated Statements of Disposition of Accumulated Deficit

Separate statements of disposition of accumulated deficit for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| I. Undisposed deficit | | | |
| Undisposed accumulated deficit carried over from prior years | ₩ | (8,172,145) | (6,581,259) |
| Change in accounting policy | | 377,105 | - |
| Net loss | | (830,723) | (1,594,028) |
| Remeasurement components | | (1,680) | 3,142 |
| II. Undisposed deficit to be carried forward to the subsequent year | ₩ | (8,627,443) | (8,172,145) |

These statements of disposition of accumulated deficit were based on the separate financial statements of the Parent Company.

Dates of appropriation for the years ended December 31, 2018 and 2017 are February 27, 2019, and June 12 2018, respectively.

## 33. Other Components of Equity

(a) Details of other components of equity as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | December 31, 2017 |
|---|---|---|---|
| Other capital surpluses(*) | ₩ | 24,934 | 24,954 |
| Accumulated other comprehensive loss | | (1,057,698) | (614,257) |
| | ₩ | (1,032,764) | (589,303) |

(*) Details of other capital surpluses as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | December 31, 2017 |
|---|---|---|---|
| Assets contributed | ₩ | 24,954 | 24,954 |
| Loss on capital reduction | | (20) | - |
| | ₩ | 24,934 | 24,954 |

(b) Details of accumulated other comprehensive loss as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | December 31, 2017 |
|---|---|---|---|
| Loss on valuation of financial assets measured at fair value through other comprehensive income | ₩ | (542,224) | - |
| Gains on available-for-sale financial instruments | | - | 12,088 |
| Equity adjustments in equity method | | 26,652 | 23,840 |
| Foreign currency translation differences for foreign operations | | (657,769) | (666,472) |
| Gains on valuation of derivative instruments | | 115,643 | 16,287 |
| | ₩ | (1,057,698) | (614,257) |

## 34. Revenue

Details of revenues (based on customer locations) except for other income, other profit and financial income (see Note 35, 36, and 37) for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | | | 2017 | | |
|---|---|---|---|---|---|---|---|
| | | Domestic | Overseas | Total | Domestic | Overseas | Total |
| Sales of goods and finished goods | ₩ | 162,650 | 2,749,124 | 2,911,774 | 160,926 | 1,997,153 | 2,158,079 |
| Revenues from services provided | | 39,348 | 138,979 | 178,327 | 23,140 | 89,006 | 112,146 |
| Income on government grants | | 1,327 | - | 1,327 | 5,131 | - | 5,131 |
| Others | | 1,275 | 56,562 | 57,837 | 1,918 | 35,212 | 37,130 |
| | ₩ | 204,600 | 2,944,665 | 3,149,265 | 191,115 | 2,121,371 | 2,312,486 |

## 35. Other Income and Expenses

(a) Details of other income for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Reversal of other provisions (*) | ₩ | - | 31,518 |
| Reversal of other bad debt allowance | | 8,356 | 7,938 |
| Gains on exemption of debts | | - | 76,744 |
| Compensation and indemnity | | 11 | 12 |
| Rental income | | 422 | 506 |
| Other income from overseas fields | | 3,309 | 4,559 |
| Others | | 64,391 | 30,992 |
| | ₩ | 76,489 | 152,269 |

(*) For the year ended December 31, 2017, the Company recovered full amount of ₩29,967 million paid in the first trial against Hyundai Heavy Industries as a result of the ruling in the second trial in favor of the Company, and recognized it as a reversal of other provision. (see Note 46)

(b) Details of other expenses for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Transfer to other provision | ₩ | 13,039 | - |
| Other bad debt expense | | 765 | 180,186 |
| Donations | | 2,000 | 882 |
| Losses on valuation of supplies | | 346 | 588 |
| Other expenses from overseas fields | | 167 | 1,853 |
| Others | | 21,474 | 23,727 |
| | ₩ | 37,791 | 207,236 |

## 36. Other Profit and Loss

Details of other profit and loss for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Gains on disposal of property, plant and equipment | ₩ | 7,661 | 2,130 |
| Gains on disposal of intangible assets other than goodwill | | 7 | - |
| Gains on transactions of derivative | | - | 1,695 |
| Reversal of impairment losses on property, plant and equipment | | 23,146 | 163,645 |
| Gains on foreign currency translation | | 26,654 | 39,595 |
| Gains on foreign currency transactions | | 33,080 | 41,699 |
| Other gains | | 8,491 | 16,681 |
| Losses on disposal of property, plant and equipment | | (154) | (179) |
| Losses on disposal of intangible assets other than goodwill | | - | (3,524) |
| Losses on transactions of derivative | | (2,906) | (1,695) |
| Impairment losses on property, plant and equipment | | (272,829) | (320,267) |
| Impairment losses on intangible assets | | (609,347) | (314,522) |
| Losses on foreign currency translation | | (19,637) | (45,110) |
| Losses on foreign currency transactions | | (41,456) | (40,259) |
| Other losses | | (2,033) | (3,039) |
| | ₩ | (849,323) | (463,150) |

## 37. Finance Income

(a) Details of finance income for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Interest income | ₩ | 22,656 | 50,601 |
| Dividend income | | 10 | 10 |
| Gains on valuation of financial assets measured at fair value through profit or loss | | 87,037 | - |
| Gains on valuation of derivative financial instruments | | 23,219 | - |
| Gains on transactions of derivative financial instruments | | 4,421 | 1,168 |
| Gains on repayment of financial liabilities | | - | 1,583 |
| Gains on foreign currency translation | | 55,441 | 143,660 |
| Gains on foreign currency transactions | | 38,457 | 107,536 |
| | ₩ | 231,241 | 304,558 |

## 37. Finance Income, Continued

(b) Details of interest income by sources included in finance income for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Cash and cash equivalents | ₩ | 11,621 | 12,066 |
| Loans and receivables | | 3,125 | 38,535 |
| Financial assets measured at fair value through profit or loss | | 7,910 | - |
| | ₩ | 22,656 | 50,601 |

## 38. Finance Costs

(a) Details of finance costs for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Interest expenses | ₩ | 426,021 | 401,019 |
| Losses on valuation of financial assets measured at fair value through profit or loss | | 5,059 | - |
| Losses on valuation of financial assets at fair value through profit or loss | | - | 2,762 |
| Impairment losses on available-for-sale financial instruments | | - | 71,586 |
| Losses on valuation of derivative financial instruments | | - | 25,305 |
| Losses on transactions of derivative financial instruments | | 1,088 | 15,251 |
| Losses on foreign currency translation | | 209,390 | 93,115 |
| Losses on foreign currency transactions | | 26,540 | 4,210 |
| Other financial costs | | 115,393 | 99,926 |
| | ₩ | 783,491 | 713,174 |

(b) Details of interest expenses by sources included in finance costs for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Short-term borrowings | ₩ | 5,259 | 7,363 |
| Long-term borrowings | | 65,408 | 62,069 |
| Bond payables | | 328,636 | 342,992 |
| Derivative liabilities | | 14,929 | 6,010 |
| Finance lease liability | | 9,746 | 8,888 |
| Other financial liabilities | | 2,043 | 2,140 |
| | | 426,021 | 429,462 |
| Less: capitalized costs of borrowings | | - | (28,443) |
| | ₩ | 426,021 | 401,019 |

There is no weighted average capitalized interest rate for the year ended December 31, 2018 and weighted average capitalized interest rate is 4.56% for the year ended December 31, 2017.

## 39. Income Tax Expense (Benefit)

(a) The components of income tax expense (benefit) for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---:|---:|
| Current income tax | ₩ | 168,415 | 111,491 |
| Tax directly charged to equity | | (151,322) | 34,769 |
| Changes in deferred taxes arising from temporary differences | | 307,399 | (338,594) |
| Adjustment for prior periods | | (96,158) | (7,606) |
| Income tax expense (benefit) | ₩ | 228,334 | (199,940) |
| Income tax expense (benefit) from continuing operations | | 228,334 | (194,163) |
| Income tax expense (benefit) from discontinued operations | ₩ | - | (5,777) |

(b) Reconciliations of expected income tax benefit computed by applying the statutory income tax rate to loss before income tax to the actual income tax benefit for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---:|---:|
| Loss before income tax | ₩ | (931,207) | (936,732) |
| Benefits computed at the statutory rate (*) | | (225,352) | (226,689) |
| Adjustments | | | |
| Adjustments to prior year tax payment (return) | | (930) | 224 |
| Non-taxable income | | (762) | (1) |
| Non-deductible expenses | | (15,914) | 45,752 |
| Effect from tax deduction and exemption | | - | (96,328) |
| Temporary differences not recognized in deferred tax assets | | 309,723 | 44,096 |
| Effect from temporary differences not recognized in prior years | | (47,925) | (14,809) |
| Differences in tax rates in overseas entities | | 227,487 | 46,313 |
| Effect of changes in tax rates | | (17,993) | 1,502 |
| Income tax expense (benefit) | ₩ | 228,334 | (199,940) |
| Effective tax rate | | - | 21.34% |

(*) The expected applicable statutory tax rate for the years ended December 31, 2018 and 2017 is both 24.2%, which is the Korea statutory corporate income tax rate where the Company is domiciled.

(c) Income tax recognized as accumulated other comprehensive income for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---:|---:|
| Financial assets measured at fair value through other comprehensive income | ₩ | (115,659) | - |
| Available-for-sale financial assets | | - | 20,464 |
| Net change in the unrealized fair value of derivative using cash flow hedge accounting | | (36,199) | 15,308 |
| Remeasurement components | | 536 | (1,003) |
| | ₩ | (151,322) | 34,769 |

## 39. Income Tax Expense (Benefit), Continued

(d) Changes in deferred income tax assets (liabilities) recognized in the consolidated statements of financial position for the years ended December 31, 2018 and 2017 are as follows:

(i) For the year ended December 31, 2018

| *In millions of Korean won* | Beginning balance | Amounts recognized in profit or loss | Amounts recognized in other comprehensive income | Others | Ending balance |
|---|---|---|---|---|---|
| **Deferred income tax on temporary differences** | | | | | |
| Contributions for construction | ₩ 867 | (213) | - | 35 | 689 |
| Investment in associates and others | 33,024 | 6,690 | - | 1,548 | 41,262 |
| Financial guarantee liabilities | 11,638 | (12,845) | - | 300 | (907) |
| Allowance for doubtful accounts | 149,986 | (92,431) | - | 5,043 | 62,598 |
| Available-for-sale financial assets | 160,560 | (70,304) | (115,658) | 3,990 | (21,412) |
| Intangible assets | 193,869 | 113,539 | - | 10,287 | 317,695 |
| Accrued expenses | 44,504 | (30,252) | - | 1,451 | 15,703 |
| Asset retirement obligation | 43,430 | (8,922) | - | 1,749 | 36,257 |
| Property, plant and equipment | 9,818 | (11,628) | - | 240 | (1,570) |
| Land | (62,065) | (189) | - | (2,709) | (64,963) |
| Loss on valuation of derivative | (4,655) | (8,126) | (293) | (338) | (13,412) |
| Defined benefit obligations | 2,663 | 1,414 | 536 | 149 | 4,762 |
| Others | (3,113) | 27,127 | - | 295 | 24,309 |
| Deferred assets of subsidiaries | 638,390 | (23,756) | (35,907) | 26,862 | 605,589 |
| Differences in fair value and book value from business combination and others | (47,821) | 49,110 | - | (1,289) | - |
| Deferred tax liabilities of subsidiaries | (84,997) | (95,291) | - | (5,246) | (185,534) |
| | ₩ 1,086,098 | (156,077) | (151,322) | 42,367 | 821,066 |
| Deferred tax assets | ₩ 1,218,915 | | | | 1,006,600 |
| Deferred tax liabilities | ₩ (132,817) | | | | (185,534) |

Temporary differences not recognized in deferred tax assets, tax loss carryforwards and tax deduction are ₩13,464,696 million and ₩14,216 million as of December 31, 2018.

## 39. Income Tax Expense (Benefit), Continued

(d) Changes in deferred income tax assets (liabilities) recognized in the consolidated statements of financial position for the years ended December 31, 2018 and 2017 are as follows, continued:

(ii) For the year ended December 31, 2017

| *In millions of Korean won* | | Beginning balance | Amounts recognized in profit or loss | Amounts recognized in other comprehensive income | Others | Ending balance |
|---|---|---|---|---|---|---|
| **Deferred income tax on temporary differences** | | | | | | |
| Contributions for construction | ₩ | 1,061 | (77) | - | (117) | 867 |
| Investment in associates and others | | 52,324 | (14,106) | - | (5,194) | 33,024 |
| Financial guarantee liabilities | | 2,615 | 9,836 | - | (813) | 11,638 |
| Allowance for doubtful accounts | | 198,308 | (27,257) | - | (21,065) | 149,986 |
| Available-for-sale financial instruments | | 89,237 | 65,501 | 20,464 | (14,642) | 160,560 |
| Intangible assets | | 118,198 | 94,022 | - | (18,351) | 193,869 |
| Accrued expense | | 50,888 | (644) | - | (5,740) | 44,504 |
| Asset retirement obligation | | 41,881 | 6,650 | - | (5,101) | 43,430 |
| Property, plant and equipment | | 105,446 | (88,307) | - | (7,321) | 9,818 |
| Land | | (70,006) | (1) | - | 7,942 | (62,065) |
| Gain (loss) on valuation of derivative | | (8,422) | 3,522 | (555) | 800 | (4,655) |
| Defined benefit obligations | | (2,846) | 6,477 | (1,003) | 35 | 2,663 |
| Others | | (82,261) | 73,687 | - | 5,461 | (3,113) |
| Deferred assets of subsidiaries | | 658,119 | 42,118 | 15,863 | (77,710) | 638,390 |
| Differences in fair value and book value from business combination and others | | (156,812) | 96,262 | - | 12,729 | (47,821) |
| Deferred tax liabilities of subsidiaries | | (134,498) | 36,143 | - | 13,358 | (84,997) |
| | ₩ | 863,232 | 303,826 | 34,769 | (115,729) | 1,086,098 |
| Deferred tax assets | ₩ | 1,154,542 | | | | 1,218,915 |
| Deferred tax liabilities | ₩ | (291,310) | | | | (132,817) |

## 40. Expenses Classified by Nature

(a) Expenses classified by nature for the year ended December 31, 2018 are as follows:

| *In millions of Korean won* | Changes in inventories | Selling and administrative expenses | Cost of sales | Total |
|---|---|---|---|---|
| Changes in inventories - merchandise | ₩ (2,166) | - | - | (2,166) |
| Changes in inventories - finished goods | (1,423) | - | - | (1,423) |
| Changes in inventories - others | 146 | - | - | 146 |
| Purchases of inventories | - | - | 34,182 | 34,182 |
| Raw materials used | - | - | 3,766 | 3,766 |
| Salaries | - | 92,111 | 178,494 | 270,605 |
| Severance and retirement benefits | - | 6,588 | 3,802 | 10,390 |
| Other employee benefits | - | 13,676 | 8,090 | 21,766 |
| Insurance | - | 2,976 | 20,046 | 23,022 |
| Depreciation | - | 14,537 | 1,054,182 | 1,068,719 |
| Amortization | - | 4,266 | 62,002 | 66,268 |
| Commissions and fees | - | 23,610 | 46,026 | 69,636 |
| Advertising | - | 448 | 67 | 515 |
| Education and training | - | 1,388 | 881 | 2,269 |
| Vehicle maintenance | - | 1,237 | 656 | 1,893 |
| Books and printing | - | 506 | 19 | 525 |
| Business development | - | 135 | 53 | 188 |
| Rent | - | 5,490 | 46,706 | 52,196 |
| Communications | - | 855 | 517 | 1,372 |
| Transport | - | 1 | 74,768 | 74,769 |
| Taxes and dues | - | 4,152 | 51,844 | 55,996 |
| Supplies | - | 1,210 | 3,204 | 4,414 |
| Utilities | - | 1,197 | 56,999 | 58,196 |
| Repairs | - | 5,717 | 140,775 | 146,492 |
| Research and development | - | 1,962 | 461 | 2,423 |
| Travel | - | 2,035 | 512 | 2,547 |
| Clothing expenses | - | 16 | 114 | 130 |
| Investigation and analysis | - | - | 86 | 86 |
| Association fee | - | 287 | 16 | 303 |
| Sales promotion | - | 149 | 638 | 787 |
| Sales commissions | - | 239,696 | - | 239,696 |
| Others | - | 9,727 | 386,470 | 396,197 |
|  | ₩ (3,443) | 433,972 | 2,175,376 | 2,605,905 |

## 40. Expenses Classified by Nature, Continued

(b) Expenses classified by nature for the year ended December 31, 2017 are as follows:

| *In millions of Korean won* | Changes in inventories | Selling and administrative expenses | Cost of sales | Total |
|---|---|---|---|---|
| Changes in inventories - merchandise | ₩ 3,981 | - | - | 3,981 |
| Changes in inventories - finished goods | 8,639 | - | - | 8,639 |
| Changes in inventories - others | 11,284 | - | - | 11,284 |
| Purchases of inventories | - | - | 170,046 | 170,046 |
| Raw materials used | - | - | 4,857 | 4,857 |
| Salaries | - | 89,570 | 141,420 | 230,990 |
| Severance and retirement benefits | - | 7,764 | 3,941 | 11,705 |
| Other employee benefits | - | 13,712 | 7,088 | 20,800 |
| Insurance | - | 2,920 | 19,354 | 22,274 |
| Depreciation | - | 16,672 | 785,779 | 802,451 |
| Amortization | - | 5,015 | 93,468 | 98,483 |
| Commissions and fees | - | 21,736 | 42,957 | 64,693 |
| Advertising | - | 192 | 29 | 221 |
| Education and training | - | 3,522 | 631 | 4,153 |
| Vehicle maintenance | - | 1,394 | 545 | 1,939 |
| Books and printing | - | 592 | 14 | 606 |
| Business development | - | 119 | 37 | 156 |
| Rent | - | 6,718 | 46,449 | 53,167 |
| Communications | - | 930 | 528 | 1,458 |
| Transport | - | - | 140,373 | 140,373 |
| Taxes and dues | - | 2,197 | 33,218 | 35,415 |
| Supplies | - | 1,089 | 2,582 | 3,671 |
| Utilities | - | 1,460 | 43,830 | 45,290 |
| Repairs | - | 7,568 | 134,061 | 141,629 |
| Research and development | - | 260 | 2,382 | 2,642 |
| Travel | - | 1,753 | 350 | 2,103 |
| Clothing expenses | - | 13 | 80 | 93 |
| Investigation and analysis | - | - | 208 | 208 |
| Association fee | - | 159 | 13 | 172 |
| Sales promotion | - | 57 | 617 | 674 |
| Sales commissions | - | 90,768 | - | 90,768 |
| Others | - | 10,145 | 151,528 | 161,673 |
|  | ₩ 23,904 | 286,325 | 1,826,385 | 2,136,614 |

## 41. Categories of financial instruments

(a) Details of current financial assets by category as of December 31, 2018 and 2017 are as follows:

(i) As of December 31, 2018

| *In millions of Korean won* | | **Amortized costs** | **Fair value - Hedging instruments** | **Total** |
|---|---|---|---|---|
| Cash and cash equivalents | ₩ | 778,120 | - | 778,120 |
| Derivative assets | | - | 70,812 | 70,812 |
| Others | | 16,291 | - | 16,291 |
| Trade and other receivables | | 444,110 | - | 444,110 |
| | ₩ | 1,238,521 | 70,812 | 1,309,333 |

The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

(ii) As of December 31, 2017

| *In millions of Korean won* | | **Loans and receivables** | **Derivatives designated as hedging instruments** | **Total** |
|---|---|---|---|---|
| Cash and cash equivalents | ₩ | 791,075 | - | 791,075 |
| Short-term loans | | 5,814 | - | 5,814 |
| Short-term financial instruments | | 2,074 | - | 2,074 |
| Derivative assets | | - | 4,532 | 4,532 |
| Others | | 14,919 | - | 14,919 |
| Trade and other receivables | | 556,270 | - | 556,270 |
| | ₩ | 1,370,152 | 4,532 | 1,374,684 |

The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

## 41. Categories of Financial Instruments, Continued

(b) Details of non-current financial assets by category as of December 31, 2018 and 2017 are as follows:

(i) As of December 31, 2018

| *In millions of Korean won* | | Fair value through profit or loss | Fair value through other comprehen-sive income | Amortized costs | Fair value – Hedging instruments | Total |
|---|---|---|---|---|---|---|
| Fair value through other comprehensive income | ₩ | - | 32,219 | - | - | 32,219 |
| Fair value through profit or loss (*) | | 534,983 | - | - | - | 534,983 |
| Loans | | - | - | 150,660 | - | 150,660 |
| Long-term financial instruments | | - | - | 5,085 | - | 5,085 |
| Derivative assets | | 18,999 | - | - | 43,389 | 62,388 |
| Trade and other receivables | | - | - | 33,836 | - | 33,836 |
| | ₩ | 553,982 | 32,219 | 189,581 | 43,389 | 819,171 |

(*) Loans to related parties and accrued income from related parties are included.

The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

(ii) As of December 31, 2017

| *In millions of Korean won* | | Loans and receivables | Available-for-sale financial instruments | Derivatives designated as hedging instruments | Total |
|---|---|---|---|---|---|
| Available-for-sale financial assets | ₩ | - | 90,807 | - | 90,807 |
| Long-term loans | | 479,465 | - | - | 479,465 |
| Long-term financial instruments | | 4,873 | - | - | 4,873 |
| Derivative assets | | - | - | 47,302 | 47,302 |
| Trade and other receivables | | 97,768 | - | - | 97,768 |
| | ₩ | 582,106 | 90,807 | 47,302 | 720,215 |

The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

## 41. Categories of financial instruments, Continued

(c) Details of current financial liabilities by category as of December 31, 2018 and 2017 are as follows:

(i) As of December 31, 2018

| *In millions of Korean won* | | Fair value through profit or loss | Amortized costs | Fair value – Hedging instruments | Total |
|---|---|---|---|---|---|
| Fair value through profit or loss | ₩ | 7,775 | - | - | 7,775 |
| Trade and other payables | | - | 644,690 | - | 644,690 |
| Short-term borrowings | | - | 69,322 | - | 69,322 |
| Current portion of bond payables | | - | 1,370,082 | - | 1,370,082 |
| Derivative liabilities | | - | - | 73,957 | 73,957 |
| | ₩ | 7,775 | 2,084,094 | 73,957 | 2,165,826 |

The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

(ii) As of December 31, 2017

| *In millions of Korean won* | | Financial liabilities at fair value | Financial liabilities measured at amortized cost | Derivatives designated as hedging instruments | Total |
|---|---|---|---|---|---|
| Trade and other payables | ₩ | - | 786,399 | - | 786,399 |
| Short-term borrowings | | - | 53,570 | - | 53,570 |
| Current portion of long-term borrowings | | - | 782,300 | - | 782,300 |
| Current portion of bond payables | | - | 2,322,715 | - | 2,322,715 |
| Financial liabilities at fair value through profit or loss | | 13,272 | - | - | 13,272 |
| Derivative liabilities | | - | - | 93,512 | 93,512 |
| | ₩ | 13,272 | 3,944,984 | 93,512 | 4,051,768 |

The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

## 41. Categories of financial instruments, Continued

(d) Details of non-current financial liabilities by category as of December 31, 2018 and 2017 are as follows:

(i) As of December 31, 2018

| *In millions of Korean won* | | Fair value through profit or loss | Amortized costs | Fair value – Hedging instruments | Total |
|---|---|---|---|---|---|
| Trade and other payables | ₩ | - | 434,320 | - | 434,320 |
| Fair value through profit or loss | | 50,189 | - | - | 50,189 |
| Long-term borrowings | | - | 2,322,418 | - | 2,322,418 |
| Bond payables | | - | 9,799,083 | - | 9,799,083 |
| Derivative liabilities | | - | - | 45,550 | 45,550 |
| Others | | - | 8,813 | - | 8,813 |
| | ₩ | 50,189 | 12,564,634 | 45,550 | 12,660,373 |

The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

(ii) As of December 31, 2017

| *In millions of Korean won* | | Financial liabilities at fair value | Financial liabilities measured at amortized cost | Derivatives designated as hedging instruments | Total |
|---|---|---|---|---|---|
| Trade and other payables | ₩ | - | 503,799 | - | 503,799 |
| Long-term borrowings | | - | 1,035,022 | - | 1,035,022 |
| Bond payables | | - | 9,012,821 | - | 9,012,821 |
| Financial liabilities at fair value through profit or loss | | 59,610 | - | - | 59,610 |
| Derivative liabilities | | - | - | 48,229 | 48,229 |
| | ₩ | 59,610 | 10,551,642 | 48,229 | 10,659,481 |

The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

## 41. Categories of financial instruments, Continued

(e) Net gains or losses by financial instruments for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Financial assets measured at fair value through profit of loss | | | |
| Gain on valuation, net | ₩ | 54,564 | - |
| Interest income | | 7,910 | - |
| Financial assets measured at amortized costs | | | |
| Interest income | | 14,746 | - |
| Gain on foreign currency transactions, net | | 26,031 | - |
| Loss on foreign currency translation, net | | (15,735) | - |
| Loans and receivables | | | |
| Interest income | | - | 50,601 |
| Gain on foreign currency transactions, net | | - | 72,429 |
| Loss on foreign currency translation, net | | - | (39,367) |
| Financial assets measured at fair value through other comprehensive income | | | |
| Dividend income | | 10 | - |
| Other comprehensive loss, net of tax | | (177,207) | - |
| Available-for-sale financial investments | | | |
| Dividend income | | - | 10 |
| Impairment loss | | - | (71,586) |
| Other comprehensive loss, net of tax | | - | (64,097) |
| Financial assets designated as hedging instruments | | | |
| Gain on transactions | | 4,421 | - |
| Gain on valuation | | 4,522 | - |
| Gain (Loss) on foreign currency translation, net | | (6,207) | 39,243 |
| Other comprehensive income, net of tax | | 81,655 | - |
| Financial liabilities measured at fair value through profit or loss | | | |
| Gain on valuation | | 46,111 | - |
| Financial liabilities at fair value through profit or loss | | | |
| Loss on valuation, net | | - | (2,762) |
| Financial liabilities measured at amortized cost | | | |
| Interest cost | | (426,021) | (401,019) |
| Gain (loss) on foreign currency transactions, net | | (7,348) | 27,787 |
| Loss on foreign currency translation, net | | (51,241) | (17,456) |
| Gain on repayment of financial liabilities | | - | 1,583 |
| Other financial cost (*) | | (41,718) | (26,611) |
| Financial liabilities designated as hedging instruments | | | |
| Loss on transactions, net | | (1,088) | (14,083) |
| Loss on valuation, net | | - | (25,305) |
| Gain (loss) on foreign currency transactions, net | | (6,767) | 3,110 |
| Gain (loss) on foreign currency translation, net | | (80,765) | 68,124 |
| Other comprehensive income (loss), net of tax | | 17,701 | (47,331) |
| | ₩ | (556,426) | (446,730) |

(*) Excludes increase in other provisions amounting to ₩73,675 million and ₩73,315 million for the years ended December 31, 2018 and 2017, respectively

## 42. Netting Agreements

Offsetting of financial assets and financial liabilities

As of December 31, 2018 and 2017, financial assets and financial liabilities subject to offsetting, enforceable master netting arrangements and similar agreements are as follows:

(i) As of December 31, 2018

*In millions of Korean won*

| | | Gross amounts recognized as financial instruments | Gross amounts of recognized financial instruments set off in the statement of financial position | Net amounts of financial instruments presented in the statement of financial position | Related amounts not set off in the statement of financial position | | |
|---|---|---|---|---|---|---|---|
| | | | | | Financial instruments | Collateral received or pledged | Net Amounts |
| **Financial assets** | | | | | | | |
| Derivative(*) | ₩ | 114,201 | - | 114,201 | (114,201) | - | - |
| **Financial liabilities** | | | | | | | |
| Derivative(*) | | 119,507 | - | 119,507 | (114,201) | - | 5,306 |

(*) Some of derivative contracts are made under International Swaps and Derivative Association (ISDA) master netting agreements. In general, under such agreements the amounts owed by each counter party on a single day in respect of all transactions outstanding in the same currency are aggregated into a single net amount that is payable by one party to the other. In certain circumstances (i.e. when a default occurs), all standing transactions under the agreement are terminated, the termination value is assessed and only a single amount is payable in settlement of all transactions.

(ii) As of December 31, 2017

*In millions of Korean won*

| | | Gross amounts recognized as financial instruments | Gross amounts of recognized financial instruments set off in the statement of financial position | Net amounts of financial instruments presented in the statement of financial position | Related amounts not set off in the statement of financial position | | |
|---|---|---|---|---|---|---|---|
| | | | | | Financial instruments | Collateral received or pledged | Net Amounts |
| **Financial assets** | | | | | | | |
| Derivative(*) | ₩ | 51,834 | - | 51,834 | (51,834) | - | - |
| **Financial liabilities** | | | | | | | |
| Derivative(*) | | 141,741 | - | 141,741 | (51,834) | - | 89,907 |

(*) Some of derivative contracts are made under International Swaps and Derivative Association (ISDA) master netting agreements. In general, under such agreements the amounts owed by each counter party on a single day in respect of all transactions outstanding in the same currency are aggregated into a single net amount that is payable by one party to the other. In certain circumstances (i.e. when a default occurs), all standing transactions under the agreement are terminated, the termination value is assessed and only a single amount is payable in settlement of all transactions.

## 43. Risk Management

(a) Capital management

The primary objective of the Group's capital management is to ensure that it maintains a strong credit rating and healthy capital ratios in order to support its business and maximize the owners' value. To maintain the sound capital structure, management periodically reviews the Group's capital structure which consist of equity and net debt, net of cash and cash equivalents and borrowing and debt securities. No changes were made in the objectives, policies or processes for managing capital for the year ended December 31, 2018.

The Group's debt-to-equity ratios as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | December 31, 2017 |
|---|---|---|---|
| Total borrowings and debt securities (A) | ₩ | 13,560,905 | 13,206,427 |
| Cash and cash equivalents (B) | | 778,120 | 791,075 |
| Net borrowings and debt securities (A – B = C) | | 12,782,785 | 12,415,352 |
| Total equity (D) | ₩ | 764,065 | 2,383,890 |
| Total invested capital (C + D = E) | ₩ | 13,546,850 | 14,799,242 |
| Net borrowings and debt securities-to-total invested capital ratio (C/E) | | 94.36% | 83.89% |

(b) Financial risk management

The Group is exposed to various risks related to its financial instruments such as credit risk, market risk (currency risk, interest rate risk and price risk) and liquidity risk.

(i) Risk management structure

The board of directors is responsible for implementing and monitoring the Group's risk management structure and the management regularly updates the policies for each risk and confirms the validity of the policies. The purpose of the risk management policies is to identify the risks that could potentially affect the Group's financial results and reduce, to an acceptable level, avoid or eliminate those risks. The policies are reviewed regularly to reflect the current market conditions and the Group's activities. The Group makes constant efforts to improve the policies by monitoring on real time basis and with support from the outside experts. The audit committee oversees the Group's compliance to the risk management policies and procedures and reviews the effectiveness of the structure.

## 43. Risk Management, Continued

(b) Financial risk management, continued

(ii) Credit risk

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations, and arises principally from the Group's receivables from customers, investment securities, derivatives and financial guarantee contracts.

Credit risk also arises from transactions with financial institutions, and such transactions include transactions of cash and cash equivalents, various deposits, and financial instruments such as derivative contracts. The Group manages its exposure to this credit risk by only entering into transactions with banks that have high international credit ratings. The Group implements a credit risk management policy under which the Group only transacts business with counterparties that have a certain level of credit rate evaluated based on financial condition, historical experience, and other factors.

Book values of the financial assets and guarantee amounts by the contract represent the maximum amounts exposed to the credit risk. Details of the Group's level of maximum exposure to credit risk as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | **December 31, 2018** | **December 31, 2017** |
|---|---|---|---|
| Cash and cash equivalents | ₩ | 778,120 | 791,075 |
| Derivative assets | | 114,201 | 51,834 |
| Financial assets at amortized costs (*) | | 649,982 | 1,161,183 |
| Financial assets at fair value through profit or loss | | 534,983 | - |
| Financial guarantee contracts | | 36,046 | 34,541 |

(*) Comprised of financial assets measured at amortized costs and non-trade receivables and others. The amounts as of December 31, 2017 include the excluded amount from the initial adoption of K-IFRS No. 1109 at January 1, 2018.

## 43. Risk Management, Continued

(b) Financial risk management, continued

(ii) Credit risk, continued

Details of maturities for financial assets measured at amortized costs and their impaired amounts as of December 31, 2018 and 2017 are as follows:

| | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|
| *In millions of Korean won* | | **Balance** | **Impairment** | **Balance** | **Impairment** |
| Not past due | ₩ | 1,159,845 | (550,488) | 1,823,586 | (741,763) |
| 0 ~ 30 days | | 12,924 | - | 22,112 | - |
| 31 ~ 60 days | | 11,920 | - | 9,981 | - |
| More than 60 days | | 91,216 | (75,435) | 47,373 | (106) |
| | ₩ | 1,275,905 | (625,923) | 1,903,052 | (741,869) |

Details of changes in allowance for impairment of financial assets measured at amortized costs for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | **2018** | **2017** |
|---|---|---|---|
| Beginning balance | ₩ | 741,869 | 732,017 |
| Initial adoption of K-IFRS No. 1109 | | (118,737) | - |
| Impairment loss | | 765 | 180,186 |
| Reversal of impairment loss | | (8,356) | (7,938) |
| Write-off | | (12) | (769) |
| Others (*) | | 10,394 | (161,627) |
| Ending balance | ₩ | 625,923 | 741,869 |

(*) Include the effect of changes in exchange rates and others.

Aging of past due but not impaired financial assets as of December 31, 2018 and 2017 are as follows:

① As of December 31, 2018

| *In millions of Korean won* | | **Book value** | **Less than 6 months** | **6~12 Months** | **1~2 years** | **2~5 years** | **More than 5 years** |
|---|---|---|---|---|---|---|---|
| Financial assets measured at amortized cost | ₩ | 40,625 | 19,577 | 13,858 | 4,281 | 2,909 | - |

② As of December 31, 2017

| *In millions of Korean won* | | **Book value** | **Less than 6 months** | **6~12 Months** | **1~2 years** | **2~5 years** | **More than 5 years** |
|---|---|---|---|---|---|---|---|
| Loans and receivables | ₩ | 79,360 | 36,287 | 387 | 42,424 | 262 | - |

## 43. Risk Management, Continued

(b) Financial risk management, continued

(iii) Market risk

① Crude oil price risk

Crude oil price risk is the risk that the profit or cash flows will fluctuate due to changes in the international market prices of crude oil. With all other variables held constant, the changes in Group's profit before tax for the years ended December 31, 2018 and 2017 from crude oil price fluctuations are as follows:

| | | 2018 | | 2017 | |
|---|---|---|---|---|---|
| *In millions of Korean won* | | **Increase by 10%** | **Decrease by 10%** | **Increase by 10%** | **Decrease by 10%** |
| Increase (decrease) of profit before tax | ₩ | 242,710 | (242,710) | 147,766 | (147,766) |

② Interest rate risk

The Group is exposed to interest rate risk due to its borrowings with floating interest rates. Assuming a 100 basis points increase or decrease in interest rates as of December 31, 2018 and 2017, the Group's total equity and its profit or loss will also increase or decrease. The Group mitigates risks from fluctuation in interest rate through derivative contracts.

Except for the effect of derivative transactions, this analysis considers the Group's total exposed risks associated with the fluctuation in interest rate. This analysis assumes that all other variables are held constant and the same method is applied as the method used in the prior periods. The details of increase or decrease in the total equity and profit or loss are as follows:

| | | 2018 | | 2017 | |
|---|---|---|---|---|---|
| *In millions of Korean won* | | **Increase by 1%** | **Decrease by 1%** | **Increase by 1%** | **Decrease by 1%** |
| Increase (decrease) of profit before tax | ₩ | (19,508) | 19,508 | (34,033) | 34,033 |

## 43. Risk Management, Continued

(b) Financial risk management, continued

(iii) Market risk, continued

③ Foreign currency risk

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 is exposed to currency risk from the sales, purchases and borrowings not in United States dollar. The Group reduces currency risk from fluctuations in foreign exchange rates by carrying out derivative contracts.

Without considering the effect of the derivative aforementioned, the Company's exposures to foreign currency risk as of December 31, 2018 and 2017 are as follows:

*In millions of Korean won and thousands of foreign currencies*

| | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|
| | **Currency unit** | **Foreign currencies** | **Equivalent to Korean won** | **Foreign currencies** | **Equivalent to Korean won** |
| **Financial assets** denominated in foreign currencies | KRW | 333,941 | ₩ 333,941 | 357,539 | ₩ 357,539 |
| **Financial liabilities** denominated in foreign currencies | KRW | 525,723 | 525,723 | 593,153 | 593,153 |
| | EUR | 201,023 | 254,094 | 201,026 | 257,162 |
| | SGD | 403,108 | 325,946 | 303 | 243 |
| | HKD | 2,044,016 | 288,366 | 2,447,211 | 335,346 |
| | CHF | 501,083 | 562,593 | 240,351 | 263,126 |
| | AUD | 679,424 | 528,913 | 734,511 | 613,431 |
| | AED | - | - | 13 | 4 |
| | | | ₩ 2,485,635 | | ₩ 2,062,465 |

The exchange rates applied for the years ended and as of December 31, 2018 and 2017 are as follows:

*In US dollar per one foreign currency*

| | Average rates | | Reporting date spot rate | |
|---|---|---|---|---|
| | **2018** | **2017** | **December 31, 2018** | **December 31, 2017** |
| KRW | 0.0009 | 0.0009 | 0.0009 | 0.0009 |
| EUR | 1.1810 | 1.1294 | 1.1440 | 1.1940 |
| SGD | 0.7414 | 0.7244 | 0.7318 | 0.7473 |
| HKD | 0.1276 | 0.1283 | 0.1277 | 0.1279 |
| CHF | 1.0221 | 1.0159 | 1.0162 | 1.0218 |
| AUD | 0.7479 | 0.7666 | 0.7046 | 0.7795 |
| AED | 0.2722 | 0.2723 | 0.2722 | 0.2723 |

## 43. Risk Management, Continued

(b) Financial risk management, continued

(iii) Market risk, continued

③ Foreign currency risk, continued

The Company and its subsidiaries use various functional currencies depending on their primary economic environment in which the entities operate. A sensitivity analysis below indicates the effect on the Group's profit before tax from the fluctuations in each function currency exchange rate. As of December 31, 2018 and 2017 the effect of a 5% increase or decrease in each functional currency exchange rate on profit before tax assuming all other variables held constant is as follows:

| | | | **2018** | | **2017** | |
|---|---|---|---|---|---|---|
| *In millions of Korean won* | | | **Increase by 5%** | **Decrease by 5%** | **Increase by 5%** | **Decrease by 5%** |
| Increase (decrease) of profit before tax | KRW | ₩ | (9,325) | 9,325 | (12,434) | 12,434 |
| | HKD | | (14,189) | 14,189 | (17,698) | 17,698 |
| | CHF | | (27,682) | 27,682 | (13,886) | 13,886 |
| | EUR | | (23,540) | 23,540 | (23,808) | 23,808 |
| | AUD | | (26,025) | 26,025 | (32,373) | 32,373 |
| | Others | | (15,847) | 15,847 | (717) | 717 |

(iv) Liquidity risk

The details of contractual maturities of financial liabilities and other contractual obligations as of December 31, 2018 are as follows:

| *In millions of Korean won* | | **Book value** | **Contractual cash flows(*1)** | **Less than 1 year** | **1 ~ 2 years** | **2 ~ 5 years** | **More than 5 years(*2)** |
|---|---|---|---|---|---|---|---|
| Short-term borrowings | ₩ | 69,322 | 70,555 | 70,555 | - | - | - |
| Bond payables | | 11,169,165 | 12,565,673 | 1,661,324 | 1,220,005 | 5,100,526 | 4,583,818 |
| Long-term borrowings | | 2,322,418 | 2,497,329 | 68,738 | 1,015,297 | 1,189,113 | 224,181 |
| Trade and other payables | | 1,079,010 | 1,079,010 | 644,690 | 49,958 | 39,345 | 345,017 |
| Derivative liabilities | | 119,507 | 119,507 | 73,957 | 352 | 38,791 | 6,407 |
| Financial liabilities measured at fair value through profit or loss | | 57,964 | 57,964 | 7,775 | 9,026 | 30,294 | 10,869 |
| Financial guarantee liabilities | | 8,813 | 8,813 | - | - | 8,813 | - |
| Financial guarantee contracts (*3) | | - | 36,046 | 36,046 | - | - | - |
| | ₩ | 14,826,199 | 16,434,897 | 2,563,085 | 2,294,638 | 6,406,882 | 5,170,292 |

(*1) Contractual cash flows include the estimated interest payments but exclude the effects of offsetting contracts.

(*2) Loans from Special Accounting for Energy and Resources ("SAER") included in borrowings have no specific maturity as entities were borrowed under the condition that the Group is not obligated to make repayment of the principal and interest until the exploration is proven to be successful.

(*3) Financial guarantee is allocated at the earliest period that the maximum amount could be requested.

## 43. Risk Management, Continued

(b) Financial risk management, continued

(iv) Liquidity risk, continued

The Group had a working capital (current assets minus current liabilities) deficit of ₩901,452 million as of December 31, 2018. The Group’s management currently anticipates that expected future capital contributions from the Government and the cash flows that the Group generates from its operations, together with its existing cash and cash equivalents and credit sources, will be sufficient to meet its currently anticipated needs for working capital, capital expenditures and business expansion throughout the foreseeable future.

(v) Other price risk

Other price risk is the risk that the fair value or cash flows of financial instruments will fluctuate because of changes in market prices other than interest rate risk and foreign currency risk. The Group's marketable available-for-sale equity securities are exposed to market price risk arising from the fluctuation in the price of the securities. However, the Group's management believes that the effect of the fluctuation in the price of the securities on the financial statements is not significant.

## 43. Risk Management, Continued

(c) Fair value measurement

(i) Fair value and book value of financial assets and liabilities as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | December 31, 2018 | | December 31, 2017 | |
|---|---|---|---|---|---|
| | | **Book value** | **Fair value** | **Book value** | **Fair value** |
| **Assets recognized at fair value** | | | | | |
| Available-for-sale financial assets | ₩ | - | - | 89,987 | 89,987 |
| Financial assets measured at fair value through other comprehensive income | | 32,219 | 32,219 | - | - |
| Financial assets measured at fair value through profit or loss | | 534,983 | 534,983 | - | - |
| Currency forwards | | - | - | 2,596 | 2,596 |
| Currency swap | | 25,925 | 25,925 | 44,269 | 44,269 |
| Interest rate swap | | 6,014 | 6,014 | 4,110 | 4,110 |
| Other derivative | | 101,261 | 101,261 | 859 | 859 |
| Investments in associates and joint ventures (*) | | 35,507 | 35,507 | 48,047 | 48,047 |
| | | 735,909 | 735,909 | 189,868 | 189,868 |
| **Assets recognized at amortized costs** | | | | | |
| Cash and cash equivalent | | 778,120 | 778,120 | 791,075 | 791,075 |
| Available-for-sale financial assets | | - | - | 820 | 820 |
| Long-term loans | | 150,660 | 150,660 | 485,279 | 485,279 |
| Short-term financial instruments | | - | - | 2,074 | 2,074 |
| Long-term financial instruments | | 5,085 | 5,085 | 4,873 | 4,873 |
| Other financial assets | | 16,291 | 16,291 | 14,919 | 14,919 |
| Trade receivables and other receivables | | 477,946 | 477,946 | 654,038 | 654,038 |
| | | 1,428,102 | 1,428,102 | 1,953,078 | 1,953,078 |
| **Liabilities recognized at fair value** | | | | | |
| Currency forwards | | 233 | 233 | - | - |
| Currency swap | | 108,033 | 108,033 | 64,662 | 64,662 |
| Interest swap | | 11,115 | 11,115 | - | - |
| Financial liabilities measured at fair value through profit or loss | | 57,964 | 57,964 | - | - |
| Financial liabilities at fair value through profit or loss | | - | - | 72,882 | 72,882 |
| Other derivative | | 126 | 126 | 77,079 | 77,079 |
| | | 177,471 | 177,471 | 214,623 | 214,623 |
| **Liabilities recognized at amortized costs** | | | | | |
| Bond payables without collateral | | 11,169,165 | 11,169,165 | 11,335,535 | 11,335,535 |
| Bank borrowings without collateral | | 2,391,740 | 2,391,740 | 1,870,892 | 1,870,892 |
| Trade and payables | | 1,079,010 | 1,079,010 | 1,290,198 | 1,290,198 |
| Financial guarantee liabilities | | 8,813 | 8,813 | - | - |
| | ₩ | 14,648,728 | 14,648,728 | 14,496,625 | 14,496625 |

(*) The investments in joint ventures for Deep Basin Partnership and HKMS Partnership held by the Group are measured at the fair value at each financial statement date using the hypothetical liquidation book value method to estimate the Group's interests in the net assets of the joint ventures.

The fair values of the financial assets and liabilities measured at amortized costs do not significantly differ from their book values.

## 43. Risk Management, Continued

(c) Fair value measurement, continued

(ii) Fair value hierarchy

The following table provides an analysis of financial instruments that are measured subsequent to initial recognition at fair value, classified as Level 1, 2, or 3, based on the degree to which the fair value is observable.

Level 1: Unadjusted quoted prices in active markets for identical assets or liabilities;
Level 2: Inputs other than quoted prices that are observable for the asset or liability either directly or indirectly; and
Level 3: Inputs that are not based on observable market data.

Fair values of financial instruments by hierarchy level as of December 31, 2018 are as follows:

| *In millions of Korean won* | | December 31, 2018 | | | |
|---|---|---|---|---|---|
| | | **Level 1** | **Level 2** | **Level 3** | **Total** |
| **Financial assets at fair value** | | | | | |
| Through other comprehensive income | ₩ | 24,479 | - | 7,740 | 32,219 |
| Through profit or loss | | - | - | 534,983 | 534,983 |
| Investments in associates and joint ventures | | - | - | 35,507 | 35,507 |
| Derivative assets | | - | 114,201 | 18,999 | 133,200 |
| | | 24,479 | 114,201 | 597,229 | 735,909 |
| **Financial liabilities at fair value** | | | | | |
| Derivative liabilities | | - | 119,507 | - | 119,507 |
| Measured at fair value through profit or loss | | - | - | 57,964 | 57,964 |
| | | - | 119,507 | 57,964 | 177,471 |

## 44. Related Parties

(a) The Group's major related parties as of December 31, 2018 are as follows:

| Type | Related parties |
|---|---|
| Associates | Oilhub Korea Yeosu Co., Ltd. |
| | Kernhem B.V. |
| | ADA Oil LLP |
| | Parallel Petroleum LLC |
| | KNOC EF Star LLC and its subsidiaries (*1) |
| Joint ventures | KNOC Inam Ltd. |
| | KNOC Kamchatka Petroleum Ltd. |
| | KC Karpovsky B.V.(*2) |
| | KNOC Bazian Ltd. |
| | KNOC Nigerian West Oil Company Ltd. |
| | KNOC Nigerian East Oil Company Ltd. |
| | KNOC Aral Ltd.(*2) |
| | Korea kamchatka Co., Ltd. |
| | KC kazakh B.V. |
| | Offshore International Group, Inc. |
| | KNOC Ferghana Ltd. |
| | KNOC Ferghana2 Ltd. |
| | KADOC Ltd. |
| | Korea Oil Terminal Co., Ltd. |
| | Deep Basin Partnership |
| | HKMS Partnership |
| Other related parties | KNOC Trading Corporation |

(*1) Due to lose of control during the year ended December 31, 2018, it has been excluded from the scope of consolidation and classified as an associate.
(*2) Liquidation process has been completed for the year ended December 31, 2018.

## 44. Related Parties, Continued

(b) Significant transactions with related parties for the years ended December 31, 2018 and 2017 are as follows:

| | | Sales and others | | Purchases and others | |
|---|---|---|---|---|---|
| *In millions of Korean won* | **Transaction** | **2018** | **2017** | **2018** | **2017** |
| Oilhub Korea Yeosu Co., Ltd. | Revenues from rental services | ₩ 1,458 | 1,470 | - | - |
| | Dividend income | 3,016 | - | - | - |
| | Expenses from rental services | - | - | 13,943 | 13,646 |
| Kernhem B.V. | Interest on loans | - | 1,879 | - | - |
| | Reversal of bad debt allowance | 4,208 | - | - | - |
| | Other bad debt expenses | - | - | - | 41,685 |
| ADA Oil LLP | Interest on loans | - | 433 | - | - |
| | Revenues from services | 1,577 | 1,557 | - | - |
| | Reversal of bad debt allowance | 1,755 | - | - | - |
| | Other bad debt expenses | - | - | - | 12,692 |
| KNOC Nigerian West Oil Company Ltd. | Interest on loans | - | 2,544 | - | - |
| | Gain on valuation of financial instruments measure at fair value through profit of loss | 18,588 | - | - | - |
| | Other bad debt expenses | - | - | - | 297 |
| KNOC Nigerian East Oil Company Ltd. | Interest on loans | - | 2,804 | - | - |
| | Gain on valuation of financial instruments measure at fair value through profit or loss | 22,338 | - | - | - |
| | Other bad debt expenses | - | - | - | 297 |
| KNOC Aral Ltd. | Reversal of bad debt allowance | 77 | - | - | - |
| Korea kamchatka Co., Ltd. | Other bad debt expenses | - | - | - | 156 |
| | Reversal of bad debt allowance | - | 7,934 | - | - |
| Offshore International Group, Inc. | Interest on loans | 2,523 | 3,215 | - | - |
| KNOC Ferghana2 Ltd. | Other bad debt expenses | - | - | - | 196 |
| | Loss on valuation of financial instruments measure at fair value through profit or loss | - | - | 863 | - |
| KADOC Ltd. | Interest on loans | 7,910 | 6,381 | - | - |
| Parallel Petroleum LLC | Interest on loans | 308 | 323 | - | - |
| | Other finance expenses | - | - | 5,921 | - |
| Deep Basin Partnership | Other expenses | - | - | 1,803 | 1,585 |
| HKMS Partnership | Other expenses | - | - | 355 | 280 |
| | | ₩ 63,758 | 28,540 | 22,885 | 70,834 |

**44. Related Parties, Continued**

(c) The outstanding receivables and payables, except for loans, arising from the transactions with related parties as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | | Receivables | | Payables | |
|---|---|---|---|---|---|---|
| | **Transaction** | | **2018** | **2017** | **2018** | **2017** |
| Oilhub Korea Yeosu Co., Ltd. | Other account payables | ₩ | - | - | 1,861 | 1,073 |
| KNOC Nigerian West Oil Company Ltd. | Accrued interest | | 21,859 | 20,946 | - | - |
| KNOC Nigerian East Oil Company Ltd. | Accrued interest | | 24,252 | 23,239 | - | - |
| KADOC Ltd. | Accrued interest | | 28,958 | 20,046 | - | - |
| Offshore International Group, Inc. | Accrued interest | | 67 | 108 | - | - |
| Deep Basin Partnership | Account payables | | - | - | 9,540 | 12,316 |
| HKMS Partnership | Account payables | | - | - | 709 | 386 |
| | | ₩ | 75,136 | 64,339 | 12,110 | 13,775 |

The Group recognized reversal of other bad debt expenses of ₩5,963 million on receivables arising from the transaction with related parties for the year ended December 31, 2018.

(d) Loans to related parties as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | **December 31, 2018** | **December 31, 2017** |
|---|---|---|---|
| **Associates** | | | |
| Parallel Petroleum LLC | ₩ | - | 5,814 |
| **Joint ventures** | | | |
| KNOC Nigerian West Oil Company Ltd. | | 48,554 | 27,977 |
| KNOC Nigerian East Oil Company Ltd. | | 55,842 | 31,280 |
| Offshore International Group, Inc. | | 39,483 | 52,967 |
| KADOC Ltd. | | 302,849 | 200,563 |
| | ₩ | 446,728 | 318,601 |

The Group provided associates and joint ventures with additional loans of ₩105,276 million and received ₩15,976 million as the repayment of loans for the year ended December 31, 2018. The Group recognized financial guarantee expense of ₩5,921 million, reversal of other bad debt allowance of ₩77 million and gain on valuation of ₩40,063 million. Also loss on valuation under equity method amounting to ₩11,098 million and increased amount due to change in foreign currency amounting to ₩15,706 million have been recognized.

## 44. Related Parties, Continued

(e) Borrowings from the related parties as of December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| **Associates** | | | |
| KNOC EF Star LLC | ₩ | 452,602 | - |

(f) As of December 31, 2018, the Group does not provide any guarantees to the related parties.

(g) As of December 31, 2018, the Group is not provided with any guarantees from the related parties.

(h) The Company entered into a USD 70 million loan agreement available to February 19, 2021 with Offshore International Group Inc., an investment in joint venture. As of December 31, 2018, Offshore International Group Inc. had ₩39,483 million drawn under the loan agreement.

(i) The Company entered into Commercial Storage Agreement with Oilhub Korea Yeosu Co., Ltd., its associates, and leased storage with a volume of 240,000cbm per year. The agreement is terminated on March 31, 2021.

(j) The compensations to the key management personnel of the Group for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | 2018 | 2017 |
|---|---|---|---|
| Salaries | ₩ | 351 | 552 |
| Severance and retirement benefits | | 25 | 43 |
| | ₩ | 376 | 595 |

## 45. Additional Cash Flow Statement Information

(a) Non-Cash Transactions

Significant non-cash investment and finance transactions excluded from statements of cash flows for the years ended December 31, 2018 and 2017 are as follows:

| *In millions of Korean won* | | **2018** | **2017** |
|---|---|---|---|
| Bond payables transferred to current portion | ₩ | 1,403,666 | 2,435,235 |
| Long-term borrowings transferred to current portion | | - | 825,658 |
| Construction in progress transferred to other accounts | | 182,483 | 29,008 |
| Non-current liabilities transferred to current portion | | 13,680 | 10,710 |

(b) Details of change in liabilities in financing activities are as follows:

| | | | | **Non-cash transaction** | | | |
|---|---|---|---|---|---|---|---|
| *In millions of Korean won* | | **Beginning balance** | **Cash flow** | **Change in exchange rate** | **Change in fair value** | **Others (*1)** | **Ending balance** |
| Current finance lease liability | ₩ | 8,327 | (8,566) | 357 | - | 8,209 | 8,327 |
| Non-current finance lease liability | | 212,721 | - | (318) | - | 1,537 | 213,940 |
| Short-term borrowings | | 53,570 | (209,013) | (353,835) | - | 578,600 | 69,322 |
| Current portion of long-term borrowings | | 53,566 | (55,015) | 1,445 | - | 4 | - |
| Long term borrowings | | 1,763,756 | 306,585 | 465,297 | - | (213,220) | 2,322,418 |
| Bond payables | | 9,012,821 | 1,821,362 | 446,095 | - | (1,481,195) | 9,799,083 |
| Current portion of bond payables(*2) | | 2,322,714 | (2,381,292) | 45,944 | - | 1,382,717 | 1,370,083 |
| Liabilities held to hedge risk of bond payable(*2) | | 64,662 | - | 84,406 | (22,371) | (7,549) | 119,148 |
| Assets held to hedge risk of bond payable(*2) | | 48,379 | - | (4,393) | (10,529) | (1,518) | 31,939 |

(*1) Includes liquidity transfer and amortization to present value etc.
(*2) The assets and liabilities above are comprised of currency swap and interest swap derivative and cash flows of derivative are included in the cash flow of related bond payables.

## 46. Contingencies and Commitments

(a) Details of the Group's significant pending litigations as of December 31, 2018 are as follows:

*In millions of Korean won*

| Plaintiff | Defendant | Description(*1) | Amount | Process |
|---|---|---|---|---|
| Hanhwa Corp. | The Company | Claiming refunds of the premium paid to the Company acquire interests in Yemen 4 oil field(*2) | ₩ 5,979 | In third trial |
| Hyundai Heavy Industries | The Company | Claiming refunds of the acquisition costs and premium paid to the Company acquire interests in Yemen 4 oil field(*3) | 20,906 | In third trial |
| SK Engineering & Construction Co.,Ltd. and POSCO Engineering & Construction Co., Ltd. | The Company | Claiming additional construction charge due to price escalation | 7,568 | In first trial |
| SK Engineering & Construction Co.,Ltd. and POSCO Engineering & Construction Co., Ltd. | The Company | Claiming adjustment of contracted amount due to design change and extension of construction period and additional construction charge thereto. | 11,204 | In first trial |

(*1) There are 4 cases againt the Company other than the litagations listed above amounting to total of ₩535 million, and there are 3 cases as the Company as plaintiff amounting total of ₩2,400 million.

(*2) The Company paid all claim amounts in February 2015 based on the loss of the first trial and received portion of statutory interest in January 2016 based on the partial loss of the second trial. The third trial is in the process as of December 31, 2018 by appealing to the decision of the second trial.

(*3) The Company received the return of the claim in March 2017 based on the win of the second trial and third trial is in the process as of December 31, 2018 by appealing to the decision.

Also, the Company is in the process of litigation with Dr. Owolabi claiming compensation for cooperation of acquiring Nigerian mining rights. The Group does not believe it has a present obligation and has not recognized any provisions for these lawsuits as of December 31, 2018.

(b) The Group has provided loan guarantees to non-related parties as of December 31, 2018 and 2017 as follows:

*In thousands of US dollar*

| Description of guarantee | Guaranteed Party | Effective Date | Guarantee period | | December 31, 2018 | December 31, 2017 |
|---|---|---|---|---|---|---|
| Payment guarantee for Parallel business | Samsung C&T Corporation and others | 2014-07-10 | Until loans fully repaid | USD | 7,882 | 8,459 |
| | | 2016-06-20 | | | 23,780 | 23,780 |

## 46. Contingencies and Commitments, Continued

(c) As of December 31, 2018, the Company's significant commitments with the financial institutions are as follows:

*In thousands of US dollar*

| Detail of contract | Financial institutions | | Credit line amount | Executed amount |
|---|---|---|---|---|
| Trade finance | Deutsche Bank | USD | 250,000 | - |
| | Development Bank of Singapore(*) | | 100,000 | - |
| | Bank of America(*) | | 210,000 | - |
| | ING Bank(*) | | 100,000 | - |
| | Standard Chartered bank(*) | | 150,000 | - |
| | | | 810,000 | - |
| Credit line | BNP Paribas | | 400,000 | - |
| | Development Bank of Singapore(*) | | 100,000 | - |
| | Mizuho Corporate Bank | | 150,000 | - |
| | Bank of America(*) | | 210,000 | - |
| | ING Bank(*) | | 100,000 | - |
| | Credit Agricole | | 100,000 | - |
| | Standard Chartered Bank(*) | | 150,000 | - |
| | The Export-Import Bank of Korea | | 400,000 | 184,000 |
| | Woori Bank | | 8,944 | - |
| | | USD | 1,618,944 | 184,000 |

(*) A portion of or all of lines of credit for trade finance and financial loans have been integrated and the integrated line of credit is USD 560 million.

(d) As of December 31, 2018, the Company has not received guarantees provided by non-related parties for the Company's obligations and indebtedness.

(e) In 2007 and 2008, the Company and Korean Consortium entered into an agreement (Production Sharing Contract) for the exploration and production of oil fields located in Iraq, with the Kurdish regional government ("KRG"), in accordance with the local Kurdish oil exploration laws. In 2008, the Iraqi federal government announced that such agreement in the region without obtaining proper approval from the federal government would be invalid to the Company and other participating companies in the region. The Company was advised by legal consultants in the UK and in Iraq that there is no legal basis on the alleged nullity of the agreement by the Iraqi government.

## 46. Contingencies and Commitments, Continued

(f) In 2009, the Company entered into an exclusive agreement with the Kurdish regional government ("KRG") to obtain rights on five exploratory areas. In consideration of obtaining these rights, the Company committed to pay USD 1.9 billion of construction services for the government's Social Overhead Capital (SOC) and made payment of USD 25 million and signature bonus of USD 0.2 billion.

However, the agreement was amended twice until 2012. The Company's rights on three exploratory areas, including Qush Tappa, were terminated and the Company's USD 1.9 billion commitment was reduced to USD 1.175 billion. In addition, the quantity of return-guaranteed crude oil was reduced.

Meanwhile, in the process of amending the agreement in the early 2019, KRG is negotiating with the Company on the return of the Hawler block in exchange for paying SOC approved investment to the Company. The Company recorded mining rights in relation to this agreement and the carrying amount as of December 31, 2018 is ₩735,943 million. In addition, the Company recorded a current provision in relation to this agreement and the carrying amounts as of December 31, 2018 are ₩12,466 million which represent that the Company's estimated obligation of expected payments for KRG's SOC construction.

(g) The Company holds one-time right to purchase up to 30% of Korea GS E&P Pte. Ltd. which is owned by GS Energy Co. until February 2020. The exercise price is net of participation of GS Energy Co. in the business, cumulative expense and revenue until the date of the exercise. Accordingly, the Company recognized derivative assets amounting to ₩18,999 million.

## 46. Contingencies and Commitments, Continued

(h) As of December 31, 2018, other significant commitments and contingencies of the Company's subsidiaries are as follows:

(i) Harvest Operations Corp.("Harvest") and its subsidiaries

The Company provided a payment guarantee on senior notes issued by Harvest, its subsidiary in June 2016 for the principal amount of USD 196 million and their corresponding interest. The payment guarantee is effective until the maturity date (April 14, 2021) of the bonds.

In February 2017, Harvest entered into a credit facility for CAD 500 million which payment guaranteed by Export-Import Bank of Korea and the Company. The payment guarantee is effective until February 24, 2020.

Harvest entered into a credit facility maturing on February 24, 2020 for CAD 500 million with the Canadian Imperial Bank of Commerce and other financial institutions.

The Company provided a payment guarantee on senior notes issued by Harvest, its subsidiary, in May 2018 for the principal amount of USD 398 million and the corresponding interest. The payment guarantee is effective until the maturity date (June 1, 2023) of the bonds.

In May 2018, Harvest entered into a credit facility for CAD 300 million which payment guaranteed by Sumitomo Mitsui Banking Corporation and the Company. The payment guarantee is effective until February 24, 2020.

The Company provided a payment guarantee on senior notes issued by Harvest, its subsidiary, in September and November 2017 for the principal amount of USD 285 million and USD 200 million respectively and their corresponding interest. The payment guarantee is effective until the maturity date (September 21, 2022) of the bonds.

(ii) Dana Petroleum Limited("Dana") and its subsidiaries

Dana Petroleum Limited, a subsidiary, completed refinancing of USD 600 million in the form of Reserve Based Lending ("RBL") in September 2018 (maturity date: June 30, 2023). The agreement replaced a revolving credit facility agreement with total amount of USD 1,000 million (maturity date: December 13, 2018) and a credit facility agreement approved by the Company with total amount of USD 600 million (maturity date: December 31, 2018), and the exercised amount as of December 31, 2018 is USD 136 million. Debt capacity of RBL is determined based on the present value of future cash flow generated by production assets and development assets approved by the Field Development Plan (FDP), and the debt capacity is established through the redetermination applying the assumptions of the bank.

The Company provided a performance guarantee of GBP 77 million to Nexen and others for the expenses that will incur for restoration of the sites, decommissioning, dismantling and removal of the facilities and structures. Also, the Company provided a performance guarantee of NOK 117 million (limit: NOK 1,139 million) to ExxonMobile E&P Norway AS for transferring restoring obligation.

The Company, in relation to the acquisition of Dana Petroleum Limited's equity interest, has provided a guarantee for any potential environmental and bodily damages during the exploration and production activities by Dana Petroleum Norway AS to the Norwegian government.

## 46. Contingencies and Commitments, Continued

(h) As of December 31, 2018, other significant commitments and contingencies of the Company's subsidiaries are as follows, continued:

(iii) ANKOR E&P Holdings Corp. ("ANKOR") and its subsidiaries

The Company provided a payment guarantee for ANKOR, its subsidiary, in relation to the borrowings from The Expert-Import Bank of Korea and others up to the limit of USD 99 million.

The Company provided a performance guarantee of USD 121 million to Chubb Limited and others for the future restoration of oil and gas sites held by ANKOR.

(iv) KNOC Yemen Ltd.

The Company is in the process of arranging the liquidation of KNOC Yemen Ltd. with YICOM, an acquirer. According to the arrangement, the Company may have a possibility of settlement, of which the amount cannot be estimated

(v) KNOC Eagle Ford and its subsidiaries

JB Patriot Investment Type Private Investment Limited Liability Company, non-controlling interest of KNOC Eagle Ford Corporation entered into an agreement of acquiring redeemable preferred shares with KNOC Eagle Ford Corporation and KNOC EF Star LLC, its subsidiary. The Company entered into the cash deficiency support agreement with KNOC Eagle Ford Corporation. In the case of a breach of covenants, JB Patriot Investment Type Private Investment Limited Liability Company is entitled to exercise a drag along right to require the KNOC Eagle Ford Corporation to sell the entire common shares held by KNOC Eagle Ford Corporation together with the preferred shares.

Details of agreements with financial facilities of KNOC Eagle Ford and its subsidiaries are as follows:

*In thousands of US dollar*

| Agreement | Financial Institution | | Credit line amount | Executed amount |
|---|---|---|---|---|
| Credit line | Bank of America | USD | 25,000 | - |
| | Sumitomo Mitsui Banking Corporation | | 70,000 | - |
| | Societe Generale Bank | | 30,000 | - |
| | | USD | 125,000 | - |

## 47. Date of Authorization of Issue

The consolidated financial statements were authorized for issue by the Board of Directors on February 27, 2019.

## 48. Uncertainty of Deterioration in Operating Condition of Oil Market

Imbalance between supply and demand continues to drive low oil prices in the international crude oil market and oil prices are unlikely to increase in a short period of time. Low oil prices have continuously led to deterioration of Group's profitability and financial soundness.

The Group is carrying forward a scheme to improve the profitability and financial soundness against the unstable oil market. There is a significant uncertainty with respect to the Group's future business results depending on the extent of recovery of oil prices.

## 49. Correction of Errors

Due to change in the consolidated financial statements of Ankor E&P Holdings Corp. ("AEPH), a subsidiary of the Group, and change in accounting for PLL Holding LLC ("PLL"), an associate of AEPH, the consolidated financial statements for the year ended December 31, 2017 has been restated. The Group measured the future dividends of KOA Energy LP, which was originally recognized as non-controlling interest as of December 31, 2017, and recognized the amount as financial liability of AEPH. Also, for the year ended December 31, 2017, the Group reversed the loss on valuation of investments in associates in relation to PPL which had been excessively recognized for the year ended 31, 2016.

(a) Details of the impact of the changes above on the Group's consolidated statement of financial position are as follows:

| *In millions of Korean won* | | **December 31, 2017** | | **January 1, 2017** | |
|---|---|---|---|---|---|
| | | **Before adjustment** | **After adjustment** | **Before adjustment** | **After adjustment** |
| Current assets | | | | | |
| Short-term loan and other receivables | ₩ | 3,185 | 5,814 | - | - |
| | | 3,185 | 5,814 | - | - |
| Non-current assets | | | | | |
| Investment in associates | | 50,430 | 67,500 | 46,458 | 68,966 |
| | | 50,430 | 67,500 | 46,458 | 68,966 |
| Current liabilities | | | | | |
| Current portion of financial liabilities at fair value through profit or loss | | - | 13,272 | - | 16,287 |
| | | - | 13,272 | - | 16,287 |
| Non-current liabilities | | | | | |
| Financial liabilities at fair value through profit or loss | | - | 59,610 | - | 62,969 |
| | | - | 59,610 | - | 62,969 |
| Equity | | | | | |
| Accumulated deficit | | (8,463,173) | (8,363,377) | (7,633,552) | (7,515,099) |
| Accumulated other comprehensive income | | (601,800) | (614,257) | - | - |
| Non-controlling interests | | 1,042,227 | 901,706 | 1,109,888 | 934,686 |
| | ₩ | (8,022,746) | (8,075,928) | (6,523,664) | (6,580,413) |

## 49. Correction of Errors, Continued

(b) Details of the impact of the changes above on the Group's consolidated statement of comprehensive loss are as follows:

| *In millions of Korean won* | | **2017** | |
|---|---|---|---|
| | | **Before adjustment** | **After adjustment** |
| Finance cost | | | |
| Loss on valuation of financial asset at fair value through profit or loss | ₩ | - | 2,762 |
| | | - | 2,762 |
| Gain or loss on associates and joint ventures | | | |
| Loss on valuation of investments in associates and joint ventures | | 128,646 | 128,915 |
| | | 128,646 | 128,915 |
| Net loss attributed to controlling interests | | (832,714) | (851,371) |
| Net profit attributed to controlling interests | | 98,954 | 114,580 |
| | ₩ | (733,760) | (736,791) |

As a result of the accounting changes, the Group's net asset decreased (-)₩53,183 million and loss for the year increased (-)₩3,031 million.

## THE ISSUER

**Korea National Oil Corporation**
305, Jongga-ro
Jung-gu
Ulsan, 44538
Korea

## ISSUING AND PRINCIPAL PAYING AGENT, REGISTRAR, EXCHANGE AGENT AND TRANSFER AGENT

**Citibank, N.A., London Branch**
c/o Citibank, N.A., Dublin Branch
1 North Wall Quay
Dublin 1
Ireland

## LEGAL ADVISERS

*To the Issuer as to Korean law*
**Lee & Ko**
18th Fl., Hanjin Main Building
63 Namdaemun-ro
Jung-gu
Seoul 04532, Korea

*To the Dealers as to English law*
**Cleary Gottlieb Steen & Hamilton LLP**
19F, Ferrum Tower
19, Eulji-ro 5-gil
Jung-gu
Seoul 04539, Korea

## INDEPENDENT AUDITORS

**KPMG Samjong Accounting Corp.**
27th Floor, Gangnam Finance Center
152, Teheran-ro, Gangnam-gu
Seoul 06236, Korea

**Ernst & Young Han Young**
3-8th Floor, Taeyoung Bldg.
111 Yeouigongwon-ro, Yeongdeungpo-gu
Seoul 07241, Korea

## DEALERS

**BNP Paribas**
63/F, Two International Finance Centre
8 Finance Street, Central
Hong Kong

**Citigroup Global Markets Inc.**
388 Greenwich Street
New York, NY 10013
United States of America

**Crédit Agricole Corporate and Investment Bank**
30/F, Two Pacific Place
88 Queensway
Hong Kong

**Credit Suisse Securities (Europe) Limited**
One Cabot Square
London E14 4QJ
United Kingdom

**The Hongkong and Shanghai Banking Corporation Limited**
Level 17, HSBC Main Building
1 Queen's Road Central
Hong Kong

**J.P. Morgan Securities plc**
25 Bank Street
Canary Wharf
London E14 5JP
United Kingdom

**The Korea Development Bank**
14 Eunhaeng-ro
Yeongdeungpo-gu
Seoul 07242, Korea

**Merrill Lynch International**
2 King Edward Street
London EC1A 1HQ
United Kingdom

**MUFG Securities EMEA plc**
Ropemaker Place, 25 Ropemaker Street,
London EC2Y 9AJ
United Kingdom

**Morgan Stanley & Co. International plc**
25 Cabot Square, Canary Wharf
London E14 4QA
United Kingdom

**Nomura Singapore Limited**
10 Marina Boulevard #36-01
Marina Bay Financial Centre Tower 2
Singapore 018983

**Société Générale**
29 Boulevard Haussmann
75009 Paris
France

**Standard Chartered Bank**
One Basinghall Avenue
London EC2V 5DD
United Kingdom

**UBS AG, Hong Kong Branch**
52th Floor, Two International Finance Centre
8 Finance Street, Central
Hong Kong

## SINGAPORE LISTING AGENT

**Shook Lin & Bok LLP**
1 Robinson Road
#18-00 AIA Tower
Singapore 048542