IMPORTANT NOTICE

NOT FOR DISTRIBUTION TO ANY PERSON OR ADDRESS IN THE UNITED STATES

IMPORTANT: You must read the following before continuing. If you are not the intended recipient of this message, please do not distribute or copy the information contained in this e-mail, but instead, delete and destroy all copies of this e-mail including all attachments. The following applies to the Offering Circular following this page, and you are therefore advised to read this carefully before reading, accessing or making any other use of the Offering Circular. In accessing the Offering Circular, you agree to be bound by the following terms and conditions, including any modifications to them any time you receive any information from us as a result of such access.

NOTHING IN THIS ELECTRONIC TRANSMISSION CONSTITUTES AN OFFER OF SECURITIES FOR SALE IN ANY JURISDICTION WHERE IT IS UNLAWFUL TO DO SO. THE SECURITIES HAVE NOT BEEN, AND WILL NOT BE, REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR THE SECURITIES LAWS OF ANY STATE OF THE U.S. OR OTHER JURISDICTION AND THE SECURITIES MAY NOT BE OFFERED OR SOLD WITHIN THE U.S., EXCEPT PURSUANT TO AN EXEMPTION FROM, OR IN A TRANSACTION NOT SUBJECT TO, THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND APPLICABLE STATE OR LOCAL SECURITIES LAWS.

THE FOLLOWING OFFERING CIRCULAR MAY NOT BE FORWARDED OR DISTRIBUTED TO ANY OTHER PERSON AND MAY NOT BE REPRODUCED IN ANY MANNER WHATSOEVER. ANY FORWARDING, DISTRIBUTION OR REPRODUCTION OF THIS DOCUMENT IN WHOLE OR IN PART IS UNAUTHORIZED. FAILURE TO COMPLY WITH THIS DIRECTIVE MAY RESULT IN A VIOLATION OF THE SECURITIES ACT OR THE APPLICABLE LAWS OF OTHER JURISDICTIONS. ANY INVESTMENT DECISION SHOULD BE MADE ON THE BASIS OF THE FINAL TERMS AND CONDITIONS OF THE RELEVANT SECURITIES. IF YOU HAVE GAINED ACCESS TO THIS TRANSMISSION CONTRARY TO ANY OF THE FOREGOING RESTRICTIONS, YOU ARE NOT AUTHORIZED AND WILL NOT BE ABLE TO PURCHASE ANY OF THE SECURITIES DESCRIBED THEREIN.

Confirmation of your representation: In order to be eligible to view the Offering Circular or make an investment decision with respect to the securities, investors must be outside the United States as defined in Regulation S under the Securities Act. The Offering Circular is being sent at your request and by accepting the e-mail and accessing the Offering Circular, you shall be deemed to have represented to us that (1) you and any customers you represent are outside of the United States, (2) the e-mail address that you gave us and to which this e-mail has been delivered is not located in the United States and, to the extent you purchase the securities, you will be doing so pursuant to Regulation S and (3) you consent to delivery of the Offering Circular and any amendments and supplements thereto by electronic transmission.

You are reminded that the following Offering Circular has been delivered to you on the basis that you are a person into whose possession the following Offering Circular may be lawfully delivered in accordance with the laws of jurisdiction in which you are located and you may not, nor are you authorized to, deliver or disclose the contents of the following Offering Circular to any other person. If this is not the case, you must return this Offering Circular to us immediately.

The materials relating to the offering do not constitute, and may not be used in connection with, an offer or solicitation in any place where offers or solicitations are not permitted by law. If a jurisdiction requires that the offering be made by a licensed broker or dealer and the initial purchasers or any affiliate of the initial purchasers is a licensed broker or dealer in that jurisdiction, the offering shall be deemed to be made by the initial purchasers or such affiliate on behalf of the issuer in such jurisdiction.

The following Offering Circular has been sent to you in an electronic form. You are reminded that documents transmitted via this medium may be altered or changed during the process of electronic transmission and consequently, none of BNP Paribas, Citigroup Global Markets Limited, Crédit Agricole Corporate and Investment Bank, The Hongkong and Shanghai Banking Corporation Limited and Merrill Lynch International (collectively, the "Initial Purchasers") nor any person who controls any of them nor any director, officer, employee nor agent of any of them or affiliate of any such person accepts any liability or responsibility whatsoever in respect of any difference between the Offering Circular distributed to you in electronic format and the hard copy version available to you on request from the Initial Purchasers.

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

OFFERING CIRCULAR **STRICTLY CONFIDENTIAL**

SK Battery America, Inc.

(a corporation organized under the laws of the state of Delaware)

US$300,000,000 1.625% Guaranteed Green Notes due 2024
US$700,000,000 2.125% Guaranteed Green Notes due 2026
unconditionally and irrevocably guaranteed by

SK Innovation Co., Ltd.

(a corporation organized under the laws of the Republic of Korea)

SK Battery America, Inc. (the "Issuer") is offering US$300,000,000 aggregate principal amount of 1.625% Guaranteed Green Notes due 2024 (the "2024 Notes") unconditionally and irrevocably guaranteed by SK Innovation Co., Ltd. (the "Guarantor" or the "Company") and US$700,000,000 aggregate principal amount of 2.125% Guaranteed Green Notes due 2026 (the "2026 Notes" and together with the 2024 Notes, the "Notes") unconditionally and irrevocably guaranteed by the Guarantor (such guarantees of the 2024 Notes and the 2026 Notes together, the "Guarantees"). The 2024 Notes will mature on January 26, 2024 and will bear interest at the rate of 1.625% per annum from, and including, January 26, 2021 to, but excluding, January 26, 2024. The 2026 Notes will mature on January 26, 2026 and will bear interest at the rate of 2.125% per annum from, and including, January 26, 2021 to, but excluding, January 26, 2026. Interest on the Notes will be payable semi-annually in arrears on January 26 and July 26 of each year, commencing July 26, 2021. The Issuer may, at its option, redeem all, but not some only, of the Notes at any time at their principal amount plus accrued interest in the event of certain changes in tax law as described under "Terms and Conditions of the Notes — Redemption and Purchase — Redemption for Taxation Reasons."

The Notes will be unsecured and will be the direct, unconditional and unsubordinated general obligations of the Issuer and will rank *pari passu* among themselves and at least equally with all other outstanding unsecured and unsubordinated general obligations of the Issuer, except as may be required by mandatory provisions of law. The Guarantees will be unsecured and will be the direct, unconditional and unsubordinated general obligations of the Guarantor and will rank *pari passu* with all other outstanding unsecured and unsubordinated general obligations of the Guarantor, except as may be required by mandatory provisions of law.

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

The Notes are each expected to be rated "Baa3" by Moody's Investors Service, Inc. ("Moody's"). A rating is not a recommendation to buy, sell or hold securities and may be subject to revision, suspension or withdrawal at any time by the assigning rating organization.

The Notes and the Guarantees have not been and will not be registered under the U.S. Securities Act of 1933, as amended (the "Securities Act"), or the securities laws of any other jurisdiction, and may not be offered or sold directly or indirectly within the United States except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act. Accordingly, the Notes and the Guarantees are being offered and sold outside the United States in offshore transactions in reliance on Regulation S under the Securities Act ("Regulation S") and in compliance with applicable laws, regulations and directives. For further details about eligible offers and resale restrictions, see "Subscription and Sale."

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

Investing in the Notes involves risks. See "Risk Factors" beginning on page 11 to read about certain risk factors you should consider before investing in the Notes.

2024 Notes Issue Price: 99.741%

2026 Notes Issue Price: 99.562%

(plus accrued interest, if any, from January 26, 2021)

Delivery of the Notes in book-entry form will be made on or about January 26, 2021.

Joint Bookrunners and Lead Managers

(in alphabetical order)

BNP PARIBAS **BofA Securities**

Citigroup **Crédit Agricole CIB**

HSBC

The date of this Offering Circular is January 19, 2021.

You should rely only on the information contained in this Offering Circular. Neither the Issuer nor the Company has authorized anyone to provide you with information that is different. This Offering Circular may only be used where it is legal to sell these securities. The information in this Offering Circular may only be accurate as of the date of this Offering Circular.

IN CONNECTION WITH THIS OFFERING, TO THE EXTENT PERMITTED BY, AND IN ACCORDANCE WITH, APPLICABLE LAWS AND REGULATIONS, ANY OF THE INITIAL PURCHASERS APPOINTED AS A STABILIZATION MANAGER (THE "STABILIZATION MANAGER") (OR PERSONS ACTING ON BEHALF OF THE STABILIZATION MANAGER) MAY OVER-ALLOT OR EFFECT TRANSACTIONS WITH A VIEW TO SUPPORTING THE MARKET PRICE OF THE NOTES AT A LEVEL HIGHER THAN THAT WHICH MIGHT OTHERWISE PREVAIL. HOWEVER, THERE IS NO ASSURANCE THAT THE STABILIZATION MANAGER (OR PERSONS ACTING ON BEHALF OF THE STABILIZATION MANAGER) WILL UNDERTAKE SUCH STABILIZATION. ANY STABILIZATION MAY BEGIN ON OR AFTER THE DATE ON WHICH ADEQUATE PUBLIC DISCLOSURE OF THE TERMS OF THE OFFER OF THE NOTES IS MADE AND, IF BEGUN, MAY BE ENDED AT ANY TIME, BUT IT MUST END NO LATER THAN THE EARLIER OF 30 DAYS AFTER THE ISSUE DATE OF THE NOTES AND 60 DAYS AFTER THE DATE OF THE ALLOTMENT OF THE NOTES.

THE NOTES HAVE NOT BEEN AND WILL NOT BE REGISTERED UNDER THE FINANCIAL INVESTMENT SERVICES AND CAPITAL MARKETS ACT OF KOREA. ACCORDINGLY, THE NOTES MAY NOT BE OFFERED, SOLD OR DELIVERED, DIRECTLY OR INDIRECTLY, IN KOREA OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, ANY RESIDENT OF KOREA (AS SUCH TERM IS DEFINED UNDER THE FOREIGN EXCHANGE TRANSACTIONS ACT OF KOREA AND ITS PRESIDENTIAL DECREE) OR TO OTHERS FOR RE-OFFERING OR RESALE, DIRECTLY OR INDIRECTLY, IN KOREA OR TO ANY RESIDENTS OF KOREA, EXCEPT AS OTHERWISE PERMITTED UNDER APPLICABLE KOREAN LAWS AND REGULATIONS. IN ADDITION, DURING THE FIRST YEAR AFTER THE ISSUANCE OF THE NOTES, THE NOTES MAY NOT BE TRANSFERRED TO ANY RESIDENT OF KOREA OTHER THAN A KOREAN QUALIFIED INSTITUTIONAL BUYER (A "KOREAN QIB," AS DEFINED IN THE REGULATION ON SECURITIES ISSUANCE AND PUBLIC DISCLOSURE, ETC. OF KOREA) WHO IS REGISTERED WITH THE KOREA FINANCIAL INVESTMENT ASSOCIATION AS A KOREAN QIB, PROVIDED THAT THE AMOUNT OF THE NOTES ACQUIRED BY SUCH KOREAN QIBS IN THE PRIMARY MARKET IS LIMITED TO NO MORE THAN 20% OF THE AGGREGATE ISSUE AMOUNT OF THE NOTES.

No person has been authorized in connection with any offering of the Notes and the Guarantees to give any information or make any representation other than as contained in this Offering Circular and, if given or made, such information or representation must not be relied upon as having been authorized by the Issuer, the Company, by any Agent (as defined in the "Terms and Conditions of the Notes") or by the Initial Purchasers (as defined in "Subscription and Sale"). This Offering Circular does not constitute an offer to sell or a solicitation of an offer to buy any Notes by any person except in compliance with all applicable laws and regulations. No representation or warranty, express or implied, is made by the Initial Purchasers or any of their affiliates or advisors, or any Agent, as to the accuracy or completeness of the information contained in this Offering Circular, and nothing contained in this Offering Circular is, or shall be relied upon as, a promise or representation by the Initial Purchasers or their affiliates or advisors, or any Agent. Neither the delivery of this Offering Circular nor any sale made in connection with this Offering Circular shall under any circumstances imply that the information in this Offering Circular is correct as of any date subsequent to the date of this Offering Circular or constitute a representation that there has been no change or development reasonably likely to involve a material adverse change in the Issuer's or the Company's affairs since the date of this Offering Circular. Each Initial Purchaser and each Agent accordingly disclaims any and all responsibility or liability whether arising in tort or contract or otherwise which it might otherwise have in respect of the information contained in this Offering Circular, any other information provided by the Issuer or the Company in connection with the offering or any other such statement. Each person receiving this Offering Circular acknowledges that such person has not relied on the Initial Purchasers or any of their affiliates or advisors in connection with investigation of the accuracy of such information or such person's investment decisions.

The Notes and the Guarantees have not been registered with or approved or disapproved by the U.S. Securities and Exchange Commission, any state securities commission or other regulatory authority, nor has any of the foregoing authorities passed upon or endorsed the merits of this offering or the accuracy or adequacy of this Offering Circular. Any representation to the contrary is a criminal offense.

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 (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).

This Offering Circular does not constitute, and may not be used for purposes of, an offer, invitation or solicitation by anyone in any jurisdiction or in any circumstances in which such offer, invitation or solicitation is not authorized or to any person to whom it is unlawful to make such offer, invitation or solicitation. The distribution of this Offering Circular, the offering of the Notes and the Guarantees in certain jurisdictions may be restricted by law. Persons into whose possession this Offering Circular may come are required by the Issuer, the Company and the Initial Purchasers to inform themselves about and to observe the relevant restrictions. For a description of certain restrictions on offers and sales of the Notes and distribution of this Offering Circular, see "Subscription and Sale." No action is being taken in any jurisdiction to permit an offering to the general public of Notes or the Guarantees or the distribution of this Offering Circular in any jurisdiction where action would be required for those purposes.

In making an investment decision, prospective investors must rely on their own examination of the Issuer, the Company and the terms of the offering of the Notes and the Guarantees, including the merits and risks involved. The Issuer and the Company are not and no Agent is making any representation to any purchaser of the Notes regarding the legality of an investment in the Notes by such purchaser under any legal investment or similar laws or regulations. The contents of this Offering Circular should not be construed as providing legal, business, accounting or tax advice.

TABLE OF CONTENTS

PRESENTATION OF FINANCIAL INFORMATION

The audited consolidated financial statements of the Company as of and for the years ended December 31, 2017, 2018 and 2019 included in this Offering Circular have been prepared in accordance with International Financial Reporting Standards as adopted by Korea ("K-IFRS"), which differ in certain significant respects from generally accepted accounting principles in other countries. The Company has made no attempt to identify or quantify the impact of these differences. The interim condensed consolidated financial statements of the Company as of September 30, 2020 and for the nine-month periods ended September 30, 2019 and 2020 included in this Offering Circular have been prepared in accordance with K-IFRS No. 1034 "Interim Financial Reporting."

The Company's audited consolidated annual financial statements for the years ended December 31, 2017 and 2018 ("2018 Annual Financial Statements") have been prepared by Deloitte Anjin LLC, and the Company's audited consolidated annual financial statements for the year ended December 31, 2019 ("2019 Annual Financial Statements") have been audited by Ernst & Young Han Young. For the 2019 Annual Financial Statements, the Company has restated the consolidated financial statements as of and for the year ended December 31, 2018 presented for comparative purposes due to changes in the scope of consolidation of SK Lubricants Co., Ltd., a subsidiary of the Company. The Company has concluded that the joint approvals with PT Pertamina Patra Niaga Company Limited and Repsol Petroleo S.A. are significant in its decision making-requirement for the management of PT. Parta SK and Iberian Lube Base Oil Company, S.A., respectively. As a result, the Company reclassified PT. Patra SK and Iberian Lube Base Oil Company as joint operations and determined to restate the consolidated financial statements presented for comparative purposes.

The financial information as of and for the year ended December 31, 2018 appearing elsewhere in this Offering Circular have been prepared in accordance with the 2018 Annual Financial Statements. As the 2018 Annual Financial Statements have not been restated as described above, there may be discrepancies in certain of the figures as of and for the year ended December 31, 2018 appearing in the 2018 Annual Financial Statements and the 2019 Annual Financial Statements. For further information regarding such restatement and the resulting adjustments made to the relevant line items, see Note 37 of the notes to the 2019 Annual Financial Statements appearing elsewhere in this Offering Circular.

CERTAIN DEFINED TERMS AND CONVENTIONS

The Company has prepared this Offering Circular using a number of conventions that should be considered when reading the information contained in this Offering Circular. References herein to the "Issuer" are to SK Battery America, Inc. References herein to the "Company," "Guarantor" or "SK Innovation" are to SK Innovation Co., Ltd. and, unless the context otherwise requires, its consolidated subsidiaries. References herein to "SK Energy" are to SK Energy Co., Ltd., references herein to "SK Global Chemical" are to SK Global Chemical Co., Ltd., references herein to "SK ie technology" are to SK ie technology Co., Ltd., references herein to "SK Lubricants" are to SK Lubricants Co., Ltd., references herein to "SK Trading International" are to SK Trading International Co., Ltd. and references herein to "SK Incheon Petrochem" are to SK Incheon Petrochem Co., Ltd. References herein to "Korea" are to the Republic of Korea, and references to the "Government" are to the government of Korea.

All financial information, descriptions and other information in this offering circular regarding the Company's activities, financial condition and results of operations are, unless otherwise indicated or required by context, presented on a consolidated basis. References herein to "Won" and "₩" are to the lawful currency of Korea and references herein to "dollar," "U.S. dollar" and "US$" are to the lawful currency of the United States of America. Solely for the reader's convenience, certain Won amounts in this offering circular have been translated into U.S. dollars at the market average exchange rate, announced by Seoul Money Brokerage Services, Ltd. in Seoul, between Won and U.S. dollars, rounded to the nearest tenth of one Won (the "Market Average Exchange Rate"). For a discussion of historical information regarding the rate of exchange between the Won and U.S. dollars, see "Exchange Rates." No representation is made that the Won or U.S. dollar amounts referred to in this offering circular could have been or could be converted into U.S. dollars or Won, as the case may be, at any particular rate or at all. On September 30, 2020, the Market Average Exchange Rate in effect was ₩1,173.5 to US$1.00.

Any discrepancies in any table between totals and sums of the amounts listed are due to rounding. The Company maintains its accounts in Won.

References herein to "tons" are to metric tons.

FORWARD-LOOKING STATEMENTS

Certain statements in this Offering Circular constitute "forward-looking statements," including statements regarding the Issuer's and the Company's expectations and projections for future operating performance and business prospects. The words "believe," "expect," "anticipate," "estimate," "project," "will," "aim," "will likely result," "will continue," "intend," "target," "plan," "contemplate," "seek to," "future," "objective," "goal," "should," "will pursue" and similar expressions or variations of these expressions, including the negatives thereof, identify forward-looking statements. In addition, all statements other than statements of historical facts included in this Offering Circular, including, without limitation, those regarding the Issuer's and the Company's financial position and results, business strategy, plans and objectives of management for future operations, including development plans and objectives relating to the Issuer's and the Company's products and services, are forward-looking statements. Such forward-looking statements and any other projections contained in this Offering Circular (whether made by the Issuer, the Company or any third party) involve known and unknown risks, uncertainties and other factors which may cause the Issuer's or the Company's actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by forward-looking statements. Such forward-looking statements are based on current beliefs, assumptions, expectations, estimates and projections regarding the Issuer's and the Company's present and future business strategies and the environment in which the Issuer and the Company will operate in the future.

Among the important factors that could cause some or all of those assumptions not to occur or cause the Issuer's or the Company's actual results, performance or achievements to differ materially from those in the forward-looking statements include, among other things, the Issuer's and Company's ability to successfully implement its business strategy, the condition of and changes in the Korean, Asian, U.S. or global economies, the Issuer's or the Company's growth and expansion, including whether the Issuer or the Company succeeds in its business strategy, changes in interest rates and changes in the value of the Won and changes in government regulations in Korea and the United States, and competition in the petroleum, petrochemicals, base oil, lubricants and battery industries. Additional factors that could cause the Issuer's or the Company's actual results, performance or achievements to differ materially include, but are not limited to, those discussed under "Risk Factors." Any forward-looking statements contained in this Offering Circular speak only as of the date of this Offering Circular. Each of the Issuer, the Company and the Joint Lead Managers expressly disclaims any obligation or undertaking to release, publicly or otherwise, any updates or revisions to any forward-looking statement contained herein to reflect any change in the Issuer's or the Company's expectations with regard thereto or any change in events, conditions, assumptions or circumstances on which any such statement was based.

SUMMARY

The following summary is qualified in its entirety by, and subject to, the more detailed information appearing elsewhere in this Offering Circular, including the Company's financial statements and related notes. You should read the entire Offering Circular carefully, including "Risk Factors" and the financial statements contained in this Offering Circular. Certain capitalized terms used but not defined in this summary have meanings ascribed to them elsewhere in this Offering Circular.

The Issuer

The Issuer was incorporated in the State of Georgia on November 27, 2018 and was later converted to a Delaware corporation on February 21, 2019. The Issuer is a wholly-owned subsidiary of the Guarantor. The Issuer was established by the Company to construct and operate battery production plants in Georgia, United States. In March 2019, the Issuer commenced construction of the first plant with an expected annual capacity of 9.8 GWh. Construction of the first plant is expected to be completed in 2021 with production scheduled to begin in 2022. Upon commencement of production, the Issuer expects to supply battery cells to Volkswagen AG and the Ford Motor Company. The Issuer is currently planning to construct a second plant with an annual capacity of 11.7 GWh commencing in July 2020 to be completed by 2023.

The Issuer's headquarters and principal office is located at 26 Jong-ro Jongno-gu, Seoul 03188, Korea and the telephone number is +82 2 2121 5114. The Issuer's registered office is located at 201 17th Street NW, Suite 1700 Atlanta, GA 30363-1099.

The Company

The Company is one of the leading energy companies in Korea. As a holding-operating company of the energy-related businesses in the SK Group, Korea's third largest business group in terms of combined assets as of December 31, 2019, the Company manufactures, markets and sells a diversified portfolio of petroleum, petrochemical, base oil, lubricant and lithium-ion battery products through its subsidiaries. The Company also engages in E&P of natural resources, development and production of industrial material products, including lithium-ion battery separators and flexible cover windows, for a wide range of commercial applications and research and development in the energy field. Specifically, the Company's business is comprised of the following five segments:

- ***Petroleum refining and marketing.*** Through SK Energy, a wholly-owned subsidiary of the Company and the leading petroleum refiner in Korea, the Company engages in the refining of crude oil to produce a full range of refined petroleum products, which are categorized into light oils, middle distillates and heavy oils. The Company also engages in the trading of crude oil and petroleum products through its wholly-owned subsidiary SK Trading International, which served as the trading platform of SK Energy prior to its spin-off from SK Energy in July 2013. In 2017, 2018, 2019 and the first nine months of 2020, the Company's refined petroleum products accounted for approximately 32%, 32%, 32% and 30%, respectively, of all of the refined petroleum products sold in Korea based on sales volume as reported to Korea National Oil Corporation ("KNOC").
- ***Petrochemicals.*** Through SK Global Chemical, a wholly-owned subsidiary of the Company and a leading petrochemicals producer in Korea, the Company engages in the production and sale of a wide range of petrochemical products, which are categorized into olefins, aromatics, solvents, polymer and synthetic rubber. In recent years, the Company has focused its efforts on enhancing its product portfolio with higher value-added petrochemical products typically used in automotive and packaging materials. SK Incheon Petrochem, which was spun off from SK Energy and became one of the Company's consolidated subsidiaries in July 2013, produces a wide range of petrochemicals products,

including naphtha, gasoline, kerosene, diesel, jet fuel, paraxylene and benzene, which it sells through SK Global Chemical. In 2017, 2018, 2019 and the first nine months of 2020, approximately 50%, 51%, 50% and 53%, respectively of the Company's petrochemical products were exported, primarily to China.

- ***Base oil and lubricants.*** Through SK Lubricants, a wholly-owned subsidiary of the Company and the world's largest commercial producer of Group III base oil in terms of production capacity as well as a leading producer of lubricant products in Korea, the Company manufactures and sells base oil, the main feedstock for lubricants production, in a variety of specifications under the brand name YUBASE and a family of lubricant products under the brand name ZIC. According to Independent Chemical Information Service ("ICIS"), the Company's market share of the global Group III base oil market in terms of production capacity was approximately 36.7%, 36.7%, 37.1% and 37.0% in 2017, 2018, 2019 and the first nine months of 2020, respectively.

- ***Batteries.*** The Company engages in the production of rechargeable lithium-ion batteries used in a variety of commercial applications, including electronic vehicles and energy storage systems ("ESS") for renewable energy, for sale in the domestic and overseas markets. The Company launched its battery business in 1996 and in 2005, the Company commenced its lithium-ion battery business, principally for hybrid electric vehicles. In 2006, the Company commenced production of lithium-ion batteries and in 2012, the Company commenced mass production of lithium-ion batteries at its production facilities located in Seosan, Korea. The Company's domestic production facilities are located at the Seosan facilities, with current production capacity reaching 4.7 GWh, which is equivalent to the energy required by 130,000 units of electronic vehicles with battery capacity of 60 kWh. The Company's overseas production facilities are located in China, Hungary and the United States.

- ***E&P and others.*** Since 1983, the Company has been actively engaged in the overseas exploration and production of crude oil and natural gas. The Company is currently participating, through various consortiums and joint ventures, in overseas E&P activities in 13 blocks and four LNG projects in eight countries worldwide, including Blocks 88 and 56 in Peru and Block 15-1 in Vietnam. The Company currently also invests in four LNG projects overseas. In 2019 and the first nine months of 2020, the Company's net production of oil equivalents was 20 million barrels and 13 million barrels, respectively, which was sold in the international crude oil markets for revenues of ₩669 billion and ₩340 billion, respectively. The Company's proven reserves are approximately 455 million barrels of oil equivalent. The Company also engages in other businesses, including development and production of lithium-ion battery separators used in rechargeable batteries and flexible cover windows used to protect flexible display panels. In addition, the Company conducts oil and petrochemical research, catalyst and process research and environmentally-friendly and fuel-efficient technology research, as well as the development of new materials.

Established in 1962 as Korea's first oil refiner, the Company has emerged as a leading producer of petroleum, petrochemical and lubricant products in the Asia Pacific region. The Company seeks to accelerate its growth and expand its global reach mainly by actively developing a diversified and innovative product portfolio to achieve higher margins. In furtherance of such strategic objective, the Company has been focusing on strengthening its competitiveness not only in its traditional business segments, such as petroleum refining and petrochemicals production, but also in the new materials and green energy areas, such as production of lithium-ion batteries for electronic vehicles, to create new growth engines for the Company. While the Company plans to continue to develop higher value-added products and maintain sustainable growth in our major export markets, such as China, it also plans to expand its operations overseas through strategic alliances and acquisitions, including strategic alliances with trusted global players with distinguished capabilities. In addition, the Company plans to continue to adapt to rapidly changing technological and business landscapes by investing in technologies that help increase its competitiveness by leveraging its centralized research institute, Institute of

Technology Innovation, which is home to multiple research laboratories fulfilling the research and development needs of the energy-related companies in the SK Group.

The Company operates an extensive global network of state-of-the-art production facilities located in key strategic locations. The Company's principal domestic production facilities are located in Ulsan in southeast Korea and Incheon in northwest Korea. The Ulsan complex is one of the largest single-location refinery complexes in the world based on refining capacity and houses the main production facilities of the Company's petroleum, petrochemicals and lubricants operations, which enables the Company to take advantage of a high-quality labor force and reduce logistics and maintenance costs by having its energy-related subsidiaries share the infrastructure and facilities maintenance for their operations. The Ulsan complex has a total refining capacity of approximately 840,000 barrels of crude oil per day. Through a joint venture between SK Global Chemical and SABIC, a global chemicals company based in Saudi Arabia, the Company constructed a plant in Ulsan in May 2014 to manufacture high-performance polyethylene products, such as nexlene. In June 2014, through a joint venture between SK Global Chemical and JXTG Nippon Oil & Energy Corporation, a leading petroleum refining company in Japan, the Company completed the construction of, and commenced production at, an aromatics plant in the Ulsan complex with an annual production capacity of one million metric tons of paraxylene and 600,000 metric tons of benzene. The Incheon complex houses two crude distillation units with a total refining capacity of approximately 275,000 barrels of crude oil per day. In July 2014, the Company completed the transformation of the Incheon complex into an aromatics-focused refinery by adding new petrochemicals production facilities with an annual production capacity of 1.3 million metric tons of paraxylene and 490,000 metric tons of benzene. The Incheon complex operation became a newly-incorporated subsidiary of the Company following its spin-off from SK Energy in July 2013. See "Business — History." In 2006, the Company commenced production of lithium-ion batteries and in 2012, the Company commenced mass production of lithium-ion batteries at its production facilities located in Seosan, Korea. The Seosan facilities have current production capacity reaching 4.7 GWh, which is equivalent to the energy required by 130,000 units of electronic vehicles with battery capacity of 60 kWh. See "Business — Facilities — Production facilities — Domestic production facilities." In response to evolving market demand and in order to maintain the competitiveness of the Company's products as well as diversify its product portfolio, the Company plans to continue to invest in upgrading its existing production facilities. In recent years, the Company has also strived to strengthen its position by expanding its production facilities globally through strategic joint ventures.

The Company's sales amounted to ₩46,163 billion in 2017, ₩54,511 billion in 2018, ₩49,877 billion in 2019, ₩38,088 billion in the first nine months of 2019 and ₩26,782 billion in the first nine months of 2020. The Company recorded profit for the year of ₩2,145 billion in 2017, ₩1,710 billion in 2018 and ₩66 billion in 2019, and profit for the period of ₩505 billion in the first nine months of 2019 and loss for the period of ₩1,914 billion in the first nine months of 2020. The Company had total assets of ₩39,526 billion and total equity of ₩18,210 billion as of December 31, 2019, and total assets of ₩39,269 billion and total equity of ₩15,755 billion as of September 30, 2020.

The Company's registered office is at 26, Jong-ro, Jongno-gu, Seoul 03188, Korea.

THE OFFERING

The following is a brief summary of the terms of the offering and is qualified in its entirety by the remainder of this Offering Circular. Words and expressions defined in "Terms and Conditions of the Notes" have the same meanings in this summary.

Issuer	SK Battery America, Inc.
Offering	US$300,000,000 1.625% Guaranteed Green Notes due 2024; and US$700,000,000 2.125% Guaranteed Green Notes due 2026
Guarantor	SK Innovation Co., Ltd.
Guarantee	The Guarantor has given for the benefit of the Noteholders an unconditional and irrevocable guarantee for the due and punctual payment of all sums from time to time payable by the Issuer in respect of the Notes as and when the same shall become due according to the Conditions.
Issue Price	2024 Notes: 99.741% of the principal amount of the Notes. 2026 Notes: 99.562% of the principal amount of the Notes.
Issue Date	January 26, 2021
Maturity Date	2024 Notes: January 26, 2024 2026 Notes: January 26, 2026
Interest	1.625% per annum for the 2024 Notes and 2.125% per annum for the 2026 Notes, in each case, from, and including, January 26, 2021 to, but excluding, the applicable maturity date, payable semi-annually in arrears on January 26 and July 26 in each year. See "Terms and Conditions of the Notes — Interest."
Ranking of the Notes	The Notes constitute direct, unconditional, unsubordinated and unsecured obligations of the Issuer and shall at all times rank *pari passu* and without any preference or priority among themselves and with all other present and future direct, unconditional, unsubordinated and unsecured obligations of the Issuer, except as may be required by mandatory provisions of law. See "Terms and Conditions of the Notes — Status."
Ranking of the Guarantee	The Guarantee relating to the Notes constitutes a direct, general and unconditional obligation of the Guarantor which will be unsecured and will rank *pari passu* with all other present and future unsecured and unsubordinated obligations of the Guarantor (save for such as may be preferred by mandatory provision of applicable law). The Guarantee will remain in full effect until the earlier of (i) the payment of all sums payable in respect of the relevant Notes having been paid in full and (ii) the Maturity Date. See "Terms and Conditions of the Notes — Guarantee."

Certain Covenants	The Notes contain certain limitations on the ability of the Issuer, the Guarantor and the Principal Subsidiaries to create or permit to be outstanding any mortgage, charge, lien, pledge or other security interest upon the whole or any part of its property, assets or revenues, present or future to secure certain types of indebtedness and to engage in a consolidation, merger or sale of all or substantially all of its assets. See "Terms and Conditions of the Notes — Certain Covenants."
Issuer Substitution	The Issuer may, without the consent of any holder of the Notes, substitute the Guarantor for itself for all purposes under each series of the Notes and the relevant Fiscal Agency Agreement at any time ("Issuer Substitution") subject to certain conditions. See "Terms and Conditions of the Notes — Issuer Substitution."
Taxation and Additional Amounts . . .	Payment of principal and interest in respect of the Notes or the Guarantee, including payment of any additional amounts, by or on behalf of the Issuer or the Guarantor, shall be made free and clear of, and without withholding or deduction for, or on account of, any present or future taxes, duties, assessments or governmental charges of whatever nature imposed, levied, collected, withheld or assessed by or on behalf of the Relevant Jurisdiction, except as required by applicable law. In that event, the Issuer or, as the case may be, the Guarantor will, subject to certain exceptions and limitations, pay to a holder of any Note such additional amounts as may be necessary in order that every net payment by the Issuer, the Guarantor or a paying agent of the principal of and interest on the Notes and any other amounts payable on the Notes after withholding or deduction for or on account of any present or future tax, duty, assessment or governmental charge imposed or levied by a Relevant Jurisdiction will not be less than the amount provided for in the Notes to be then due and payable thereunder. See "Terms and Conditions of the Notes — Taxation" and "Taxation — Korean Taxation."
Redemption for Taxation Reasons	Prior to the applicable maturity date, each of the Notes will be redeemable at the option of the Issuer at any time in whole, but not in part, at 100% of their principal amount plus accrued and unpaid interest, if any, to the date fixed for redemption, in the event of certain changes in the tax law of the Relevant Jurisdiction. See "Terms and Conditions of the Notes — Redemption and Purchase — Redemption for Taxation Reasons."
Further Issuances	The Issuer may from time to time, without notice to or the consent of the holders of the Notes, create and issue further debt securities ranking *pari passu* with the Notes in all respects so that such further issue shall be consolidated and form a single series with the outstanding Notes.
Listing	Approval in-principle has been received from the SGX-ST for the listing and quotation of the Notes on the SGX-ST. For so long as the

	Notes are listed on the SGX-ST and the rules of the SGX-ST so require, the Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of S$200,000 (or its equivalent in foreign currencies). Accordingly, the Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of US$200,000. For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, in the event that a global note is exchanged for the Notes in certificated form, the Issuer will appoint and maintain a paying agent in Singapore, where the Notes may be presented or surrendered for payment or redemption. In addition, in the event that a global note is exchanged for the Notes in certificated form, an announcement of such exchange will be made by or on behalf of the Issuer through the SGX-ST and such announcement will include all material information with respect to the delivery of the Notes in certificated form, including details of the paying agent in Singapore.
Use of Proceeds	An amount equal to the net proceeds of the Notes ("Green Bond Proceeds") will be allocated to finance or refinance, in whole or in part, existing and future projects that provide environmental benefits relating to (i) low carbon transportation, (ii) energy efficiency and (iii) green buildings ("Eligible Green Categories") in accordance with the Issuer's Green Financing Framework, which is in alignment with the Green Bond Principles 2018 as administered by the International Capital Markets Association and the Green Loan Principles as administered by the Loan Market Association.
Ratings	The Notes are each expected to be rated "Baa3" by Moody's. Such ratings of the Notes do not constitute a recommendation to buy, sell or hold the Notes and may be subject to revision or withdrawal at any time by the rating organizations. Such ratings should be evaluated independently of any other rating of the Notes, of other securities of the Guarantor or of the Guarantor.
Form and Denomination	The Notes offered hereby will each be issued in registered form, without detachable coupons, in the minimum denomination of US$200,000 and integral multiples of US$1,000 in excess thereof. The Notes may each be held and transferred, and will be offered and sold, in the principal amount of US$200,000 and integral multiples of US$1,000 in excess thereof. The Notes will initially be represented by a Global Note in registered form deposited on the closing date with, and registered in the name of a nominee of, a common depositary (the "Common Depositary") for Euroclear Bank SA/NV as operator of the Euroclear System ("Euroclear") and Clearstream Banking S.A. ("Clearstream"). Beneficial interests in the Global Note will be shown on, and transfers thereof will be effected only through, the records maintained by Euroclear and Clearstream and their respective account holders. Except as described herein, definitive certificates representing the Notes will not be issued in exchange for beneficial interests in the Global Note. See "The Global Note."

Delivery of the Notes	Delivery of the Notes, against payment in same-day funds, is expected on or about January 26, 2021.
Risk Factors	See "Risk Factors" for a discussion of certain factors that investors should consider in connection with an investment in the Notes.
Fiscal Agent, Principal Paying Agent, Registrar and Transfer Agent	The Bank of New York Mellon, London Branch will act as the fiscal agent (the "Fiscal Agent") and principal paying agent and the Bank of New York Mellon SA/NV, Luxembourg Branch will act as the transfer agent and registrar under the Fiscal Agency Agreement for the Notes.
Governing Law	The Notes and the Fiscal Agency Agreement are governed by, and will be construed in accordance with, the laws of the State of New York.
Security Codes	2024 Notes: ISIN: XS2288890598 Common Code: 228889059 2026 Notes: ISIN: XS2288890671 Common Code: 228889067
LEI	54930012FBFVNU7RWO57

SUMMARY FINANCIAL AND OPERATING DATA

Investors should read the summary financial and operating data below in conjunction with the Company's consolidated financial statements and related notes and other historical financial information included elsewhere in this Offering Circular.

The following tables present summary financial and other information of the Company. The summary financial information as of and for the years ended December 31, 2017, 2018 and 2019 are derived from the audited consolidated financial statements as of and for the years ended December 31, 2017 and 2018 ("2018 Annual Financial Statements") and the audited consolidated financial statements as of and for the year ended December 31, 2019 ("2019 Annual Financial Statements") of the Company included elsewhere in this Offering Circular, which have been prepared in accordance with K-IFRS. The summary financial information presented as of September 30, 2020 and for the nine months ended September 30, 2019 and 2020 are derived from the interim condensed consolidated financial statements as of September 30, 2020 and for the three-month and nine-month periods ended September 30, 2019 and 2020 ("Interim Financial Statements") of the Company included elsewhere in this Offering Circular, which have been prepared in accordance with K-IFRS No. 1034 "*Interim Financial Reporting*."

For the 2019 Annual Financial Statements, the Company has restated the consolidated financial statements as of and for the year ended December 31, 2018 presented for comparative purposes due to changes in the scope of consolidation of SK Lubricants Co., Ltd., a subsidiary of the Company. The Company has concluded that the joint approvals with PT Pertamina Patra Niaga Company Limited and REPSOL PETROLEO S.A. are significant in its decision making-requirement for the management of PT. Parta SK and Iberian Lube Base Oil Company, S.A., respectively. As a result, the Company reclassified PT. Patra SK and Iberian Lube Base Oil Company as joint operations and determined to restate the consolidated financial statements presented for comparative purposes.

The financial information as of and for the years ended December 31, 2017 and 2018 appearing elsewhere in this Offering Circular have been prepared in accordance with the 2018 Annual Financial Statements. As the 2018 Annual Financial Statements have not been restated as described above, there may be discrepancies in certain of the figures as of and for the year ended December 31, 2018 appearing in the 2018 Annual Financial Statements and the 2019 Annual Financial Statements. For further information regarding such restatement and the resulting adjustments made to the relevant line items, see Note 37 of the notes to the 2019 Annual Financial Statements appearing elsewhere in this Offering Circular.

The Company's results of operations for the nine-month period ended September 30, 2020 may not be indicative of its results of operations for any future interim period or for the full year 2020.

Consolidated Income Statement Data

	For the Year Ended December 31,			For the Nine Months Ended September 30,	
	2017	2018	2019	2019	2020
		(Audited)		(Unaudited)	
			(in billions of Won)		
Sales	₩46,163	₩54,511	₩49,877	₩38,088	₩26,782
Cost of sales	40,825	50,529	46,746	35,609	27,507
Gross profit (loss)	5,338	3,982	3,131	2,479	(726)
Selling and administrative expenses	2,116	1,864	1,862	1,328	1,518
Operating profit (loss)	3,222	2,118	1,269	1,150	(2,244)
Finance income	1,882	3,181	2,713	2,428	3,146
Finance costs	2,051	2,949	3,260	2,856	3,351
Gain (loss) on investments in associates and joint ventures, net	311	155	54	73	(4)
Other non-operating income	80	109	118	94	57
Other non-operating expenses	221	212	518	144	120
Profit (loss) from continuing operation before income tax expense	3,224	2,402	376	745	(2,515)
Income tax expense (benefit)	1,076	705	311	240	(601)
Profit from continuing operations	2,147	1,697	66	505	(1,914)
Profit (loss) from discontinued operations	(2)	13	—	—	—
Profit (loss) for the period	2,145	1,710	66	505	(1,914)
Attributable to:					
Owners of the parent	2,104	1,651	(36)	455	(1,933)
Non-controlling interests	41	59	102	50	19
Other comprehensive income (loss)					
Items not reclassified subsequently to profit or loss:					
Net change in fair value of financial assets at fair value through other comprehensive income(1)	—	(13)	(38)	(9)	(18)
Remeasurement of defined benefit plans	13	(20)	(12)	(14)	4
Net gain (loss) on translation of foreign operations	(10)	3	(1)	1	7
Items reclassified subsequently to profit or loss:					
Net change in fair value of financial assets at fair value through other comprehensive income	—	0	0	0	0
Net change in fair value of available-for-sale financial assets	25	—	—	—	—
Equity adjustments of investments in associates and joint ventures	(145)	59	54	116	79
Net gain (loss) on translation of foreign operations	(150)	72	89	186	65
Net gain (loss) on valuation of derivative financial instruments for cash flow hedges	0	8	(8)	(9)	(31)
Total comprehensive income (loss)	1,878	1,820	151	776	(1,808)
Attributable to:					
Owners of the parent	1,847	1,758	50	725	(1,834)
Non-controlling interests	31	62	100	51	26

(1) Figures as of December 31, 2018 reflect the application of K-IFRS 1109 and K-IFRS 1115. See Note 2 of the notes to the Company's 2018 Annual Financial Statements included elsewhere in this Offering Circular.

Consolidated Balance Sheet Data

	As of December 31,			As of September 30, 2020
	2017	2018	2019	
		(Audited)		(Unaudited)
			(in billions of Won)	
Assets				
Current assets	₩16,220	₩16,752	₩17,353	₩14,574
Cash and cash equivalents	2,004	1,856	2,196	3,595
Short-term financial instruments	2,245	2,672	2,376	1,316
Trade receivables	4,821	4,460	4,138	2,820
Inventories	5,980	6,180	6,495	4,537
Other current assets	1,170	1,584	2,148	2,306
Non-current assets	18,030	19,333	22,173	24,696
Investments in associates and joint ventures	2,431	2,882	3,495	3,751
Property, plant and equipment	13,596	13,798	15,462	17,410
Goodwill and intangible assets	1,501	2,007	1,119	1,427
Other non-current assets	502	646	2,097	2,108
Total assets	₩34,250	₩36,085	₩39,526	₩39,269
Liabilities and equity				
Current liabilities	₩ 9,955	₩ 8,941	₩10,456	₩10,990
Short-term borrowings	243	154	1,132	2,102
Trade payables	5,265	4,650	4,928	3,110
Other payables	447	466	529	1,944
Accrued expenses	1,164	1,344	1,470	1,330
Current portion of long-term debt	1,272	1,222	1,155	1,287
Other current liabilities	1,564	1,105	1,242	1,217
Non-current liabilities	4,986	7,817	10,860	12,524
Bonds payable and long-term borrowings	4,063	6,648	8,844	11,145
Other non-current liabilities	923	1,170	2,016	1,379
Total liabilities	₩14,941	₩16,757	₩21,316	₩23,514
Total equity attributable to owners of the parent	₩18,086	₩18,124	₩17,468	₩15,014
Non-controlling interests	1,224	1,204	742	741
Total equity	₩19,309	₩19,328	₩18,210	₩15,755
Total liabilities and equity	₩34,250	₩36,085	₩39,526	₩39,269

Other Financial Data

	For the Year Ended December 31,			For the Nine-Month Periods Ended September 30,	
	2017	2018	2019	2019	2020
	(in billions of Won, except percentages)				
Capital expenditures(1)	₩ 1,010	₩ 1,491	₩ 2,754	₩ 1,985	₩ 2,790
Net cash provided by operating activities	₩ 2,180	₩ 1,728	₩ 1,826	₩ 1,192	₩ 1,121
Net cash used in investing activities	₩(2,477)	₩(1,066)	₩(3,167)	₩(2,041)	₩(2,354)
Net cash provided by (used in) financing activities	₩(1,671)	₩ 586	₩ 1,686	₩ 2,038	₩ 2,604

(1) Capital expenditures consist of cash used in the acquisition of property, plant and equipment and intangible assets.

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, the Issuer or the Notes. Additional risks not currently known to the Company or the Issuer or those which the Company or the Issuer believes are immaterial may also impair their business operations.

Risks Relating to the Company and the Issuer

Fluctuations in market prices of crude oil may adversely affect the Company's margins and profits.

The Company's earnings and cash flows from operations depend primarily on the margin at which the Company is able to sell refined petroleum and other products relative to its fixed and variable expenses, including the costs of crude oil and other feedstocks. As crude oil constitutes the most important component of the Company's raw material requirements, the Company's financial performance is significantly impacted by the market price of crude oil. The market price of crude oil has fluctuated significantly in recent years, and the average price of Dubai crude oil on the spot market was US$53.1, US$69.4 and US$63.5 per barrel in 2017, 2018 and 2019, respectively, and US$42.9 per barrel in the third quarter of 2020. The level of fluctuation in the market price of crude oil has become even more volatile in recent months, primarily as a result of a significant deterioration in, and heightened uncertainty surrounding, global economic conditions in light of the ongoing global pandemic of a novel strain of coronavirus (referred to as "COVID-19") coupled with difficulties among oil producing nations to reach an agreement to reduce production levels despite rapidly declining demand, and the market price level of crude oil fell to a historic 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. The market price and supply of imported crude oil are subject to a variety of factors that are beyond the control of the Company, including the following:

- the continued negative impact of the ongoing global COVID-19 pandemic, as well as other unexpected events such as large-scale natural disasters and health epidemics affecting the global economy;
- activities of the Organization of Petroleum Exporting Countries ("OPEC") and other petroleum producing nations in setting and maintaining production levels and, therefore, market prices;
- political developments and instability in petroleum producing regions, in particular the Middle East;
- the development, market prices and supply levels of substitute energy sources, such as liquefied natural gas ("LNG"), coal, nuclear energy, solar energy and hydropower;
- the level of commitment and investment by governments and private sector enterprises in new, greenfield exploration projects and shale oil extraction projects and the success of such activities in increasing the global supply of oil for commercial applications;
- changes in international sanctions applicable to petroleum producing nations, such as Iran, which affect their ability to produce and export crude oil;
- Korean as well as foreign government regulations and policies with respect to the oil and energy industries in general, as well as political uncertainties in countries where the Company conducts E&P activities;
- the growth in demand for energy resources in China and other large emerging economies;
- global weather conditions;
- exchange rate and interest rate fluctuations;

- expectations of inflation; and
- overall Korean and global economic conditions.

Rapid decreases in the prices of crude oil and resulting decreases in the market prices of the Company's products, such as those decreases that have been caused in part by COVID-19, negatively affect the margins of the Company's products to the extent the Company's inventory of crude oil were purchased or hedged at prices that were higher than currently prevailing market prices, which in turn would have a material adverse effect on the Company's operating profit levels and may have a material adverse effect on the Company's business, financial condition and results of operations. See "— Unexpected events, including natural disasters and health epidemics, including the ongoing COVID-19 pandemic, may increase the Company's cost of doing business or disrupt the Company's operations."

On the other hand, increases in the prices of crude oil correspondingly increase the short-term financing needs of the Company. Although the Company has not experienced difficulties to date in securing trade financing for crude oil imports and other working capital requirements to date, any such difficulties in securing short-term financing on favorable terms may have a material adverse effect on its business, financial condition and results of operations. In order to mitigate the effect of price volatility in the crude oil market on the Company's operations, the Company attempts to manage its margin exposure through derivative financial instruments. In addition, the Company has historically been able to pass on a substantial portion (but not all) of the increase in costs of crude oil imports to its customers through price increases for its refined petroleum products, which typically lag between two to four weeks. However, there can be no assurance that the Company will continue to be able to pass on such increased costs without negatively impacting customer demand or the Company's long-term relationship with customers. The inability of the Company to pass along increases in the prices of crude oil and other raw materials to its customers on a timely basis would have a material adverse effect on the Company's profit margins and may have a material adverse effect on the Company's business, financial condition and results of operations.

Dependence on foreign sources of crude oil may subject the Company to difficulties in meeting its crude oil needs in sufficient quantities and at prices favorable to the Company.

The Company is dependent on imports of crude oil being readily available to satisfy all of its production needs. The Company currently imports most of its crude oil from countries in the Middle East, such as Kuwait and Saudi Arabia. The Company seeks to mitigate in part the risk of any supply deficiencies of crude oil by purchasing a substantial portion of its crude oil needs under one-year supply contracts that guarantee the availability of a certain volume of crude oil during the term of the contract, although the purchase price for such crude oil is determined pursuant to a formula prior to the time of delivery. Any disruption in the adequate supply of crude oil or significant volatility in the market price of crude oil will likely have a material adverse effect on the Company's financial condition and results of operations. Although the Company has not experienced any significant difficulties to date in obtaining crude oil to satisfy its production requirements, there can be no assurance that the Company will be able to obtain its future crude oil requirements in sufficient quantities at favorable prices and terms to meet its production needs.

Unexpected events, including natural disasters and health epidemics, including the ongoing COVID-19 pandemic, may increase the Company's cost of doing business or disrupt the Company's operations.

The occurrence of one or more unexpected events, including fires, tornadoes, tsunamis, hurricanes, earthquakes, floods and other forms of severe weather, as well as severe health epidemics such as the ongoing global COVID-19 pandemic in Korea or in other countries where the Company operates or where its suppliers or customers are located could adversely affect the Company's operations and financial performance. In addition, the normal operations of the Company's existing facilities or the construction of its new facilities may be interrupted or delayed by accidents caused by operating hazards, power supply disruptions, equipment failures, natural disasters or other events or by disruptions due to health epidemics. For example, in March 2020, SK Energy reduced its refining capacity at the Ulsan complex and SK Incheon Petrochem reduced its production capacity at the Incheon complex, which reductions are expected to continue in 2021. Any interruption (partial or complete) of operations at the Company's facilities as a result of any such accidents or otherwise, including potentially as a result of the COVID-19 pandemic, could materially and adversely affect its business, financial condition and results of operations. There can be no assurance that such events will not occur in the future or that the Company's production capacity will not be materially and adversely impacted as a result of such events.

In particular, COVID-19, an infectious disease caused by severe acute respiratory syndrome coronavirus 2 that is known to have been 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. The World Health Organization declared the COVID-19 as a pandemic in March 2020.

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 nine months of 2020 and beyond. Primarily as a result of such effect, including the decrease in crude oil prices described in "— Fluctuations in market prices of crude oil may adversely affect the Company's margins and profits," the Company's sales significantly decreased to ₩26,782 billion in the first nine months of 2020 from ₩38,088 billion in the first nine months of 2019, and the Company recorded a net loss of ₩1,914 billion in the first nine months of 2020 compared to net profit of ₩505 billion in the first nine months of 2019. Risks associated with a prolonged outbreak of COVID-19 or other types of widespread infectious diseases include:

- disruption in the normal operations of the Company's industrial and commercial customers (such as airlines and manufacturers), which in turn may further decrease demand for the Company's products for such uses;
- continued deterioration in the economic conditions, and a decline in consumer confidence, in Korea and other countries, which may further decrease demand for the Company's products for direct consumer use and the products and services of the Company's industrial and commercial customers, thereby leading to a further decrease in demand for the Company's products for such uses;
- an increase in credit risk of the Company's industrial and commercial customers (such as airlines), sales agents and independently owned service stations, which may cause them to default on their outstanding payment obligations;
- continued volatility and deterioration in the market prices of crude oil, which may adversely affect the price margins of the Company's products;
- disruptions or delays in the supply of crude oil, other raw materials and equipment from the Company's suppliers;
- disruptions or delays in the delivery and distribution of the Company's products;
- disruptions or delays in the construction of new manufacturing facilities or maintenance and refurbishment of existing manufacturing facilities;
- disruption in the normal operations of the Company's business resulting from contraction of COVID-19 by its employees, which may necessitate the Company's employees to be quarantined and/or manufacturing facilities or offices to be temporarily shut down;
- 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;
- depreciation of the Won against major foreign currencies, which in turn may increase the cost of imported raw materials and equipment;

- 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 long-term assets or investments in companies that may be adversely affected by the pandemic.

While it is not possible to predict the duration or full magnitude of harm from COVID-19, the Company expects that it will continue to have a material adverse effect on the Company's sales and profit levels at least in the near future. 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 further be materially adversely affected for the remainder of 2021 and beyond.

Activities of the Company and its subsidiaries relating to countries targeted by U.S. and EU economic sanctions may subject the Company to sanctions under relevant laws and regulations of the United States and other jurisdictions, or may cause the Company to seek alternative sources of crude oil, either of which may adversely affect the Company's business, reputation and financial results or investors in the Notes.

The U.S. Department of the Treasury's Office of Foreign Assets Control ("OFAC") administers and enforces certain laws and regulations ("OFAC Sanctions") that impose restrictions upon U.S. persons with respect to activities or transactions with certain countries, governments, entities and individuals that are the subject of OFAC Sanctions, including Iran ("U.S. Sanctions Targets"). Non-U.S. persons are not automatically bound by OFAC Sanctions, but to the extent they engage in transactions with a connection to U.S. jurisdiction (such as, for example, a U.S. dollar payment that clears through a correspondent account in the United States), they are required to comply with OFAC Sanctions. The United States also maintains indirect sanctions, collectively referred to as U.S. secondary sanctions, that provide authority for the imposition of U.S. sanctions on foreign parties that engage in targeted transactions with no connection to United States jurisdiction. The European Union also enforces certain laws and regulations ("EU Sanctions") that impose restrictions upon nationals and entities of, and business conducted in, European Union member states with respect to activities or transactions with certain countries, governments, entities and individuals that are the subject of EU Sanctions, including with respect to targeted entities in Iran ("EU Sanctions Targets," and together with U.S. Sanctions Targets, "Sanctions Targets"). The United Nations Security Council and other governmental entities also impose similar sanctions. Korea also maintains a sanctions program targeting Iran in accordance with a series of relevant resolutions adopted by the United Nations Security Council. In particular, in September 2010, the Government announced broad sanctions implementation guidelines covering financial, trade, transportation and energy-related activities with Iran, which also included a proposal to facilitate legitimate trade between Korea and Iran through Won-denominated settlement accounts to be opened by the Central Bank of Iran ("CBI") at certain Korean banks for such purpose. In December 2011, the Government announced expanded sanctions against Iran.

The 2015 Joint Comprehensive Plan of Action (the "JCPOA") among the five permanent UN Security Council members, Germany and Iran, which was implemented in January 2016, provided significant sanctions relief to Iran by lifting the majority of European Union and United Nations sanctions, as well as most U.S. secondary sanctions, including those U.S. secondary sanctions targeting the following activities: (i) financial and banking transactions with some (but not all) Iranian banks and financial institutions, including CBI; (ii) purchases of Iranian crude oil; (iii) investment, including participation in joint ventures, goods, services, information, technology and technical expertise and support for Iran's oil, gas and petrochemical sectors; (iv) purchase, acquisition, sale, transportation or marketing of petroleum, petrochemical products and natural gas from Iran; and (v) transactions with Iran's energy sector, subject to certain limited conditions.

On May 8, 2018, U.S. President Donald Trump issued National Security Presidential Memorandum 11, and on August 6, 2018, he issued Executive Order 13846. Together, these documents set forth a plan to terminate U.S. participation in the JCPOA and re-impose, following certain wind-down periods, certain of the U.S. secondary sanctions that had been lifted to implement the JCPOA. An initial set of secondary sanctions against

Iran were re-imposed on August 7, 2018 and a second set of secondary sanctions against Iran became effective on November 5, 2018. These changes are not retroactive, but they affect transactions executed following the applicable wind-down periods.

As a result, U.S. secondary sanctions have effectively returned to the status quo prior to the JCPOA, including secondary sanctions targeting financial and banking transactions with Iranian banks and financial institutions (including CBI), the Iranian energy sector, and transactions with an expanded list of Iranian specially designated nationals. Now, as was the case prior to the implementation of the JCPOA, the United States maintains secondary sanctions under the authority of, among others, the Iran Sanctions Act, the Comprehensive Iran Sanctions, Accountability and Divestment Act of 2010, the National Defense Authorization Act for Fiscal Year 2012, the Iran Threat Reduction and Syria Human Rights Act of 2012, various Executive Orders, and the Iran Freedom and Counter-Proliferation Act of 2012. Such laws and regulations provide authority for the imposition of U.S. sanctions on foreign parties that provide services (including banking services and financing) in support of certain Iranian activities in the energy, shipping and military sectors, among others.

Violations of OFAC Sanctions via transactions with a U.S. jurisdictional nexus can result in substantial civil or criminal penalties. U.S. secondary sanctions apply even when no such jurisdictional nexus exists, and companies that engage in targeted activities under secondary sanctions may themselves become the target of OFAC Sanctions, including, among other things, the blocking of any property subject to U.S. jurisdiction in which the sanctioned company has an interest, which would include a prohibition on transactions or dealings within U.S. jurisdiction involving securities of the sanctioned company. In particular, U.S. secondary sanctions threaten the imposition of sanctions against foreign companies that engage in significant transactions to purchase or acquire petroleum or petroleum products (including liquefied petroleum gas ("LPG")) from Iran, with the National Iranian Oil Company ("NIOC"), or to purchase or acquire petrochemical products from Iran. Foreign companies could be subject to the indirect sanctions described above if they, their subsidiaries or their affiliates engage in such activities.

Prior to the JCPOA, Korea had benefited from a "significant reduction" exemption that exempted Korean companies from many U.S. secondary sanctions in connection with purchases of crude oil from Iran that met a series of conditions, including stringent limits on the use of proceeds of oil purchases. On November 5, 2018, the U.S. Department of State announced that Korean companies would again be eligible for the "significant reduction" exemption for a 180-day period, after which it must be renewed.

Prior to August 7, 2018 (the first effective date of the Executive Order 13846), in the ordinary course of business, the Company, through its subsidiaries, engaged in business activities in countries that were deemed Sanctions Targets, including but not limited to the following activities in recent years:

- SK Trading International, the Company's wholly-owned subsidiary, purchased a significant amount of crude oil from the NIOC, which was re-sold to SK Energy (from which SK Lubricants and SK Global Chemical obtain a significant portion of their raw material requirements) and SK Incheon Petrochem for their production activities.
- The Company's other subsidiaries engaged in limited business activities in countries that are deemed Sanctions Targets, including Syria and the Crimea region of the Ukraine.

In May 2019, the Company terminated its obligations under its supply contract with the NIOC for the remainder of 2019 and did not make any purchases in the second half of 2019 or in 2020.

Furthermore, while it is currently reported that the other parties to the JCPOA (the United Kingdom, France, Germany, China and Russia, as well as the European Union) wish to preserve the agreement, it is possible that such parties, as well as other countries (including Korea) that had provided sanctions relief to Iran in conjunction with the JCPOA, will similarly decide to re-impose sanctions relating to Iran in response to the U.S. government's actions, any reaction thereto by Iran, or other factors. In addition, there is no guarantee that the

United States, Korea or other countries will not seek to expand their sanctions relating to Iran in the future, beyond those that had been suspended pursuant to the JCPOA, especially if Iran takes aggressive measures in response to the re-imposition of sanctions or there are further negative political developments in the Middle East.

The re-imposition or expansion of sanctions relating to Iran by the U.S. government, and potentially by Korea and other countries, may require the Company to reduce or cease its activities relating to Iran. Such governmental actions and policies may also increase the risk of the Company violating certain sanctions or becoming a target of sanctions as a result of its past activities relating to Iran. Any such development could have a material adverse impact on the Company's business, reputation or results of operations.

While the Company believes that adequate alternative supplies of crude oil are available to the Company, if future legislation or regulations (or application of current and future legislation or regulations) disrupt the Company's crude oil supply from Iran, it is possible that the Company may be unable to find alternative sources of supply at comparable levels of price and quality, or at all. If the Company cannot obtain adequate crude oil volumes of the type and quality the Company requires, or if the Company is able to obtain such types and volumes only at unfavorable prices, the Company's results of operations could be affected in a materially adverse way.

Furthermore, some of the Company's U.S. investors may be required to divest their investments in the Company under the laws of certain U.S. states or under internal investment policies relating to companies (or their affiliates) doing business with Iran or may decide for reputational reasons to divest such investments. The Company is aware of initiatives by U.S. governmental entities and U.S. institutional investors, such as pension funds, to adopt or consider adopting laws, regulations, or policies prohibiting transactions with or investment in, or requiring divestment from, entities doing business with countries identified as state sponsors of terrorism. The Company cannot assure you that the foregoing will not occur or that such occurrence will not have a material adverse effect on the value of the Company's securities.

Foreign exchange rate fluctuations between the Won and foreign currencies can adversely affect the Company's financial results.

The Company's consolidated financial statements are prepared from the local currency–denominated financial results, assets and liabilities of the Company and its subsidiaries around the world, which are then translated into Won. Accordingly, the Company's consolidated financial results and assets and liabilities may be materially affected by changes in exchange rates. The Company purchases all of its crude oil in foreign currencies while a substantial portion of its revenues are generated in Won. To the extent that the Company incurs costs in one currency and makes sales in another, the Company's profit margins may be affected by changes in the exchange rates between the two currencies. Since the currency in which sales are recorded may not be the same as the currency in which expenses are incurred, exchange rate fluctuations may materially affect the Company's results of operations.

Depreciation of the Won against major foreign currencies causes:

- an increase in Won terms in costs denominated in such foreign currencies, including costs of crude oil and other raw materials that the Company purchases from overseas sources, expenses relating to labor, equipment and other manufacturing costs of the Company's overseas production facilities and a substantial portion of the Company's freight costs, which are denominated principally in U.S. dollars;
- an increase in the amount of Won required for the Company to make interest and principal payments on its foreign currency-denominated debt; and
- foreign exchange translation losses on foreign currency-denominated liabilities, which lower the Company's earnings for accounting purposes.

Appreciation of the Won against major foreign currencies, on the other hand, causes:

- the Company's export products to be less competitive by raising the prices of its products in foreign currency terms; and
- a decrease in sales and accounts receivable in Won terms from export sales, which are primarily denominated in U.S. dollars.

Although the Company has in the past been able to pass on a majority of increases in raw material costs due to the depreciation of the Won, there can be no assurance that the Company will be able to continue to do so. The Company also attempts to manage the remaining net exposure after natural hedges by entering into derivative contracts such as currency forward contracts and currency interest rate swaps. Although the impact of exchange rate fluctuations has in the past been partially mitigated by such strategies, the Company's results of operations have historically been affected by exchange rate fluctuations, which have become more volatile in recent months as a result of uncertain global economic conditions in light of the ongoing global COVID-19 pandemic, and there can be no assurance that such strategies will be effective in reducing or eliminating the adverse impact of such fluctuations in the future. Due to the larger positive effects of the depreciation of the Won (i.e., the reverse of the negative effects caused by the appreciation of the Won, as discussed above), appreciation of the Won against major foreign currencies in the past generally has had a net negative impact on the Company's results of operations. Exchange rate fluctuations can also affect the Won value of the Company's equity investments and monetary assets and liabilities denominated in foreign currencies. Exchange rate fluctuations have had and may in the future have an adverse impact on the Company's business, financial condition and results of operations. See Note 34 of the notes to the Company's audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018 and Note 28 of the notes to the Company's interim condensed consolidated financial statements appearing elsewhere in this offering circular for a further discussion of the Company's exchange rate exposures.

The Company operates in highly competitive markets, and the Company's failure to successfully compete would adversely affect its market position and business.

The Company competes in highly competitive petroleum refining, petrochemical, lubricant and lithium-ion battery markets characterized by advantages from economies of scale and brand recognition, evolving regulatory and industry standards and continual improvements in performance characteristics and product features. The Company competes in various product lines based on the following factors:

- product performance, quality and reliability;
- ability to accurately identify and respond to emerging regulatory and industry trends and consumer demand for product features and performance characteristics;
- successful and timely expansion of production capacity;
- ability to provide a stable supply of products in a timely manner to customers;
- development of new and innovative products and manufacturing processes;
- effectiveness of sales and marketing efforts; and
- brand recognition and financial strength.

Petroleum Refining Segment. In Korea, the Company competes principally with three other major domestic petroleum refiners, GS Caltex Corporation, Hyundai Oilbank and S-Oil Corporation. Furthermore, following the deregulation of the Korean petroleum refining market in 1997, there have been new entrants into the market that import refined products and market them primarily to non-affiliated service stations. In addition, the Government has been promoting reductions in the retail prices of refined light oil products such as gasoline and diesel by promoting discount service stations nationwide since 2011, which in turn has contributed to a decrease in the Company's margins from its petroleum refining business. In its export markets, the Company competes with a variety of competitors ranging from the supermajor oil companies to large local state-owned and private refiners.

The Company's operations may be impacted by its competitors' plans for expansion projects and refinery improvements that could increase the overall regional or local production volume of refined petroleum products. Currently, the global refined petroleum market is characterized by overcapacity, which has been exacerbated by a sharp decrease in demand following the current COVID-19 pandemic and the resulting slowdown in global economic activities. Furthermore, largely due to the aforementioned negative impact of COVID-19, prices and margins in the Korean and global market for refined petroleum products have significantly fluctuated and generally deteriorated in recent months and continue to remain vulnerable, which in turn have led to increased uncertainty regarding future prospects for the industry, as well as difficulty in accurately forecasting future results of operations and cash flows on the part of industry participants, including the Company. A continued imbalance in supply and demand in the Korean or global market may result in further reduced prices and sales volumes, which may have a material adverse effect on the Company's operating margins and results of operations. See "— Fluctuations in market prices of crude oil may adversely affect the Company's margins and profits" and "— Unexpected events, including natural disasters and health epidemics, including the ongoing COVID-19 pandemic, may increase the Company's cost of doing business or disrupt the Company's operations."

Petrochemical Segment. In the petrochemical industry, the Company faces competition mainly from global producers (including other major Korean petrochemical companies), both in domestic and export markets, primarily on the basis of price and quality. The petrochemical industry is highly cyclical and demand for petrochemical products has fluctuated depending on general economic conditions in Korea, as well as in various Asian economies, in particular China and Southeast Asia. An imbalance between supply and demand, as well as the emergence of low cost producers in the Middle East which are located near fuel sources, have resulted in pricing pressures as well as uncertainty regarding future prospects for the global petrochemical industry. While prices and margins in the Korean and global market for petrochemical products have improved in recent years due to stronger demand for such products, particularly from China and India, the petrochemical industry has suffered in the past from, and continues to face the prospects of, an oversupply of petrochemical products as a result of continued expansion of petrochemical production capacity in Asia and the Middle East. Furthermore, a significant slowdown in global economic activities in light of the ongoing global COVID-19 pandemic in recent months have had a material adverse effect on global demand for petrochemical products, and it is uncertain whether prices and margins in the Korean and global market for petrochemical products can improve and/or be sustained in the longer term. Although the Company seeks to enhance operational efficiency in order to maintain its margins and strengthen its market position, no assurance can be given that the Company will not be adversely affected by such factors, as well as by the volatility of prices of petrochemical products in the Korean and international markets.

Base Oil and Lubricant Segment. In the base oil market, the Company faces competition from existing and new competitors ranging from supermajor oil companies and large state-owned refining companies to regional and local companies, as well as specialized companies that focus on a limited number of product lines. The Company's primary competitors in the base oil market consist of large regional petroleum refining companies and state-owned refineries. In the domestic lubricant market, the Company competes principally with domestic petroleum refining companies and their affiliates such as GS Caltex Corporation and S-Oil Corporation, while in the overseas lubricant market, the Company's main competitors consist of supermajor oil companies and state-owned oil companies. The lubricant industry in recent years has been characterized by intense competition resulting from expansion of production capacity, erosion of average selling prices and frequent changes in performance requirements for lubricant products to meet rapidly changing technologies and evolving industry and regulatory standards in the automotive industry, which has negatively impacted the profitability of Korean lubricant producers, including the Company. Furthermore, a significant slowdown in global economic activities in recent months largely due to the ongoing global COVID-19 pandemic has adversely affected, and is expected to continue to adversely affect, global demand for lubricant and base oil products. The Company cannot guarantee that it will be able to effectively adapt to changing market conditions and continue to compete successfully with existing or new competitors, which may materially and adversely affect its business, financial condition and results of operations.

Battery Segment. In the lithium-ion battery market, the Company competes with major lithium-ion battery manufacturers in Japan, China and Korea. The lithium-ion battery industry is highly competitive, with a number of local and international producers competing in each of the major markets, many of which have larger market shares and greater brand recognition than the Company in particular geographic and product segments. While significant technological improvements in lithium-ion batteries used in mobile devices have been made over the past decade, the technology underlying automotive lithium-ion batteries is still evolving, and extensive research and development will be necessary to maintain competitiveness, with substantial capital investments required of existing as well as new producers. Although the Company believes that its existing investment, experience and technological expertise provide significant "time to market" and economies of scale advantages over any potential new entrant into these markets, the Company may face increasing competition from emerging companies that may significantly expand the scale of their operations, particularly from Chinese companies that may qualify for government subsidies. There is no assurance that the Company will be able to continue to compete successfully, and its failure to do so could have a material adverse effect on its business, financial condition and results of operations.

The expansion of our businesses through strategic joint ventures exposes us to risks that may reduce the benefits we anticipate from such alliances.

In recent years, the Company has expanded its production facilities globally through strategic joint ventures with leading regional refineries in an effort to gain access to new markets and stable sources of raw materials and otherwise enhance the Company's competitiveness. For example, the Company, through its wholly-owned subsidiary SK Global Chemical, established a joint venture with Saudi Basic Industries Corporation ("SABIC"), a global chemicals company based in Saudi Arabia, and established SABIC SK Nexlene Company Pte. Ltd., in which the Company holds a 50.0% interest. The plant, which had an annual production capacity of 230,000 metric tons of polyethylene as of September 30, 2020, commenced production of high-performance polyethylene products, such as nexlene, in May 2014. In addition, the Company, through SK Global Chemical, entered into a joint venture with Sinopec, a leading petroleum refining company in China, and established Sinopec-SK(Wuhan) Petrochemical Co., Ltd., in which the Company holds a 35.0% interest as of September 30, 2020. The plant currently has an annual production capacity of 2.3 million tons of basic chemical products. In April 2019, Sinopec-SK(Wuhan) Petrochemical announced plans to acquire Sinopec's Wuhan Refinery in Hubei Province with refining capacity of 170,000 barrels of oil per day. Moreover, many of the Company's overseas exploration and production projects are conducted with consortium partners or through joint ventures. See "Business — Facilities — Production Facilities — Overseas Production Facilities." However, there can be no assurance that the Company will be able to continue to identify suitable joint venture partners or that even if the Company were able to do so, the Company is able to enter into business arrangements on favorable terms and conditions.

In addition, such joint venture endeavors may present financial, managerial and operational challenges, including the Company's inability to require that the joint ventures sell assets, return invested capital or take any other action without the vote of at least a majority of its consortium partners, diversion of management attention from the Company's existing business, difficulties in integrating operations and personnel issues not previously anticipated by the Company. The Company's joint venture partners may have economic or business interests that are inconsistent with the Company's, take actions contrary to the policies or objectives of the Company, undergo a change of control, experience financial and other difficulties or be unable or unwilling to fulfill their obligations under the joint ventures, which may materially and adversely affect the Company's business, financial condition and results of operations. Furthermore, the Company's investments in joint venture projects are made well in advance of any sales that will be generated from making such expenditures, and the joint venture production facilities are in many cases built on location at the refinery sites of the Company's partners. The Company's strategy has been to take a majority interest in each of the joint ventures that the Company enters into to ensure that the Company has management control of their operations, and that the quality of the products produced by the joint ventures meets the standard enforced by the Company at its domestic production facilities. However, the Company's business, financial condition and results of operations may be materially and adversely affected if disagreements develop with its joint venture partners and the Company is unable to successfully resolve such disputes with them.

The Company's plan to further expand its businesses abroad may be adversely affected if the Company is not able to effectively manage the various risks associated with its operations worldwide.

Export sales represented 71%, 72%, 72% and 71% of the Company's total revenues in 2017, 2018, 2019 and the first nine months of 2020, respectively, a significant portion of which was sold by the Company's overseas sales subsidiaries in Europe, the United States, China, Japan and other Asian countries. The Company currently operates production facilities overseas and the Company's overseas subsidiaries engage in local sales and marketing activities as well as providing regional logistics support. The Company also engages in E&P of natural resources overseas. The Company intends to continue to expand its overseas operations by carefully seeking out promising business opportunities outside Korea as well as increasing the portion of its products produced and sold abroad. The demand and market acceptance for the Company's products abroad are subject to a high level of uncertainty and are substantially dependent upon local market conditions. The Company cannot guarantee that its continued international expansion will be profitable or that it can recoup the costs related to its overseas investments.

Expansion of the Company's operations abroad requires management attention and personnel resources. The Company also faces additional risks associated with its operations outside Korea, including:

- fluctuations in exchange rates;
- increased costs associated with understanding overseas markets and monitoring international economic, industry and customer trends, as well as developing and maintaining effective production, marketing and distribution presences in various countries;
- providing efficient customer service and support in markets abroad;
- difficulty and costs relating to compliance with commercial and legal requirements in overseas markets, including those relating to labor and the environment and industry-specific regulations;
- foreign exchange controls and cash repatriation restrictions;
- unanticipated changes in local economic conditions;
- political instability and civil unrest, cultural and religious conflicts, and acts of terrorism; and
- trade barriers such as local content requirements, tariffs, taxes and other restrictions and expenses.

The Company's overall success as a global business depends, in part, on its ability to manage such risks. The likelihood of the risks being realized and their potential impact on the Company or its business partners vary from country to country and are difficult to predict. The Company may not be able to develop and implement policies and strategies that will be effective in each location where it conducts business, and there can be no assurance that its exposure to such risks, which may become greater as the Company expands its international operations, will not adversely affect its business, financial condition and results of operations.

Concentration of operations at the Ulsan complex may expose the Company to business interruption and other risks.

The Company's major domestic production facilities are located at its Ulsan complex in southeast Korea. Refining, transporting and storing crude oil, refined petroleum products, petrochemical products and lubricant products involve many significant hazards which could result in fires, explosions, spills, blow-outs and other unexpected or dangerous conditions. The normal operations of the Company's production facilities may be interrupted by accidents caused by operating hazards, power supply disruptions, equipment failures, as well as natural disasters. Any interruption (partial or complete) to the Company's operations at the Ulsan complex as a result of any such accidents or otherwise could materially and adversely affect the business, financial condition and results of operations of the Company, although the Company's ability to utilize the production facilities located in the Incheon complex may alleviate the effects of any such interruption. There has not been any significant industrial accident within the Ulsan complex in the past three years. There can be no assurance, however, that such events may not occur in the future and that if such events were to occur, that the Company's production capacity would not be materially and adversely impacted as a result of such events.

While the Company believes that it maintains insurance coverage in amounts which conform to industry norms in Korea, if any or all of the production facilities at the Ulsan complex are damaged and the Company's operations are interrupted for a sustained period, there can be no assurance that the Company's insurance policies (including its business interruption insurance policy) will be adequate to cover any or all of the losses that may be incurred as a result of such interruptions or the costs of repairing or replacing the damaged facilities. See "Business — Insurance."

The Company's E&P activities are capital intensive and subject to various risks, contingencies and other uncertainties.

E&P of crude oil and natural gas fields are capital-intensive activities with high risks. The Company made capital expenditures in its E&P projects in the amount of ₩71 billion in 2017, ₩637 billion in 2018 and ₩150 billion in 2019. The Company's current capital expenditure budget for 2020 for its E&P activities is approximately ₩108 billion, including the Company's additional investments in Longfellow Nemaha LLC, a U.S. shale oil and gas company that the Company purchased in March 2018 in an effort to expand its shale oil development businesses.

The Company's ability to carry out its E&P 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 venture 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.

Despite high costs, E&P activities may not result in desired results, which may adversely impact the Company's results of operations.

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 and natural disasters;
- compliance with environmental regulation;
- governmental requirements and standards; or
- delays in the availability of drilling rigs 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. 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.

Potential decrease in demand for refined petroleum, petrochemical and rechargeable battery products from China may result in downward pressure on prices of such products.

China is one of the largest consumers of refined petroleum, petrochemical and rechargeable battery products in the world, and one of the Company's largest export markets. Global prices of refined petroleum, petrochemical and rechargeable battery products are in significant part influenced by China's actual and anticipated levels of consumption of such products, which are in turn dependent on the economic and market conditions and growth rates in China. Any actual or anticipated decrease in Chinese consumption as a result of a slowdown in China's economic growth, including as a result of the ongoing global COVID-19 pandemic, or otherwise could lead to an imbalance in supply and demand, which would result in downward pressure on prices of refined petroleum, petrochemical and rechargeable battery products. Any decline in the prices of refined petroleum, petrochemical or rechargeable battery products would cause the Company's operating margins to decrease, which could have a material adverse effect on the Company's business, financial condition and results of operations.

The Company may be subject to declining average selling prices for some of its products, which may harm its revenue and profitability.

Information technology products, such as mobile devices, televisions, displays and semiconductors, and electric vehicles are subject to declines in average selling prices due to rapidly evolving technologies, industry standards and customer expectations and competition. As a result, manufacturers of such products may require the Company, as a supplier, to reduce its costs and lower the price of its intermediate products, such as rechargeable batteries, lithium-ion battery separators and flexible cover windows, in order to mitigate the negative impact on their own margins. For example, the Company has reduced the price of some of its lithium-ion battery products in the past in order to meet market demand and expect to continue to face market-driven downward pricing pressure in the future for certain of its products. The Company's revenue and profitability may suffer if it is unable to offset any declines in its average selling prices by developing new or enhanced products or manufacturing processes with higher profit margins, increasing its sales volumes or reducing its costs on a timely basis.

Safety risks relating to rechargeable lithium-ion batteries, including ESS batteries, and negative publicity associated therewith may negatively impact the Company's business.

The Company's battery segment manufactures and sells rechargeable lithium-ion batteries used in electric vehicles, as well as in energy storage systems ("ESS"). Due to the high energy inherent in such batteries, rechargeable lithium-ion batteries, including ESS batteries, may pose certain safety risks, including the risk of fire. The Company incorporates procedures in its research and development, product design, manufacturing processes and transportation of such products that are intended to minimize safety risks, but the Company cannot guarantee that accidents will not occur or that its products will not require repair or replacement due to safety concerns. Although the Company currently carries insurance policies which will cover all or a portion of its losses arising from property damage, loss of inventory, business interruption and liability claims, any accident, whether at the Company's production facilities or from the use of the products by customers, may result in production delays or claims for damages resulting from injuries or death that exceed our insurance coverages which, if significant, could have material adverse effects on the Company's business, financial condition and results of operations. In addition, recently, negative attention has been given to smoke or fire allegedly caused by ESS batteries. For example, a number of fires relating to the use of ESS batteries have occurred at industrial sites in Korea in recent years, resulting in property damage, as well as injuries in certain cases. Although there have been no claims alleging that the ESS batteries manufactured by the Company have caused such fires, the Company cannot assure you that the Company will not be subject to such claims and accidents in the future. In addition, the Company is unable to predict the impact, severity or duration of such negative publicity and the adverse impact such publicity may have on the Company's business, which could be significant. The Company's domestic ESS sales may be negatively impacted by the unfavorable publicity relating to ESS batteries in the short term and adversely affect its reputation, business, financial condition and results of operations.

If competing rechargeable battery technologies, such as solid-state battery technology, are refined for wider commercial application, the demand for lithium-ion batteries and lithium-ion battery separators may decrease.

The Company's lithium-ion battery separators are used in rechargeable batteries that contain flammable electrolytes and require separation of cathode (the positive electrode) and anode (the negative electrode) materials in order to prevent an internal short circuit. Lithium-ion batteries, which were initially developed and commercialized for use in IT devices and consumer applications starting in the early 1990s, have also become the leading battery type for use in electric vehicles. Although the Company expects lithium-ion technology to continue to be the most widely used rechargeable battery technology in the near future, a variety of alternative battery technologies have developed over the years and additional new technologies may develop in the near future, which in the long-term may prove to be more cost-effective and have better performance than lithium-ion battery technologies.

One of the alternative technologies that is increasingly receiving attention is solid-state battery technology, which eliminates the need for a battery separator by utilizing solid electrolytes. Solid-state batteries are believed to be potentially safer than lithium-ion batteries through the use of nonflammable solid electrolytes. However, solid-state batteries are expected to be more expensive to produce with complex manufacturing processes that are difficult to scale. In the long term, there can be no assurance that batteries produced using such alternative technology may not replace lithium-ion batteries. Although such technology has not yet been refined for wider commercial application, advancements in solid-state battery technology as well as developments of other alternative technologies may decrease demand for lithium-ion batteries, which could have a material adverse impact on the Company's business, financial condition and results of operations.

The Company may not succeed in implementing its strategy to take advantage of, or fail to realize the anticipated benefits of, its holding company structure.

The Company is a holding-operating company of the energy-related businesses in the SK Group. Although the Company engages in revenue-generating business operations of its own, a substantial majority of the

Company's operations are conducted by the Company's subsidiaries and a significant portion of the Company's assets are owned by its subsidiaries. The ability of the Company's subsidiaries to pay dividends and make payments or loans to the Company, and to guarantee the Company's debt, will depend on their operating results and may be restricted by, among other things, applicable corporate, tax and other laws and regulations.

The Company's subsidiaries are separate and distinct legal entities. Any right of the Company as a shareholder of its subsidiaries to receive any assets of or distributions from any subsidiary in the event of its bankruptcy, dissolution, liquidation or reorganization, or to realize proceeds from the sale of the assets of any subsidiary, will be junior to the claims of that subsidiary's creditors.

The Company's success depends on the continuing efforts of its key personnel, and its business may be disrupted if the Company loses their services.

The Company's future success depends to a significant extent on the continued services from the Company's senior management, engineers and technical personnel, particularly those with expertise in the energy industry, and on the Company's ability to continue to attract, retain and motivate such key personnel. There is substantial competition for qualified personnel, and there can be no assurance that the Company will be able to attract or retain them. If one or more of the Company's key executive officers, engineers or technicians retire, or are unable or unwilling to continue in their present positions, it could be difficult to find and integrate replacement personnel in a timely manner or at all. The loss of the services of any of the key personnel of the Company without adequate replacement, or the inability to attract new qualified personnel, may have a material adverse effect on the operations of the Company.

Failure to protect the Company's intellectual property rights could impair its competitiveness and harm its business and future prospects.

The Company believes that developing new or improved refined petroleum, petrochemical, lubricant or battery products or refining, processing or manufacturing technologies that can be differentiated from those of its competitors is an important factor for maintaining the success of its business. The Company takes active measures to protect its intellectual property by obtaining patents and undertaking monitoring activities in its major markets. However, the Company cannot guarantee that the measures that it is taking will effectively deter competitors from improper use of the Company's proprietary technologies. The Company's competitors may misappropriate the Company's intellectual property, disputes as to ownership of intellectual property may arise and the Company's intellectual property may otherwise become known or be independently developed by its competitors. Any failure to protect the Company's intellectual property could impair its competitiveness and harm its business and future prospects.

Work stoppages and other labor-related issues may adversely affect the Company's operations.

As of September 30, 2020, approximately 40% of the Company's employees in Korea, on a consolidated basis, were members of its labor union. The Company, on behalf of itself and its subsidiaries, including SK Energy, SK Global Chemical, SK Lubricants, SK Incheon Petrochem, SK Trading International and SK ie technology, negotiates collective bargaining agreements every two years with the labor unions of the Company and its subsidiaries, and annually negotiates a wage agreement. The latest collective bargaining agreement came into effect in July 2019 for a two-year term. The Company has not experienced any labor strikes or other material labor disputes and considers its current relations with its workforce to be good. However, there can be no assurance that the Company's relationship with its employees will not deteriorate in the future. Any labor unrest, work stoppages or strikes could prevent the Company's production facilities from continuing normal operations, which in turn would have a material adverse effect on the business, financial condition and results of operations of the Company.

The Company is also subject to local labor and employment laws of the various jurisdictions in which it operates. For example, in Europe, the Company's employees are typically covered by various worker protection laws that provide employees, through local and central labor councils, rights of information and consultation with respect to specific matters involving their employers' business and operations, including downsizing or closure of facilities and employment terminations. The European worker protection laws could impair the Company's flexibility in streamlining or restructuring its current business structures in those relevant jurisdictions.

Risks Relating to Litigation and Regulation

The Company may be exposed to infringement or misappropriation claims by third parties, which, if determined adversely to the Company, could cause the Company to lose significant rights and pay significant damage awards.

The Company's continued success depends largely on its ability to use and develop its technology and know-how without infringing the intellectual property rights of third parties. The validity and scope of claims relating to, for example, lithium-ion battery technology or base oil and lubricant technology patents involve complex scientific, legal and factual questions and analyses and, therefore, may be highly uncertain. For example, in April 2019 and September 2019, LG Chem, Ltd. filed several complaints with the U.S. International Trade Commission ("ITC") and the U.S. District Court of Delaware against the Company and its subsidiary, SK Battery America, Inc. (collectively, "SKI"), alleging SKI's infringement of certain of LG Chem's U.S. patents and misappropriation of trade secrets and sought a ban on SKI's importation of certain lithium-ion batteries, battery cells, battery modules, battery packs and related components into the United States as a remedy. For the ITC dispute on misappropriation of trade secrets, in February 2020, the ITC entered a default judgment against SKI. However, upon SKI's petition for review and re-examination of the default judgment, in April 2020, the ITC decided to re-examine the default judgment in its entirety, which re-examination is currently in progress. The ITC was originally set to make a final judgment on trade secrets in December 2020, but announced that the decision would be postponed to February 10, 2021. In addition, in December 2020, LG Energy Solution, Ltd. was spun off from LG Chem as its wholly-owned subsidiary and succeeded LG Chem as the party to all matters relating to the aforementioned disputes. Currently, there are a total of ten ongoing disputes in Korea and in the United States relating to this matter. The status of these lawsuits are currently pending, and the final outcomes of the lawsuits cannot be predicted at this time. There can be no assurance that the outcome of such proceedings may not have a material adverse impact on the Company. See "Business — Legal and Regulatory Proceedings."

Furthermore, the Company cannot assure you that the Company will not be subject to such claims in the future. Also, because patent applications in many jurisdictions are kept confidential for an extended period before they are published, the Company may be unaware of pending patent applications by other parties that relate to the Company's technologies, products or processes. The defense and prosecution of intellectual property suits, patent opposition proceedings and related legal and administrative proceedings can be both costly and time consuming and may significantly divert the efforts and resources of the Company's technical and management personnel. An adverse determination in any such litigation or proceedings to which the Company may become a party could subject the Company to significant liability to third parties, require the Company to seek licenses from third parties, to pay ongoing royalties, or to redesign its products or subject the Company to injunctions prohibiting the manufacture and sale of its products or the use of its technologies. Protracted litigation could also result in the Company's customers deferring or limiting their purchase or use of the Company's products until resolution of such litigation, and divert management's time and attention from other responsibilities. The occurrence of any of the foregoing could have a material adverse effect on the business, financial condition and results of operations of the Company.

The Company and its operations are subject to extensive regulation of the petroleum refining industry by the Government.

Due to the importance of petroleum products to the Korean economy, the Government exercises significant control over the domestic petroleum refining industry. The Petroleum and Petroleum Alternative Fuel Business Act, as amended, confers on the Government the authority to exercise a wide range of controls over the Korean petroleum refining industry, including requiring maintenance of a certain storage capacity for, and volume of stockpile of, onshore crude oil and refined petroleum products. See "Government Regulation." The Government also has the ability to influence and control other government-related entities, some of which are the Company's customers.

From time to time, the Government also implements actions in furtherance of public policy considerations and the Government's broader objectives for the petroleum refining industry and the Korean economy, which are not necessarily in the Company's best commercial interest. For example, the Government introduced Government-operated discount service stations nationwide in 2011 in order to promote reduction in the retail prices of refined light oil products such as gasoline and diesel, which in turn has contributed to a decrease in the Company's margins from its petroleum refining business. Government policies and regulations relating to the domestic petroleum refining industry may change, and the Company cannot provide any assurance that future policy decisions or regulatory changes by the Government will not have an adverse effect on the Company's business, results of operations and financial condition.

The Company is subject to strict environmental regulations that could cause the Company's operations to be interrupted.

Due to the nature of the Company's businesses, its manufacturing operations generate a variety of chemicals, gases, by-products and other emissions and waste materials, and the Company is subject to various environmental laws and regulations in Korea and other jurisdictions in which it operates relating to the handling, use, storage, discharge, treatment and disposal of petroleum-based products. The Company is also subject to regulation and periodic monitoring by environmental protection authorities in various jurisdictions. See "Business — Environmental Matters." The Company has incurred, and expects to continue to incur, capital and operating costs to comply with such environmental laws and regulations. The Company may be responsible for the investigation and remediation of environmental conditions at its production sites, and the Company may also be subject to associated liabilities, including liabilities for environmental damage, third party property damage or personal injury resulting from lawsuits brought by governmental authorities or private litigants. In the course of the Company's operations, hazardous wastes may be generated at third party-owned or operated sites, and hazardous wastes may be disposed of or treated at third party-owned or operated disposal sites. If those sites become contaminated, the Company could also be held responsible for the cost of investigation and remediation of such sites, for any associated environmental damage, and for civil or criminal fines or penalties.

The Company has installed various types of anti-pollution equipment and implemented processes consistent with industry standards to minimize energy use and reduce the industrial wastes generated at its production facilities. However, any failure on the Company's part to comply with any present or future environmental regulations could result in the assessment of damages or imposition of fines against the Company or suspension of its production. In addition, more stringent environmental laws and regulations could require the Company to acquire additional anti-pollution equipment or incur other significant compliance expenses. The Company's non-compliance with the relevant environmental regulations, or the perception that the Company has not appropriately responded to growing consumer concerns for environmental issues, may adversely affect the Company's reputation, business, financial condition and results of operations.

The Company's operations are subject to anti-competitive regulations.

The Company is subject to regulations under the Monopoly Regulation and Fair Trade Act of Korea, which provides for anti-competitive regulations and restrictions enforced by the Korea Fair Trade Commission (the "KFTC"), as well as under similar laws and regulations of other countries. In recent years, the Company has been subject to antitrust investigations in connection with alleged unfair anti-competitive practices and related legal proceedings. For example, in November 2018, following an investigation by the U.S. Department of Justice into certain practices engaged in by SK Energy and other Korean suppliers between 2005 and 2016 that may be deemed to be anti-competitive in connection with their fuel supply contracts with the U.S. military stationed in

Korea, SK Energy entered into a settlement with respect to civil U.S. antitrust claims, pursuant to which it paid US$71.9 million of such civil damages in November 2018 and the remaining US$18.5 million in civil damages in March 2019. It also paid US$34 million in criminal fines in May 2019. SK Energy also agreed, among other things, to institute an antitrust compliance program. Upon completion of a separate investigation into such matters, the Korea Fair Trade Commission issued a correction order to the involved companies including SK Energy in December 2020. See "Business — Legal and Regulatory Proceedings." The Company may become subject to similar investigations and proceedings relating to antitrust claims in the future. While the Company's management continually monitors and evaluates, based on the relevant facts and legal principles, the likelihood of an unfavorable outcome and whether the amount of the loss could be reasonably estimated, significant subjective judgments are required in these evaluations, including judgments regarding the validity of asserted claims and the likely outcome of these investigations and proceedings. The Company may not be able to accurately predict the outcome of these investigations and proceedings as such outcome is subject to a number of factors beyond the Company's control, most notably the uncertainty associated with predicting decisions by courts and regulatory agencies. In addition, estimates of the potential costs associated with legal and regulatory proceedings frequently cannot be subjected to any sensitivity analysis, as damage estimates or settlement offers by claimants may bear little or no relation to the eventual outcome. The Company sets aside appropriate reserve amounts as necessary in respect of its potential liability resulting from its legal proceedings based on its evaluations and estimates in a manner consistent with the relevant accounting standards.

The Company is continually evaluating the merits of the respective claims and is vigorously defending itself. However, it is possible that one or more of them may result in an unfavorable outcome. Irrespective of the validity or the successful assertion of the claims, the Company may incur significant costs with respect to litigating or settling any or all of the asserted claims. An adverse final resolution of any of the matters described above or any additional sanctions against the Company for anti-competitive practices could result in liability exceeding the Company's provisions, damage to the Company's reputation, loss of experienced personnel or other consequences, any of which may have a material adverse effect on the Company's business, financial condition and results of operations.

Related party transactions are subject to scrutiny by the Korea Fair Trade Commission.

The Company's business relationships and transactions with its subsidiaries and affiliates are subject to ongoing scrutiny by the KFTC as to, among other things, whether such relationships and transactions constitute undue financial support among companies of the same business group. The Company engages in various transactions with its subsidiaries and affiliates on an arm's-length basis. See "Certain Relationships and Related Party Transactions." The Company is also subject to fair trade regulations limiting cross-guarantees of debt and cross-shareholdings among member companies of the SK Group. In addition, the Company's material business transactions with its subsidiaries, affiliates and member companies of the SK Group will be subject to approval by its board of directors pursuant to the Korean Commercial Code and the Monopoly Regulation and Fair Trade Act and are subject to public disclosure requirements under the Monopoly Regulation and Fair Trade Act. Any future determinations by the KFTC that the Company has engaged in transactions that violate the fair trade laws and regulations may result in fines or other punitive measures and may have a material adverse effect on the Company's reputation and its business.

Related party transactions are subject to scrutiny by the Korean tax authorities.

Under Korean tax law, there is an inherent risk that the Company's transactions with its subsidiaries, affiliates or any other person or company that is related to the Company may be challenged by the Korean tax authorities if such transactions are viewed as having been made on terms that were not on an arm's-length basis. If the Korean tax authorities determine that any of the Company's transactions with related parties was not on an arm's-length basis, the Company would not be permitted to deduct the amount equivalent to such undue financial support as expenses, which may have adverse tax consequences for the Company.

The Company and SK Holdings remain jointly and severally liable for each other's liabilities existing prior to the Split-off.

Under the relevant provisions of the Commercial Act of Korea relating to split-offs, both the operating company and the holding company remain jointly and severally liable after the corporate split-off for all of their liabilities existing prior to the corporate split-off unless such joint and several liability has been successfully eliminated through a special resolution adopted at a general meeting of shareholders of the splitting company and consents of creditors of the affected debt, including consent by resolutions at bondholders' meetings, which resolutions are approved by the court. The Company and SK Holdings remain jointly and severally liable for each other's debts and other liabilities that existed prior to July 1, 2007, which is the record date of the Split-off, that currently remain outstanding. The Company is the successor-in-title to all the assets and liabilities and rights and obligations of SK Corporation that were related to the energy businesses conducted by SK Corporation before the Split-off, as well as all authorized licenses, employment relations, contracts and lawsuits that were directly related to the energy business. The remaining assets and liabilities and rights and obligations related to other business areas of SK Corporation remain at SK Holdings, and the Company remains jointly and severally liable for such liabilities. Defaults by SK Holdings of such liabilities, if significant, could have a material adverse effect on the results of operations and financial condition of the Company.

The same provisions of the Commercial Act of Korea apply to spin-offs and demergers, and the Company remains jointly and severally liable with its subsidiaries created as a result of spin-offs or demergers such as SK Energy, SK Lubricants, SK Global Chemical and SK ie technology for the liabilities that existed prior to such spin-offs or demergers and currently remain outstanding.

Risks Relating to Korea

If economic conditions in Korea deteriorate, the Company's current business and future growth could be materially and adversely affected.

The Company is incorporated in Korea and a significant portion of its assets are located in Korea. As a result, the Company is subject to political, economic, legal and regulatory risks specific to Korea, and the Company's performance and successful execution of its operational strategies are dependent on the overall Korean economy. The economic indicators in Korea in recent years have shown mixed signs of growth and uncertainty, and future growth of the Korean economy is subject to many factors beyond the Company's control, including developments in the global economy.

In particular, the on-going COVID-19 pandemic has had an adverse impact on the Korean economy. Following the Government's announcement of the first confirmed case of COVID-19 in Korea in January 2020, it has implemented a number of measures in order to contain the spread of the COVID-19 disease, including a nationwide order for social distancing, implementation of strict self-isolation and quarantine measures for those who may be infected, and the temporary closure of all school and other public facilities. In addition, the Government has undertaken a series of actions to mitigate the adverse impact of the COVID-19 pandemic on the Korean economy, including (i) lowering of The Bank of Korea's policy rates, (ii) execution of a bilateral currency swap agreement with the U.S. Federal Reserve, (iii) provision of loans, guarantees and maturity extensions to eligible financial institutions, small- and medium business enterprises and self-employed business owners facing liquidity crises, and (iv) offering emergency relief payments for those impacted by the COVID-19 pandemic. However, the impact of the on-going COVID-19 pandemic to the Korean economy in 2021 and for the foreseeable future remains highly uncertain.

Other developments that could have an adverse impact on Korea's economy include:

- declines in consumer confidence and a slowdown in consumer spending;
- the occurrence of additional severe health epidemics;

- adverse conditions or uncertainty 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 the ongoing COVID-19 pandemic, deteriorating relations between the United States and China and increased uncertainties resulting from the United Kingdom's exit from the European Union;
- adverse changes or volatility in foreign currency reserve levels, commodity prices (including oil prices), exchange rates;
- 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 (such as the removal of Korea from Japan's "white list" of preferred trading nations in August 2019 and the controversy between Korea and China regarding the deployment of a Terminal High Altitude Area Defense System in Korea by the United States in March 2017 and the ensuing economic and other retaliatory measures by China against Korea during the remainder of 2017);
- increased sovereign default risk in select countries and the resulting adverse effects on the global financial markets;
- deterioration in the financial condition or performance of small- and medium-sized enterprises and other companies in Korea due to the Government's policies to increase minimum wages and limit working hours of employees;
- investigations of large Korean business groups and their senior management for possible misconduct;
- 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 or of any changes to existing free trade agreements;
- social and labor unrest;
- substantial decreases in the market prices of Korean real estate;
- a substantial decrease in tax revenues and a substantial increase in the Government's expenditures for fiscal stimulus measures, unemployment compensation and other economic and social programs, in particular in light of the Government's ongoing efforts to provide emergency relief payments to households and emergency loans to corporations in need of funding in light of COVID-19, which, together, would likely lead to a national budget deficit as well as an increase in the Government's debt;
- 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 and corporate governance issues concerning 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;
- geopolitical uncertainty and risk of further attacks by terrorist groups around the world;
- 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 Northern 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; 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 and warheads that can be mounted on ballistic missiles. Over the years, North Korea has continued to conduct a series of missile tests, including ballistic 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 the two Koreas 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 break down or military hostilities occur, could have a material adverse effect on the Korean economy and on our 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.

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 Transaction Act of Korea and the Presidential Decree and regulations under that Act and Decree (collectively referred to as the "Foreign Exchange Transaction 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 Transaction 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's audited and unaudited consolidated financial statements included in this offering circular are presented in accordance with K-IFRS and its future financial statements will be prepared in accordance with K-IFRS, which differ in certain respects from accounting principles applicable to companies in certain other countries. In making an investment decision, investors must rely upon their own examination of the Company, the terms of the offering and the financial and other information contained in this Offering Circular.

Risks Relating to the Notes and the Guarantees

The Notes may not be a suitable investment for all investors seeking exposure to "green" assets.

The net proceeds from the sale of the Notes will be allocated to finance or refinance, in whole or in part, existing and future projects that provide environmental benefits that fall under the Eligible Green Categories. See "Use of Proceeds." The examples of Eligible Green Categories in "Use of Proceeds" are for illustrative purposes only and no assurance can be provided that disbursements for projects with these specific characteristics will be made by us during the term of the Notes. The Company's Green Financing Framework and the Second Party Opinion (as defined in "Use of Proceeds") are not incorporated into, and do not form a part of, this Offering Circular.

There is currently no market consensus on what precise attributes are required for a particular project or series of notes to be defined as "green" and therefore no assurance can be provided to potential investors that selected the Eligible Green Categories will meet all investor expectations regarding environmental performance. Although the Eligible Green Categories will be selected in accordance with the categories recognized under the Company's Green Financing Framework, and will be developed in accordance with relevant legislation and standards, there can be no guarantee that the projects will deliver the environmental benefits as anticipated, or that adverse environmental impacts will not occur during the design, construction, commissioning or operation of any such projects. In addition, where any negative impacts are insufficiently mitigated, the projects may become controversial and may be criticized by activist groups or other stakeholders.

The Second Party Opinion may not reflect the potential impact of all risks related to the structure, market, additional risks discussed above and other factors that may affect the value of the Notes. The Second Party Opinion is not a recommendation to buy, sell or hold securities and is only current as of the date that the Second Party Opinion was initially issued. In addition, although the Company has agreed to certain reporting and use of proceeds obligations in connection with certain environmental criteria, its failure to comply with such obligations will not constitute a breach or an event of default under the Notes. A withdrawal of the Second Party Opinion or any failure by the Company to use an amount equivalent to the net proceeds from the issuance of the Notes on Eligible Green Categories or to meet or continue to meet the investment requirements of certain environmentally focused investors with respect to the Notes may affect the value of the Notes and may have consequences for certain investors with portfolio mandates to invest in "green" assets.

No assurance can be provided with respect to the suitability of the Second Party Opinion or that the Notes will fulfill the criteria required to qualify as "green" bonds. Each potential purchaser of Notes should determine for itself the relevance of the information contained in this Offering Circular regarding the use of the net proceeds from the issuance of the Notes and its purchase of Notes should be based upon such investigation as it deems necessary.

The Notes and the Guarantee are unsecured obligations and the ability of the holder of the Notes to receive payments under the Notes and the Guarantees may be compromised under certain circumstances.

Because the Notes and the Guarantees are unsecured, the Notes and the Guarantees will be effectively subordinated to any existing and future secured debt incurred by the Issuer, the Company and their respective subsidiaries to the extent of the value of the assets securing any such secured debt. If the Issuer, the Company or their subsidiaries were unable to repay any of their respective secured indebtedness, the holders of such debt could proceed against the assets securing that debt and those assets would not be available to the holders of the Notes and the Guarantees.

Furthermore, the Notes and the Guarantees will be structurally subordinated to all indebtedness and other obligations of the subsidiaries of the Issuer and the Company, respectively. In the event of a bankruptcy, liquidation, reorganization or other winding-up proceedings of a subsidiary of the Issuer or the Company, all of the creditors of that subsidiary, including trade creditors, will generally be entitled to be paid in full from the assets of such subsidiary before any of those assets are made available for distribution to the Issuer or to the Company, as the case may be. The ability of the holders of the Notes to receive payment under the Notes and the Company may also be compromised if:

- the Company enters into bankruptcy, liquidation, reorganization 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 fulfill its obligations under the Guarantees to pay amounts due on any of the Notes.

There is no existing trading market for the Notes and, therefore, the Notes offer limited liquidity.

The Notes constitute a new issue of securities for which there is no existing market. Approval in-principle has been received from the SGX-ST for the listing and quotation of the Notes on the SGX-ST. The offer and sale of the Notes is not conditioned on obtaining a listing of the Notes on the SGX-ST or any other securities exchange. Although the Joint Lead Managers have advised the Issuer and the Company that they currently intend to make a market in the Notes, they are not obligated to do so, and any market-making activity with respect to the Notes, if commenced, may be discontinued at any time without notice at their sole discretion. For more information regarding the Joint Lead Managers' planned market-making activities, see "Subscription and Sale."

No assurance can be given 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 liquidity and market price 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 price at which the Notes are issued depending on many factors, including:

- prevailing interest rates;
- the Company's financial condition and results of operations;
- political and economic developments in and affecting Korea;
- the market conditions for similar securities; and
- the financial condition and operating performance of the Korean petroleum refining and petrochemical sectors.

Credit ratings assigned to the Notes may serve as an accurate indicator of the value of the Notes.

The Notes are expected to be rated Baa3 by Moody's. The ratings of the Notes have been based primarily on the Guarantees to be issued by the Company with respect to the Notes. Pursuant to the Guarantees, the Company will fully, unconditionally and irrevocably guarantee all amounts payable by the Issuer in respect of the Notes (the "Guaranteed Amounts"). The payment of the Guaranteed Amounts will, therefore, depend on the Company performing its obligations under the Guarantees, and the likelihood of payment of the Guaranteed Amounts will depend on the creditworthiness of the Company. Consequently, investors are relying not only on the creditworthiness of the Issuer but also on the creditworthiness of the Company to perform its obligations under the Guarantees. Significant deterioration of the financial condition or the insolvency of the Company could adversely affect the likelihood of investors receiving scheduled payments of principal and interest on the Notes under the Guarantees and could result in a downgrade or withdrawal of the rating of the Notes.

A rating is not a recommendation to buy, sell or hold the Notes and may be subject to revision, suspension or withdrawal at any time. There can be no assurance that a rating will remain for any given period of time or that a rating will not be lowered, suspended or withdrawn by the relevant rating agency if in its judgment, circumstances in the future so warrant. Neither the Issuer nor the Company has an obligation to inform the holders of the Notes of any downgrade, suspension or withdrawal of the rating of the Notes. A reduction, suspension or withdrawal at any time of the rating assigned to the Notes may adversely affect the market price of the Notes and a holder's ability to dispose of the Notes.

Risks Relating to Forward-Looking Statements

This offering circular contains forward-looking statements that are management's present expectations of future events and are subject to certain factors and 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, including the statements relating to the Company's use of proceeds from the offering. These factors include, but are not limited to, the following:

- general economic, business and political conditions;
- fluctuations in commodity prices, particularly the price of crude oil;
- regulatory developments in the energy industry;
- declines in consumer confidence;
- the ability of third parties to perform in accordance with contractual terms and specifications;
- changes in interest rates and exchange rates;
- development projects and exploration prospects;
- uncertainties inherent in estimating proved or potential oil and gas reserves;
- expansion and other development trends in the energy industry;
- success of the Company's business strategy, including expansion and growth of its operations;
- trends in the global battery industry, including the adoption of alternative battery technologies;
- seasonality;
- the Company's leverage and its ability to meet its debt obligations;
- environmental risks and hazards and the costs of compliance with environmental regulations; and
- conditions in the Korean and 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.

The Company cautions you not to rely 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.

USE OF PROCEEDS

The net proceeds from the sale of the Notes, after deducting a combined management and underwriting commission but not estimated expenses of the offering, will be US$991,157,000. An amount equal to the net proceeds of the Notes ("Green Bond Proceeds") will be allocated to finance or refinance, in whole or in part, existing and future projects that provide environmental benefits relating to (i) low carbon transportation, (ii) energy efficiency and (iii) green buildings ("Eligible Green Categories") in accordance with the Company's Green Financing Framework, which is in alignment with the Green Bond Principles 2018 as administered by the International Capital Markets Association and the Green Loan Principles as administered by the Loan Market Association.

Examples of Eligible Green Categories include the following:

- low carbon transportation: the financing or investment in the development and manufacturing of batteries, including research and development expenditures relating to battery technologies for pure-electric and hybrid vehicles, motorcycles or bicycles, and the construction of such production facilities.
- energy efficiency: the financing or investments in the construction of energy storage systems and the research and development expenses relating to relevant technologies.
- green building: construction and renovation of green buildings.

Project Evaluation and Selection Process

The Company has established a green bond working group consisting of representatives from the corporate finance department, investment project teams, corporate social responsibility department and other units which are responsible for the Eligible Green Projects. Eligible Green Projects are selected by the investment team and representatives of the green bond working group according to the Green Financing Framework criteria and the Company's sustainability policies, which includes a safety, health and environmental risk assessment. Decisions will be made through internal decision-making processes and the green bond working group will take into consideration each relevant department's opinion in its review. The green bond working group will prioritize and approve each Eligible Green Project. The project list will be reviewed annually to ensure alignment with the Green Financing Framework.

Management of Proceeds

Each subsidiary raising funds under the Green Financing Framework will create a dedicated database to record the allocation of proceeds, which will be reviewed and verified by the Company at least on an annual basis. Green financing can be allocated to projects that include different subsidiaries, but the Company will be responsible for consolidating allocation and impact information. The subsidiaries commit to fully allocating the proceeds within 24 months after issuance of a Note. Any balance of the Green Bond Proceeds not yet allocated to Eligible Green Categories will be held in the subsidiaries' liquidity reserves and will be subject to the Green Financing Framework's exclusion criteria. The Company confirms that unallocated proceeds will not be allocated to stocks or other investment types of companies that are involved in fossil fuel activities.

Reporting

The Company will consolidate and report material changes on a timely basis, and for allocation and impact reporting, the Company will report at least annually until the Green Bond Proceeds are fully allocated to Eligible Green Projects. The allocation reporting will comprise the amount of proceeds allocated to each Eligible Green Project category and, when possible, descriptions of the Eligible Green Projects. The impact reporting will comprise the calculation methodologies and key assumptions, as well as relevant impact indicators for each Eligible Green Project category. CICERO, an external consultant, issued an opinion dated July 26, 2019 regarding the suitability of the Notes as an investment in connection with certain environmental criteria (the "Second Party Opinion"). The Second Party Opinion and the Company's Green Financing Framework are publicly available on the Company's investor relations website: http://eng.skinnovation.com/ir/greenloan.asp.

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 U.S. dollars and rounded to the nearest tenth of one Won. No representation is made that the Won or U.S. dollar amounts referred to herein could have been or could be converted into U.S. 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)		
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	1,088.0	1,180.5	1,280.1	1,082.7
August	1,185.1	1,186.9	1,193.7	1,182.3
September	1,173.5	1,178.8	1,190.2	1,160.6
October	1,133.4	1,144.7	1,169.5	1,127.6
November	1,104.4	1,116.8	1,136.5	1,104.4
December	1,088.0	1,095.1	1,108.9	1,082.7
2021 (through January 13)	1,099.9	1,090.5	1,099.9	1,083.1

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).

THE ISSUER

The Issuer was incorporated in the State of Georgia on November 27, 2018 and was later converted to a Delaware corporation on February 21, 2019. The Issuer is a wholly-owned subsidiary of the Guarantor.

The Issuer was established by the Company to construct and operate battery production plants in Georgia, United States. In March 2019, the Issuer commenced construction of the first plant with an expected annual capacity of 9.8 GWh. Construction of the first plant is expected to be completed in 2021 with production scheduled to begin in 2022. Upon commencement of production, the Issuer expects to supply battery cells to Volkswagen AG and the Ford Motor Company. The Issuer is currently planning to construct a second plant with an annual capacity of 11.7 GWh commencing in July 2020 to be completed by 2023.

The Issuer's headquarters and principal office is located at 26 Jong-ro Jongno-gu, Seoul 03188, Korea and the telephone number is +82 2 2121 5114. The Issuer's registered office is located at 201 17th Street NW, Suite 1700 Atlanta, GA 30363-1099.

THE GUARANTOR

CAPITALIZATION

The following table sets forth the Company's consolidated short-term debt and capitalization (defined as the sum of long-term debt and equity) as of September 30, 2020 on an actual basis as derived from the Company's Interim Financial Statements included elsewhere in this Offering Circular and as adjusted to give effect to the issuance of the Notes.

The following table should be read in conjunction with "Selected Financial and Operating Data" and the Company's Interim Financial Statements and accompanying notes included elsewhere in this Offering Circular.

	As of September 30, 2020	
	Actual	As Adjusted
	(in billions of Won)	
Long-term Debt		
Long-term borrowings denominated in Won, net of discount	₩ 1,047	₩ 1,047
Long-term borrowings denominated in foreign currency, net of discount	2,054	2,054
Bonds issued and denominated in Won, net of discount	8,747	8,747
Bonds issued and denominated in foreign currency (other than the Notes), net of discount	584	584
The Notes (now being issued)[1]	—	1,174
Total long-term debt	₩12,432	₩13,606
Equity		
Capital stock	₩ 469	₩ 469
Other paid-in capital	4,134	4,134
Retained earnings	10,128	10,128
Other components of equity	284	284
Non-controlling interests	741	741
Total equity	15,755	15,755
Total capitalization	₩28,187	₩29,361

(1) Translated into Won at ₩1,173.5 to US$1.00, the Market Average Exchange Rate in effect on September 30, 2020.

Other than as described above, there has been no material change in the Company's capitalization since September 30, 2020.

BUSINESS

Overview

The Company is one of the leading energy companies in Korea. As a holding-operating company of the energy-related businesses in the SK Group, Korea's third largest business group in terms of combined assets as of December 31, 2019, the Company manufactures, markets and sells a diversified portfolio of petroleum, petrochemical, base oil, lubricant and lithium-ion battery products through its subsidiaries. The Company also engages in E&P of natural resources, development and production of industrial material products, including lithium-ion battery separators and flexible cover windows, for a wide range of commercial applications and research and development in the energy field. Specifically, the Company's business is comprised of the following five segments:

- ***Petroleum refining and marketing.*** Through SK Energy, a wholly-owned subsidiary of the Company and the leading petroleum refiner in Korea, the Company engages in the refining of crude oil to produce a full range of refined petroleum products, which are categorized into light oils, middle distillates and heavy oils. The Company also engages in the trading of crude oil and petroleum products through its wholly-owned subsidiary SK Trading International, which served as the trading platform of SK Energy prior to its spin-off from SK Energy in July 2013. In 2017, 2018, 2019 and the first nine months of 2020, the Company's refined petroleum products accounted for approximately 32%, 32%, 32% and 30%, respectively, of all of the refined petroleum products sold in Korea based on sales volume as reported to Korea National Oil Corporation ("KNOC").

- ***Petrochemicals.*** Through SK Global Chemical, a wholly-owned subsidiary of the Company and a leading petrochemicals producer in Korea, the Company engages in the production and sale of a wide range of petrochemical products, which are categorized into olefins, aromatics, solvents, polymer and synthetic rubber. In recent years, the Company has focused its efforts on enhancing its product portfolio with higher value-added petrochemical products typically used in automotive and packaging materials. SK Incheon Petrochem, which was spun off from SK Energy and became one of the Company's consolidated subsidiaries in July 2013, produces a wide range of petrochemicals products, including naphtha, gasoline, kerosene, diesel, jet fuel, paraxylene and benzene, which it sells through SK Global Chemical. In 2017, 2018, 2019 and the first nine months of 2020, approximately 50%, 51%, 50% and 53%, respectively of the Company's petrochemical products were exported, primarily to China.

- ***Base oil and lubricants.*** Through SK Lubricants, a wholly-owned subsidiary of the Company and the world's largest commercial producer of Group III base oil in terms of production capacity as well as a leading producer of lubricant products in Korea, the Company manufactures and sells base oil, the main feedstock for lubricants production, in a variety of specifications under the brand name YUBASE and a family of lubricant products under the brand name ZIC. According to Independent Chemical Information Service ("ICIS"), the Company's market share of the global Group III base oil market in terms of production capacity was approximately 36.7%, 36.7%, 37.1% and 37.0% in 2017, 2018, 2019 and the first nine months of 2020, respectively.

- ***Batteries.*** The Company engages in the production of rechargeable lithium-ion batteries used in a variety of commercial applications, including electronic vehicles and energy storage systems ("ESS") for renewable energy, for sale in the domestic and overseas markets. The Company launched its battery business in 1996 and in 2005, the Company commenced its lithium-ion battery business, principally for hybrid electric vehicles. In 2006, the Company commenced production of lithium-ion batteries and in 2012, the Company commenced mass production of lithium-ion batteries at its production facilities located in Seosan, Korea. The Company's domestic production facilities are located at the Seosan facilities, with current production capacity reaching 4.7 GWh, which is equivalent to the energy required by 130,000 units of electronic vehicles with battery capacity of 60 kWh. The Company's overseas production facilities are located in China, Hungary and the United States.

- ***E&P and others.*** Since 1983, the Company has been actively engaged in the overseas exploration and production of crude oil and natural gas. The Company is currently participating, through various consortiums and joint ventures, in overseas E&P activities in 13 blocks and four LNG projects in eight countries worldwide, including Blocks 88 and 56 in Peru and Block 15-1 in Vietnam. The Company currently also invests in four LNG projects overseas. In 2019 and the first nine months of 2020, the Company's net production of oil equivalents was 20 million barrels and 13 million barrels, respectively, which was sold in the international crude oil markets for revenues of ₩669 billion and ₩340 billion, respectively. The Company's proven reserves are approximately 455 million barrels of oil equivalent. The Company also engages in other businesses, including development and production of lithium-ion battery separators used in rechargeable batteries and flexible cover windows used to protect flexible display panels. In addition, the Company conducts oil and petrochemical research, catalyst and process research and environmentally-friendly and fuel-efficient technology research, as well as the development of new materials.

Established in 1962 as Korea's first oil refiner, the Company has emerged as a leading producer of petroleum, petrochemical and lubricant products in the Asia Pacific region. The Company seeks to accelerate its growth and expand its global reach mainly by actively developing a diversified and innovative product portfolio to achieve higher margins. In addition, based on its "Green Balance 2030" initiative, the Company strives to increase the portion of its investment portfolio dedicated to its green business relating to electric vehicle batteries and materials. In furtherance of such strategic objective, the Company has been focusing on strengthening its competitiveness not only in its traditional business segments, such as petroleum refining and petrochemicals production, but also in the new materials and green energy areas, such as production of lithium-ion batteries for electronic vehicles, to create new growth engines for the Company. While the Company plans to continue to develop higher value-added products and maintain sustainable growth in our major export markets, such as China, it also plans to expand its operations overseas through strategic alliances and acquisitions, including strategic alliances with trusted global players with distinguished capabilities. In addition, the Company plans to continue to adapt to rapidly changing technological and business landscapes by investing in technologies that help increase its competitiveness by leveraging its centralized research institute, Institute of Technology Innovation, which is home to multiple research laboratories fulfilling the research and development needs of the energy-related companies in the SK Group.

The Company operates an extensive global network of state-of-the-art production facilities located in key strategic locations. The Company's principal domestic production facilities are located in Ulsan in southeast Korea and Incheon in northwest Korea. The Ulsan complex is one of the largest single-location refinery complexes in the world based on refining capacity and houses the main production facilities of the Company's petroleum, petrochemicals and lubricants operations, which enables the Company to take advantage of a high-quality labor force and reduce logistics and maintenance costs by having its energy-related subsidiaries share the infrastructure and facilities maintenance for their operations. The Ulsan complex has a total refining capacity of approximately 840,000 barrels of crude oil per day. Through a joint venture between SK Global Chemical and SABIC, a global chemicals company based in Saudi Arabia, the Company constructed a plant in Ulsan in May 2014 to manufacture high-performance polyethylene products, such as nexlene. In June 2014, through a joint venture between SK Global Chemical and JXTG Nippon Oil & Energy Corporation, a leading petroleum refining company in Japan, the Company completed the construction of, and commenced production at, an aromatics plant in the Ulsan complex with an annual production capacity of one million metric tons of paraxylene and 600,000 metric tons of benzene. The Incheon complex houses two crude distillation units with a total refining capacity of approximately 275,000 barrels of crude oil per day. In July 2014, the Company completed the transformation of the Incheon complex into an aromatics-focused refinery by adding new petrochemicals production facilities with an annual production capacity of 1.3 million metric tons of paraxylene and 490,000 metric tons of benzene. The Incheon complex operation became a newly-incorporated subsidiary of the Company following its spin-off from SK Energy in July 2013. See "— History." In 2006, the Company commenced production of lithium-ion batteries and in 2012, the Company commenced mass production of lithium-ion batteries at its production facilities located in Seosan, Korea. The Seosan facilities have current production capacity reaching 4.7 GWh, which is equivalent to the energy required by 130,000 units of electronic vehicles with battery capacity of 60 kWh. See "— Facilities — Production facilities — Domestic production facilities." In response to evolving market demand and in order to maintain the competitiveness of the Company's products as well as diversify its product portfolio, the Company plans to continue to invest in upgrading its existing production facilities. In recent years, the Company has also strived to strengthen its position by expanding its production facilities globally through strategic joint ventures.

The Company's sales amounted to ₩46,163 billion in 2017, ₩54,511 billion in 2018, ₩49,877 billion in 2019, ₩38,088 billion in the first nine months of 2019 and ₩26,782 billion in the first nine months of 2020. The Company recorded profit for the year of ₩2,145 billion in 2017, ₩1,710 billion in 2018 and ₩66 billion in 2019, and profit for the period of ₩505 billion in the first nine months of 2019 and loss for the period of ₩1,914 billion in the first nine months of 2020. The Company had total assets of ₩39,526 billion and total equity of ₩18,210 billion as of December 31, 2019, and total assets of ₩39,269 billion and total equity of ₩15,755 billion as of September 30, 2020.

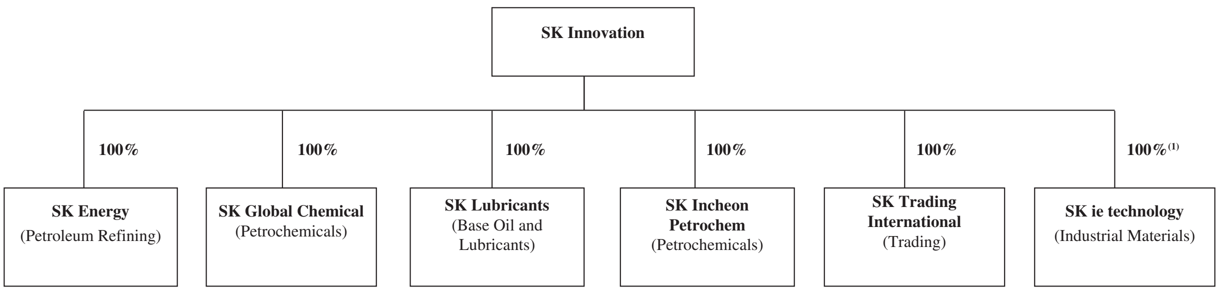
The Company's registered office is at 26, Jong-ro, Jongno-gu, Seoul 03188, Korea.

History

The Company began its energy-related businesses as Korea Oil Corporation, which was established in 1962 as Korea's only state-owned refinery. Korea Oil Corporation commenced oil refining operations in the Ulsan complex in 1964. Sunkyung Limited acquired Korea Oil Corporation in 1980 and changed its corporate name to Yukong in 1982. Yukong's shares were listed on the Korea Exchange (formerly the Korea Stock Exchange) in 1984.

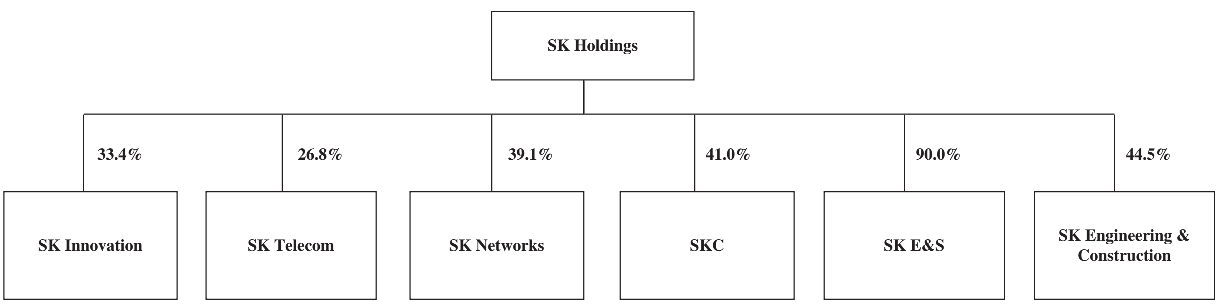
After again changing its corporate name to SK Corporation in 1998, all of the energy-related businesses of SK Corporation were split off to form SK Energy Co., Ltd. (the "Split-off") in 2007. Pursuant to the reorganization, SK Corporation changed its name to SK Holdings Co., Ltd. and became a holding company in an effort to increase business management efficiency and corporate governance transparency while also establishing management accountability of the operating company by promoting an independent business management and evaluation system. SK Holdings retained SK Corporation's businesses that were not energy-related, such as the life science business which focuses on the research and development of pharmaceuticals. The equity interests that SK Corporation used to hold in other companies in the SK Group, such as the equity interest in SK Telecom Co., Ltd., SK Networks Co., Ltd., SKC Co., Ltd., SK E&S Co., Ltd. and SK Shipping Co., Ltd., were also retained by SK Holdings. In 2007, the shares of SK Energy Co., Ltd. were listed, and the shares of SK Corporation were re-listed as shares of SK Holdings, for trading on the Korea Exchange.

In 2009, SK Energy Co., Ltd. spun off the base oil and lubricants business as a wholly-owned subsidiary called SK Lubricants Co., Ltd. SK Energy Co., Ltd. changed its corporate name to SK Innovation Co., Ltd. in 2011 and also spun off its petroleum refining business to create SK Energy Co., Ltd. and its petrochemicals business to create SK Global Chemical Co., Ltd. In 2013, SK Energy spun off its trading operation to and its Incheon complex operation to create newly-incorporated subsidiaries of the Company (the "Spin-off"), in an effort to enhance business management, maximize shareholder value and increase synergy between SK Energy and the newly-incorporated companies. Following the Spin-off, SK Trading International and SK Incheon Petrochem, the newly-incorporated companies, became consolidated subsidiaries of the Company and affiliates of SK Energy. In April 2019, in order to more efficiently respond to the rapidly changing needs of the global battery industry, the Company decided to demerge its lithium-ion battery separator business unit into a wholly-owned subsidiary and created SK ie technology Co., Ltd. In October 2020, the Company's interest in SK ie technology decreased to 90% following SK ie technology's issuance of common shares to a consortium of financial investors. Currently, the Company is the holding-operating company of the energy-related businesses in the SK Group. The significant subsidiaries of the Company as of September 30, 2020 are as follows:



(1) In October 2020, the Company's interest in SK ie technology decreased to 90% following SK ie technology's issuance of common shares to a consortium of financial investors.

The following diagram shows the corporate structure of SK Holdings as of September 30, 2020 (major subsidiaries only):



The Company is the successor-in-title to all the assets and liabilities and rights and obligations of SK Corporation that were related to the energy businesses conducted by SK Corporation before the Split-off and the change of its corporate name to SK Holdings in 2007, as well as all authorized licenses, employment relations, contracts and lawsuits that were directly related to the energy business. The remaining assets and liabilities and rights and obligations related to other business areas of SK Corporation remain at SK Holdings. Under the relevant provisions of the Korean Commercial Code relating to split-offs, both the operating company and the holding company remain jointly and severally liable after the corporate split-off for all of their liabilities existing prior to the corporate split-off unless such joint and several liability has been successfully eliminated through consents of creditors of the affected debt, including consent by resolutions at bondholders' meetings, which resolutions are approved by the court. The Company and SK Holdings remain jointly and severally liable for each other's debts and other liabilities that existed prior to July 1, 2007, which is the record date of the Split-off, and that currently remain outstanding.

The Company and its significant subsidiaries, SK Lubricants, SK Energy, SK Global Chemical and SK ie technology, which were spun off from the Company in October 2009, January 2011, January 2011 and April 2019, respectively, as well as SK Trading International and SK Incheon Petrochem, which were both spun off from SK Energy in July 2013, also remain jointly and severally liable for each other's debts and other liabilities that existed prior to such spin-offs and currently remain outstanding.

Principal Businesses

The following tables set forth the sales revenue of the Company by business segment and related percentage data for the periods indicated.

	For the Year Ended December 31,						For the Nine Months Ended September 30,			
	2017		2018		2019		2019		2020	
	(in billions of Won, except percentages)									
Petroleum refining and marketing:										
Gasoline	₩ 13,878	30.1%	₩ 16,311	29.9%	₩ 15,315	30.7%	₩ 11,935	31.1%	₩ 4,434	16.6%
Kerosene	435	0.9	576	1.1	509	1.0	363	0.9	217	0.8
Diesel	23,004	49.8	28,354	52.0	25,993	52.1	20,210	52.7	12,204	45.6
Bunker-C	4,027	8.7	5,579	10.2	4,997	10.0	3,523	9.2	3,133	11.7
Other products(1)	21,303	46.1	25,624	47.0	21,724	43.6	16,936	44.2	12,801	47.8
Services(2)	390	0.8	455	0.8	425	0.9	301	0.8	460	1.7
Miscellaneous	8,355	18.1	12,581	23.1	12,400	24.9	9,342	24.4	6,715	25.1
Inter-segment sales	(38,621)	(83.7)	(50,286)	(92.2)	(45,547)	(91.3)	(35,256)	(92.0)	(22,095)	(82.5)
Sub-total	₩ 32,771	71.0%	₩ 39,194	71.9%	₩ 35,816	71.8%	₩ 27,354	71.4%	₩ 17,869	66.7%
Petrochemicals:										
Ethylene	₩ 357	0.8%	₩ 433	0.8%	₩ 307	0.6%	₩ 255	0.7%	₩ 184	0.7%
Paraxylene	3,412	7.4	4,154	7.6	3,423	6.9	2,687	7.0	1,652	6.2
Styrene Monomer	660	1.4	703	1.3	821	1.6	620	1.6	393	1.5
Polyethylene/ Poly-propylene	1,918	4.2	1,892	3.5	1,291	2.6	993	2.6	1,095	4.1
Other base chemical products(3)	7,076	15.3	7,918	14.5	7,040	14.1	5,447	14.3	3,716	13.9
Miscellaneous(4)	1,195	2.6	2,015	3.7	1,980	4.0	1,491	3.9	1,199	4.5
Inter-segment sales	(5,279)	(11.4)	(6,431)	(11.8)	(5,319)	(10.7)	(4,114)	(10.7)	(2,804)	(10.5)
Sub-total	₩ 9,339	20.2%	₩ 10,684	19.6%	₩ 9,543	19.1%	₩ 7,379	19.3%	₩ 5,435	20.3%
Base oil and lubricants	₩ 3,047	6.6%	₩ 3,266	6.0%	₩ 2,878	5.8%	₩ 2,178	6.3%	₩ 1,719	6.4%
Battery	₩ 146	0.3%	₩ 348	0.6%	₩ 690	1.4%	₩ 465	1.2%	₩ 1,113	4.2%
E&P and Others	₩ 859	1.9%	₩ 1,019	1.9%	₩ 949	1.9%	₩ 712	1.9%	₩ 646	2.4%
Total	₩ 46,163	100.0%	₩ 54,511	100.0%	₩ 49,877	100.0%	₩ 38,088	100.0%	₩ 26,782	100.0%

(1) Includes asphalt, jet fuel, LPG, naphtha and other refined petroleum products.
(2) Includes sales revenue from the supply of steam.
(3) Includes methyl-tertiary butyl ether ("MTBE"), butane-1 and other base chemical products.
(4) Includes 1,4 butanediol, cyclohexane and other miscellaneous petrochemical products.

The following table sets forth the operating profit and loss of the Company by business segment and related percentage data for the periods indicated.

	For the Year Ended December 31,						For the Nine Months Ended September 30,			
	2017		2018		2019		2019		2020	
	(in billions of Won, except percentages)									
Petroleum refining and marketing	₩1,502	46.6%	₩ 709	33.5%	₩ 450	35.5%	₩ 342	29.7%	₩(2,030)	90.5%
Petrochemicals	1,377	42.7	1,118	52.8	706	55.6	698	60.7	(75)	3.3
Base oil and lubricants	505	15.7	461	21.8	294	23.2	207	18.0	137	(6.1)
Batteries	(232)	(7.2)	(318)	(15.0)	(309)	(24.3)	(197)	(17.1)	(318)	14.2
E&P and others	70	2.2	148	7.0	128	10.1	99	8.6	42	(1.9)
Total	₩3,222	100.0%	₩2,118	100.0%	₩1,269	100.0%	₩1,150	100.0%	₩(2,244)	100.0%

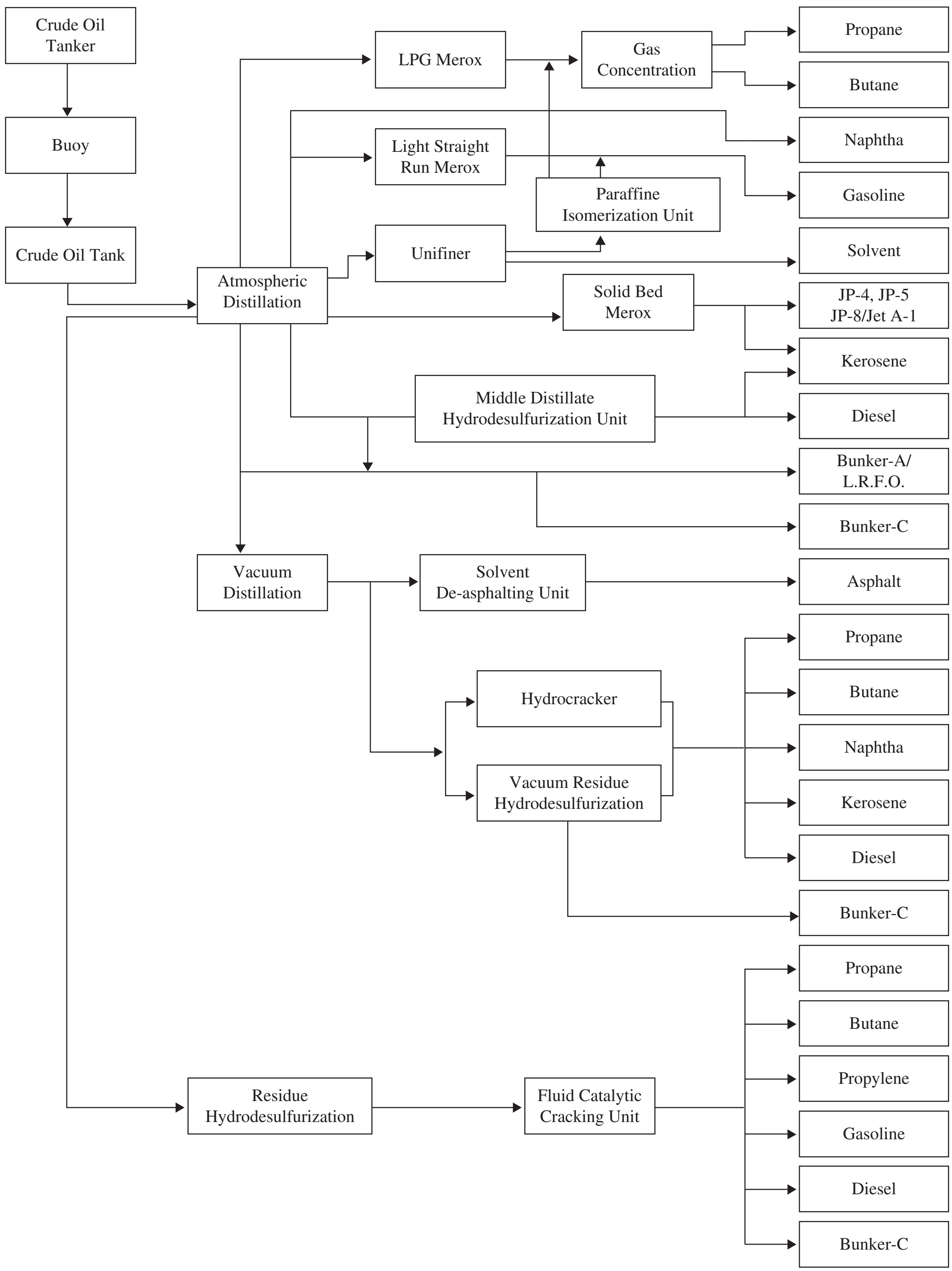
Petroleum refining and marketing

Petroleum refining. The Company is the leading provider of refined petroleum products in Korea, a position it has held since its establishment in 1962. According to KNOC, the Company's share of the refined petroleum products market in Korea was approximately 32%, 32%, 32% and 30% in 2017, 2018, 2019 and the first nine months of 2020 based on sales volume.

The Company's petroleum refining operations are carried out at its refineries located in the Ulsan complex in southeast Korea and the refineries located in the Incheon complex in northwest Korea. The Ulsan complex has a total refining capacity of approximately 840,000 barrels per day and the Incheon complex has a total refining capacity of approximately 375,000 barrels per day. See "— Facilities — Production facilities." The Company produces a full range of refined petroleum products, which can be categorized into the following three product groups:

- light oils — includes propane, butane, propylene, naphtha and gasoline;
- middle distillates — includes JP-4, JP-5, JP-8, kerosene, jet A-I and diesel; and
- heavy oils — includes bunker-A, light residual fuel oil ("LRFO"), bunker-C and asphalt.

The following diagram illustrates the petroleum refining process from crude oil to finished refined petroleum product:



The following chart sets forth the principal end uses of the refined petroleum products produced by the Company:

Product	Principal End Uses
Light Oils:	
Propane	Heating and cooking fuel
Butane	Fuel for automobiles, feedstock for city gas
Naphtha	Feedstock for petrochemicals
Gasoline	Fuel for automobiles
Middle Distillates:	
JP-4	Fuel for military jets
JP-5	Fuel for military jets
JP-8	Fuel for military jets
Kerosene	Heating fuel
Jet A-1	Fuel for civilian jets
Diesel	Fuel for automobiles, trucks, heating
Heavy Oils:	
Bunker-A	Industrial fuel, fuel for shipping
LRFO	Industrial fuel, fuel for shipping
Bunker-C	Industrial fuel, fuel for shipping
Asphalt	Road construction

The demand for refined petroleum products in Korea is highly correlated to domestic economic activity. High domestic activity, including manufacturing levels and consumer spending as measured by Korea's gross domestic product, generally results in higher consumption of refined petroleum products. The demand for refined petroleum products such as heating oil is also dependent on other factors such as the season. As demand for heating oil, for example, fluctuates during the year (being higher during the winter months than during the summer months), so does the level of competition (being lower during the winter months than during the summer months). Higher demand generally reduces competitive pressures in the market and therefore, the Company faces less competition during the winter months than during the summer months. In 2017, 2018, 2019 and the first nine months of 2020, the Company sold, in terms of sales revenue, approximately 57%, 54%, 54% and 58%, respectively, of its refined petroleum products in Korea, where prices tend to be higher than in export markets. See "— Sales and Distribution."

In recent years, domestic demand for refined petroleum products has been shifting gradually toward light oils and low-sulfur products, particularly for transportation and household heating. This demand shift has primarily been due to the increasing demand for cleaner fuels and changes in the regulatory environment emphasizing the use of low-sulfur fuels. In response to this increased domestic demand, the Company has placed greater emphasis on the production of light oils and middle distillates, which tend to be higher value-added products.

Trading. Through SK Trading International, which became a newly-incorporated wholly-owned subsidiary of the Company in July 2013, the Company also engages in the trading of crude oil and petroleum products worldwide. SK Trading International operates a global network based in the major trading hubs of Singapore, Houston and London, through which it sources crude oil and other feedstocks used by the Company's subsidiaries and markets the petroleum products the Company produces to customers worldwide. SK Trading International was the trading operation of SK Energy prior to its spin-off from SK Energy in July 2013.

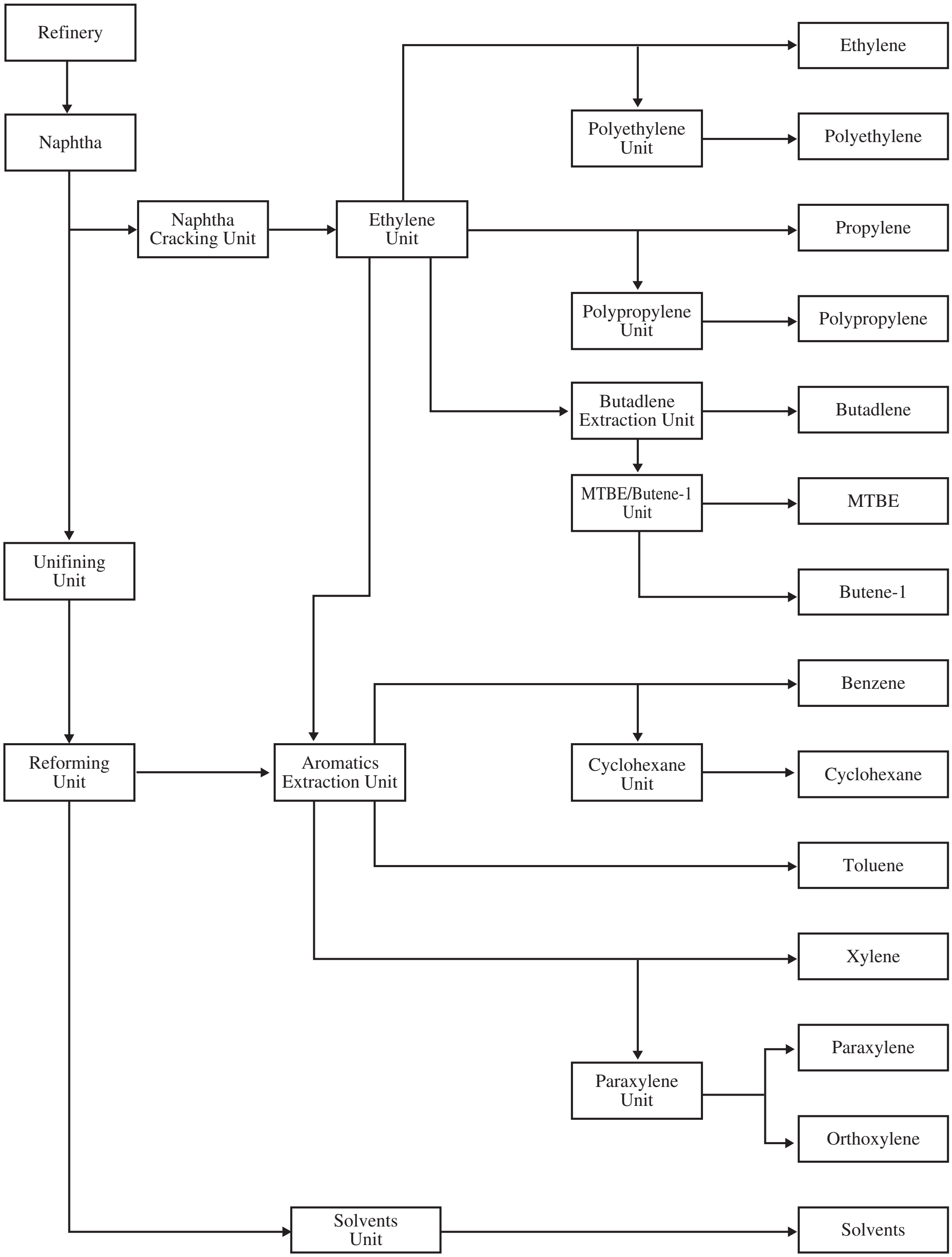
Petrochemicals

The Company commenced production of petrochemicals in 1970 and has become one of the leading vertically integrated petrochemicals producers in Korea.

The Company's petrochemical products are produced at naphtha cracking units, aromatics extraction units and polyolefin units, among others, located in the Ulsan complex and in the Incheon complex. See "— Facilities — Production facilities — Domestic production facilities." In recent years, the Company has focused its efforts on enhancing its product portfolio with higher value-added petrochemical products typically used in automotive and packaging materials. The Company produces a full range of petrochemical products, which can be categorized into the following five product groups:

- *olefins* — includes ethylene, propylene, butadiene, butane-1 and MTBE;
- *aromatics* — includes benzene, toluene, mixed xylene, cyclohexane, styrene monomer, paraxylene and orthoxylene;
- *solvents* — includes aromatic, naphthenic, aliphatic, dearomatized and chemical solvents as well as 1,4-butanediol;
- *polymer* — includes polyethylene and polypropylene; and
- *synthetic rubber* — includes ethylene-propylene-diene monomer ("EPDM").

The following diagram illustrates the production process for petrochemical products:



The following chart sets forth the principal uses of the petrochemical products produced by the Company:

Product	Principal End Uses
Olefins:	
Ethylene	Feedstock for polyethylene, synthetic rubber, polyvinyl chloride and styrene monomer
Propylene	Feedstock for polypropylene, synthetic rubber, acrylonitrile and propylene oxide
Butadiene	Feedstock for styrene, butadiene rubber, butadiene synthetic rubber and acrylonitrile-butadiene-styrene
MTBE	Octane enhancer for gasoline
Butane-1	Feedstock for polyethylene and polypropylene
Aromatics:	
Benzene	Feedstock for styrene monomer, caprolactam, alkyl benzene, medical supplies, agricultural chemicals and organic medicine
Toluene	Paint solvent or solvent for adhesives, ink and medical supplies; feedstock for toluene di-isocyanate and trinitrotoluene
Mixed xylene	Feedstock for paraxylene, orthoxylene and metaxylene
Cyclohexane	Nylon
Styrene monomer	Polystyrene, acrylonitrile-butadiene-styrene and styrene-butadiene rubber
Paraxylene	Polyester fiber
Orthoxylene	Plasticizer and paint
Solvents:	
Aromatic solvents	Paint, ink and emulsifier for agricultural chemicals and adhesives
Naphthenic solvents	General solvents, adhesives, extraction solvents and foaming agents
Aliphatic solvents	Foaming agent for insulating materials
Dearomatized solvents	Clothes washing and rust preventive oil
Chemical solvents	Dissolving polar substances
1,4-Butanediol	Spandex, engineering plastics and coating
Polymer:	
Polyethylene	Film, pipes, bottle caps and container covers
Polypropylene	Film, household items and fiber products
Synthetic Rubber:	
Ethylene-propylene-diene monomer	Automobile parts

In addition, the Company is a party to a styrene monomer toll manufacturing agreement with SKC Co., Ltd. ("SKC"), an SK Group affiliate. Under this agreement, SKC manufactures styrene monomer for a manufacturing fee, using raw materials supplied by the Company. The Company then markets and distributes the finished styrene monomer. Moreover, the Company's consolidated subsidiary SK Incheon Petrochem, which does not have a marketing function, sells the entirety of its petrochemical products, including paraxylene and benzene, directly to SK Global Chemical. See "Certain Relationships and Related Party Transactions."

The Company believes that it benefits from the vertical integration of its petroleum refining and petrochemicals production operations. In particular, naphtha, which is the principal raw material used in the Company's production of petrochemicals, is produced through the Company's petroleum refining operations. The Company's petrochemical production operations receive most of its naphtha requirements from the petroleum refining and production operations. See "— Raw Materials." The Company also supplies its own requirements for olefin feedstock for the production of polymer.

The Company sells its petrochemical products principally to customers that operate production plants adjacent to the Ulsan complex. The Company also exports its petrochemical products primarily to customers in

Asia. The Company supplies its domestic customers through pipelines. In 2017, 2018, 2019 and the first nine months of 2020, the Company sold, in terms of sales volume, approximately 98%, 98%, 97% and 97%, respectively, of its petrochemical products in Asia, including Korea, China and Southeast Asia.

The Company enters into joint ventures with respect to its petrochemicals production through SK Global Chemical, a wholly-owned subsidiary of the Company and through which the Company operates its petrochemical production business. See "— Facilities — Production facilities."

- In December 2012, SK Global Chemical entered into a joint venture with Ningbo Chemical Industry Development Co., Ltd. to establish Ningbo SK Performance Rubber Co., Ltd. and completed the construction of, and commenced production at, an EPDM synthetic rubber plant with an annual production capacity of 50,000 metric tons in Ningbo, China in April 2015.
- In October 2013, SK Global Chemical partnered with Sinopec, China's state-owned petrochemical company, and established Sinopec-SK(Wuhan) Petrochemical Co., Ltd. to construct a petrochemical plant with an annual production capacity of 2.3 million tons of basic chemical products, the largest joint petrochemical plant in Korea-China history. In April 2019, Sinopec-SK(Wuhan) Petrochemical announced plans to acquire Sinopec's Wuhan Refinery in Hubei Province with refining capacity of 170,000 barrels of oil per day.
- In June 2014, through a joint venture with JXTG Nippon Oil & Energy Corporation, a leading petroleum refining company in Japan, SK Global Chemical completed the construction of, and commenced production at, an aromatics plant in the Ulsan complex with an annual production capacity of one million metric tons of paraxylene and 600,000 metric tons of benzene.
- In October 2015, through a joint venture with SABIC, Saudi Arabia's state-owned petrochemical company, SK Global Chemical constructed a nexlene plant in Ulsan to manufacture high-performance polyethylene products, which commenced production in May 2014 with an annual production capacity of 230,000 metric tons of high-performance polyethylene.

In addition to entering into joint ventures, the Company selectively pursues promising acquisition opportunities to further expand its petrochemicals business. For example, through SK Global Chemical, the Company acquired Arkema S.A.'s functional polymer business in June 2020 together with its three France-based production facilities to diversify its portfolio to include value-added green chemical products as well as commodity chemicals. The Company, through SK Global Chemical, also acquired Dow Chemical Company's ethylene acrylic acid copolymers and ionomers business and its polyvinylidene chloride business in September 2017 and December 2017, respectively, together with its production facilities located in the United States and Spain to diversify the Company's product portfolio by expanding its value-added packaging operations.

Base oil and lubricants

The Company commenced its lubricants business in 1968 and became the first company in the world to produce Group III base oil on a large scale for commercial sale to the non-captive market in 1995. The Company is a leading producer of lubricant products in Korea based on sales volume and the world's largest commercial producer of Group III base oil in terms of production capacity. Group III base oil is a type of high performance mineral base oil with high viscosity index, low volatility and low-temperature fluidity that is used to produce premium lubricant products. The Company currently has the capacity to produce 70,800 barrels per day of base oil (including 53,100 barrels of Group III base oil) and 8,900 barrels per day of lubricant products. The Company's domestic base oil and lubricants production facilities are located in the Ulsan complex, which allows efficient transportation of unconverted oil ("UCO") and other feedstock for its base oil production through shared pipelines from the refineries operated by SK Energy also located in the Ulsan complex.

The Company has expanded its production facilities globally through strategic joint ventures with refineries that possess the hydrocracking units necessary to produce UCO, the main feedstock for the Company's base oil production. Specifically, SK Lubricants, a wholly-owned subsidiary of the Company and through which the Company operates its base oil and lubricants production business, entered into joint ventures with:

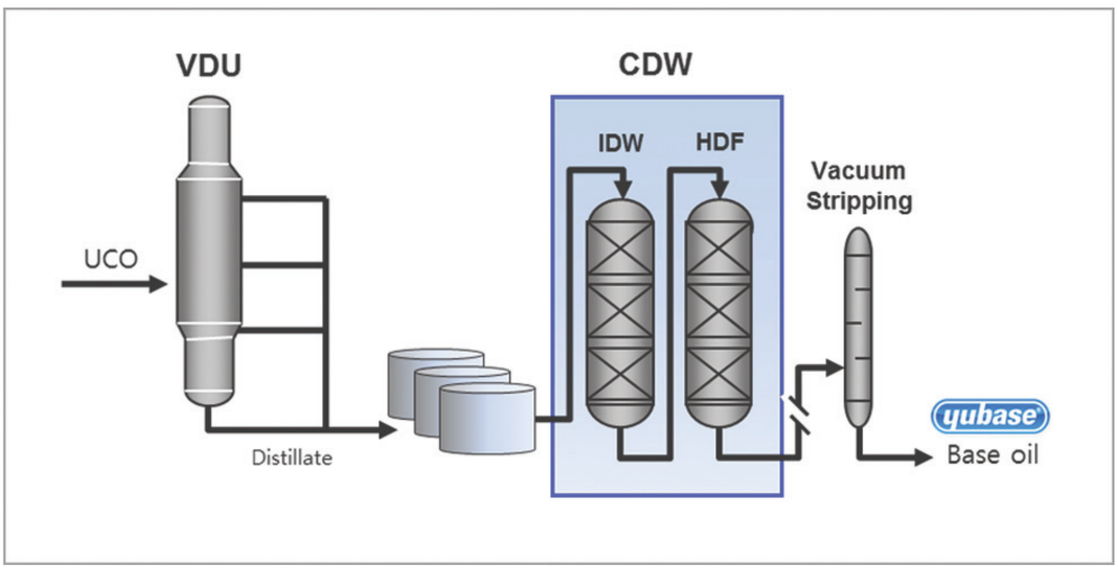
- PT Pertamina Patra Niaga, a wholly-owned subsidiary of PT. Pertamina (Persero), a state-owned refining company in Indonesia, and established PT. Patra SK, in which SK Lubricants holds a 65.0% interest as of September 30, 2020. In April 2008, PT. Patra SK commenced production at its lube base oil ("LBO") plant in Dumai, Indonesia, which has a production capacity of 9,000 barrels per day of Group III+ base oil;

- JXTG Nippon Oil & Energy Corporation, a leading petroleum refining company in Japan, and established YUBASE Manufacturing Asia Co., Ltd., in which SK Lubricants holds a 70.0% interest as of September 30, 2020. In May 2012, YUBASE Manufacturing Asia Co., Ltd. commenced production at its LBO plant in Ulsan, which has a production capacity of 26,000 barrels per day of base oil; and

- Repsol Petrõleo S.A., a leading petroleum refining company in Spain, and established Iberian Lube Base Oils Company, S.A., in which SK Lubricants holds a 70.0% interest as of September 30, 2020. In September 2014, Iberian Lube Base Oils Company, S.A. commenced commercial production at its LBO plant in Cartagena, Spain, which has a production capacity of 13,300 barrels per day of base oil.

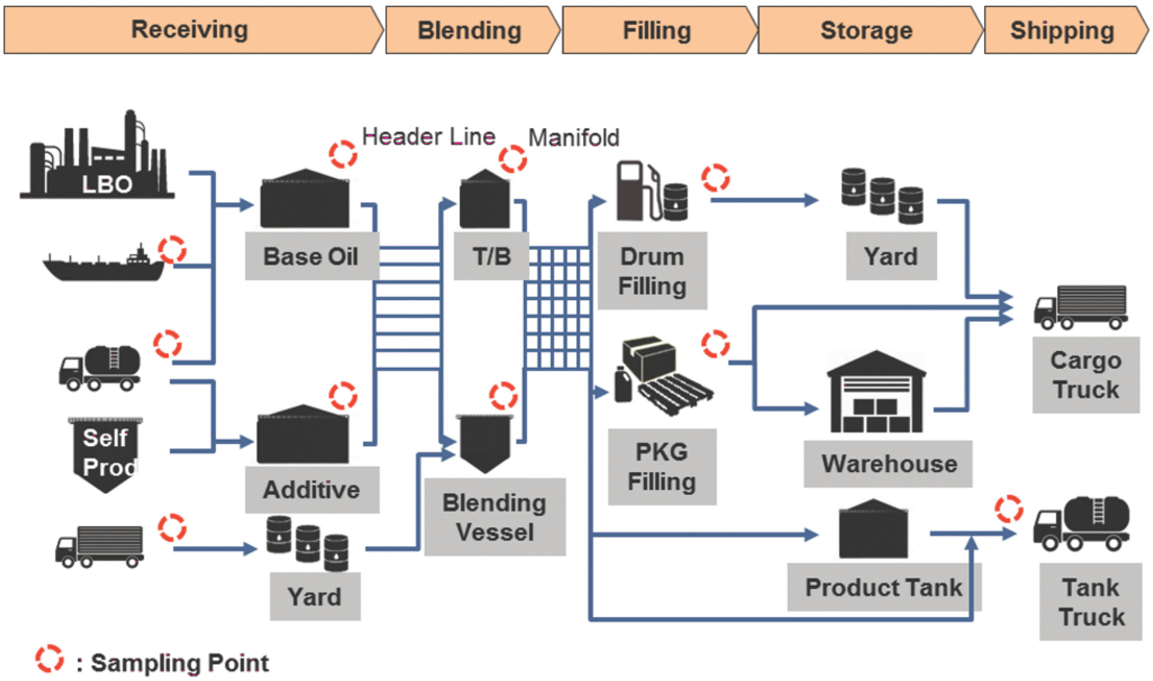
Base oil products are refined petroleum products that are used in combination with additives to make finished lubricant products used in various mechanical devices, such as automobiles and industrial machinery. The Company manufactures and sells base oil products in a variety of specifications under the brand name "YUBASE," a significant portion of which is exported through its global sales and distribution network. The remainder of its base oil products is used internally in the production of approximately 1,300 different types of lubricant products, most of which are marketed under the brand name "ZIC." The Company's lubricant products are used in automobiles, industrial machinery and marine vessels, of which automotive engine oil is the most important in terms of both sales revenue and volume. In particular, the Company's engine oil products, including its gasoline engine oil and diesel engine oil products, are the most widely used brands of engine oil products in Korea.

The following diagram illustrates the production process for base oil products:



VDU: vacuum distillation unit; CDW: catalytic de-waxing unit; IDW: iso-dewaxing unit; HDF: hydro-finishing unit

The following diagram illustrates the production process for lubricant products:



The following chart sets forth the principal uses of the base oil and lubricant products produced by the Company:

Product		**Principal End Uses**
Base Oil:		
Category	**Product Name**	
Group II	YUBASE 2, YUBASE 3, YUBASE L3	Feedstock for continuously variable transmission fluids, automatic transmission fluids
		Feedstock for white oil, transformer oil, spray oil, transformer oil, process oil
	SK 500N, SK 120BS	Feedstock for diesel engine oil, gear oil, trunk piston engine oil, marine diesel cylinder oil
Group III	YUBASE 4, YUBASE 6	Feedstock for gasoline and diesel engine oil, automatic transmission fluids
	YUBASE 8	Feedstock for gasoline and diesel engine oil
Group III+	YUBASE 4 Plus, YUBASE 6 Plus	Feedstock for gasoline and diesel engine oil, automatic transmission fluids
Lubricants:		
Category	**Product Name**	
Automotive	ZIC ZERO, ZIC RACING, ZIC TOP, ZIC X9, ZIC X7, ZIC X7 FE, ZIC X5, ZIC X3	Gasoline engine oil, synthetic motor oil, synthetic blend motor oil
	ZIC X9000, ZIC X7000, ZIC X5000, ZIC X3000	Diesel engine oil
	ZIC M9 4T, ZIC M7 4T, ZIC M5 4T	Motor cycle oil

Product Category	Product Name	Principal End Uses
Industrial	ZIC ATF 3, AIC ATF DEXRON 6	Automatic transmission fluid
	ZIC GEAR EP, ZIC G-5	Gear oil
	ZIC VEGA, SK Supermar CYL, SK Supermar TP, SK Supermar AS	Hydraulic oil, marine oil
	ZIC Super Gear EP	Gear oil
	ZIC Turbine	Turbine oil
Others	ZIC Royal Grease, Crown Grease	Grease

Batteries

The Company engages in the production of rechargeable lithium-ion batteries used in a variety of commercial applications, including electronic vehicles and energy storage systems for renewable energy, for sale in the domestic and overseas markets. The Company launched its battery business in 1996 and in 2005, the Company commenced its lithium-ion battery business, principally for hybrid electric vehicles. In 2006, the Company commenced production of lithium-ion batteries and in 2012, the Company commenced mass production of lithium-ion batteries at its production facilities located in Seosan, Korea. The Company's domestic production facilities are located at the Seosan facilities, with current production capacity reaching 4.7 GWh, which is equivalent to the energy required by 130,000 units of electronic vehicles with battery capacity of 60 kWh. The Company's overseas production facilities are located in China, Hungary and the United States. See "— Production Facilities."

Lithium-ion batteries have become the standard batteries for mobile devices and they are growing in importance for use in electric vehicles. The Company has a product portfolio for a broad range of environmentally friendly vehicles, including hybrid, plug-in hybrid and electric vehicles. The automotive battery market has been expanding at a rapid pace due to the strengthening of fuel efficiency standards in many countries, major advances in electric vehicle technology and the increasing cost-competitiveness of electric vehicles, and the Company expects demand for automotive batteries to continue to grow in the future. The Company supplies such batteries to automobile manufacturers including Hyundai Motors and Kia Motors of Korea, BAIC Group of China, as well as Daimler AG of Germany. In 2019 and the first nine months of 2020, a significant amount of the revenue from automotive batteries was generated from sales in overseas markets.

The Company also produces battery cells, modules and racks that can be used for a variety of purposes, including electrical grids, households, commercial use and uninterrupted power systems. ESS stores electric energy for later consumption, improving energy efficiency and sustainability as well as the stability of power supply systems. For example, an ESS can store surplus energy generated from photovoltaic panels to be used at a later time as an alternative to the electrical grid. ESS offers users flexibility in the way that they generate and use energy and are considered to be an important component for harnessing renewable energy sources. The Company believes that global demand for ESS has strong growth potential, as many countries continue to develop policies to promote the development of renewable energy sources and strengthen energy efficiency standards. In 2019 and the first nine months of 2020, revenue from ESS was generated from sales in both domestic and overseas markets.

E&P and other businesses

E&P. The Company imports all of its crude oil requirements and is therefore exposed to risks of interruption of supply of crude oil as well as volatility in the market price of crude oil. Therefore, in an attempt to mitigate against such volatility, the Company invested and expects to continue to invest in various E&P activities. The Company has been engaged in overseas E&P activities since 1983 and is currently participating in overseas E&P activities in 13 blocks and 4 LNG projects in eight countries, including Blocks 88 and 56 in Peru and Block 15-1 in Vietnam and other locations in China, Libya, Qatar, Oman, Yemen, Australia and the United States. The Company also invests in four LNG projects overseas to help maintain a balanced portfolio of energy resources. In 2019 and the first nine months of 2020, the Company's net production of oil equivalents was 20 million barrels and 13 million barrels, respectively, which was sold in the international crude oil markets for revenues of ₩669 billion and ₩340 billion, respectively. The Company's proven reserves are approximately 455 million barrels of oil equivalent.

The Company typically participates in the overseas E&P projects as part of a consortium or joint venture. In recent years, the Company has focused on securing advanced core technological capabilities and increasing its level of participation in such projects by serving as an active operator responsible for executing operation and budget plans. Such active involvement has led to the Company's successful discovery of oil in the PRMB block 17/03 in the South China Sea in early 2018. While focusing on the conventional oil businesses mainly in Vietnam and the South China Sea, the Company also seeks to expand its strategic focus by selectively tapping into upstream oil and gas businesses. For example, in March 2018, the Company entered into an agreement to purchase Longfellow Nemaha LLC, a U.S. shale oil and gas company, in an effort to expand its shale oil development businesses. The Company had entered the U.S. shale oil market through its U.S.-based unit SK E&P America in 2014 when it acquired two oil fields in 2014, one each in Oklahoma and Texas. From time to time, the Company also reevaluates and balances its product portfolio by selling its stake in certain projects and pursuing other opportunities.

Other businesses. The Company's other businesses include development and production of lithium-ion battery separators, which are ultra-thin and microporous films that serve as critical components of rechargeable batteries for information and technology ("IT") devices and consumer applications as well as electric-vehicle ("EV") batteries. The Company has also taken steps to expand its product portfolio into other promising industrial material products, including flexible cover windows, which are used to enhance the durability of flexible display panels by hard coating the colorless polyimide films applied on such panels. The Company believes that its proprietary technology and expertise in cost efficiently producing its products with reliable quality and advanced features, state-of-the-art global production facilities in key strategic locations in Korea, China and Poland, strong relationships with its customers and substantial market shares in its major product lines provide the Company with sustainable competitive advantages that will continue to differentiate the Company from its competitors and enable it to take advantage of attractive growth opportunities. The Company's lithium-ion battery separators are used in a variety of rechargeable batteries for portable IT devices, including laptop computers, smartphones and tablets, as well as in consumer applications such as power tools and portable energy storage systems. In recent years, the increase in popularity of electric vehicles has led a growth in demand for the Company's advanced battery separators designed for use in EV batteries with faster charging, higher voltage and longer life cycle features, and the Company expects this sector to continue to lead our growth in the near future.

Sales and Distribution

The Company operates a diverse sales and distribution network for both domestic and international sales of its products through domestic and overseas subsidiaries and affiliates, and local sales agents and retail outlets.

Refined petroleum products

The Company is the largest marketer and distributor of refined petroleum products in Korea. The Company produces refined petroleum products primarily to meet domestic demand. In 2017, 2018, 2019 and the first nine months of 2020, the Company's refined petroleum products accounted for approximately 32%, 32%, 32% and 30%, respectively, of all of the refined petroleum products sold in Korea based on sales volume as reported to KNOC. Domestic sales are made both to large industrial and governmental users directly by the Company and to retail and small industrial customers through a network of service stations, retail outlets and sales agents operated by the Company and SK Networks.

Retail sales. The Company's domestic sales network for retail sales of refined petroleum products consists of 21 independent and affiliated sales agents. The Company acquired the petroleum wholesale business from SK Networks in August 2017 in an effort to consolidate its production-to-sales channel and respond more effectively to consumer demand for product features and performance characteristics. The Company is party to exclusive agency agreements with its sales agents, which require the agents to sell only the Company's products. Sales agents in turn supply a network of SK-branded service stations where retail consumers purchase gasoline, diesel, LPG and other refined petroleum products. The Company's relationships with its sales agents have generally been long-standing pursuant to agreements that are renewable automatically at the end of each year unless terminated. The role of sales agents and service stations is an important component of the Company's sales network, especially with the shift in domestic demand toward light refined petroleum products sold primarily to retail customers. The Company provides support to its sales agents and to SK-branded service stations, in the form of credit sales, loans, management consulting and market analysis. As of September 30, 2020, 3,060 service stations were operating under the SK brand name, representing approximately 26.8% of the total number of service stations in operation in Korea.

Direct sales. Direct sales by the Company of its refined petroleum products to large industrial and governmental customers are generally made pursuant to term contracts. Sales to Korea Electric Power Corporation ("KEPCO") are made generally through competitive bidding by quarterly contracts, which obligate KEPCO to purchase a fixed percentage of its refined petroleum products requirements from the Company at a price that is adjusted periodically according to an agreed formula that is based on prevailing international market prices for such products. Sales to the Ministry of National Defense are made generally through competitive bidding. The Company's strategy for direct sales is to become more cost-efficient and thus more price-competitive.

Export sales. The Company's exports of refined petroleum products consist principally of middle distillates such as diesel products. The Company's major export markets for its refined petroleum products are China and Southeast Asia (in particular, Indonesia, Vietnam and the Philippines). Export sales by the Company of its refined petroleum products are principally through SK Trading International, which in turn sells these products to its network of purchasers and traders. Export sales accounted for approximately 43%, 46%, 46% and 42% of the Company's total sales of refined petroleum products in 2017, 2018, 2019 and the first nine months of 2020, respectively, based on sales revenue.

Petrochemical products

In 2017, 2018, 2019 and the first nine months of 2020, approximately 50%, 49%, 50% and 47%, respectively, of the Company's sales of petrochemical products were sold in the domestic market. SK Global Chemical's five largest customers in the aggregate accounted for approximately 35%, 33%, 35% and 32% of SK Global Chemical's total sales in 2017, 2018, 2019 and the first nine months of 2020. SK Incheon Petrochem's two largest customers were SK Energy and SK Global Chemical, accounting for an aggregate of approximately 78%, 76%, 76% and 73% of SK Incheon Petrochem's totals sales in 2017, 2018, 2019 and the first nine months of 2020. Domestic sales of olefins and aromatics are made primarily to petrochemicals companies located adjacent to the Ulsan complex, which use such products as feedstock to produce downstream petrochemicals goods. The Company also supplies raw materials to SKC, an SK Group affiliate, under a toll manufacturing agreement to manufacture styrene monomer. Export sales of petrochemical products are made primarily to local and regional manufacturers of petrochemical products pursuant to term contracts. The Company utilizes distributors and agents mainly in regions that are not covered by its overseas sales subsidiaries. The Company's export sales are also made pursuant to long-standing supply arrangements with major customers, including Marubeni Corporation and Mitsubishi Corporation. Such sales are generally denominated in U.S. dollars.

Base oil and lubricant products

The Company markets and sells its base oil and lubricant products in both domestic and overseas markets. The Company's products are sold through a diverse network of global distribution channels that include overseas subsidiaries, as well as local distributors and agents. In addition, some of the Company's products are sold directly to end-users, including original equipment manufacturers. The Company's sales and marketing strategy is to develop direct long-term strategic relationships with key customers that are market leaders in their respective industrial segment or geographic region. In line with the recent trend toward increased demand for environmentally-friendly and fuel-efficient lubricant products, the Company has focused its sales and marketing activities on expanding its base of long-term strategic customers who look to the Company as their preferred supplier of premium base oil and lubricant products. The Company implements this strategy through multi-functional teams of technical, sales and marketing, customer support and manufacturing personnel. These teams work closely with the customers to customize the Company's products based on the certified or proposed lubricant formulations of its customers. The Company monitors changing customer needs and targets its research and development and manufacturing processes to produce products adapted to each customer's process and requirements.

Base oil products. The Company's total volume of base oil products amounted to 19,316 thousand barrels in 2017, 19,172 thousand barrels in 2018, 17,149 thousand barrels in 2019 and 10,807 thousand barrels in the first nine months of 2020. Sales abroad, prior to consolidation adjustments, represented 89%, 90%, 91% and 91% of the Company's total base oil sales in 2017, 2018, 2019 and the first nine months of 2020, respectively. Since the launch of its YUBASE products in 1995, the Company has strategically strived to utilize its direct sales channels for marketing and sales of its base oil products in order to more effectively cater to the needs of its customers on a timely basis and to improve customer loyalty. With respect to the Company's major overseas markets, the Company markets and sells its base oil products directly to its customers, which primarily consist of major lubricant manufacturers, through overseas sales subsidiaries in the Netherlands, the United States and Japan as well as its London branch office and a dedicated marketing team in China. The Company's Asia Pacific sales team in Korea sells the Company's base oil products directly to the Company's customers and distributors outside of its major overseas markets, including Asia (excluding Japan and China), Oceania and Africa. The Company typically enters into long-term sales arrangements with its customers pursuant to which the parties agree on projected needs for the upcoming two to three years. The Company's long-term sales arrangements usually provide for sales of a specified range of quantities of YUBASE products with specific properties and prices that are typically adjusted monthly based on a predetermined formula linked to the base oil price index announced by ICIS, an independent producer of price reports on the global base oil and lubricant markets. The Company's long-term sales arrangements with existing customers do not restrict the Company from entering into similar arrangements with other customers. The Company utilizes distributors and agents mainly in regions that are not covered by its overseas sales subsidiaries, such as Australia, Africa and the Middle East. The Company typically awards non-exclusive distributorships for a term of three to five years that is automatically renewed for successive one-year terms. From time to time, the Company also sells surplus base oil in the spot market.

Lubricant products. The Company's total sales of lubricant products, prior to consolidation adjustments, amounted to ₩731 billion in 2017, ₩725 billion in 2018, ₩662 billion in 2019 and ₩374 billion in the first nine months of 2020. The Company primarily utilizes distributors and agents to market its lubricant products in both domestic and export markets. During the past decade, the Company has focused its efforts on penetrating the more lucrative overseas markets, especially Russia, China, India, Pakistan and other emerging market countries in Southeast Asia, such as Thailand and Vietnam. The Company's lubricant products, which are manufactured in the Company's blending plants located in the Ulsan complex and Tianjin, China, are sold in approximately 50 countries through the Company's overseas sales subsidiaries. Approximately half of the Company's lubricant products are sold to retail customers through its third-party distributors, with the balance of its lubricant products sold directly to automotive, industrial and marine users. The Company's major customers are global automobile manufacturers, to which the Company mainly supplies gasoline engine oil, diesel engine oil, gear oil and automatic transmission fluids. The Company is also one of the major suppliers of automatic transmission fluids to numerous automobile factories of one of the largest automakers in North America. The Company's lubricant supply agreements with industrial users are typically for a term of one year, which are subject to annual renewal. The terms and conditions of supply agreements, including payment terms and supply period, vary by region, supplier and supplied product.

Battery products

The Company's customer base consists of leading manufacturers and original equipment manufacturers of rechargeable batteries. Sales to the Company's top two customers accounted for, in the aggregate, 88%, 87%, 95% and 97% of total sales in 2017, 2018, 2019 and the first nine months of 2020, respectively. The Company has a dedicated sales team that covers domestic customers as well as another team that covers customers located abroad. In line with the growth of applications that require tailored solutions, the Company has focused its sales and marketing activities on strengthening its relationships with key customers who look to the Company as their preferred supplier of customized products. For each key customer, the Company assigns product development personnel as well as product quality control personnel in order to effectively ascertain the customer's needs and to provide individualized after-sale customer services. In order to most effectively address such needs, the Company typically does not engage sales representatives or agents in its sales and marketing activities.

The Company's customers look for quality, scale and timely delivery, and the Company believes that its close relationships with strategic customers enable it to anticipate market trends and evolving customer needs. In particular, strict standards imposed by electric-vehicle manufacturers for production of EV batteries, including rigorous testing and an approval process that takes approximately six months to two years, make it challenging and time-consuming to become a certified supplier. The Company typically enters into supply arrangements that do not establish fixed pricing and volume commitments for an extended period of time. The Company's existing arrangements with its customers do not restrict the Company from entering into similar arrangements with other customers.

Raw Materials

The principal raw materials used by the Company in its petroleum refining and petrochemicals production activities are crude oil and naphtha. The principal raw materials used by the Company in its base oil and lubricant production are UCO and additives. The principal raw material used by the Company in its lithium-ion battery production is cathode materials. Historically, prices and availability of raw materials have fluctuated based on market conditions, and such fluctuations have affected the Company's profitability and operations. As is the case with crude oil, because the Company's raw material import transactions are generally denominated in U.S. dollars, depreciation of the Won relative to the U.S. dollar will result in higher raw material costs for the Company. See "Risk Factors — Foreign exchange rate fluctuations between the Won and foreign currencies can adversely affect the Company's financial results."

The Company believes that its supply contracts with its raw materials suppliers, including affiliated suppliers, contain terms and conditions that are customary for the industry. Historically, the Company has not experienced any significant difficulties in obtaining raw materials to satisfy its production requirements and does not foresee any such difficulties in the immediate future.

Crude oil

The Company imports all of its crude oil requirements from overseas sources, primarily from the Middle East, through SK Trading International, which operates a global network based on major trading hubs in Singapore, Houston and London. In 2017, 2018, 2019 and the first nine months of 2020, the Company imported 355 million barrels, 349 million barrels, 317 million barrels and 215 million barrels of crude oil, respectively. The Company also imports, principally from various countries in Asia and North America, refined petroleum products such as naphtha, reformate, kerosene and low-sulfur diesel to meet shortages in its requirements for such products. In 2017, 2018, 2019 and the first nine months of 2020, the Company's imports of such refined petroleum products amounted to 31 million barrels, 41 million barrels, 50 million barrels and 38 million barrels, respectively.

In 2017, 2018, 2019 and the first nine months of 2020, approximately 63%, 55%, 57% and 52%, respectively, of the Company's crude oil imports were made under term contracts with state-owned petroleum companies of oil exporting countries, such as Saudi Arabia's Arabian American Oil Company, the Kuwait Petroleum Corporation and Qatar International Petroleum Marketing Company Ltd. Such term contracts typically provide for the supply of a fixed quantity (within a given range) of crude oil during a period of a year at a price which is generally determined by a formula set forth in such contracts prior to the time of delivery. Historically, each of these contracts has been renewed at the end of its term. Approximately 64%, 60%, 62% and 65% of the crude oil imported by the Company in 2017, 2018, 2019 and the first nine months of 2020, respectively, was heavy crude oil, and the remaining 36%, 40%, 38% and 35% was light crude oil, respectively. See "Risk Factors — Dependence on foreign sources of crude oil may subject the Company to difficulties in meeting its crude oil needs in sufficient quantities and at prices favorable to the Company."

The Company is exposed to currency fluctuation risk by virtue of the imbalance between its sales revenue from refined petroleum products, which are denominated principally in the Won, and its cost of crude oil purchases and related procurement costs, which are denominated in U.S. dollars. The Company has historically been able to pass on most of the increases in the cost of crude oil imports due to foreign currency fluctuations to its customers. See "Risk Factors — Fluctuations in market prices of crude oil may adversely affect the Company's margins and profits."

Naphtha

The principal raw material used by the Company in its petrochemicals production is naphtha. Naphtha is produced by refining crude oil. Accordingly, almost all of the Company's naphtha requirements are supplied by the Company from its refining operations. Other raw materials used by the Company in its production of downstream petrochemicals, including ethylene, propylene, xylene and benzene, are also supplied principally by the Company.

Unconverted Oil

The main feedstock used in the production of base oil is UCO, while the principal raw materials used in the production of lubricant products are base oil and additives such as detergents, dispergents and viscosity index improvers. The Company meets most of its UCO requirements through purchases from SK Energy, the Company's subsidiary, and Repsol Petrõleo S.A, PT Pertamina (Persero), the Company's joint venture partner, based on long-term supply agreements. The agreements typically provide for the supply of a specified range of quantities of UCO with specific properties that contain a pricing mechanism that adjusts UCO prices each month based on monthly average prices of key petroleum products and distillates. To ensure a stable supply of UCO, the Company plans to continue to seek opportunities to expand and diversify its sources of UCO through joint ventures with overseas refineries that operate hydrocracking units capable of producing high quality UCO. The Company produces most of its base oil requirements for the production of its lubricant products, while additives are sourced mainly from lubricant suppliers in Singapore and the United States. Most of the Company's Group II and Group III base oil requirements for its lubricant oil production are satisfied from its base oil production, and the Company purchases its other base oil needs in the spot market. The Company purchases additives from major additives suppliers in the United States and Singapore such as The Lubrizol Corporation, Infineum Singapore Pte. Ltd. and Afton Chemical Asia Pte. Ltd.

Cathode Materials and others

The Company purchases a substantial amount of raw materials for the battery segment and for its industrial materials from overseas sources. The main raw materials used in the battery segment include cathode materials, and the main raw materials used to manufacture the Company's lithium-ion battery separators include polyethylene and oil. The Company's purchases of such raw materials are generally made through purchase orders or agreements with the suppliers on both a regular and an on-demand basis at predetermined prices that may be adjusted by mutual agreement of the parties.

The Company believes that its agreements with suppliers of raw materials contain commercial terms and conditions that are customary for the industry. Historically, the Company has not experienced any significant difficulties in obtaining raw materials to satisfy its production requirements.

Storage and Transportation

Refined petroleum products

The Company arranges for the transport of approximately 90% of its crude oil imports through tankers (generally very large crude oil carriers) owned or leased by its SK Group shipping affiliates. The remainder of crude oil imports are generally transported by tankers contracted by the Company on a single voyage charter basis. Tankers generally unload the crude oil at the Company's two offshore mooring buoys located in Ulsan, each capable of accommodating crude tankers of up to 325,000 deadweight tons. Crude oil is transported from the mooring buoys to onshore storage tanks within the Ulsan complex through submarine pipelines. The Ulsan complex can store 54.4 million barrels of crude oil and refined petroleum products.

The Company distributes its refined petroleum products to service stations either directly from the Ulsan complex or through terminals strategically located throughout Korea. As of September 30, 2020, the Company owned two terminals and leased 10 terminals with an aggregate storage capacity of approximately 2.9 million barrels.

The Company's refined petroleum products are transported from the Ulsan complex to its terminals and to its customers in Korea both by land and sea, by means of ships, pipelines, rail oil tanker cars and oil tanker lorries. As of September 30, 2020, the Company has a 41.0% interest in Daehan Oil Pipeline Corporation ("DOPCO"), a cooperative joint venture among Korea's major refiners and consumer of refined petroleum products. DOPCO operates the Kyungin pipeline, a 78-kilometer pipeline between Incheon and Seoul, and the South-North pipeline, a 1,026-kilometer pipeline that connects Seoul with, among other cities, Ulsan. These pipelines are used by the Company and its domestic competitors. Operating costs of these pipelines are apportioned to their users in proportion to each user's usage level. The Company holds the largest stake of DOPCO at 41.0% as of September 30, 2020 and has appointed two out of a total of three directors to DOPCO's board of directors. The Company also operates the Yukong pipeline, a 101-kilometer pipeline that connects Ulsan and Daegu.

Petrochemicals and other products

The Company's petrochemical products for domestic sale are generally transported through pipelines to downstream petrochemical companies located adjacent to the Ulsan complex. Export sales of petrochemicals are transported principally by ship in bulk. The Company's polymer, base oil and lubricant products for domestic sale are transported principally by road in packaged containers. Export sales of base oil and lubricant products are transported principally by ship in bulk.

Government Regulation

Historically, due to the importance of petroleum to the economy of Korea and for reasons of national security, the Government exercises significant control over the domestic petroleum refining industry. The Petroleum and Petroleum Alternative Fuel Business Act confers on the MOTIE the authority to exercise a wide range of control over the Korean petroleum industry. Although many of the controls have been relaxed over time, the Petroleum and Petroleum Alternative Fuel Business Act still requires companies wishing to engage in petroleum refining, export and import or sales activities to register with the MOTIE.

Minimum stockpiling requirement

The Petroleum and Petroleum Alternative Fuel Business Act also requires that companies wishing to engage in petroleum refining, export and import or sales activities maintain a certain volume of stockpile of onshore crude oil and refined petroleum products. Currently, such stockpiling requirements applicable to such registered companies are up to 60 days' estimated domestic sales volume, as determined and announced by the MOTIE.

Crude and refined petroleum products import surcharge

Pursuant to the Petroleum and Petroleum Alternative Fuel Business Act, the Government collects a surcharge from domestic refiners, importers and vendors of crude oil and petroleum products. The surcharge is currently levied at a rate of ₩16 per liter of crude oil or petroleum product and the surcharges that have been levied and collected are managed under a special account for energy and resources businesses, together with other similar surcharges. The funds deposited under such special account are normally used for, among others, oil exploration and production activities, energy development projects and development of a management system for oil crises. In 2019 and the first nine month of 2020, the Company's net payments for this surcharge amounted to approximately ₩163 billion and ₩87 billion, respectively.

Crude oil and refined petroleum products customs duty

The Government also levies a customs duty on crude oil and refined petroleum products at rates that are set based on the import price of crude oil and refined petroleum products. Customs duties are levied at a rate of up to 5% for both crude oil and refined petroleum products depending on the type of product. The Company paid net customs duties amounting to ₩3 billion in 2019 and ₩64 billion in the first nine months of 2020.

Deregulation of the petroleum refining industry

In 1996, the Government introduced amendments to the Petroleum Business Act, which was repealed in 2004 and replaced by the Petroleum and Petroleum Alternative Fuel Business Act to deregulate the domestic petroleum refining industry in two areas. First, price controls with respect to all refined petroleum products were eliminated. In addition, approval and reporting requirements with respect to the import, export and domestic retail distribution of refined petroleum products were relaxed with effect from January 1997. The Government completely liberalized the Korean petroleum market in August 1998, opening it to free competition, including from overseas companies. Although the Company believes that the impact of such deregulation has, to date, been minimal, such deregulation could lead to further increased competition for existing petroleum refiners including the Company as a result of the entry of new participants, both domestic and foreign, into the Korean petroleum market.

The Company believes that deregulation of the petroleum refining industry has not had a significant impact on its competitive position, in particular because of its cost competitiveness and marketing strength. Furthermore, the Company believes that the high capital costs associated with developing a distribution network in Korea and constructing new facilities will continue to be a hindrance to new entrants.

Deregulation of the petrochemical industry

The petrochemicals industry was deregulated by the Government with effect from July 1986 through the abolition of the Petrochemicals Industrial Promotion Law. The regulations on investment in petrochemicals facilities were liberalized in January 1990, opening the market to free competition, including from overseas companies, and facilitating the expansion of the domestic petrochemicals industry.

Since such deregulation, the domestic petrochemicals market has been characterized by competition between domestic suppliers, including the Company, and foreign companies. All market participants are now exposed to fluctuations in supply and demand in the Asian region.

Other

In addition, the Act on the Promotion of the Development, Use and Diffusion of New and Renewable Energy (the "PDURE Act") was amended in July 2013 to further promote the use of renewable energy sources and the growth of related industries. Pursuant to such amendments, beginning July 31, 2015, petroleum refineries and importers and exporters of petroleum are required to include a certain minimum percentage of fuel produced from renewable energy sources in their transportation fuel products. The legally required minimum percentage of renewable energy fuel is 2.5% for 2017 and 3% for 2018 and thereafter, but is subject to the review of the Government every three years from July 31, 2015. If petroleum refineries and importers fail to meet such requirements, the MOTIE may impose a penalty surcharge up to an amount calculated by multiplying the corresponding shortfall by 150/100 of the average trading price of the relevant year. An amendment to the PDURE Act adopted in January 2015 included the abolishment of Government support for enterprises specialized in installing new and renewable energy facilities such as petroleum refineries and importers.

The Company's production operations are also subject to other applicable laws, including Korean environmental regulations. The Company believes it is in compliance in all material respects with all such applicable laws. See "— Environmental Matters."

Competition

Petroleum products

Since its establishment, the Company has remained the domestic market leader in the petroleum refining business, supplying approximately 32%, 32%, 32% and 30% of all of the refined petroleum products sold in Korea in 2017, 2018, 2019 and the first nine months of 2020, respectively, based on sales volume as reported to KNOC. The Company's competitors in the domestic refined petroleum products market consist of three other major domestic petroleum refiners, GS Caltex Corporation, Hyundai Oilbank and S-Oil Corporation, none of which ever has led the domestic market based on sales volume, according to reports published by KNOC.

However, following the deregulation of the Korean petroleum refining market in 1997, there have been new entrants into the market that import refined products and market them primarily to non-affiliated service stations. In addition, the Government has been promoting reduction in the retail prices of refined light oil products such as gasoline and diesel, including by introducing Government-operated discount service stations nationwide in 2011, which in turn has contributed to a decrease in the Company's margins from its petroleum refining business. In its export markets, the Company competes with a variety of competitors ranging from the supermajor oil companies to large local state-owned and private refiners.

The Company's operations may be impacted by its competitors' plans for expansion projects and refinery improvements that could increase the overall regional or local production volume of refined petroleum products. Currently, the global refined petroleum market is characterized by overcapacity, which has been exacerbated by a sharp decrease in demand following the current COVID-19 pandemic and the resulting slowdown in global economic activities. Furthermore, largely due to the aforementioned negative impact of COVID-19, prices and margins in the Korean and global market for refined petroleum products have significantly fluctuated and generally deteriorated in recent months and continue to remain vulnerable, which in turn have led to increased uncertainty regarding future prospects for the industry, as well as difficulty in accurately forecasting future results of operations and cash flows on the part of industry participants, including the Company. A continued imbalance in supply and demand in the Korean or global market may result in further reduced price margins and sales volumes. See "Risk Factors — Risks Relating to the Company — Impact of fluctuations in market prices of crude oil" and "Risk Factors — Risks Relating to the Company — Adverse impact of the ongoing COVID-19 pandemic and other unexpected events, including accidents, natural disasters and health epidemics."

Petrochemicals

In petrochemicals, the Company competes principally with Korean petrochemical companies with naphtha cracking capability. The petrochemical industry is highly cyclical and demand for petrochemical products has fluctuated depending on general economic conditions in Korea, as well as in various Asian economies, in particular China and Southeast Asia. While prices and margins in the Korean and global market for petrochemical products have improved in recent years due to stronger demand for such products, particularly from China and India, the petrochemical industry has suffered in the past from, and continues to face the prospects of, an oversupply of petrochemical products as a result of continued expansion of petrochemical production capacity in Asia and the Middle East. Furthermore, a significant slowdown in global economic activities in light of the ongoing global COVID-19 pandemic in recent months have had a material adverse effect on global demand for petrochemical products, and it is uncertain whether prices and margins in the Korean and global market for petrochemical products can improve and/or be sustained in the longer term. As a result of intense competition, many of the Company's competitors, in particular domestic producers of petrochemical products, have used aggressive marketing strategies in order to maintain or gain market share. The Company seeks to continue placing increased emphasis on higher-value-added petrochemical products by diversifying its product portfolio and enhancing operational efficiency in order to maintain its margins and strengthen its market position.

Competitiveness in the petrochemicals industry requires a combination of low price, high product quality and extensive distribution capabilities. The Company considers the major petrochemicals producers of China, Taiwan and Japan to be its major competitors in the Asian petrochemicals markets. In the domestic market, the Company's competitors are also pursuing expansion projects, escalating competition in the petroleum refining industry in Korea. The Company, however, believes that as an established player, it will be able to build on its strong competitive position in the domestic and overseas markets, especially in China, despite increasing competition from Chinese petrochemicals producers.

Base oil and lubricants

In the base oil market, the Company faces competition from existing and new competitors ranging from supermajor oil companies and large state-owned refining companies to regional and local companies, as well as specialized companies that focus on a limited number of product lines. The Company's primary competitors in the base oil market consist of large regional petroleum refining companies and state-owned refineries. In the domestic lubricant market, the Company competes principally with domestic petroleum refining companies and their affiliates such as GS Caltex Corporation and S-Oil Corporation, while in the overseas lubricant market, the Company's main competitors consist of supermajor oil companies and state-owned oil companies. The Company believes that its dominant market position, extensive network of sales agents and a loyal customer base provide it with a competitive advantage in its base oil and lubricant sales. In the international markets, especially for Group III base oils, the Company has a dominant market position, which the Company will seek to solidify and maintain by continuing to supply products of superior quality that are price competitive. However, the lubricant market in recent years has been characterized by intense competition resulting from expansion of production capacity, erosion of average selling prices and frequent changes in performance requirements for lubricant products to meet rapidly changing technologies and evolving industry and regulatory standards in the automotive industry, which has negatively impacted the profitability of Korean lubricant producers in recent years, including the Company. Furthermore, a significant slowdown in global economic activities in recent months largely due to the ongoing global COVID-19 pandemic has adversely affected, and is expected to continue to adversely affect, global demand for lubricant and base oil products.

Batteries

In the lithium-ion battery market, the Company competes with major lithium-ion battery manufacturers in Japan, China and Korea. The lithium-ion battery industry is highly competitive, with a number of local and international producers competing in each of the major markets, many of which have larger market shares and greater brand recognition than the Company in particular geographic and product segments. While significant technological improvements in lithium-ion batteries used in mobile devices have been made over the past decade, the technology underlying automotive lithium-ion batteries is still evolving, and extensive research and development will be necessary to maintain competitiveness, with substantial capital investments required of existing as well as new producers.

The Company believes that the competitive position of its battery segment is enhanced by its long operating history and technological capabilities in the area of lithium-ion batteries, especially those designed for use in electric vehicles, as well as the Company's existing relationships with a broad base of customers in the domestic and global automobile industries. The Company plans to continue to invest in research and development and increase its production capacity in key markets such as China to take advantage of the expected increase in future demand for lithium-ion battery products.

Facilities

Production facilities

Domestic production facilities. All of the domestic production facilities for the Company's petroleum, petrochemical and base oil and lubricant products are located in the Ulsan complex in southeast Korea and in the Incheon complex in northwest Korea.

The following table sets forth certain information regarding the principal facilities in the Ulsan complex:

Name of Facility	Commencement of Operations	Approximate Current Capacity(1)	Products Produced
Petroleum Products:			
Crude distillation units (Nos. 1 through 5)	1963-1996	840,000 BPSD	Intermediate petroleum products
Middle distillate desulfurization units (Nos. 1 through 6)	1963-2008	267,000 BPSD	Low sulfur kerosene and diesel
Heavy oil upgrading units:			
– Vacuum distillation unit	1991	85,000 BPSD	Fuel oil and asphalt
– Vacuum residue hydrodesulfurization units (Nos. 1 and 2)	1992, 2020	80,000 BPSD	Fuel oil
– Hydrocracker	1992	45,000 BPSD	Kerosene and diesel
Fluid Catalytic Cracking (FCC) units (Nos.1 and 2):			
– Residue hydrodesulfurization unit	1997, 2008	158,000 BPSD	Fuel oil
– Residue fluid catalytic cracking unit	1997, 2008	154,000 BPSD	Gasoline and light olefin
Petrochemical products:			
Naphtha cracking unit	1972, 1989	660,000 MTA	Ethylene
Butadiene units (Nos. 1 and 2)	1973, 1989	130,000 MTA	Butadiene
MTBE unit	1989	178,000 MTA	MTBE
Butene-1 unit	1989	44,000 MTA	Butene-1
Aromatics extraction units (Nos. 1, 2 and 3)	1985, 1991, 2006	3,003,000 MTA	Benzene, toluene, xylene
Paraxylene unit	1989, 1996	830,000 MTA	Paraxylene
Orthoxylene unit	1989	200,000 MTA	Orthoxylene
Styrene Monomer unit	1997	260,000 MTA	Styrene Monomer
Cyclohexane unit	1989	160,000 MTA	Cyclohexane
Polyethylene unit	1990, 1996	390,000 MTA	Polyethylene
Polypropylene unit	1990, 1996	390,000 MTA	Polypropylene
Base Oil and Lubricant Products:			
Lube oil blending unit	1968	7,200 BPWD	Lubricants
Base oil plants (Nos. 1 through 3)	1995, 2004, 2012	48,500 BPCD	Base oil

(1) "BPCD" means barrels per calendar day on the basis of a 365-day year. "BPSD" means barrels per stream day on the basis of the number of actual operational day in a year (approximately a 330-day year). "BPWD" means barrels per working day. "MTA" means metric tons per annum.

In June 2014, through a joint venture between SK Global Chemical and JXTG Nippon Oil & Energy Corporation, a leading petroleum refining company in Japan, the Company completed the construction of, and commenced production at, an aromatics plant in the Ulsan complex with an annual production capacity of one million metric tons of paraxylene and 600,000 metric tons of benzene. The Company has ownership of 50.0% plus one share of the joint venture. More recently, in response to the International Maritime Organization (the "IMO")'s announcement in October 2016 to begin imposing a global cap on marine fuel sulphur emissions in 2020 in an effort to reduce greenhouse gas emissions, the Company completed construction of a new vacuum residue desulfurization unit with a daily production capacity of 40,000 barrels in January 2020, which was added to the refinery facilities in Ulsan. The new vacuum residue desulfurization unit commenced production in March 2020.

The facilities in the Incheon complex consist principally of two crude distillation units with a combined capacity of approximately 275,000 barrels per day as well as naphtha reforming units and middle distillate de-sulferization units for the production of petrochemicals. In July 2014, the Company completed the transformation of the Incheon complex into an aromatics-focused refinery by adding new petrochemicals production facilities with an annual production capacity of 1.3 million metric tons of paraxylene and 490,000 metric tons of benzene.

The Company's production facilities for its battery and other businesses are housed in the Chungcheong province in Korea. The Company commenced mass production of lithium-ion batteries at its production facilities located in Seosan, Korea in 2012. The Seosan facilities currently have current production capacity reaching 4.7 GWh, which is equivalent to the energy required by 130,000 units of electronic vehicles with battery capacity of 60kWh. The Company commenced production of lithium-ion battery separators at its production facilities located in Cheongju, Korea in 2005 and at its Jeungpyeong facilities, located in Jeungpyeong, Korea in 2010. The Cheongju and Jeungpyeong facilities have a combined aggregate annual production capacity of 530 million square meters of lithium-ion battery separators. The Company also commenced commercial production of colorless polyimide films at its Jeungpyeong facility in April 2020, where it produces its flexible cover windows.

Overseas production facilities. In recent years, the Company has strived to strengthen its position as a leading producer of petroleum, petrochemical, lubricant and battery products by expanding its production facilities globally through strategic joint ventures with leading regional refineries. The major overseas production facilities of the Company are as follows:

Dumai LBO Plant. SK Lubricants entered into a joint venture agreement with PT. Pertamina (Persero), a state-owned refining company in Indonesia, and established PT. Patra SK, in which SK Lubricants holds a 65.0% interest as of September 30, 2020. PT Patra SK operates an LBO plant that produces Group III+ base oil located in Pertamina's refinery in Dumai, Indonesia. SK Lubricants is entitled to a proportion of the output from the plant, which corresponds to its ownership interest in PT Patra SK. Commercial production at the plant, which has a production capacity of 9,000 barrels per day of Group III+ base oil, commenced in May 2008.

Cartagena LBO Plant. SK Lubricants entered into a joint venture agreement with Repsol Petrõleo S.A., a leading petroleum refining company in Spain, and established Iberian Lube Base Oils Company, S.A. (formerly, SKSOL Lube Base Oils, S.A.), in which SK Lubricants holds a 70.0% interest as of September 30, 2020. Iberian Lube Base Oils Company, S.A. operates an LBO plant that produces Group III base oil located in Repsol's refinery in Cartagena, Spain. SK Lubricants is entitled to the proportion of the base oil output corresponding to its ownership interest in the joint venture. Commercial production at the plant, which has a production capacity of 13,300 barrels per day of base oil, commenced in September 2014.

Tianjin Blending Plant. SK Lubricants established SK Energy Lubricants (Tianjin) Co., Ltd., its wholly-owned subsidiary, in March 2003 to operate a lube oil blending plant with a production capacity of 1,700 barrels per day of lubricants in Tianjin, China and to facilitate its sales of base oil and lubricant products in China. Commercial production at this plant commenced in April 2012.

Ningbo EPDM Plant. SK Global Chemical entered into a joint venture with Ningbo Chemical Industry Development Co., Ltd., a state-owned enterprise in China, and established Ningbo SK Performance Rubber Co., Ltd., in which SK Global Chemical holds an 80.0% interest as of September 30, 2020. Ningbo SK Performance Rubber Co., Ltd. completed the construction of, and commenced production at, its EPDM synthetic rubber plant with an annual production capacity of 50,000 metric tons in Ningbo, China, in April 2015.

Wuhan Ethylene Plant. In October 2013, SK Global Chemical entered into a joint venture with Sinopec, a leading petroleum refining company in China, and established Sinopec-SK(Wuhan) Petrochemical Co., Ltd., in which SK Global Chemical holds a 35.0% interest as of September 30, 2020. The plant, located in Hubei, China currently has annual an production capacity of 2.3 million tons of basic chemical products, the largest joint petrochemical plant in Korea-China history. In April 2019, Sinopec-SK(Wuhan) Petrochemical announced plans to acquire Sinopec's Wuhan Refinery in Hubei Province with refining capacity of 170,000 barrels of oil per day.

Komarom Battery Plant. The Company established SK Battery Hungary Kft., its wholly-owned subsidiary, in November 2017, to construct a battery production plant in Komarom, Hungary. In March 2019, the Company completed construction of the first plant with an annual capacity of 7.5 GWh, which is equivalent to the energy required by 130,000 units of electronic vehicles with battery capacity of 60kWh, and the plant has commenced commercial production in January 2020. Currently, the Company is constructing its second plant with an annual capacity of 9.5 GWh to be completed by 2022.

Georgia Battery Plant. The Company established SK Battery America Inc., its wholly-owned subsidiary, in November 2018, to construct battery production plants in Georgia, United States. In March 2019, the Company commenced construction of the first plant with an expected annual capacity of 9.8 GWh. Construction of the first plant is expected to be completed in 2021 with production scheduled to begin in 2022. Upon commencement of production, the Company is expecting to supply battery cells to Volkswagen AG and the Ford Motor Company. The Company is currently planning to construct a second plant with an annual capacity of 11.7 GWh to be completed by 2023.

Changzhou Battery Plant. In July 2013, the Company entered into a joint venture with Beijing Automotive Group and Beijing Electronics and established Beijing BESK Technology Co., Ltd., in which the Company holds a 49.0% interest as of September 30, 2020. The construction of the Changzhou plant, located in Changzhou, China, was completed in December 2019 and commenced commercial production in the second quarter of 2020.

Changzhou Battery Materials Plant. SK ie technology established SK Hi-tech Battery Materials (Jiangsu) Co., Ltd., its wholly-owned subsidiary, in September 2018, to construct a battery materials plant in Changzhou, China. The construction of the Changzhou plant commenced in March 2019 and the first phase of the facilities commenced commercial production in November 2020. The construction of the second phase of the facilities is expected to be completed in the first quarter of 2021.

Tuczanwa Battery Materials Plant. SK ie technology established SK Hi-tech Battery Materials (Poland), its wholly-owned subsidiary, in January 2019, to construct battery material plants in Tucznawa, Poland. The construction of the Poland complex began in October 2019. Upon completion of the first phase of the facilities planned for November 2021, the Company expects the Poland complex to have an annual production capacity of 340 million square meters of lithium-ion battery separators. The Company plans to increase annual production capacity by 340 million square meters through construction of additional production lines in 2023.

Lease of headquarters

The Company leases office space housing its headquarters from SK Holdings pursuant to a lease agreement with an initial term of five years and a quarterly rental amount of ₩2.7 billion.

Capital Expenditures

While the Company's capital expenditures in the past were aimed at the expansion, modernization and maintenance of the Company's production, storage and distribution facilities, more recently the Company has focused on increasing the portion of its investment portfolio dedicated to its green business relating to electric vehicle batteries and materials based on its "Green Balance 2030" initiative. In furtherance of such strategic objective, the Company strives to develop environmentally friendly products, improve its production processes and advance eco-friendly technologies to strengthen its vision to create an eco-friendly ecosystem befitting its vision of Green Balance 2030. The Company's capital expenditures (consisting of cash used in the acquisition of property, plant and equipment and intangible assets) were ₩1,010 billion in 2017, ₩1,491 billion in 2018, ₩2,754 billion in 2019 and ₩2,790 billion in the first nine months of 2020. Major investments included the construction of new plants, as well as improvements to existing facilities, as described in more detail in "Facilities — Production facilities" above, including projects undertaken to comply with stricter government restrictions on greenhouse gas emissions.

Currently, the global refined petroleum market is characterized by overcapacity, which has been exacerbated by a sharp decrease in demand following the current COVID-19 pandemic and the resulting slowdown in global economic activities. As a result, the Company expects to reduce capital expenditures in 2021 as it does not anticipate undertaking a significant expansion of its domestic refining facilities. However, the Company plans to continue to make investments related to its green business and improve processes relating to the its higher value-added products.

Research and Development

The Company's research and development activities are carried out at its research center Institute of Technology Innovation located in Daedeok Innopolis, a research and development district in Yuseong-gu, Daejeon Metropolitan City, that is home to major research institutes and corporate research centers in Korea. Established in November 1985, the Institute of Technology Innovation is composed of multiple research laboratories designed to fulfill the research and development needs of the energy-related companies in the SK Group, including oil and petrochemical research, catalyst and process research and environmentally-friendly and fuel-efficient technology research, as well as the development of new materials. The Company's subsidiaries, including SK Energy, SK Global Chemical and SK Lubricants, pay shared services fees to the Company for research and development services that they receive from the Company. They benefit from working in close collaboration with one another, especially with respect to their process design and development as their production facilities are in close proximity within the Ulsan complex and share pipelines and other facilities.

The Company has succeeded in developing a number of new commercial products. For example, in the petroleum refining segment, the Company succeeded in developing "Super Phalt," a new polymer-modified asphalt with superior qualities, as well as advanced technology for processing low-cost crude oil, which the Company believes will improve its profit margin. In the petrochemical segment, the Company succeeded in developing new polymers, such as nexlene, a higher value-added polyethylene, using its own unique technology. In industrial materials, the Company became the world's third company to successfully develop and commercialize proprietary technology for lithium-ion battery separators, a functional polyolefin film that prevents physical contact between electrodes to maintain stability in lithium-ion batteries. It also developed flexible cover windows, which are used to enhance the durability of flexible display panels by hard coating the colorless polyimide films applied on such panels. The Company has also developed environmentally friendly technologies such as diesel particulate filters which reduce pollutants in vehicle emissions and advanced pyrolysis upgrading technology which promotes cleaner burning of gasoline. The Company has also developed alternative energy storage technologies such as batteries for hybrid electric vehicles.

In 2017, 2018, 2019 and the first nine months of 2020, the Company allocated 0.4%, 0.4%, 0.5% and 0.7%, respectively, of its sales revenue toward research and development expenses. Research and development expenses (excluding Government grants) in 2017, 2018, 2019 and the first nine months of 2020, amounted to ₩196 billion, ₩234 billion, ₩228 billion and ₩197 billion, respectively.

Subsidiaries

The Company operates its business globally through a number of subsidiaries in Korea and overseas. As of September 30, 2020, the Company had 63 consolidated subsidiaries. The Company's significant consolidated subsidiaries include SK Energy, which operates the Company's petroleum refining and marketing business, SK Global Chemical, which operates the Company's petrochemicals production business and SK Lubricants, which operates the Company's base oil and lubricants production business, SK Trading International and SK Incheon Petrochem, as well as SK ie technology, which operates the lithium-ion battery separator business which was demerged in April 2019.

For certain information regarding to the Company's consolidated subsidiaries as of and for the nine-month period ended September 30, 2020, see Note 1 of the notes to the Company's Interim Financial Statements appearing elsewhere in this offering circular.

Insurance

The Company employs a risk management policy that helps the Company to analyze the specific needs and levels of insurance for each aspect of its business. The Company has comprehensive insurance policies that cover all aspects of its business and properties, including property insurance, liability insurance and cargo insurance as well as insurance which covers certain of the losses of profits which may result from an industrial accident. The Company pays premiums for its insurance policies based on international market rates. In 2019 and the first nine months of 2020, the Company paid premiums for its major insurance policies totaling ₩37.1 billion and ₩29.6 billion, respectively. The Company considers its insurance coverage to be in accordance with industry standards.

Employees

As of September 30, 2020, the Company had 7,399 employees, of whom 1,940 were working in administrative and management positions and 5,459 were engaged in production-related activities.

The Company applies a performance-based wage system. The Company also provides a wide range of fringe benefits to its employees, including medical insurance and periodic medical examinations and the provision of recreational facilities.

For employees based in Korea, in accordance with the National Pension Act of Korea, the Company contributes an amount equal to 4.5% of an employee's standard monthly wages, and each employee contributes 4.5% of his or her standard monthly wages, into his or her personal pension account. The Company's employees based in Korea are subject to a pension insurance system, pursuant to which the Company makes monthly contributions to the personal pension accounts of the employees, and upon retirement, such employees are paid from their personal pension accounts. Prior to December 2011, the Company's employees based in Korea were subject to a lump-sum severance payment system, under which they were entitled to receive a lump-sum severance payment upon termination of their employment, based on their length of service and salary level at the time of termination. Starting in December 2011, in accordance with the Act on Guarantee of Workers' Retirement Benefits of Korea, the Company replaced such lump-sum severance payment system with its current pension insurance system in the form of either a defined benefit plan, which guarantees a certain payout at retirement according to a fixed formula based on the employee's average salary and the number of years for which the employee has been a plan member, or a defined contribution plan, in which the employer's contribution is determined in advance on an annual basis and is managed directly by the employee. The Company's employees have the option of choosing either the defined benefit plan or the defined contribution plan.

As of September 30, 2020, approximately 40% of the Company's employees, on a consolidated basis, were members of the Company's labor union, membership in which is open only to those employees who meet the eligibility requirements set forth in the Trade Union and Labor Relations Adjustment Act of Korea. Informal meetings take place between representatives of the unionized employees and management representatives as necessary and at least once a quarter, and formal meetings take place once each quarter. The Company representatives also meet with representatives of employees who do not belong to the union at least once a quarter. The Company, on behalf of itself and its subsidiaries, including SK Energy, SK Global Chemical, SK Lubricants, SK Incheon Petrochem, SK Trading International and SK ie technology, negotiates collective bargaining agreements every two years with the labor unions of the Company and its subsidiaries, and annually negotiates a wage agreement. The latest collective bargaining agreement came into effect in July 2019 for a two-year term. The Company has not experienced any labor strikes or other material labor disputes and considers its current relations with its workforce to be good.

Environmental Matters

The Company actively seeks to engage in environmentally responsible management of its operations and to protect the environment from damage resulting from its operations. To this end, the Company has implemented a management system designed to promote safety, health and environmental preservation in the Company's operations which are consistent with international best practices. For example, the Company first received Standardization of International Organizations 14001 certification in 1996 and has reacquired such certification every year since then.

The production activities of the Company are subject to regulation under the Clean Air Conservation Act ("CACA") and the Water Environment Conservation Act ("WECA") of Korea. The CACA and WECA and the regulations thereunder prescribe the permits required for emitting air pollutants or wastewater and the maximum permissible levels of pollutants that can be contained in air emissions and wastewater, respectively, discharged by the Company's production facilities. Pursuant to its environmental management master plan, the Company is compliant with relevant environmental zoning requirements related to the operation of its facilities, holds all the environmental permits required for air pollutant emissions or wastewater discharging at its facilities and operates environmental control facilities at its production facilities that reduce the level of pollutants contained in air and water discharges to permissible levels.

The Company's production activities are also subject to the Soil Environment Conservation Act ("SECA"), which took effect from January 1996. Under the SECA, facilities which may cause any significant soil contamination such as underground storage tanks must undergo periodic soil contamination testing. The SECA and the regulations thereunder set the permissible levels of soil contamination and require persons deemed to have caused soil contamination pursuant to the SECA to carry out clean-up or other remedial action.

In addition, the Company's production activities are subject to the Act on the Allocation and Trading of Greenhouse Gas Emission Permits (the "Emission Permits Act"). The Emission Permits Act and regulations thereunder establish the Korean emissions trading scheme, under which companies whose greenhouse gas emission amount in the past three years exceeds certain thresholds are allocated a limited volume of emission allowances and are allowed to trade leftover or deficient emission allowances.

The production activities of the Company may also be subject to other Korean environmental laws, such as the Noise and Vibration Act, Waste Management Act, Ground Water Act and Chemicals Control Act. Under such environmental laws, a business entity that conducts production activity that may cause environmental pollution as described therein must obtain a permit or file a report and must comply with the relevant regulations.

The Company is also subject to the laws and regulations of jurisdictions outside of Korea in which the Company has production facilities. While the Company believes that it is in compliance in all material respects with applicable environmental laws and regulations, the discharge of oil, gas or other pollutants into the air, soil or water may nevertheless give rise to liabilities and may require the Company to incur costs to remedy the damage caused by such discharges. Furthermore, environmental laws may change in the future, resulting in curtailment of production activities requiring additional capital expenditures or otherwise adversely affecting the Company's operations and financial condition. See "Risk Factors — Risks Relating to Laws and Regulations — We are subject to strict environmental regulations that could cause our operations to be interrupted."

Health and Safety

The Company believes that it is in compliance with applicable health and safety laws and regulations in all material respects. Health and safety is a priority at all of the Company's facilities. The Company has implemented a number of initiatives to create a safer workplace, including the establishment of an audit program to register and monitor all on-site safety activities and risks and to mitigate risks for any accidents. The Company's Safety Health Environment ("SHE") Division is responsible for overseeing the implementation of independent SHE management systems at its subsidiaries' worksites, including SK Energy, SK Global Chemical, SK Lubricants and SK ie technology. The Company periodically conducts an assessment of its and its subsidiaries' SHE management systems. The Company plans to extend the SHE management system to all of its plants located abroad.

Legal and Regulatory Proceedings

The Company is involved in judicial and arbitral proceedings and disputes with customers and suppliers from time to time in the ordinary course of business. The Company believes, based on currently available information, that the results of such proceedings, in the aggregate, will not have a material adverse effect on the financial condition or operations of the Company.

In April 2019 and September 2019, LG Chem, Ltd. filed several complaints with the U.S. International Trade Commission ("ITC") and the U.S. District Court of Delaware against the Company and its subsidiary, SK Battery America, Inc. (collectively, "SKI"), alleging SKI's infringement of certain of LG Chem's U.S. patents and misappropriation of trade secrets and sought a ban on SKI's importation of certain lithium-ion batteries, battery cells, battery modules, battery packs and related components into the United States as a remedy. For the ITC dispute on misappropriation of trade secrets, in February 2020, the ITC entered a default judgment against SKI. However, upon SKI's petition for review and re-examination of the default judgment, in April 2020, the ITC decided to re-examine the default judgment in its entirety, which re-examination is currently in progress. The ITC was originally set to make a final judgment on trade secrets in December 2020, but announced that the decision would be postponed to February 10, 2021. In addition, in December 2020, LG Energy Solution, Ltd. was spun off from LG Chem as its wholly-owned subsidiary and succeeded LG Chem as the party to all matters relating to the aforementioned disputes.

Currently, there are a total of ten ongoing disputes in Korea and in the United States relating to this matter. The status of these lawsuits are currently pending, and the final outcomes of the lawsuits cannot be predicted at this time. There can be no assurance that the outcome of such proceedings may not have a material adverse impact on the Company.

In May 2020, the Attorney General Office in California, United States brought a civil lawsuit in the Superior Court of California of the County of San Francisco against Vitol Inc. and subsidiaries of the Company, SK Trading International Co., Ltd and SK Energy Americas Inc., for manipulation of the market price of gasoline products and anti-competitive behavior from February 2015 to late 2016. The status of this lawsuit is currently pending, and the final outcome of the lawsuit cannot be predicted at this time. Since May 2020, following the lawsuit in the Superior Court of California, end-users of gasoline have filed 25 class actions at the California Federal District Courts, which have since been consolidated into one class action. The status of this lawsuit is currently pending, and the final outcome of the lawsuit cannot be predicted at this time.

In November 2018, following an investigation by the U.S. Department of Justice into certain practices engaged in by SK Energy and other Korean suppliers between 2005 and 2016 that may be deemed to be anti-competitive in connection with their fuel supply contracts with the U.S. military stationed in Korea, SK Energy entered into a settlement with respect to civil U.S. antitrust claims, pursuant to which it paid US$71.9 million of such civil damages in November 2018 and the remaining US$18.5 million in civil damages in March 2019. It also paid US$34 million in criminal fines in May 2019. SK Energy also agreed, among other things, to institute an antitrust compliance program. Upon completion of a separate investigation into such matters, the Korea Fair Trade Commission issued a correction order to the involved companies including SK Energy in December 2020.

MANAGEMENT

Directors and Senior Management

The Company's board of directors has ultimate responsibility for the management of the affairs of the Company. The articles of incorporation of the Company, as currently in effect, provide for a board of directors of at least three but not more than ten directors, inclusive of outside directors. The Company's board of directors is currently comprised of two executive directors, one non-executive director and five outside directors. The directors are elected at a general meeting of shareholders by a majority vote of the shareholders present or represented at such meeting. Such majority must represent at least one-fourth of the total issued and outstanding shares of the Company with voting rights.

The term of office for directors expires at the close of the third annual general meeting of shareholders convened after their appointment. However, directors may serve any number of consecutive terms and may be removed from office at any time by a special resolution adopted at a general meeting of shareholders.

Representative directors are elected by the board of directors and have the statutory power to represent the Company and to make decisions regarding the Company's day-to-day business. Jun Kim, the president and chief executive officer of the Company, currently serves as the representative director of the Company.

Executive directors are the Company's full-time employees and executive officers. They also comprise the senior management or the key personnel who manage the Company.

Non-executive directors are selected based on the candidates' knowledge and experience in diverse areas, such as financial business, accounting, finance, law and regulation, risk management and consumer protection.

Outside directors are non-standing directors elected from among those persons who do not have a special relationship with the Company that would interfere with the exercise of their independent judgment. The articles of incorporation of the Company require that candidates for outside directors satisfy the eligibility requirements under the Korean Commercial Code and other relevant laws and regulations. The Company's outside directors are elected at the general meeting of shareholders from among those candidates recommended by the Recommendation and Nomination Committee.

The tables below set forth executive directors and outside directors that comprise of the board of directors of the Company. The business address of all of the directors is the registered office of the Company at 26, Jong-ro, Jongno-gu, Seoul 03188, Korea.

Executive Directors

Name	Director Since	Expiration of Term	Position with the Company	Other Positions
Jun Kim	2017	2023	President and Chief Executive Officer	President of the Energy and Chemical Committee; Chairman of the Environmental Business Committee at SK SUPEX Council
Myoung-young Lee	2019	2022	Chief Financial Officer	—

Non-executive Director

Name	Director Since	Expiration of Term	Position with the Company	Other Positions
Jeong-joon Yu	2016	2023	Non-executive Director	Vice Chairman and Chief Executive Officer of SK E&S Co., Ltd.

Outside Directors

Name	Director Since	Expiration of Term	Position with the Company	Other Positions
Jung-gwan Kim	2018	2021	Outside Director	Advisor at Bae Kim & Lee LLC
Jong-hoon Kim	2017	2023	Outside Director and Chairman of the Board of Directors	Honorary ambassador and Chairman of the International Relations Commission, Korean Sport & Olympic Committee
Joon Kim	2016	2022	Outside Director	Chairman and Chief Executive Officer of Kyungbang Co., Ltd.; Chairman of The Spinners & Weavers Association of Korea; Director of the East Asia Foundation
Woo-seok Choi	2018	2021	Outside Director	Professor at Korea University Business School
Yun-kyoung Ha	2016	2022	Outside Director	Director of the Admission Division at Hongik University; Professor at Hongik University

Board Practices

The articles of incorporation of the Company provide for the establishment of the Audit Committee, Recommendation and Nomination Committee and other committees as deemed necessary by the board of directors of the Company. The board of directors of the Company currently maintains the following six committees:

- Audit Committee;
- Recommendation and Nomination Committee;
- Transparent Management Committee;
- Strategic Planning and Risk Management Committee;
- Human Resources Committee; and
- Corporate Social Responsibility Committee.

Each committee member is appointed by the board of directors of the Company, except for members of the Audit Committee, who are elected by the Company's shareholders at the general meeting of shareholders. An outside director chairs each of the committees that serve under the board of directors of the Company.

Audit Committee

Under relevant Korean laws and the Company's articles of incorporation, the Company is required to maintain an Audit Committee consisting of not less than three directors, at least one of whom must be an accounting or financial expert as defined under the Korean Commercial Code. The term of office for the members of the Audit Committee is the same as their term as directors. The members of the Audit Committee are appointed by a resolution of the general meeting of shareholders and may serve consecutive terms.

The Audit Committee reviews all audit and compliance-related matters and makes recommendations to the board of directors of the Company. Primary responsibilities of the Audit Committee include:

- preparing and submitting audit reports;

- examining the agenda for, and documents to be submitted by the board of directors at, the general meeting of shareholders;
- reviewing audit results and reports, including management comments and recommendations;
- reporting to the board of directors any violations of law or the Company's articles of incorporation by a director; and
- evaluating the Company's internal control system.

The Audit Committee may also request the board of directors to convene a meeting of the board of directors or a special meeting of shareholders. The Audit Committee also has authority to represent the Company in any litigation with the Company's directors. In addition, the Audit Committee has authority to engage independent auditors of the Company. An audit and review of the financial statements of the Company by independent auditors is required. Listed companies, such as the Company, must provide financial statements on an annual, semi-annual and quarterly basis to the Financial Services Commission of Korea ("FSC") and the KOSPI Market of the Korea Exchange.

Currently, the Audit Committee is composed of three outside directors: Jong-hoon Kim, Joon Kim and Woo-seok Choi. Woo-seok Choi serves as the chairman of the Audit Committee.

Recommendation and Nomination Committee

Under relevant Korean laws and the Company's articles of incorporation, the Company is required to maintain a nomination committee consisting of not less than three members, more than half of whom must be outside directors. The members of the Recommendation and Nomination Committee are appointed annually by the board of directors of the Company and may serve consecutive terms.

The principal function of the Recommendation and Nomination Committee is to recommend qualified candidates to serve as outside directors of the Company, who will be elected at the general meeting of shareholders.

Currently, the Recommendation and Nomination Committee is composed of one executive director and two outside directors: Jun Kim, Jong-hoon Kim and Joon Kim.

Transparent Management Committee

The Company maintains a Transparent Management Committee consisting of three members, at least two of whom must be outside directors.

The principal function of the Transparent Management Committee is to review related party transactions, manage risks and to monitor the Company's compliance with the antitrust and fair trade laws and other applicable legal requirements.

Currently, the Transparent Management Committee is composed of one executive director and two outside directors: Myoung-young Lee, Woo-seok Choi and Jung-gwan Kim. Jung-gwan Kim serves as the chairman of the Transparent Management Committee.

Strategic Planning and Risk Management Committee

The Company maintains a Strategic Planning and Risk Management Committee consisting of three members, at least two of whom must be outside directors.

The principal function of the Strategic Planning and Risk Management Committee is to review mid- to long-term management strategies, short-term business strategies and core investment strategies of the Company.

Currently, the Strategic Planning and Risk Management Committee is composed of one executive director and two outside directors: Jun Kim, Jung-gwan Kim and Joon Kim. Joon Kim serves as the chairman of the Strategic Planning and Risk Management Committee.

Human Resources Committee

The Company maintains a Human Resources Committee consisting of three members, at least two of whom must be outside directors.

The principal function of the Human Resources Committee is to review human resources policies of the Company, including the policies relating to appointment, evaluation and compensation of executive officers and compensation of directors as well as recommendation of executive directors to serve on the board of directors of the Company.

Currently, the Human Resources Committee is composed of one non-executive director and two outside directors: Jeong-joon Yu, Yun-kyoung Ha, and Jung-gwan Kim.

Corporate Social Responsibility Committee

The Company maintains a Corporate Social Responsibility Committee consisting of three members, at least two of whom must be outside directors.

The principal function of the Corporate Social Responsibility Committee is to review social contribution activities of the Company and help the Company fulfill its corporate social responsibilities and achieve sustainable growth.

Currently, the Corporate Social Responsibility Committee is composed of three outside directors: Jong-hoon Kim, Woo-seok Choi and Yun-kyoung Ha. Jong-hoon Kim serves as the chairman of the Corporate Social Responsibility Committee.

Compensation of Directors and Senior Management

In 2019 and the first nine months of 2020, the total amount of compensation paid and benefits in-kind granted to the directors was approximately ₩5 billion and ₩4 billion, respectively.

Remuneration for directors is determined by shareholder resolution. Severance allowances for directors are determined by the board of directors of the Company in accordance with the Company’s regulations on severance allowances for officers, which was adopted by shareholder resolution.

Share Ownership of Directors

As of September 30, 2020, none of the directors of the Company had any direct or beneficial interest in the shares of the Company.

SHARE OWNERSHIP

The following table sets forth information relating to the Company's shareholder composition as of September 30, 2020:

Shareholder	Number of Shares of Common Stock	Ownership Percentage
SK Holdings Co., Ltd.	30,883,788	33.4%
National Pension Service	10,051,994	10.9
Treasury Stock	10,130,137	11.0
Others	41,399,645	44.8
Total issued and outstanding shares of common stock	92,465,564	100.0%

Except as described above, no other person or entity known by the Company to be acting in concert, directly or indirectly, jointly or severally, owned 5% or more of the Company's issued and outstanding shares of common stock or exercised control or could exercise control over the Company as of the date of this offering circular.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The Company engages from time to time in various transactions with related parties. The Company believes that it has conducted its transactions with related parties as it would in comparable arm's-length transactions with a non-related party, on a basis substantially as favorable to the Company as would be obtainable in such transactions.

Under the Korean Commercial Code, any transaction between the Company and any of its directors, major shareholders or certain related parties of such directors or major shareholders must be approved by the Company's board of directors (by the affirmative vote of two-thirds or more of the directors).

In addition, in the event that the Company enters into a transaction with its specially-related parties such as its affiliates, the Company is required to (i) obtain approval from its board of directors and (ii) disclose such transaction pursuant to the Monopoly Regulation and Fair Trade Act. The transactions that require approval from the Company's board of directors and disclosure pursuant to the Monopoly Regulation and Fair Trade Act are those where the transaction value (the aggregate amount incurred over a fiscal quarter in case of the fourth item below) (i) exceeds 5% of the greater of the Company's total equity or paid-in capital or (ii) exceeds ₩5 billion, in the following four categories:

- providing funds for or dealing with provisional payment or loan payment;
- providing or dealing with securities such as stocks or corporate bonds;
- providing or dealing with assets such as real estate or intangible assets; and
- providing services or products for or dealing with certain affiliates which satisfy the requirements under the Enforcement Decree of the Monopoly Regulation and Fair Trade Act, as a counterpart or for the benefit of such affiliate.

A summary of the Company's material transactions with related parties is set forth below. For more information, see Note 28 of the notes to the Company's 2018 Annual Financial Statements, Note 30 of the notes to the Company's 2019 Annual Financial Statements and Note 25 of the notes to the Company's Interim Financial Statements appearing elsewhere in this Offering Circular.

Ultimate Parent

The Company is a subsidiary of SK Holdings Co., Ltd., which owns 33.4% of the Company. The Company's transactions with SK Holdings consist primarily of payment of dividends and the payments under the lease agreement with SK Holdings pursuant to which the Company leases office space housing its headquarters. Revenues, etc. from SK Holdings amounted to ₩6 billion, ₩6 billion, ₩8 billion and ₩13 billion in 2017, 2018, 2019 and the first nine months of 2020, respectively. Purchases, etc. from SK Holdings amounted to ₩276 billion, ₩267 billion, ₩314 billion and ₩219 billion in 2017, 2018, 2019 and the first nine months of 2020, respectively.

Associates and Joint Ventures

The Company's associates and joint ventures include Best Oil Company Ltd., Sinopec-SK(Wuhan) Petrochemical Co., Ltd. and SABIC SK Nexlene Company Pte. Ltd. The Company's transactions with associates and joint ventures consist primarily of sales of the Company's products that are used in the business operations of the respective associates and joint ventures, as well as purchases of raw materials and components used in the Company's products. Revenues, etc. from Best Oil Company Ltd. amounted to ₩358 billion in the first nine months of 2020. Purchases, etc. from Sinopec-SK(Wuhan) Petrochemical Co., Ltd. amounted to ₩380 billion in the first nine months of 2020. Purchases, etc. from SABIC SK Nexlene Company Pte. Ltd. amounted to ₩151 billion, ₩159 billion, ₩179 billion and ₩118 billion in 2017, 2018, 2019 and the first nine months of 2020, respectively.

Other Related Parties

The Company enters into transactions with other related parties including SK Networks, Co., Ltd., SK Picglobal Co., Ltd., SK Engineering & Construction Co., Ltd. and Happynarae Co., Ltd. The Company's transactions with such other related parties consist primarily of sales of the Company's products that are used in the business operations of the respective other related parties, as well as purchases of components and services used in the manufacturing, transportation and marketing of the Company's products. SK Engineering & Construction also provides construction services in connection with the Company's expansion and upgrading of its production facilities. Revenues, etc. from SK Networks amounted to ₩3,966 billion, ₩1,263 billion, ₩656 billion and ₩189 billion in 2017, 2018, 2019 and the first nine months of 2020, respectively. Revenues, etc. from SK Picglobal amounted to ₩181 billion in the first nine months of 2020. Purchases, etc. from SK Engineering & Construction amounted to ₩100 billion, ₩163 billion, ₩538 billion and ₩156 billion in 2017, 2018, 2019 and the first nine months of 2020, respectively. Purchases, etc. from Happynarae amounted to ₩103 billion, ₩148 billion, ₩171 billion and ₩118 billion in 2017, 2018, 2019 and the first nine months of 2020, respectively.

Conglomerate Affiliates

The Company also enters into transactions with conglomerate affiliates including SK Chemicals Co., Ltd. and SK Gas Co., Ltd. The Company's transactions with such conglomerate affiliates consist primarily of sales of the Company's products that are used in the business operations of the respective conglomerate affiliate, as well as purchases of raw materials and components used in the Company's products. Revenue, etc. from SK Chemicals amounted to ₩70 billion, ₩91 billion, ₩73 billion and ₩39 billion in 2017, 2018, 2019 and the first nine months of 2020, respectively. Revenue, etc. from SK Gas amounted to ₩262 billion, ₩322 billion, ₩97 billion and ₩9 billion in 2017, 2018, 2019 and the first nine months of 2020, respectively. Purchases, etc. from SK Chemicals amounted to ₩8 billion, ₩119 billion, ₩113 billion and ₩52 billion in 2017, 2018, 2019 and the first nine months of 2020, respectively. Purchases, etc. from SK Gas amounted to ₩312 billion, ₩303 billion, ₩250 billion and ₩189 billion in 2017, 2018, 2019 and the first nine months of 2020, respectively.

Loans/Guarantees

The Company and SK Holdings remain jointly and severally liable for each other's debts and other liabilities that existed prior to July 1, 2007, which is the record date of the Split-off, that currently remain outstanding. The Company and its significant subsidiaries, including SK Energy, SK Global Chemical, SK Lubricants and SK ie technology, which were spun off from the Company, as well as SK Trading International and SK Incheon Petrochem, which were spun off from SK Energy, also remain jointly and severally liable for each other's debts and other liabilities that existed prior to such spin-offs and currently remain outstanding. For details of related joint and several guarantees provided by the Company and its subsidiaries, as well as details of outstanding loans and guarantees made by the Company for the benefit of related parties, other than as described above, see Note 16 of the notes to the Company's 2019 Annual Financial Statements and Note 15 of the notes to the Company's Interim Financial Statements appearing elsewhere in this Offering Circular.

Transactions with Directors and Officers

Certain of the directors and executive officers also serve as directors and executive officers of companies with which the Company conducts business. None of the directors or executive officers has or had any interest in any of the business transactions that are or were unusual in their nature or conditions or significant to the Company's business.

TERMS AND CONDITIONS OF THE NOTES

The following is a description of the Terms and Conditions of the Notes, which (subject to modification and except for the paragraphs in italics) will be endorsed on the Notes in definitive form (if issued).

*Each of the 2024 Notes and the 2026 Notes, which expression shall in these Terms and Conditions, unless the context otherwise requires, include any further notes issued pursuant to Condition 16 and forming a single series with the 2024 Notes and the 2026 Notes of SK Battery America, Inc. (the "**Issuer**"), will be issued by the Issuer (or any successor to the Issuer) subject to and with the benefit of a separate Fiscal Agency Agreement dated January 26, 2021 (such agreement as amended and/or supplemented and/or restated from time to time, respectively the "2024 **Fiscal Agency Agreement**" and the "2026 **Fiscal Agency Agreement**" and together, the "**Fiscal Agency Agreements**") made among the Issuer, SK Innovation Co., Ltd. (the "**Guarantor**") and The Bank of New York Mellon, London Branch as the fiscal agent (the "**Fiscal Agent**") and principal paying agent (the "**Principal Paying Agent**") and The Bank of New York Mellon SA/NV, Luxembourg Branch as registrar (the "**Registrar**") and transfer agent (the "**Transfer Agent**") and any other agent or agents appointed from time to time with respect to each series of Notes.*

*The statements in these Terms and Conditions include summaries of, and are subject to, the detailed provisions of and definitions in the Fiscal Agency Agreement. Copies of the Fiscal Agency Agreement are available for inspection during normal business hours (being between 9:00 a.m. to 3:00 p.m.) by the holders of the Notes following prior written request and satisfactory proof of holding at the specified office of the Principal Paying Agent or any other paying agent that the Issuer may appoint, as may be required from time to time (references herein to "**Paying Agents**" shall refer to the Principal Paying Agent and any paying agents so appointed). The holders are entitled to the benefit of, are bound by, and are deemed to have notice of, all the provisions of the Fiscal Agency Agreement applicable to them. In these Terms and Conditions, references to the Agents (as defined below) shall include any successor appointed under the Fiscal Agency Agreement, and references to the Issuer shall include any successor company or business entity succeeding to obligations under the Notes.*

*In acting under the Fiscal Agency Agreement, the Principal Paying Agent, the Registrar, the Transfer Agent and any other agent or agents appointed by the Issuer (the "**Agents**" and each an "**Agent**") thereunder are acting solely as agents for the Issuer and do not assume any obligation or relationship of agency or trust for or with the Noteholders.*

1 FORM, DENOMINATION AND TITLE

1.1 Form and Denomination

The Notes are issued in registered form, without detachable coupons, in the minimum denomination of US$200,000 and integral multiples of US$1,000 in excess thereof. A registered certificate (a "**Certificated Note**") will be issued to each Holder (as defined below) in respect of its registered holding of the Notes (unless Notes will be issued in global form). Each Certificated Note will be numbered serially with an identifying number which will be recorded on the relevant Certificated Note and in the register of Holders (the "**Register**") which the Issuer will procure to be kept by the Registrar. Upon issuance, the Notes will initially be represented by a global note (the "**Global Note**") deposited with and registered in the name of a nominee of a common depositary (the "**Common Depositary**") for Euroclear Bank SA/NV as operator of the Euroclear System ("**Euroclear**") and Clearstream Banking S.A. ("**Clearstream**"). The Notes shall be tradeable only in principal amounts of at least US$200,000 and integral multiples of US$1,000 in excess thereof. For so long as the Notes are listed on the Singapore Exchange Securities Trading Limited (the "**SGX-ST**") and the rules of the SGX-ST so require, the Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of S$200,000 (or its equivalent in foreign currencies). Accordingly, the Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of US$200,000. Except in the limited circumstances described in Condition 1.3 below, owners of beneficial interests in the Global Note will not be entitled to receive physical delivery of certificates representing their Notes. The laws of certain jurisdictions require that certain purchasers of the Notes take physical delivery of such Notes in certificated form. Accordingly, the ability of beneficial owners to own, transfer or pledge beneficial interests in the Global Note may be limited by such laws.

1.2 Title

Title to the Notes passes only by registration in the Register. The holder of any Note will (except as otherwise required by law) be treated as its absolute owner for all purposes (regardless of any notice of ownership, trust or any interest or any writing on, or the theft or loss of, the Certificated Notes issued in respect of it) and no person will be liable for so treating the holder. In these Conditions, "**Holder**" and (in relation to a Note) "**holder**" and "**Noteholder**" means the person in whose name a Note is registered in the Register (or, in the case of a joint holding, the first named thereof).

1.3 Certificated Notes

The Issuer will execute and deliver to the Registrar, and the Registrar will authenticate, physical definitive certificates representing the Notes (the "**Certificated Notes**") in exchange for the Global Note, if: (i) either Euroclear or Clearstream or a successor clearing system is closed for business for a continuous period of 14 days (other than by reason of holidays, statutory or otherwise) or announces an intention permanently to cease business or does in fact do so; or (ii) an Event of Default (as defined below) has occurred and is continuing.

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

2 STATUS

The Notes constitute direct, unconditional, unsubordinated and, subject to the provisions of Condition 3, unsecured obligations of the Issuer and shall at all times rank *pari passu* and without any preference or priority among themselves and, subject to the provisions of Condition 3, with all other present and future direct, unconditional, unsubordinated and unsecured obligations of the Issuer, except as may be required by mandatory provisions of law.

3 CERTAIN COVENANTS

3.1 Negative Pledge

So long as any of the Notes remains outstanding, the Issuer and the Guarantor will not, and will procure that no Principal Subsidiary (as defined in the Fiscal Agency Agreement and described below) will, create or permit to be outstanding any mortgage, charge, lien, pledge or other security interest (each a "**Security Interest**") upon the whole or any part of the property, assets or revenues, present or future, of the Issuer, the Guarantor or any Principal Subsidiary to secure for the benefit of the holders of any International Investment Securities (as defined below):

(a) any payment of any sum owing in respect of any such International Investment Securities; or

(b) any payment under any guarantee or other like obligation of any such International Investment Securities; or

(c) 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 either (i) the same Security Interest as is granted to or is outstanding in respect of such International Investment Securities or (ii) with respect to any guarantee, indemnity or other like obligation, such other arrangement (whether or not comprising a Security Interest) as shall be approved by an Extraordinary Resolution (as defined in Condition 15) of the Noteholders.

As used in this Condition, "**International Investment Securities**" means bonds, debentures, notes or investment securities of the Issuer, the Guarantor, any Principal Subsidiary or any other person which:

(a) either are by their terms payable, or confer a right to receive payment, in any currency other than Korean Won or are denominated in Korean Won and more than 50% of the aggregate principal amount thereof is initially distributed outside Korea by or with the authorization of the Issuer, the Guarantor, the relevant Principal Subsidiary or the issuer thereof, as the case may be; and

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

"*Principal Subsidiary*" means any Subsidiary (i) whose net sales, as shown by its latest audited financial statements (consolidated in the case of a company which itself has subsidiaries and which consolidates its accounts), are at least 10% of the consolidated net sales of the Guarantor and its consolidated subsidiaries, as shown by its latest audited consolidated financial statements or (ii) whose gross assets, as shown by its latest audited financial statements (consolidated as aforesaid), are at least 10% of the consolidated gross assets of the Guarantor and its consolidated subsidiaries, as shown by its latest audited consolidated financial statements.

"*Subsidiary*" means any corporation or other business entity of which the Guarantor owns or controls (in either case, either directly or through another Subsidiary or other Subsidiaries) 50% or more of the issued share capital or other ownership interest having ordinary voting power to elect directors, managers or trustees of such corporation or other business entity (other than capital stock or other ownership interest of any other class or classes which has voting power only upon the occurrence of any contingency).

3.2 Consolidation, Merger and Sale of Assets

The Guarantor will not consolidate with, or merge or amalgamate into, or sell, transfer, lease or convey all or substantially all of its property or assets to any person, except as provided herein. The Guarantor, without the consent of the holders of any of the Notes, may consolidate with, or merge into, or sell, transfer, lease or convey all or substantially all of its property as an entirety to any corporation or business entity organized under the laws of the Republic of Korea; *provided that* (a) any successor corporation or business entity expressly assumes, or, by operation of law, deemed to have assumed, the Guarantor's obligations under the Notes, the Guarantee and the Fiscal Agency Agreement, (b) immediately after giving effect to the transaction, 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, (c) if, as a result of any such transaction, the properties or assets of the Guarantor or any successor corporation or business entity would become subject to any Security Interest which would not be permitted by the Notes and the Guarantee, the Guarantor or such successor corporation or business entity, as the case may be, shall take such steps as shall be necessary to secure the Notes and the Guarantee equally and ratably with (or prior to) all indebtedness secured thereby, and (d) the Guarantor has delivered to the Fiscal Agent a certificate executed by a duly authorized officer of the Guarantor and an opinion of counsel as to matters of law stating that such consolidation, merger, sale, transfer, lease or conveyance and, if any supplemental agreement(s) is/are required in connection with such transaction, such supplemental agreement(s) comply with the Fiscal Agency Agreement, the Notes and the Guarantee and that all conditions precedent herein provided for relating to such transaction have been complied with. The Fiscal Agent shall be entitled to accept and conclusively rely upon such certificate and opinion (without further investigation or enquiry) as sufficient and conclusive evidence of such compliance and the Fiscal Agent shall be protected and shall have no liability to any holder or any person for so accepting and relying on such certificate or opinion.

4 GUARANTEE

Pursuant to the guarantee set out in Section 3 of the Fiscal Agency Agreement as evidenced by the notation of guarantee dated January 26, 2021 (the "**Guarantee**"), the Guarantor has given for the benefit of the Noteholders an unconditional and irrevocable guarantee for the due and punctual payment of all sums from time to time payable by the Issuer in respect of the Notes as and when the same shall become due according to these Conditions. The Guarantee relating to the Notes constitutes a direct, general and unconditional obligation of the Guarantor which will be unsecured and will rank *pari passu* with all other present and future unsecured and unsubordinated obligations of the Guarantor (save for such as may be preferred by mandatory provision of applicable law). The Guarantee will remain in full effect until the earlier of (i) the payment of all sums payable in respect of the relevant Notes having been paid in full and (ii) the Maturity Date.

5 INTEREST

5.1 Interest Payment Dates

The 2024 Notes will be issued in an initial aggregate principal amount of US$300,000,000 and will mature at a price equal to 100% of the principal amount on January 26, 2024 (the "**Maturity Date**"). The Notes will bear interest at a rate of 1.625% per annum from and including January 26, 2021 or from the most recent interest payment date to which interest has been paid or provided for. Interest on the Notes will be payable semi-annually in arrears on January 26 and July 26 of each year (each an "**Interest Payment Date**") with the first interest payment to be made on July 26, 2021.

The 2026 Notes will be issued in an initial aggregate principal amount of US$700,000,000 and will mature at a price equal to 100% of the principal amount on January 26, 2026 (the "**Maturity Date**"). The Notes will bear interest at a rate of 2.125% per annum from and including January 26, 2021 or from the most recent interest payment date to which interest has been paid or provided for. Interest on the Notes will be payable semi-annually in arrears on January 26 and July 26 of each year (each an "**Interest Payment Date**") with the first interest payment to be made on July 26, 2021.

5.2 Interest Accrual

Each Note will cease to bear interest from and including its due date for redemption unless, upon due presentation, payment of the principal in respect of the Note is improperly withheld or refused or unless default is otherwise made in respect of payment. In such event, interest will continue to accrue until whichever is the earlier of:

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

(b) five days after the date on which the full amount of the moneys payable in respect of such Notes has been received by the Fiscal Agent and notice to that effect has been given to the Noteholders in accordance with Condition 14.

5.3 Calculation of Broken Interest

When interest is required to be calculated in respect of a period of less than a full year, it shall be calculated on the basis of a 360-day year consisting of 12 months of 30 days each and, in the case of an incomplete month, the number of days elapsed on the basis of a month of 30 days.

Interest in respect of any Note shall be calculated per US$1,000 in principal amount of the Notes (the "**Calculation Amount**"). The amount of interest payable per Calculation Amount for any period shall be equal to the product of the rate of interest specified above, the Calculation Amount and the day-count fraction for the relevant period, rounding the resulting figure to the nearest cent (half a cent being rounded upwards).

6 PAYMENTS

6.1 Payment

Payments of principal and interest in respect of each Note will be made by transfer to the registered account of the Holder. Interest on Notes due on an Interest Payment Date will be paid to the holder shown on the Register at the close of business on the date (the "**record date**") being the fifteenth day before the due date for the payment of interest; provided that, the record date for any Interest Payment Date will be, with respect to Notes represented by a Global Note, the close of business on the Clearing System Business Day immediately prior to the Interest Payment Date, where "**Clearing System Business Day**" means Monday to Friday inclusive except December 25 and January 1.

For the purposes of this Condition 6.1, a Holder's "**registered account**" means the U.S. dollar account maintained by or on behalf of it with a bank in the United States that processes payments in U.S. dollar, details of which appear on the Register at the close of business on the relevant record date, and a Holder's registered address means its address appearing on the Register at that time.

Where payment is to be made by transfer to a registered account, payment instructions (for value on the due date or, if that is not a Payment Business Day, for value the first following day which is a Payment Business Day) will be initiated on the due date for payment, or if that is not a Payment Business Day, on the next succeeding Payment Business Day, without any interest or payment in respect of such delay.

6.2 Agents

The names of the initial Agents and their specified offices are set out in the Fiscal Agency Agreement. The Issuer and the Guarantor reserves the right under and in accordance with the terms of the Fiscal Agency Agreement at any time to remove any Agent, and to appoint other or further agents or a replacement Registrar, *provided that* the Issuer and the Guarantor will at all times maintain (i) a Fiscal Agent, (ii) a Principal Paying Agent, (iii) a Registrar, (iv) a Transfer Agent and (v) a Singapore Paying Agent (for so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, in the event that the Global Note is exchanged for Certificated Notes). Notice of any such removal or appointment and of any change in the specified office of any Agent will be given promptly by the Issuer or the Guarantor to the Noteholders in accordance with Condition 14.

6.3 Payment subject to fiscal laws

All payments in respect of the Notes are subject in all cases to any applicable fiscal or other laws and regulations, but without prejudice to the provisions of Condition 9. No commissions or expenses shall be charged to the Noteholders in respect of such payments.

6.4 Payment date convention

If any Interest Payment Date or the Maturity Date would fall on a day that is not a Payment Business Day, that Interest Payment Date or the Maturity Date will be postponed to the following day that is a Payment Business Day, and no interest shall be payable in respect of any such delay.

6.5 Payment Business Day

In these Conditions, "**Payment Business Day**" means a day (other than a Saturday or Sunday) on which commercial banks and financial institutions are generally open for business in New York City, London, Seoul, the city where the specified office of the Fiscal Agent is located and (for so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST require the Issuer to maintain a Singapore Paying Agent) Singapore and, in the case of the surrender of a Certificated Note, in the place of the Transfer Agent or Registrar where the Certificated Note is surrendered.

7 TRANSFERS OF NOTES

7.1 Transfers

Subject as provided in Condition 7.2, a Note may be transferred by depositing the Certificated Note issued in respect of that Note, with the form of transfer on the back duly completed and signed, at the specified office of the Transfer Agent (or, in the case of a Note represented by a Global Note, delivery of a duly executed form of transfer as set forth in the Fiscal Agency Agreement), together with such evidence as the Registrar or the Transfer Agent may require to prove title to the Notes that are the subject of the transfer and the authority of the individuals who have executed the form of transfer. Legal title to the Notes will pass upon registration of such transfer in the Register.

All transfers of Notes and entries in the Register will be made subject to the terms concerning transfers of the Notes provided in the Fiscal Agency Agreement.

7.2 Closed Periods

If Certificated Notes are to be issued in exchange for the Global Note, no Noteholder may require the transfer of a Certificated Note to be registered (i) during the period of 15 days preceding the due date for any payment of principal of, or interest (if any) on, the Notes or (ii) after such Note has been selected or deposited for redemption pursuant to Condition 8.2.

7.3 Regulations

All transfers of Certificated Notes will be made subject to the detailed provisions concerning transfer of Notes set forth in Clause 5(b)(iv) of the Fiscal Agency Agreement. The provisions may be changed by the Issuer or the Guarantor with the prior written approval of the Registrar.

8 REDEMPTION AND PURCHASE

8.1 Redemption at Maturity

Unless the Notes have been previously redeemed or repurchased and cancelled as provided below, the Issuer will redeem the Notes at 100% of their principal amount in U.S. dollars on the Maturity Date. The Notes may be redeemed prior to that date only as provided in Conditions 8.2 below, but without prejudice to Condition 11.

8.2 Redemption for Taxation Reasons

At any time, the Issuer may, having given not less than 30 or more than 60 days' notice to the Fiscal Agent and the Guarantor and the holders of the Notes (which notice shall be irrevocable and delivered in accordance with Condition 14), redeem the Notes in whole, but not in part, at 100% of their principal amount plus accrued and unpaid interest, if any, to the date fixed for redemption, *provided that* prior to the delivery of any notice of redemption pursuant to this Condition 8.2, the Issuer or the Guarantor, as applicable, shall deliver to the Fiscal Agent (1) a certificate signed by an authorized officer stating that the obligation to pay Additional Amounts (as defined in Condition 9.1) is as a result of any change in, or amendment to, the laws or regulations of a Relevant Jurisdiction (as defined in Condition 9.2), or any change in the general application or official interpretation of such laws or regulations, which change or amendment becomes effective after the date of the original issuance of the Notes and the Guarantee and cannot be avoided by the Issuer or the Guarantor, as applicable, taking reasonable measures available to it and (2) an opinion addressed to the Fiscal Agent by an independent law firm of recognized standing admitted to practice in the Relevant Jurisdiction to the effect that the Issuer or the Guarantor, as applicable, has or will become obliged to pay such Additional Amounts as a result of a change or amendment referred to above, and the Fiscal Agent shall be entitled to accept and conclusively rely upon such certificate and opinion (without further investigation or enquiry) as sufficient and conclusive evidence of the conditions precedent referred to in this Condition 8.2, in which event it shall be conclusive and binding on the holders of the Notes and the Fiscal Agent shall be protected and shall have no liability to any holder or any person for so accepting and relying on such certificate or opinion.

8.3 Purchases

The Issuer, the Guarantor or any of their respective subsidiaries may at any time and from time to time repurchase Notes in the open market or otherwise at any price. Such Notes may be held by the Issuer or the Guarantor, resold or surrendered to the Registrar for cancellation. If purchases are made by tender, tenders must be available to all Noteholders alike.

8.4 Cancellations

All Notes that are redeemed, repurchased or converted and surrendered to the Registrar for cancellation shall forthwith be cancelled. Notes cancelled may not be reissued or resold.

8.5 Redemption Procedures

In the event that the Issuer is required to deliver a notice to the holders of the Notes under this Condition 8, the Issuer shall provide, or procure the provision by the Fiscal Agent of, the notice to each holder of the Notes in accordance with Condition 14 and the provisions of the Fiscal Agency Agreement, which notice shall state, to the extent applicable:

(a) the date fixed for redemption;

(b) the applicable redemption price of a Note on the redemption date; and

(c) the names and addresses of all Paying Agents and the Registrar.

8.6 Notices Final

Upon the expiry of any notice as is referred to in Condition 8.2 above, the Issuer shall be bound to redeem the Notes to which the notice refers in accordance with the terms of such Condition.

9 TAXATION

9.1 Additional Amounts

All payments of principal and interest in respect of the Notes or the Guarantee, including any Additional Amounts (as defined below), by or on behalf of the Issuer or the Guarantor shall be made free and clear of and without withholding or deduction for, or on account of, any present or future taxes, duties, assessments or governmental charges of whatever nature ("**Taxes**") imposed, levied, collected, withheld or assessed by or on behalf of the Relevant Jurisdiction, as defined in Condition 9.2 below, except as required by applicable law. In that event, the Issuer or, as the case may be, the Guarantor will, subject to the exceptions and limitations set forth below, pay to a holder of any Note such additional amounts (the "**Additional Amounts**") as may be necessary in order that every net payment by the Issuer, the Guarantor or a Paying Agent of the principal of and interest on the Note and any other amounts payable on the Note after withholding or deduction for or on account of any present or future tax, duty, assessment or governmental charge imposed or levied by a Relevant Jurisdiction, as defined in Condition 9.2 below, will not be less than the amount provided for in the Note or the Guarantee to be then due and payable under the Notes.

However, the obligation to pay Additional Amounts shall not apply:

(a) to the holder or beneficial owner of the Notes 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 or the Guarantor to make such a declaration or claim, such holder or beneficial owner of the Notes fails to do so within 30 days; or

(b) to the holder or beneficial owner of the Notes who is subject to Taxes in respect of the Notes by reason of the existence of any present or former connection between the holder (or between a fiduciary, settlor, beneficiary, member or shareholder of the holder, if the holder is an estate, a trust, a partnership, a limited liability company or a corporation) and a Relevant Jurisdiction, other than merely holding a Note or receiving a payment in respect of a Note, or the enforcement of a Note or Guarantee or being or having been a beneficiary of the Guarantee, including, without limitation, the holder (or such fiduciary, settlor, beneficiary, member or shareholder) being or having been a citizen or resident of a Relevant Jurisdiction or being or having been engaged in a trade or business or present in a Relevant Jurisdiction or having, or having had, a permanent establishment in a Relevant Jurisdiction; or

(c) to the holder or beneficial owner of the Notes who presents the relevant Notes, where presentation is required, for payment on a date more than 30 days after the Relevant Date; or

(d) to any estate, inheritance, gift, sales, transfer, capital gains, excise or personal property tax or any similar tax, duty, assessment or governmental charge; or

(e) to any tax, duty, assessment or other governmental charge that is payable otherwise than by withholding or deduction from payments on or in respect of any Note; or

(f) to any tax, duty, assessment or other governmental charge that would not have been imposed but for the failure to comply with certification, information or other reporting requirements concerning the nationality, residence or identity of the holder or beneficial owner of that Note, if compliance is required by statute or by regulation of a Relevant Jurisdiction as a precondition to relief or exemption from the tax, duty, assessment or other governmental charge, and proper notice has been sent to the holder; or

(g) to any tax, duty, assessment or other governmental charge required to be withheld by any Paying Agent from any payment of the principal of, or interest on, any Note, to the extent such tax, duty, assessment or other governmental charge results from the presentation (where presentation is required) of any Note or Guarantee for payment and the payment can be made without such withholding or deduction by the presentation of the Note or Guarantee for payment by at least one other Paying Agent; or

(h) to any combination of the items listed above.

Nor will Additional Amounts be paid with respect to any payment on a Note or the Guarantee to a holder who is a fiduciary, a partnership, a limited liability company or other than the sole beneficial owner of that payment to the extent that payment would be required by the laws of a Relevant Jurisdiction to be included in the income, for tax purposes, of a beneficiary or settlor with respect to the fiduciary, a member of that partnership, an interest holder in a limited liability company or a beneficial owner who would not have been entitled to the Additional Amounts had that beneficiary, settlor, member, interest holder or beneficial owner been the holder.

References in these Conditions to payments in respect of the Notes or the Guarantee shall be deemed to refer to any Additional Amounts that may be payable in respect thereof under this Condition 9.1.

The Agent shall in no event be responsible for paying any tax, duty, charges, withholding or other payment referred to in this Condition 9 or for determining whether such amounts are payable or the amount thereof, and shall not be responsible or liable for any failure by the Issuer, the Guarantor or the Noteholders or any other person to pay such tax, duty, charges, withholding or other payment or be responsible to provide any notice or information in relation to the Notes or the Guarantee in connection with payment of such tax, duty, charges, withholding or other payment.

Notwithstanding any other provision of these Conditions, any amounts to be paid on the Notes by or on behalf of the Issuer, or on the Guarantee by or on behalf of the Guarantor, will be paid net of any deduction or withholding imposed or required pursuant to an agreement described in Section 1471(b) of the U.S. Internal Revenue Code of 1986, as amended (the "**Code**"), or otherwise imposed pursuant to Sections 1471 through 1474 of the Code (or any regulations thereunder or official interpretations thereof) or an intergovernmental agreement between the United States and another jurisdiction facilitating the implementation thereof (or any fiscal or regulatory legislation, rules or practices implementing such an intergovernmental agreement) (any such withholding or deduction, a "**FATCA Withholding**"). Neither the Issuer, the Guarantor nor any other person will be required to pay any additional amounts in respect of FATCA Withholding.

9.2 Interpretation

For the purposes of these Conditions:

(a) "**Relevant Date**" in relation to any Notes means (i) the due date for payment in respect thereof or (ii) if the full amount of the moneys payable on such due date has not been received by the Fiscal Agent or the Principal Paying Agent on or prior to such due date, the date on which notice is duly given to the holders of the Notes that such moneys have been so received; and

(b) "**Relevant Jurisdiction**" means the Republic of Korea or any political subdivision or any authority thereof or therein having power to tax or any other jurisdiction or any political subdivision or any authority thereof or therein having power to tax to which the Issuer or the Guarantor becomes subject in respect of payments made by it of principal and interest on the Notes.

10 PRESCRIPTION

Claims against the Issuer or the Guarantor in respect of the payment of principal and interest on the Notes or the Guarantee, as the case may be, shall be prescribed unless made within 10 years (in the case of principal) and five years (in the case of interest) from the Relevant Date (as defined in Condition 9).

11 EVENTS OF DEFAULT

11.1 Events of Default

11.2 The holder of any Note may give notice to the Issuer and the Guarantor with a copy to the Fiscal Agent that the Note is, and it shall accordingly forthwith become, immediately due and repayable at its principal amount, together with interest accrued to the date of repayment, if any of the following events ("**Events of Default**") shall have occurred and be continuing:

(a) if default is made in the payment of any principal or interest due in respect of the Notes or any of them and the default continues for a period of seven days in the case of principal and 30 days in the case of interest;

(b) if either the Issuer or the Guarantor fails to perform or observe any of its other obligations under these Conditions and the failure continues for the period of 60 days next following the service by any Noteholder on the Issuer or the Guarantor of notice requiring the same to be remedied;

(c) if: (i) any Indebtedness for Borrowed Money (as defined below) of the Guarantor or any Principal Subsidiary becomes due and repayable prematurely by reason of an event of default (however described); (ii) the Guarantor or any Principal Subsidiary fails to make any payment in respect of any Indebtedness for Borrowed Money on the due date for payment; (iii) any security given by the Guarantor or any Principal Subsidiary for any Indebtedness for Borrowed Money becomes enforceable; or (iv) default is made by the Guarantor or any Principal Subsidiary in making any payment due under any guarantee and/or indemnity given by it in relation to any Indebtedness for Borrowed Money of any other person, provided that no event described in this Condition 11 shall constitute an Event of Default unless the Indebtedness for Borrowed Money or other relative liability either alone or when aggregated with other Indebtedness for Borrowed Money and/or other liabilities relative to all (if any) other events which shall have occurred and be continuing shall amount to at least U.S.$35,000,000 (or its equivalent in any other currency);

(d) if any order is made by any competent court or resolution passed for the winding up or dissolution of the Issuer, the Guarantor or any Principal Subsidiary;

(e) if the Guarantor or any Principal Subsidiary ceases or threatens to cease to carry on the whole or substantially all of its business (where such ceased business also constitutes the whole or substantially all of the business of the Guarantor on a consolidated basis), or the Guarantor or any Principal Subsidiary stops or threatens to stop payment of, or is unable to, or admits inability to, pay, its debts (or any class of its debts) as they fall due or is deemed unable to pay its debts pursuant to or for the purposes of any applicable law, or is adjudicated or found bankrupt or insolvent, in each case, except as a result of (i) a reorganisation on terms approved by an Extraordinary Resolution of Noteholders, (ii) a consolidation or merger of such Principal Subsidiary into the Guarantor, (iii) a transfer of all or substantially all of such Principal Subsidiary's properties, assets and businesses to the Guarantor or another Principal Subsidiary, (iv) a spin-off of such Principal Subsidiary's business into a Subsidiary that is directly and wholly-owned by the Guarantor, or (v) a spin-off of the Guarantor's business into a Subsidiary, if such Subsidiary unconditionally and irrevocably guarantees, on a joint and several basis, the obligations of the Guarantor under the Notes and the Fiscal Agency Agreement by executing and delivering a supplement to the Fiscal Agency Agreement;

(f) (i) if proceedings are initiated against the Issuer, the Guarantor or any Principal Subsidiary under any applicable liquidation, insolvency, composition, reorganisation or other similar laws or an application is made for the appointment of an administrative or other receiver, manager, administrator or other similar official, or an administrative or other receiver, manager, administrator or other similar official is appointed, in relation to the Issuer, the Guarantor or any Principal Subsidiary or, as the case may be, in relation to the whole or a substantial part of the undertaking or assets of any of them or an encumbrancer takes possession of the whole or a substantial part of the undertaking or assets of any of them, or a distress, execution, attachment, sequestration or other process is levied, enforced upon, sued out or put in force against the whole or a substantial part of the undertaking or assets of any of them, and (ii) in any such case (other than the appointment of an administrator) is not discharged within 30 days;

(g) if the Issuer, the Guarantor or any Principal Subsidiary initiates or consents to judicial proceedings relating to itself under any applicable liquidation, insolvency, composition, reorganisation or other similar laws or makes a conveyance or assignment for the benefit of, or enters into any composition or other arrangement with, its creditors generally (or any class of its creditors) or any meeting is convened to consider a proposal for an arrangement or composition with its creditors generally (or any class of its creditors);

(h) if the Issuer, the Guarantor or any Principal Subsidiary makes a conveyance or assignment for the benefit of, or enters into any composition or other arrangement with, its creditors generally (or any class of its creditors) or any meeting is convened to consider a proposal for an arrangement or composition with its creditors generally (or any class of its creditors);

(i) if any decree, resolution, authorization, approval, consent, filing, registration or exemption necessary for the execution and delivery of the Notes on behalf of the Issuer or the Guarantor and the performance of the Issuer's or the Guarantor's obligations under the Notes is withdrawn or modified or otherwise ceases to be in full force and effect, or it is unlawful for the Issuer or the Guarantor to comply with, or it contests the validity or enforceability of or repudiates, any of its obligations under the Notes; or

(j) if the Guarantor denies or disaffirms its obligations under the Guarantee or the Guarantee is determined to be unenforceable or invalid or shall for any reason cease to be in full force and effect.

11.3 Interpretation

"*Indebtedness for Borrowed Money*" means any indebtedness (whether being principal, premium, interest or other amounts) for or in respect of any notes, bonds, debentures, debenture stock, loan stock or other securities or any borrowed money or any liability under or in respect of any acceptance or acceptance credit.

For the purposes of Condition 11.2(c) above, any Indebtedness for Borrowed Money which is in a currency other than U.S. Dollars shall be translated into U.S. Dollars at the spot rate of the sale of U.S. Dollars against the purchase of the relevant currency quoted by any leading bank in Korea selected by the Issuer.

12 SUBSTITUTION OF ISSUER

The Issuer may, without the consent of any holder of the Notes (and, by purchasing any Notes, each holder expressly consents to the provisions of this section), substitute the Guarantor for itself for all purposes under the Notes and the Fiscal Agency Agreement at any time ("Issuer Substitution"); provided that (a) immediately after giving effect to the transaction, 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 (b) the Guarantor has delivered to the Fiscal Agent a certificate executed by a duly authorized officer of the Guarantor and an opinion of counsel as to matters of law stating that such Issuer Substitution and, if any supplemental agreement(s) is/are required in connection with such transaction, such supplemental agreement(s) comply with the Fiscal Agency Agreement and the Notes and that all conditions precedent herein provided for relating to such transaction have been complied with. The Fiscal Agent shall be entitled to accept and conclusively rely upon such certificate and opinion (without further investigation or enquiry) as sufficient and conclusive evidence of such compliance and the Fiscal Agent shall be protected and shall have no liability to any holder or any person for so accepting and relying on such certificate or opinion.

Upon such Issuer Substitution, the Issuer shall be released from its obligations under the Notes and the Fiscal Agency Agreement, and the Guarantor shall succeed to, and be substituted for, and may exercise every right and power of, the Issuer under the Notes and the Fiscal Agency Agreement with the same effect as if the Guarantor had been named as issuer under the Fiscal Agency agreement and the Notes. In the event of such Issuer Substitution, the Guarantee shall cease to exist. The Issuer and the Guarantor agree to take any and all necessary action to effectuate any Issuer Substitution with any appropriate clearing system.

13 REPLACEMENT OF CERTIFICATES

If any Certificated Note is lost, stolen, mutilated, defaced or destroyed it may be replaced at the specified office of the Registrar or such Transfer Agent upon payment by the claimant of the expenses incurred in connection with such replacement and on such terms as to evidence, security, indemnity, prefunding and otherwise as the Issuer, Registrar or Transfer Agent may require. Mutilated or defaced Certificated Notes must be surrendered before replacements will be issued.

14 NOTICES

All notices to holders of the Notes shall be validly given if mailed to them at their respective addresses in the record of holders of the Notes maintained by the Registrar and deemed to have been given on the fifth weekday (being a day other than a Saturday or a Sunday) after the date of mailing and by the participants, or published in a leading newspaper having general circulation in Asia (which is expected to be the *Asian Wall Street Journal*). Notwithstanding the foregoing, so long as the Notes are represented by the Global Note and the Global Note is held on behalf of Euroclear and Clearstream, notice to Noteholders may be given by delivery of the relevant notice to Euroclear and Clearstream, for communication by them to entitled accountholders in substitution for notification as required by the foregoing sentence. The Issuer or the Guarantor, as the case may be, shall also ensure that notices are duly given or published in a manner which complies with the rules and regulations of any stock exchange on which the Notes are for the time being listed. Any such notice shall be deemed to have been given on the seventh day after being so mailed or on the date of such publication.

The Issuer shall provide the Guarantor with a copy of each notice it is required to provide to the holders of the Notes or an Agent.

15 MEETINGS OF NOTEHOLDERS, MODIFICATION AND WAIVER

15.1 Meetings of Noteholders

The Fiscal Agency Agreement contains provisions for convening meetings of the Noteholders to consider any matter affecting their interests, including the modification by Extraordinary Resolution (as defined below) of any of these Conditions or any of the provisions of the Fiscal Agency Agreement. Such a meeting may be convened by Noteholders holding not less than 10% of the principal amount of the Notes then outstanding. The quorum at any meeting for passing an Extraordinary Resolution will be one or more persons present holding or representing more than 50% of the principal amount of the Notes then outstanding, or, at any adjourned meeting, one or more persons present holding or representing more than 25% of the principal amount of the Notes then outstanding; *provided, however*, that no such meeting shall consider the modification, amendment or waiver to the Fiscal Agency Agreement or any Note to (i) change the stated maturity of the Notes or the scheduled dates for payment of principal of or interest on any Note; (ii) reduce the principal of or interest on any such Note; (iii) change the currency of payment of the principal of or interest on such Note; or (iv) reduce the above-stated percentage of the aggregate principal amount of the Notes outstanding or reduce the quorum requirements or the percentage of votes required for the taking of any action, in which case the necessary quorum for passing an Extraordinary Resolution will be one or more persons present holding or representing not less than two-thirds, or at any adjourned meeting not less than one-third, of the principal amount of the Notes for the time being outstanding. An Extraordinary Resolution passed at any meeting of the Noteholders will be binding on all Noteholders, whether or not they are present at the meeting.

"**Extraordinary Resolution**" means a resolution duly passed by either (i) a majority in aggregate principal amount of the Notes then outstanding pursuant to a written resolution of the Noteholders or (ii) 75% in aggregate principal amount of the Notes represented and voting at a duly convened meeting of the Noteholders.

15.2 Modification

The Issuer and the Guarantor shall only permit any modification, without the consent of the Noteholders, to these Conditions or any of the provisions of the Fiscal Agency Agreement either (i) for the purpose of curing any ambiguity or of curing, correcting or supplementing any manifest or proven error or any other defective provision contained herein or therein or (ii) in any other manner which is not materially prejudicial to the interests of the Noteholders. Any determination as to prejudice applying to the interests of the Noteholders pursuant to this Condition shall be made by the Issuer and the Guarantor and none of the Agents shall have any responsibility or liability whatsoever with respect to such determination. Any modification shall be binding on the Noteholders and shall be notified by the Issuer to the Noteholders as soon as practicable thereafter in accordance with Condition 14.

16 FURTHER ISSUANCES

The Issuer may from time to time, without notice to or the consent of the holders of the Notes, create and issue further debt securities ranking *pari passu* with the Notes in all respects (or in all respects except for the payment of interest accruing prior to the issue date of the additional Notes or except for the first payment of interest following the issue date of the additional Notes). The Issuer may consolidate such further debt securities with the outstanding Notes to form a single series to the extent permitted under applicable law (provided, however, that any such issuance of securities shall be subject to the prior written consent of the Guarantor). References in these Conditions to the Notes include (unless the context requires otherwise) any other securities issued pursuant to this Condition 16 and forming a single series with the Notes.

17 GOVERNING LAW AND SUBMISSION TO JURISDICTION

17.1 Governing Law

The Fiscal Agency Agreement, the Guarantee and the Notes are governed by, and shall be construed in accordance with, the laws of the State of New York.

17.2 Jurisdiction

The Issuer and the Guarantor each agrees that any legal suit, action or proceeding arising out of or based upon the Fiscal Agency Agreement or the Notes may be instituted in any state or federal court in the Borough of Manhattan, the State and City of New York.

The Issuer and the Guarantor, each to the fullest extent it is permissible to do so under applicable law, (a) waives any objection which it may have now or hereafter to the laying of the venue of any such suit, action or proceeding in any such court and (b) irrevocably submits to the non-exclusive jurisdiction of any such court in any suit, action or proceeding.

17.3 Appointment of Process Agent

The Issuer has agreed to receive service of process in any proceedings in the State of New York based on any of the Notes, the Guarantee or the Fiscal Agency Agreement at its office at 201 17th Street NW, Suite 1700, Atlanta, Georgia 30363, USA.

The Guarantor has agreed to irrevocably appoint the Issuer, located at 201 17th Street NW, Suite 1700, Atlanta, Georgia 30363, USA, as its authorized agent in the State of New York to receive service of process in any proceedings in the State of New York based on any of the Notes, the Guarantee or the Fiscal Agency Agreement. The Guarantor agrees that in the event of such agent ceasing so to act it will appoint such other person as its agent for that purpose.

18 CURRENCY INDEMNITY

The Issuer's obligations under the Notes to make all payments in U.S. dollars will not be satisfied by any payment, recovery or any other realization of proceeds in any currency other than the U.S. dollar. If pursuant to any such judgment, conversion shall be made on a date (the "**Substitute Date**") other than the date of entry of judgment (the "**Judgment Date**") and there shall occur a change between the market exchange rate for the U.S. dollar as in effect on the Substitute Date and the market exchange rate as in effect on the Judgment Date, the Issuer agrees to pay such Additional Amounts (if any) in U.S. dollars as may be necessary to ensure that the amount paid is equal to the amount in such other currency or currency unit which, when converted at the market exchange rate as in effect on the Judgment Date, is the amount due under any Notes. To the extent permitted by applicable law, any amount due from the Issuer under this Condition 18 shall be due as a separate debt and is not to be affected by or merged into any judgment being obtained for any other sums due in respect of any Notes. In no event, however, shall the Issuer be required to pay more in U.S. dollars due under the Notes at the market exchange rate as in effect on the Judgment Date than the amount of U.S. dollars stated to be due under the Notes so that in any event the Issuer's obligations under the Notes will be effectively maintained as obligations in U.S. dollars and the Issuer shall be entitled to withhold (or be reimbursed for, as the case may be) any excess of the amount actually realized upon any such conversion on the Substitute Date over the amount due on the Judgment Date.

THE GLOBAL NOTE

Capitalized terms used in this section and not otherwise defined shall have the meanings given to them in "Terms and Conditions of the Notes."

Each of the 2024 Notes and the 2026 Notes will initially be represented by Global Notes. The Global Notes will be deposited with and registered in the name of a nominee of the Common Depositary, and Euroclear and Clearstream will credit their respective account holders with the respective principal amounts of the individual interests represented by such Global Notes. Such accounts will be designated initially by or on behalf of the representative of the Initial Purchasers. Ownership of beneficial interests in the Global Notes will be limited to persons who have accounts with Euroclear or Clearstream or persons who hold interests through such account holders. Ownership of beneficial interests in the Global Notes will be shown on, and the transfer of that ownership will be effected only through, the records maintained by Euroclear and Clearstream (with respect to interests of their respective account holders) and the records of such account holders (with respect to interests of persons other than such account holders).

Each Global Note (and any Notes issued in exchange therefor) will be subject to certain restrictions on transfer set forth therein and described under "Transfer Restrictions." Except in the limited circumstances described in the terms and conditions of the Notes, owners of beneficial interests in the Global Notes will not be entitled to receive physical delivery of definitive certificates representing their Notes.

Payments in respect of the Notes represented by the Global Notes will be made to the Common Depositary or its nominee as the registered owner thereof. None of the Issuer, the Guarantor, the Fiscal Agent, the Common Depositary, the Registrar, any Paying Agent, any Transfer Agent or any other Agent will have any responsibility or liability for the accuracy of any of the records relating to, or payments made on account of, beneficial interests in the Global Notes or for any notice permitted or required to be given to persons with beneficial interests in the Global Notes or any consent given or actions taken by such persons. The Issuer expects that the Common Depositary, upon receipt of any payment in respect of any Notes represented by the Global Notes held by it or its nominee, will promptly credit the accounts of the participants of Euroclear and Clearstream with payments proportionate to their respective interests in the principal amount of the Notes represented by the Global Notes as shown on its records.

Transfers of book-entry interests in the Notes will be effected through the records of Euroclear and Clearstream and their respective participants in accordance with the rules and procedures of Euroclear and Clearstream and their respective direct and indirect participants.

Although Euroclear and Clearstream have agreed to the foregoing procedures in order to facilitate transfers of interests in the Global Notes among participants and account holders of Euroclear and Clearstream, they are under no obligation to perform or continue to perform such procedures, and such procedures may be discontinued at any time. None of the Issuer, the Guarantor, the Fiscal Agent, the Common Depositary, the Registrar, any Paying Agent, any Transfer Agent or any other Agent will have any responsibility for the performance by Euroclear, Clearstream or their respective participants, indirect participants or account holders, of their respective obligations under the rules and procedures governing their operations.

Euroclear and Clearstream each holds the Notes for participating organizations and facilitates the clearance and settlement of Note transactions between its respective participants through electronic book-entry changes in accounts of such participants. Euroclear and Clearstream provide to their respective participants, among other things, services for safekeeping, administration, clearance and settlement of internationally traded securities and securities lending and borrowing. Participants of Euroclear and Clearstream are financial institutions throughout the world, including underwriters, securities brokers and dealers, banks, trust companies, clearing corporations and certain other organizations. Indirect access to Euroclear and Clearstream is also available to others, such as banks, brokers, dealers and trust companies which clear through or maintain a custodial relationship with a participant of Euroclear or Clearstream, either directly or indirectly.

TAXATION

Korean Taxation

The information provided below does not purport to be a complete summary of Korean tax law and practices currently applicable. All prospective investors of the Notes should consult with their own tax advisers in determining the tax consequences to them of the purchase, ownership and disposition of the Notes.

The following summary of Korean tax considerations applies to non-Korean resident individuals and corporations ("Non-Residents") having no permanent establishment in Korea to which the relevant income is attributable or with which such income is effectively connected. Non-residents with such a permanent establishment are taxed under different rules.

All payments, other than the payment of principal amount, under the Guarantees by the Guarantor to a Non-Resident holder of the Notes may be subject to a withholding tax at the rate of 22% (including the local income surtax) or such lower rate as is applicable under the tax treaty between Korea and the country of tax residence of the Non-Resident holder. Although it was not clear in the past whether interest payments made by a Korean resident guarantor to a Non-Resident creditor constitutes Korea source income, a recent Supreme Court ruling held that such payment should in fact be treated as Korea source income subject to corporate withholding tax by the Korean resident guarantor (Supreme Court Decision 2013Du10267, dated January 14, 2016). If any deduction or withholding is required by law with respect to the amount guaranteed under the Guarantees, the Guarantor will pay additional amounts, in accordance with the terms of the Notes, as may be necessary to ensure that the holders of the Notes receive the amounts guaranteed under the Guarantees that would otherwise have been receivable in the absence of such deduction or withholding, subject to certain exceptions.

United States Federal Income Taxation

The following is a summary of certain U.S. federal income tax considerations that may be relevant to a Non-U.S. holder (as defined below) of a Note. This summary is based on provisions of the Internal Revenue Code of 1986, as amended, applicable Treasury regulations, laws, rulings and decisions now in effect, all of which are subject to change, possibly with retroactive effect. This summary deals only with Non-U.S. holders that will hold Notes as capital assets and acquired notes upon original issuance at their original issue price. This summary does not address particular tax considerations that may be applicable to investors that are subject to special tax rules, such as banks, tax-exempt entities, insurance companies, regulated investment companies, dealers in securities or currencies, traders in securities electing to mark to market, 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, entities taxed as partnerships or the partners therein, U.S. expatriates, nonresident alien individuals present in the United States for more than 182 days in a taxable year, or persons that have a "functional currency" other than the U.S. dollar.

This summary addresses only U.S. federal income tax consequences, and does not address consequences arising under state, local, foreign tax laws, the alternative minimum tax or the Medicare tax on net investment income. Investors should consult their own tax advisors in determining the tax consequences to them of holding Notes under such tax laws, as well as the application to their particular situation of the U.S. federal income tax considerations discussed below.

As used herein, a "Non-U.S. holder" is a beneficial owner of a Note that is none of the following: (i) a citizen or resident of the United States; (ii) a U.S. domestic corporation or (iii) otherwise subject to U.S. federal income taxation on a net income basis in respect of the Note.

Payments of Interest

Subject to the discussions below under "— FATCA" and "— Information Reporting and Backup Withholding," payments of interest on the Notes to a Non-U.S. holder generally will be exempt from withholding of U.S. federal income tax under the portfolio interest exemption provided that (i) the Non-U.S. holder properly certifies as to its foreign status by providing a properly executed IRS Form W-8BEN or W-8BEN-E (or appropriate substitute form) to the applicable withholding agent; (ii) the Non-U.S. holder does not actually or constructively own 10% or more of the total combined voting power of our stock entitled to vote; and (iii) the Non-U.S. holder is not a controlled foreign corporation that is related to us actually or constructively through stock ownership.

Sale, Exchange and Retirement of Notes

Subject to the discussion below under "*Information Reporting and Backup Withholding*," a Non-U.S. holder generally will not be subject to U.S. federal income tax on gain recognized on a sale, exchange or retirement of Notes.

FATCA

Under the U.S. tax rules known as the Foreign Account Tax Compliance Act ("FATCA"), a holder of Notes will generally be subject to 30% U.S. withholding tax on interest payments on the Notes if the holder is not FATCA compliant, or holds its Notes through a foreign financial institution that is not FATCA compliant. In order to be treated as FATCA compliant, a holder must provide certain documentation (usually an IRS Form W-8BEN or W-8BEN-E) containing information about its identity, its FATCA status, and if required, its direct and indirect U.S. owners. These requirements may be modified by the adoption or implementation of an intergovernmental agreement between the United States and another country or by future U.S. Treasury Regulations. If any taxes are required to be deducted or withheld from any payments in respect of the Notes as a result of a beneficial owner or intermediary's failure to comply with the foregoing rules, no additional amounts will be paid on the Notes as a result of the deduction or withholding of such tax.

Documentation that holders provide in order to be treated as FATCA compliant may be reported to the IRS and other tax authorities, including information about a holder's identity, its FATCA status, and if applicable, its direct and indirect U.S. owners. Prospective investors should consult their own tax advisers about how information reporting and the possible imposition of withholding tax under FATCA may apply to their investment in the Notes.

Information Reporting and Backup Withholding

Information returns will be filed with the IRS in connection with payments on the Notes and the proceeds of dispositions of Notes. In addition, certain U.S. taxpayers may be subject to backup withholding in respect of such amounts if they do not provide their taxpayer identification numbers to the person from whom they receive payments. Non-U.S. holders may be required to comply with applicable certification procedures to establish that they are not U.S. taxpayers in order to avoid the application of such information reporting requirements and backup withholding. The amount of any backup withholding from a payment will be allowed as a credit against the Non-U.S. 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.

Proposed Financial Transaction Tax ("FTT")

On February 14, 2013, the European Commission published a proposal (the "Commission's Proposal") for a Directive for a common FTT in Belgium, Germany, Estonia, Greece, Spain, France, Italy, Austria, Portugal, Slovenia and Slovakia (the "Participating Member States"), which, if enacted, could apply under certain circumstances, to transactions involving the Notes. The issuance and subscription of Notes should be exempt. Estonia has officially announced its withdrawal from the negotiations.

The mechanism by which the tax would be applied and collected is not yet known, but if the proposed directive or any similar tax is adopted, transactions in the Notes would be subject to higher costs, and the liquidity of the market for the Notes may be diminished.

Following the lack of consensus in the negotiations on the Commission's Proposal, the Participating Member States (excluding Estonia which withdrew) have agreed to continue negotiations on a new proposal based on the French model of the tax which would only concern listed shares of EU companies whose market capitalization exceeds €1 billion as of December 1 of the year preceding the taxation year. According to this new proposal, the applicable tax rate would be at least 0.2%. Primary market transactions should be exempt. However, this new proposal could be subject to changes before 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 (in addition to Estonia which already withdrew).

Prospective holders of the Notes are advised to seek their own professional advice in relation to the consequences of the FTT that could be associated with subscribing for, purchasing, holding and disposing of the Notes.

SUBSCRIPTION AND SALE

BNP Paribas, Citigroup Global Markets Limited, Crédit Agricole Corporate and Investment Bank, The Hongkong and Shanghai Banking Corporation Limited and Merrill Lynch International (the "Initial Purchasers") have, pursuant to a Purchase Agreement (the "Purchase Agreement") dated January 19, 2021, agreed to purchase the Notes subject to certain conditions contained therein.

The Issuer and the Company, jointly and severally, have agreed to indemnify the Initial Purchasers against certain liabilities (including liabilities under the Securities Act) incurred in connection with the issue and sale of the Notes. The Purchase Agreement may be terminated in certain circumstances prior to payment of the issue price to the Issuer.

The initial issue price is set forth on the cover of this Offering Circular. After the Notes are released for sale, the Initial Purchasers may change the issue price and other selling terms. The offering of the Notes by the Initial Purchasers is subject to receipt and acceptance and subject to the Initial Purchasers' right to reject any order in whole or in part.

The Initial Purchasers and certain of their respective affiliates have, from time to time, performed, and may in the future perform, certain investment banking, commercial banking and advisory services for the Issuer or its affiliates for which they have received or will receive customary fees and expenses.

The Initial Purchasers and their respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, principal investment, hedging, financing and brokerage activities. In the ordinary course of their various business activities, the Initial Purchasers and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investments and securities activities may involve securities and instruments of the Issuer.

The Initial Purchasers or their affiliates may subscribe for 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 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 subscribers of the Notes).

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

Selling Restrictions

United States

The Notes and the Guarantees have not been and will not be registered under the Securities Act and, subject to certain exceptions, may not be offered or sold within the United States. The Notes and the Guarantees are being offered and sold outside of the United States in reliance on Regulation S. In addition, until 40 days after the commencement of the offering of the Notes and the Guarantees, an offer or sale of Notes and the Guarantees within the United States by any dealer (whether or not participating in the offering) may violate the registration requirements of the Securities Act.

European Economic Area

In relation to each Member State of the European Economic Area , each Initial Purchaser has represented and agreed 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 in relation thereto to the public in that Member State other than:

(a) to any legal entity which is a qualified investor as defined in the Prospectus Regulation;

(b) to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Regulation), subject to obtaining the prior consent of the relevant Initial Purchaser or Initial Purchasers nominated by the Issuer for any such offer; or

(c) in any other circumstances falling within Article 1(4) of the Prospectus Regulation,

provided that no such offer of Notes referred to in (a) to (c) above shall require the Issuer or any Initial Purchaser 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 Member 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.

United Kingdom

Each Initial Purchaser has represented and agreed that:

(a) it has only communicated or caused to be communicated, and will only communicate or cause to be communicated, an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the Financial Services and Markets Act 2000 (the "FSMA")) received by it in connection with the issue or sale of the Notes in circumstances in which Section 21(1) of the FSMA does not apply to the Issuer; and

(b) it has complied and will comply with all applicable provisions of the FSMA with respect to anything done by it in relation to the Notes in, from or otherwise involving the United Kingdom.

Switzerland

This Offering Circular is not intended to constitute an offer or solicitation to purchase or invest in the Notes. The Notes may not be publicly offered, directly or indirectly, in Switzerland within the meaning of the Swiss Financial Services Act ("FinSA"), and no application has or will be made to admit the Notes to trading on any trading venue (exchange or multilateral trading facility) in Switzerland. Neither this Offering Circular nor any other offering or marketing material relating to the Notes constitutes a prospectus pursuant to the FinSA, 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.

Hong Kong

Each Initial Purchaser has represented and agreed that:

(i) it has not offered or sold, and will not offer or sell, in Hong Kong, by means of any document, any Notes other than (a) 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 (b) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong (the "C(WUMP)O") or which do not constitute an offer to the public within the meaning of the C(WUMP)O; and

(ii) it has not issued or had in its possession for the purposes of issue, and will not issue or have in its possession for the purposes of issue, 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 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.

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.

Singapore

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, this Offering Circular and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the Notes may not be circulated or distributed, nor may the Notes be offered or sold, or be made the subject of an invitation for subscription or purchase, 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.

Notification under Section 309B(1)(c) of 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 (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).

Italy

The offering of the Notes has not been registered with the *Commissione Nazionale per le Società e la Borsa* ("CONSOB") pursuant to Italian securities legislation and, accordingly, no Notes may be offered, sold or delivered, nor may copies of this Offering Circular or of any other document relating to any Notes be distributed in Italy, except in accordance with any Italian securities, tax and other applicable laws and regulations.

Each Initial Purchaser has represented and agreed that it has not offered, sold or delivered, and will not offer, sell or deliver, any Notes or distribute any copy of this Offering Circular or any other document relating to the Notes in Italy except:

(a) to qualified investors (*investitori qualificati*), as defined pursuant to Article 100 of Legislative Decree no. 58 of February 24, 1998 (the "Financial Services Act") and Article 34-ter, paragraph 1, letter (b) of CONSOB regulation No. 11971 of May 14, 1999 (the "Issuers Regulation"), all as amended from time to time; or

(b) in other circumstances which are exempted from the rules on public offerings pursuant to Article 100 of the Financial Services Act and Issuers Regulation.

In any event, any offer, sale or delivery of the Notes or distribution of copies of this Offering Circular or any other document relating to the Notes in Italy under paragraph (a) or (b) above must be:

(i) made by an investment firm, bank or financial intermediary permitted to conduct such activities in Italy in accordance with the Financial Services Act, Legislative Decree No. 385 of September 1, 1993 (the "Banking Act") and CONSOB Regulation No. 20307 of February 15, 2018, all as amended from time to time;

(ii) in compliance with Article 129 of the Banking Act, as amended from time to time, and the implementing guidelines of the Bank of Italy, as amended from time to time; and

(iii) in compliance with any other applicable laws and regulations, including any limitation or requirement which may be imposed from time to time by CONSOB or the Bank of Italy or other competent authority.

Korea

Each Initial Purchaser severally but not jointly has represented, warranted and agreed that the Notes have not been and will not be registered with the Financial Services Commission of Korea (the "FSC") under the Financial Investment Services and Capital Markets Act of Korea (the "FSCMA"), as amended, and accordingly the Notes may not be offered, sold or delivered, directly or indirectly, in Korea or to, or for the account or benefit of, any Korean resident (as such term is defined in the Foreign Exchange Transaction Act of Korea and its Presidential Decree) at the time of issuance of the Notes, except as otherwise permitted by applicable Korean laws and regulations. In addition, during the first year after the date of issuance of the Notes, the Notes may not be transferred to any resident of Korea other than a Korean ''qualified institutional buyer'' (a ''Korean QIB'', as defined in the Regulation on Securities Issuance, Public Disclosure, Etc. of Korea) registered with the Korea Financial Investment Association as a Korean QIB, provided that the amount of the Notes acquired by such Korean QIBs in the primary market is limited to no more than 20% of the aggregate issue amount of the Notes. Each Initial Purchaser severally but not jointly has undertaken to ensure that any securities dealer to which it sells Notes confirms that it is purchasing such Notes as principal and agrees with such Initial Purchaser that it will comply with the restrictions described above.

TRANSFER RESTRICTIONS

Because of the following restrictions, purchasers are advised to consult with legal counsel prior to making any offer, resale, pledge or other transfers of the Notes.

Transfer Restrictions under Korean Law

Each purchaser of the Notes, by accepting delivery of this Offering Circular, will be deemed to have represented, warranted and agreed as follows:

(a) The Notes have not been and will not be registered with the FSC under the FSCMA, as amended. Accordingly, the Notes may not be offered, sold or delivered, directly or indirectly, in Korea or to, or for the account or benefit of, any Korean resident (as such term is defined in the Foreign Exchange Transaction Act of Korea and its Presidential Decree) or to others for re-offering or resale, directly or indirectly, in Korea or to any Korean resident, except as otherwise permitted under applicable Korean laws and regulations. In addition, for a period of one year from the date of issuance of the Notes, the Notes may not be transferred to any Korean resident other than a Korean QIB as specified in the Regulation on Securities Issuance, Public Disclosure, Etc. of Korea and who is registered with the Korean Financial Investment Association as a Korean QIB, provided that the amount of the Notes acquired by such Korean QIBs in the primary market is limited to no more than 20% of the aggregate issue amount of the Notes.

(b) The Notes will bear legends to the following effect:

THE NOTES HAVE NOT BEEN AND WILL NOT BE REGISTERED UNDER THE FINANCIAL INVESTMENT SERVICES AND CAPITAL MARKETS ACT OF KOREA. ACCORDINGLY, THE NOTES MAY NOT BE OFFERED, SOLD OR DELIVERED, DIRECTLY OR INDIRECTLY, IN KOREA OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, ANY RESIDENT OF KOREA (AS SUCH TERM IS DEFINED UNDER THE FOREIGN EXCHANGE TRANSACTIONS ACT OF KOREA AND ITS PRESIDENTIAL DECREE) OR TO OTHERS FOR RE-OFFERING OR RESALE, DIRECTLY OR INDIRECTLY, IN KOREA OR TO ANY RESIDENTS OF KOREA, EXCEPT AS OTHERWISE PERMITTED UNDER APPLICABLE KOREAN LAWS AND REGULATIONS. IN ADDITION, DURING THE FIRST YEAR AFTER THE ISSUANCE OF THE NOTES, THE NOTES MAY NOT BE TRANSFERRED TO ANY RESIDENT OF KOREA OTHER THAN A KOREAN QUALIFIED INSTITUTIONAL BUYER (A "KOREAN QIB," AS DEFINED IN THE REGULATION ON SECURITIES ISSUANCE, PUBLIC DISCLOSURE, ETC. OF KOREA) WHO IS REGISTERED WITH THE KOREA FINANCIAL INVESTMENT ASSOCIATION AS A KOREAN QIB, PROVIDED THAT THE AMOUNT OF THE NOTES ACQUIRED BY SUCH KOREAN QIBS IN THE PRIMARY MARKET IS LIMITED TO NO MORE THAN 20% OF THE AGGREGATE ISSUE AMOUNT OF THE NOTES.

Other Transfer Restrictions Applicable to the Notes and the Guarantees

The Notes and the Guarantees have not been and will not be registered under the Securities Act. The Notes and the Guarantees may not be offered or sold to any person in the United States except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act.

Except in certain limited circumstances, interests in the Notes may only be held through interests in the Global Notes. Such interests in the Global Notes will be shown on, and transfers thereof will be effected only through, records maintained by Euroclear, Clearstream and their respective direct and indirect participants. See "Terms and Conditions of the Notes" and "The Global Note."

Each purchaser of the Notes, by accepting delivery of this Offering Circular, will be deemed to have acknowledged and represented and agreed as follows:

(a) The Notes and the Guarantees have not been and will not be registered under the Securities Act or with any securities regulatory authority of any state of the United States or any other jurisdiction and are subject to significant restrictions on transfer.

(b) Until forty (40) days after the commencement of offering of the Notes and the Guarantees, an offer or sale of Notes and the Guarantees within the United States by any dealer (whether or not participating in the offering) may violate the registration requirements of the Securities Act.

(c) Such purchaser will not offer, sell, pledge or otherwise transfer any interest in the Notes and the Guarantees except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the Securities Act.

(d) The Notes will bear legends to the following effect, unless the Issuer determines otherwise in compliance with applicable law, and such purchaser will observe the restrictions contained therein:

THIS SECURITY (OR ITS PREDECESSOR) WAS ORIGINALLY ISSUED IN A TRANSACTION EXEMPT FROM REGISTRATION UNDER THE UNITED STATES SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), AND MAY NOT BE TRANSFERRED IN THE UNITED STATES EXCEPT PURSUANT TO AN AVAILABLE EXEMPTION FROM THE REGISTRATION REQUIREMENTS OF THE SECURITIES ACT AND ALL APPLICABLE STATE SECURITIES LAWS. TERMS USED ABOVE HAVE THE MEANINGS GIVEN TO THEM IN REGULATION S UNDER THE SECURITIES ACT.

THE NOTES HAVE NOT BEEN AND WILL NOT BE REGISTERED UNDER THE FINANCIAL INVESTMENT SERVICES AND CAPITAL MARKETS ACT OF KOREA. ACCORDINGLY, THE NOTES MAY NOT BE OFFERED, SOLD OR DELIVERED, DIRECTLY OR INDIRECTLY, IN KOREA OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, ANY RESIDENT OF KOREA (AS SUCH TERM IS DEFINED UNDER THE FOREIGN EXCHANGE TRANSACTIONS ACT OF KOREA AND ITS ENFORCEMENT DECREE) OR TO OTHERS FOR RE-OFFERING OR RESALE, DIRECTLY OR INDIRECTLY, IN KOREA OR TO ANY RESIDENTS OF KOREA, EXCEPT AS OTHERWISE PERMITTED UNDER APPLICABLE KOREAN LAWS AND REGULATIONS. IN ADDITION, DURING THE FIRST YEAR AFTER THE ISSUANCE OF THE NOTES, THE NOTES MAY NOT BE TRANSFERRED TO ANY RESIDENT OF KOREA OTHER THAN A "QUALIFIED INSTITUTIONAL BUYER" (A "KOREAN QIB," AS DEFINED IN THE REGULATION ON SECURITIES ISSUANCE, PUBLIC DISCLOSURE, ETC. OF KOREA) WHO IS REGISTERED WITH THE KOREA FINANCIAL INVESTMENT ASSOCIATION AS A KOREAN QIB, PROVIDED THAT THE AMOUNT OF THE NOTES ACQUIRED BY SUCH KOREAN QIBS IN THE PRIMARY MARKET IS LIMITED TO NO MORE THAN 20% OF THE AGGREGATE ISSUE AMOUNT OF THE NOTES.

LEGAL MATTERS

Cleary Gottlieb Steen & Hamilton LLP, U.S. counsel to the Company and the Issuer, and Linklaters LLP, U.S. counsel to the Initial Purchasers, will pass upon certain legal matters as to United States law relating to the Notes. Lee & Ko, Korean counsel to the Company and the Issuer, will pass upon certain matters as to Korean law for the Company and the Issuer. Cleary Gottlieb Steen & Hamilton LLP and Linklaters LLP may rely as to all matters of Korean law on Lee & Ko. Lee & Ko may rely on Cleary Gottlieb Steen & Hamilton LLP as to all matters of U.S. law.

INDEPENDENT ACCOUNTANTS

The consolidated financial statements as of and for the years ended December 31, 2018 and 2017 included elsewhere in this Offering Circular have been audited by Deloitte Anjin LLC, independent auditors, as stated in its report appearing elsewhere in this Offering Circular.

The audited consolidated financial statements as of and for the year ended December 31, 2019, included elsewhere in this Offering Circular, have been audited by, and the interim condensed consolidated financial statements as of September 30, 2020 and for the three-month and nine-month periods ended September 30, 2020 and 2019, included elsewhere in this Offering Circular, have been reviewed by, Ernst & Young Han Young, independent auditors, as stated in their reports appearing elsewhere in this Offering Circular. With respect to the interim condensed consolidated financial statements, Ernst & Young Hang Young have reported that they applied limited procedures in accordance with professional standards for a review of such information.

INDEX TO FINANCIAL STATEMENTS

Unaudited Interim Condensed Consolidated Financial Statements

Audited Consolidated Financial Statements

Audited Consolidated Financial Statements

Building a better
working world

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 review report

The Stockholders and Board of Directors
SK Innovation Co., Ltd.

We have reviewed the accompanying interim condensed consolidated financial statements of SK Innovation Co., Ltd. and its subsidiaries (collectively referred to as the "Group"), which comprise the interim condensed consolidated statement of financial position as of September 30, 2020, and the related interim condensed consolidated statements of comprehensive income (loss) for the three-month and nine-month periods ended September 30, 2020 and 2019, interim condensed consolidated statements of changes in equity and interim condensed consolidated statements of cash flows for the nine-month periods ended September 30, 2020 and 2019, and a summary of significant accounting policies and other explanatory information.

Management's responsibility for the interim condensed consolidated financial statements

Management is responsible for the preparation and presentation of these interim condensed consolidated financial statements in accordance with Korean International Financial Reporting Standards ("KIFRS") 1034 *Interim Financial Reporting*, and for such internal control as management determines is necessary to enable the preparation of the interim condensed consolidated financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's responsibility

Our responsibility is to express a conclusion on these interim condensed 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 auditing standards generally accepted in the Republic of Korea and, consequently, 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 condensed consolidated financial statements are not prepared, in all material respects, in accordance with KIFRS 1034.

Other matters

We have audited the consolidated statement of financial position of the Group as of December 31, 2019, and the related consolidated statement of comprehensive income, consolidated statement of changes in equity and consolidated statement of cash flows for the year then ended (not presented herein) in accordance with auditing standards generally accepted in the Republic of Korea, and our report dated March 6, 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

November 13, 2020

This review report is effective as of November 13, 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 review report to the time this review report is used. Such events and circumstances could significantly affect the accompanying interim condensed consolidated financial statements and may result in modifications to this review report.

(In thousands of Korean won and in thousands of U.S. dollar)

		Korean won		Translation into U.S. dollar (Note 2)	
	Notes	**September 30, 2020 (Unaudited)**	**December 31, 2019**	**September 30, 2020 (Unaudited)**	**December 31, 2019**
Assets					
Current assets:					
Cash and cash equivalents	4	₩ 3,594,679,495	₩ 2,196,001,396	$ 3,063,212	$ 1,871,326
Short-term financial instruments	4	1,315,568,865	2,376,093,788	1,121,064	2,024,792
Trade receivables	4,5	2,820,165,913	4,138,301,739	2,403,209	3,526,461
Current portion of long-term investment securities	4,7	431,791	1,051,171	368	896
Short-term loans	4,5	37,224,376	34,480,166	31,721	29,382
Other receivables	4,5,10	528,378,342	749,512,768	450,258	638,699
Accrued income	4,5	9,631,271	5,183,656	8,207	4,417
Advanced payments		765,748,532	402,684,301	652,534	343,148
Prepaid expenses		56,047,825	50,097,240	47,761	42,690
Current tax assets		12,542,221	15,919,531	10,688	13,566
Guarantee deposits	4,5	173,713,141	123,852,149	148,030	105,541
Current portion of derivative assets	4,13	39,435,180	34,458,260	33,605	29,364
Inventories	6	4,537,401,792	6,495,210,174	3,866,555	5,534,904
Assets held for sale	29	682,496,169	729,486,873	581,590	621,633
Other current assets		106,417	443,657	91	379
Total current assets		₩ 14,573,571,330	₩ 17,352,776,869	$ 12,418,893	$ 14,787,198
Non-current assets:					
Long-term financial instruments	4	₩ 4,521,099	₩ 4,615,948	$ 3,853	$ 3,933
Long-term investment securities	4,7	339,840,627	369,486,521	289,596	314,859
Investments in associates and joint ventures	8	3,750,673,193	3,495,069,938	3,196,142	2,978,330
Long-term loans	4,5	472,085,202	403,691,278	402,288	344,006
Long-term other receivables	4,5,10	11,722,399	8,455,857	9,989	7,206
Property, plant and equipment	9,26	17,409,797,528	15,462,371,776	14,835,788	13,176,286
Right-of-use assets	10,26	1,095,317,171	1,125,712,493	933,376	959,278
Goodwill and intangible assets	11,26	1,426,596,103	1,118,922,800	1,215,676	953,492
Long-term guarantee deposits	4,5	97,086,163	83,566,701	82,732	71,212
Derivative assets	4,13	54,325,750	40,828,407	46,294	34,792
Deferred tax assets		13,755,713	41,740,920	11,722	35,570
Other non-current assets	26	19,905,132	18,817,099	16,963	16,034
Total non-current assets		₩ 24,695,626,080	₩ 22,173,279,738	$ 21,044,419	$ 18,894,998
Total assets		₩ 39,269,197,410	₩ 39,526,056,607	$ 33,463,312	$ 33,682,196
Liabilities and equity					
Liabilities					
Current liabilities:					
Short-term borrowings	4,12	₩ 2,101,921,411	₩ 1,131,974,169	$ 1,791,156	$ 964,614
Trade payables	4	3,109,918,768	4,928,198,197	2,650,123	4,199,572
Other payables	4,15	1,944,076,734	529,313,420	1,656,648	451,055
Accrued expenses	4	1,330,064,277	1,470,407,321	1,133,417	1,253,010
Advances received		248,435,123	145,159,282	211,704	123,698
Withholdings		643,505,879	705,518,790	548,365	601,209
Current tax liabilities		40,661,439	83,390,901	34,650	71,062
Current portion of long-term debt	4,12	1,287,374,012	1,155,413,760	1,097,038	984,588
Current portion of lease liabilities	4,10	217,459,116	223,202,897	185,308	190,203
Current portion of leasehold deposits received	4	8,736,387	11,569,721	7,445	9,859
Current portion of derivative liabilities	4,13	21,428,046	14,065,053	18,259	11,986
Liabilities held for sale	29	7,410,185	7,865,246	6,314	6,702
Other current liabilities	15	29,330,475	50,301,978	24,993	42,864
Total current liabilities		₩ 10,990,321,852	₩ 10,456,380,735	$ 9,365,420	$ 8,910,422
Non-current liabilities:					
Bonds payable and long-term borrowings	4,12	₩ 11,144,849,788	₩ 8,843,635,957	$ 9,497,103	$ 7,536,119
Lease liabilities	4,10	920,101,305	937,875,544	784,066	799,212
Long-term other payables	4	46,412,881	6,179,602	39,551	5,266
Defined benefit liabilities	14	99,853,777	48,592,812	85,091	41,408
Long-term provisions	15	131,609,748	132,027,862	112,151	112,508
Leasehold deposits received	4	11,650,838	11,280,590	9,928	9,613
Derivative liabilities	4,13	31,168,319	687,454	26,560	586
Financial guarantee liablilities	4,15	2,124,927	252,275	1,811	215
Deferred tax liabilities		102,195,280	879,452,103	87,086	749,427
Other non-current liabilities		33,535,958	67,911	28,578	58
Total non-current liabilities		₩ 12,523,502,821	₩ 10,860,052,110	$ 10,671,925	$ 9,254,412
Total liabilities		₩ 23,513,824,673	₩ 21,316,432,845	$ 20,037,345	$ 18,164,834
Equity					
Equity attributable to owners of the parent:					
Capital stock	1	₩ 468,569,950	₩ 468,569,950	$ 399,293	$ 399,293
Other paid-in capital	16,17	4,133,516,321	4,629,395,914	3,522,383	3,944,948
Retained earnings		10,127,917,146	12,175,219,414	8,630,522	10,375,134
Other components of equity	18	284,195,200	194,895,970	242,177	166,080
Total equity attributable to owners of the parent		₩ 15,014,198,617	₩ 17,468,081,248	$ 12,794,375	$ 14,885,455
Non-controlling interests		₩ 741,174,120	₩ 741,542,514	$ 631,592	$ 631,907
Total equity		₩ 15,755,372,737	₩ 18,209,623,762	$ 13,425,967	$ 15,517,362
Total liabilities and equity		₩ 39,269,197,410	₩ 39,526,056,607	$ 33,463,312	$ 33,682,196

The accompanying notes are an integral part of the interim condensed consolidated financial statements.

SK Innovation Co., Ltd. and its subsidiaries
Interim condensed consolidated statements of comprehensive income (loss)
for the three-month and nine-month periods ended September 30, 2020 and 2019
(In thousands of Korean won and in thousands of U.S. dollar except for earnings (loss) per share)

		Korean won				Translation into U.S. dollar (Note 2)			
		September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited and Restated)		September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited and Restated)	
	Notes	**Three months**	**Nine months**	**Three months**	**Nine months**	**Three months**	**Nine months**	**Three months**	**Nine months**
Sales	19,26	₩ 8,419,203,319	₩ 26,781,782,763	₩ 12,288,082,240	₩ 38,088,087,460	$ 7,174,438	$ 22,822,141	$ 10,471,310	$ 32,456,828
Cost of sales	22	7,948,319,755	27,507,487,590	11,482,999,200	35,609,492,339	6,773,174	23,440,552	9,785,257	30,344,689
Gross profit (loss)		₩ 470,883,564	₩ (725,704,827)	₩ 805,083,040	₩ 2,478,595,121	$ 401,264	$ (618,411)	$ 686,053	$ 2,112,139
Selling and administrative expenses	20,22	499,820,752	1,518,160,219	477,176,404	1,328,295,839	425,923	1,293,702	406,627	1,131,910
Operating profit (loss)		₩ (28,937,188)	₩ (2,243,865,046)	₩ 327,906,636	₩ 1,150,299,282	$ (24,659)	$ (1,912,113)	$ 279,426	$ 980,229
Finance income	21	342,790,943	3,146,380,139	670,015,088	2,428,246,001	292,110	2,681,193	570,954	2,069,234
Finance costs	21	386,555,199	3,350,681,060	794,306,024	2,855,950,957	329,404	2,855,289	676,869	2,433,703
Gain (loss) on investments in associates and joint ventures, net	8,21	75,284,196	(3,582,644)	12,922,927	72,575,072	64,154	(3,053)	11,012	61,845
Other non-operating income	21	16,018,413	56,582,110	35,658,131	94,063,373	13,650	48,217	30,386	80,156
Other non-operating expenses	21	6,359,441	120,193,170	33,509,101	144,407,083	5,419	102,423	28,554	123,057
Profit (loss) before tax		₩ 12,241,724	₩ (2,515,359,671)	₩ 218,687,657	₩ 744,825,688	$ 10,432	$ (2,143,468)	$ 186,355	$ 634,704
Income tax expense (benefit)	23	28,367,353	(601,244,902)	67,430,510	240,148,398	24,173	(512,352)	57,461	204,642
Profit (loss) for the period		₩ (16,125,629)	₩ (1,914,114,769)	₩ 151,257,147	₩ 504,677,290	$ (13,741)	$ (1,631,116)	$ 128,894	$ 430,062
Attributable to:									
Owners of the parent		₩ (23,678,710)	₩ (1,933,462,326)	₩ 132,857,968	₩ 454,544,668	$ (20,178)	$ (1,647,603)	$ 113,215	$ 387,341
Non-controlling interests		7,553,081	19,347,557	18,399,179	50,132,622	6,437	16,487	15,679	42,721
Other comprehensive income (loss)	18								
Items that will not be reclassified subsequently to profit or loss:									
Remeasurement of defined benefit plans		6,047,320	3,640,709	4,648,243	(13,805,721)	5,153	3,102	3,961	(11,765)
Net change in fair value of financial assets at FVOCI		5,296,495	(18,188,237)	(5,883,912)	(8,677,054)	4,513	(15,499)	(5,014)	(7,394)
Net gain on translation of foreign operations		1,135,302	6,619,292	76,042	524,960	967	5,641	65	447
Items that may be reclassified subsequently to profit or loss:									
Net change in fair value of financial assets at FVOCI		87,701	328,539	106,921	270,536	75	280	91	231
Equity adjustments of investments in associates and joint ventures		(14,838,853)	78,969,697	41,250,112	116,028,644	(12,645)	67,294	35,151	98,874
Net gain (loss) on translation of foreign operations		(53,596,196)	65,100,138	89,833,514	186,065,391	(45,672)	55,475	76,552	158,556
Net gain (loss) on valuation of derivative financial instruments for the cash flow hedges		1,231,820	(30,832,972)	(8,043,511)	(9,036,483)	1,050	(26,274)	(6,854)	(7,701)
Total comprehensive income (loss)		₩ (70,762,040)	₩ (1,808,477,603)	₩ 273,244,556	₩ 776,047,563	$ (60,300)	$ (1,541,097)	$ 232,846	$ 661,310
Attributable to:									
Owners of the parent		₩ (79,450,423)	₩ (1,834,444,452)	₩ 254,769,335	₩ 725,389,981	$ (67,704)	$ (1,563,225)	$ 217,102	$ 618,142
Non-controlling interests		8,688,383	25,966,849	18,475,221	50,657,582	7,404	22,128	15,744	43,168
		₩ (70,762,040)	₩ (1,808,477,603)	₩ 273,244,556	₩ 776,047,563	$ (60,300)	$ (1,541,097)	$ 232,846	$ 661,310
Earnings (loss) per share (Korean won and U.S. dollar)	24								
Basic earnings (loss) per share		₩ (283)	₩ (22,816)	₩ 1,505	₩ 5,152	$ (.24)	$ (19.44)	$ 1.28	$ 4.39
Basic earnings (loss) per share of preferred stocks		(283)	(22,816)	1,555	5,202	(.24)	(19.44)	1.33	4.43

The accompanying notes are an integral part of the interim condensed consolidated financial statements.

SK Innovation Co., Ltd. and its subsidiaries
Interim condensed consolidated statements of changes in equity
for the nine-month periods ended September 30, 2020 and 2019
(In thousands of Korean won)

	Capital stock	Additional paid-in capital	Other paid-in capital: Treasury stock	Other paid-in capital: Other	Retained earnings	Other components of equity	Equity attributable to owners of the parent	Non-controlling interests	Total
As of January 1, 2019	₩ 468,569,950	₩ 5,683,247,356	₩ (1,137,897,325)	₩ 83,189,998	₩ 12,930,338,005	₩ 96,999,819	₩ 18,124,447,803	₩ 1,203,534,862	₩ 19,327,982,665
Effect of corrections of prior year error	-	-	-	-	(1,810,627)	-	(1,810,627)	(151,917,814)	(153,728,441)
Restated balance after adjustment	₩ 468,569,950	₩ 5,683,247,356	₩ (1,137,897,325)	₩ 83,189,998	₩ 12,928,527,378	₩ 96,999,819	₩ 18,122,637,176	₩ 1,051,617,048	₩ 19,174,254,224
Total comprehensive income (loss):									
Profit for the period	-	-	-	-	454,544,668	-	454,544,668	50,132,622	504,677,290
Remeasurement of defined benefit plans	-	-	-	-	(13,805,721)	-	(13,805,721)	-	(13,805,721)
Net change in fair value of financial assets at FVOCI	-	-	-	-	-	(8,406,518)	(8,406,518)	-	(8,406,518)
Equity adjustments of investments in associates and joint ventures	-	-	-	-	-	116,028,644	116,028,644	-	116,028,644
Net gain on translation of foreign operations	-	-	-	-	-	186,065,391	186,065,391	524,960	186,590,351
Net gain on valuation of derivative financial instruments for cash flow hedges	-	-	-	-	-	(9,036,483)	(9,036,483)	-	(9,036,483)
Transactions with stockholders recognized directly to equity:									
Stock compensation cost	-	-	-	641,914	-	-	641,914	-	641,914
Dividends	-	-	-	-	(705,754,863)	-	(705,754,863)	(210,133,852)	(915,888,715)
Issuance of hybrid bonds	-	-	-	-	-	-	-	597,559,480	597,559,480
As of September 30, 2019 (Unaudited and Restated)	₩ 468,569,950	₩ 5,683,247,356	₩ (1,137,897,325)	₩ 83,831,912	₩ 12,663,511,462	₩ 381,650,853	₩ 18,142,914,208	₩ 1,489,700,258	₩ 19,632,614,466
As of January 1, 2020	₩ 468,569,950	₩ 5,683,247,356	₩ (1,137,897,325)	₩ 84,045,883	₩ 12,175,219,414	₩ 194,895,970	₩ 17,468,081,248	₩ 741,542,514	₩ 18,209,623,762
Total comprehensive income (loss):									
Profit (loss) for the period	-	-	-	-	(1,933,462,326)	-	(1,933,462,326)	19,347,557	(1,914,114,769)
Remeasurement of defined benefit plans	-	-	-	-	3,640,709	-	3,640,709	-	3,640,709
Net change in fair value of financial assets at FVOCI	-	-	-	-	6,077,935	(23,937,633)	(17,859,698)	-	(17,859,698)
Equity adjustments of investments in associates and joint ventures	-	-	-	-	-	78,969,697	78,969,697	-	78,969,697
Net gain on translation of foreign operations	-	-	-	-	-	65,100,138	65,100,138	6,619,292	71,719,430
Net loss on valuation of derivative financial instruments for cash flow hedges	-	-	-	-	-	(30,832,972)	(30,832,972)	-	(30,832,972)
Transactions with stockholders recognized directly to equity:									
Acquisiton of treasury stock	-	-	(496,175,958)	-	-	-	(496,175,958)	-	(496,175,958)
Stock compensation cost	-	-	-	296,365	-	-	296,365	-	296,365
Dividends	-	-	-	-	(123,558,586)	-	(123,558,586)	(18,830,959)	(142,389,545)
Others	-	-	-	-	-	-	-	(7,504,284)	(7,504,284)
As of September 30, 2020 (Unaudited)	₩ 468,569,950	₩ 5,683,247,356	₩ (1,634,073,283)	₩ 84,342,248	₩ 10,127,917,146	₩ 284,195,200	₩ 15,014,198,617	₩ 741,174,120	₩ 15,755,372,737

(Continued)

SK Innovation Co., Ltd. and its subsidiaries
Interim condensed consolidated statements of changes in equity
for the nine-month periods ended September 30, 2020 and 2019 (cont'd)
(In thousands of U.S. dollar)

		Other paid-in capital							
	Capital stock	Additional paid-in capital	Treasury stock	Other	Retained earnings	Other components of equity	Equity attributable to owners of the parent	Non-controlling interests	Total
As of January 1, 2019	$ 399,293	$ 4,842,989	$ (969,661)	$ 70,890	$ 11,018,609	$ 82,659	$ 15,444,779	$ 1,025,594	$ 16,470,373
Effect of corrections of prior year error	-	-	-	-	(1,543)	-	(1,543)	(129,457)	(131,000)
Restated balance after adjustment	399,293	4,842,989	(969,661)	70,890	11,017,066	82,659	15,443,236	896,137	16,339,373
Total comprehensive income (loss):									
Profit for the period	-	-	-	-	387,341	-	387,341	42,721	430,062
Remeasurement of defined benefit plans	-	-	-	-	(11,765)	-	(11,765)	-	(11,765)
Net change in fair value of financial assets at FVOCI	-	-	-	-	-	(7,163)	(7,163)	-	(7,163)
Equity adjustments of investments in associates and joint ventures	-	-	-	-	-	98,874	98,874	-	98,874
Net gain on translation of foreign operations	-	-	-	-	-	158,556	158,556	447	159,003
Net gain on valuation of derivative financial instruments for cash flow hedges	-	-	-	-	-	(7,701)	(7,701)	-	(7,701)
Transactions with stockholders recognized directly to equity:									
Stock compensation cost	-	-	-	547	-	-	547	-	547
Dividends	-	-	-	-	(601,410)	-	(601,410)	(179,066)	(780,476)
Issuance of hybrid bonds	-	-	-	-	-	-	-	509,211	509,211
As of September 30, 2019 (Unaudited and Restated)	$ 399,293	$ 4,842,989	$ (969,661)	$ 71,437	$ 10,791,232	$ 325,225	$ 15,460,515	$ 1,269,450	$ 16,729,965
As of January 1, 2020	$ 399,293	$ 4,842,989	$ (969,661)	$ 71,620	$ 10,375,134	$ 166,080	$ 14,885,455	$ 631,907	$ 15,517,362
Total comprehensive income (loss):									
Profit (loss) for the period	-	-	-	-	(1,647,603)	-	(1,647,603)	16,487	(1,631,116)
Remeasurement of defined benefit plans	-	-	-	-	3,102	-	3,102	-	3,102
Net change in fair value of financial assets at FVOCI	-	-	-	-	5,179	(20,398)	(15,219)	-	(15,219)
Equity adjustments of investments in associates and joint ventures	-	-	-	-	-	67,294	67,294	-	67,294
Net gain on translation of foreign operations	-	-	-	-	-	55,475	55,475	5,641	61,116
Net loss on valuation of derivative financial instruments for cash flow hedges	-	-	-	-	-	(26,274)	(26,274)	-	(26,274)
Transactions with stockholders recognized directly to equity:									
Acquisiton of treasury stock	-	-	(422,817)	-	-	-	(422,817)	-	(422,817)
Stock compensation cost	-	-	-	253	-	-	253	-	253
Dividends	-	-	-	-	(105,291)	-	(105,291)	(16,046)	(121,337)
Others	-	-	-	-	-	-	-	(6,397)	(6,397)
As of September 30, 2020 (Unaudited)	$ 399,293	$ 4,842,989	$ (1,392,478)	$ 71,873	$ 8,630,521	$ 242,177	$ 12,794,375	$ 631,592	$ 13,425,967

The accompanying notes are an integral part of the interim condensed consolidated financial statements.

SK Innovation Co., Ltd. and its subsidiaries
Interim condensed consolidated statements of cash flows
for the nine-month periods ended September 30, 2020 and 2019
(In thousands of Korean won and in thousands of U.S. dollar)

		Korean won		Translation into U.S. dollar (Note 2)	
	Notes	September 30, 2020 (Unaudited)	September 30, 2019 (Unaudited and Restated)	September 30, 2020 (Unaudited)	September 30, 2019 (Unaudited and Restated)
Cash flows from operating activities:					
Profit (loss) for the period		₩ (1,914,114,769)	₩ 504,677,290	$ (1,631,116)	$ 430,062
Non-cash adjustments	27	689,986,615	1,207,204,628	587,973	1,028,721
Working capital adjustments	27	2,747,351,667	48,907,543	2,341,160	41,677
Interest received		41,189,832	78,627,551	35,100	67,003
Interest paid		(292,984,501)	(264,044,099)	(249,667)	(225,006)
Dividends received		30,589,579	40,893,464	26,067	34,847
Income taxes paid		(180,567,787)	(424,342,506)	(153,871)	(361,604)
Net cash provided by operating activities		₩ 1,121,450,636	₩ 1,191,923,871	$ 955,646	$ 1,015,700
Cash flows from investing activities:					
Net change in long-term and short-term financial instruments		₩ 1,052,902,502	₩ 471,753,010	$ 897,233	$ 402,005
Acquisition of long-term investment securities		(17,103,657)	(93,529,801)	(14,575)	(79,702)
Disposal of long-term investment securities		24,306,445	20,016,857	20,713	17,057
Acquisition of investments in associates and joint ventures		(207,495,683)	(394,103,759)	(176,818)	(335,836)
Disposal of investments in associates and joint ventures		4,100,448	2,436,471	3,494	2,076
Acquisition of property, plant and equipment		(2,717,101,140)	(1,826,689,688)	(2,315,382)	(1,556,617)
Disposal of property, plant and equipment		4,521,660	42,774,283	3,853	36,450
Acquisition of intangible assets		(72,914,741)	(158,566,596)	(62,134)	(135,123)
Disposal of intangible assets		6,513,835	9,625,890	5,551	8,203
Net change in short-term loans		17,103,051	5,697,048	14,574	4,855
Increase in long-term loans		(87,534,190)	(109,787,050)	(74,592)	(93,555)
Decrease in long-term loans		29,454,020	-	25,099	-
Net change in guarantee deposits		(28,414,713)	(11,883,045)	(24,214)	(10,126)
Cash flow from business combination		(448,781,250)	-	(382,430)	-
Cash flow from others		19,944,818	756,973	16,996	645
Disposal of assets held for sale		66,807,149	-	56,930	-
Net cash used in investing activities		₩ (2,353,691,446)	₩ (2,041,499,407)	$ (2,005,702)	$ (1,739,668)
Cash flows from financing activities:					
Net change in short-term borrowings		₩ 966,352,994	₩ 280,427,237	$ 823,479	$ 238,967
Proceeds from bonds payable and long-term borrowings		3,296,147,068	3,217,403,859	2,808,817	2,741,716
Repayment of bonds payable and long-term borrowings		(877,494,205)	(998,411,887)	(747,758)	(850,798)
Repayment of lease liabilities		(139,824,479)	(144,183,428)	(119,152)	(122,866)
Net change in leasehold deposits received		(2,534,541)	326,626	(2,160)	278
Dividends paid		(142,906,937)	(914,783,068)	(121,778)	(779,534)
Acquisiton of treasury stock		(496,175,958)	-	(422,817)	-
Issuance of hybrid bonds		-	597,559,480	-	509,211
Net cash provided by financing activities		₩ 2,603,563,942	₩ 2,038,338,819	$ 2,218,631	$ 1,736,974
Net increase in cash and cash equivalents		₩ 1,371,323,132	₩ 1,188,763,283	$ 1,168,575	$ 1,013,006
Cash and cash equivalents at the beginning of the period		2,196,001,396	1,825,558,285	1,871,326	1,555,653
Effects of exchange rate changes on cash and cash equivalents		27,354,967	45,956,114	23,311	39,162
Cash and cash equivalents at the end of the period		₩ 3,594,679,495	₩ 3,060,277,682	$ 3,063,212	$ 2,607,821

The accompanying notes are an integral part of the interim condensed consolidated financial statements.

1. General

1.1 Overview of the Company

SK Innovation Co., Ltd. (the "Company"), a parent company in accordance with Korean International Financial Reporting Standards ("KIFRS") 1110 *Consolidated Financial Statements*, was spun off by SK Holdings Co., Ltd. on July 1, 2007, under the laws of the Republic of Korea to engage in i) manufacturing and selling of petroleum, petrochemical and lubricant products, and ii) conducting alternative energy business as well as iii) oil exploration and production activities. The Company was re-listed in the Korea Exchange on July 25, 2007. The Company's capital stock at the date of its incorporation amounted to ₩463,110 million, which increased to ₩468,570 million as of September 30, 2020 through additional increase in paid-in capital. As of September 30, 2020, major stockholders of the Company and their equity interests include SK Holdings Co., Ltd. and related parties (33.4%) and the National Pension Service (10.9%). The Company's headquarter is located at 26 Jongro, Jongro-gu, Seoul, Korea.

The Company changed its name from SK Energy Co., Ltd. to SK Innovation Co., Ltd. on January 1, 2011.

1.2 Consolidated subsidiaries

As of September 30, 2020, the consolidated subsidiaries are as follows:

Subsidiary	Location	Primary business	Largest stockholder	Ownership percentage (%)
SK Mobile Energy Co., Ltd.	Korea	Manufacturing of lithium battery	SK Innovation Co., Ltd.	100
SK Innovation Insurance (Bermuda)., Ltd.	Bermuda	Insurance	SK Innovation Co., Ltd.	100
SK USA, Inc.	USA	Business consulting	SK Innovation Co., Ltd.	51
SK E&P Company, Ltd.	USA	Oil exploration	SK Innovation Co., Ltd.	100
SK E&P America, Inc.	USA	Investment in equity	SK Innovation Co., Ltd.	100
Blue Dragon Energy Co., Limited.	Hong Kong	Investment in equity	SK Innovation Co., Ltd.	100
SK Battery Hungary Kft.	Hungary	Manufacturing of lithium battery	SK Innovation Co., Ltd.	100
SK Battery America, Inc.	USA	Manufacturing of lithium battery	SK Innovation Co., Ltd.	100
SK Battery Manufacturing Kft.	Hungary	Manufacturing of lithium battery	SK Innovation Co., Ltd.	100
Happykium Co., Ltd.	Korea	Service	SK Innovation Co., Ltd.	100
Blue Sky United Energy Co., Ltd.	China	Manufacturing of lithium battery	SK Innovation Co., Ltd.	100
SK Future Energy (Shanghai) Co., Ltd.	China	Selling lithium battery	SK Innovation Co., Ltd.	100
Super Seed NY, LLC.	USA	Investment in equity	SK USA, Inc.	100
SK Plymouth, LLC	USA	Oil exploration and production	SK E&P America, Inc.	100
SK Permian, LLC	USA	Oil exploration and production	SK E&P America, Inc.	100
SK E&P Operations America, LLC	USA	Oil exploration and production	SK E&P America, Inc.	100
SK Nemaha, LLC	USA	Oil exploration and production	SK E&P America, Inc.	100
Jiangsu SK Battery Certification Center	China	Certification and evaluation of lithium battery	Blue Dragon Energy Co., Ltd.	100
SK Energy Co., Ltd.	Korea	Manufacturing and selling of petroleum products	SK Innovation Co., Ltd.	100
Netruck Co., Ltd.	Korea	Transporting and selling of petroleum	SK Energy Co., Ltd.	100
Jeju United FC Co., Ltd.	Korea	Operating sports club	SK Energy Co., Ltd.	100
SK Energy Road Investment Co., Ltd.	Cayman	Investment in equity	SK Energy Co., Ltd.	100
SK Energy Hong Kong Co., Ltd.	Hong Kong	Investment in equity	SK Energy Co., Ltd.	100
Happydidim Co., Ltd.	Korea	Service	SK Energy Co., Ltd.	100
SK Energy Road Investment (HK) Co., Ltd.	Hong Kong	Investment in equity	SK Energy Road Investment Co., Ltd.	100
Ningbo SK Baoying Asphalt Storage Co., Ltd.	China	Manufacturing	SK Energy Road Investment (HK) Co., Ltd.	51
Hefei SK Baoying Asphalt Co., Ltd.	China	Manufacturing	SK Energy Road Investment (HK) Co., Ltd.	51
Chongqing SK Asphalt Co., Ltd.	China	Manufacturing	SK Energy Road Investment (HK) Co., Ltd.	51
SK Asphalt (Shanghai) Co., Ltd.	China	Distribution business	SK Energy Road Investment (HK) Co., Ltd.	100
SK Incheon Petrochem Co., Ltd.	Korea	Manufacturing and selling of petroleum products	SK Innovation Co., Ltd.	100
SK Trading International Co., Ltd.	Korea	Trading of petroleum products	SK Innovation Co., Ltd.	100
SK Energy International Pte. Ltd.	Singapore	Trading	SK Trading International Co., Ltd.	100
SK Energy Europe, Ltd.	U.K.	Trading	SK Energy International Pte. Ltd.	100

1.2 Consolidated subsidiaries (cont'd)

Subsidiary	Location	Primary business	Largest stockholder	Ownership percentage (%)
SK Energy Americas, Inc.	USA	Trading	SK Energy International Pte. Ltd.	100
SK Terminal B.V.	Netherlands	Investment in equity	SK Energy International Pte. Ltd.	100
SK Global Chemical Co., Ltd.	Korea	Selling and manufacturing of petrochemical products	SK Innovation Co., Ltd.	100
SK Global Chemical (China) Holding Co., Ltd.	China	Investment in equity	SK Global Chemical Co., Ltd.	100
SK Global Chemical China, Ltd.	Hong Kong	Investment in equity	SK Global Chemical Co., Ltd.	100
SK Global Chemical Americas, Inc.	USA	Selling of petrochemical products	SK Global Chemical Co., Ltd.	100
SK Global Chemical Singapore Pte. Ltd.	Singapore	Selling of petrochemical products	SK Global Chemical Co., Ltd.	100
SK Global Chemical Investment Hong Kong Ltd.	Hong Kong	Investment in equity	SK Global Chemical Co., Ltd.	100
SK Global Chemical Japan Co., Ltd.	Japan	Selling of petrochemical products	SK Global Chemical Co., Ltd.	100
Happymoeum Co., Ltd.	Korea	Service	SK Global Chemical Co., Ltd.	100
SK Functional Polymer, S.A.S	France	manufacturing and selling of petrochemical products	SK Global Chemical Co., Ltd.	100
SK Global Chemical International Trading (Shanghai) Co., Ltd.	China	Selling of petrochemical products	SK Global Chemical China, Ltd.	100
SK Global Chemical International Trading (Guangzhou) Co., Ltd.	China	Selling of petrochemical products	SK Global Chemical China, Ltd.	100
Ningbo SK Performance Rubber Co., Ltd.	China	Manufacturing	SK Global Chemical Investment Hong Kong Ltd.	80
SK Primacor Americas LLC	USA	manufacturing and selling of petrochemical products	SK Global Chemical Americas, Inc.	100
SK Primacor Europe, S.L.U.	Spain	manufacturing and selling of petrochemical products	SK Global Chemical Americas, Inc.	100
SK Saran Americas LLC	USA	manufacturing and selling of petrochemical products	SK Global Chemical Americas, Inc.	100
SK Lubricants Co., Ltd.	Korea	Manufacturing and selling of lubricants and base oil	SK Innovation Co., Ltd.	100
SK Energy Lubricants (Tianjin) Co., Ltd.	China	Manufacturing and selling of lubricants and base oil	SK Lubricants Co., Ltd.	100
SK Lubricants Americas, Inc.	USA	Selling of lubricants and base oil	SK Lubricants Co., Ltd.	100
SK Lubricants Europe B.V.	Netherlands	Selling of lubricants and base oil	SK Lubricants Co., Ltd.	100
SK Lubricants Japan Co., Ltd.	Japan	Selling of lubricants and base oil	SK Lubricants Co., Ltd.	100
Yubase Manufacturing Asia Corporation (*1)	Korea	Manufacturing of base oil	SK Lubricants Co., Ltd.	70
SK Lubricants & Oils India Pvt. Ltd.	India	Selling of lubricants	SK Lubricants Co., Ltd.	100
Iberian Lube Base Oils Company, S.A. (*1)	Spain	Manufacturing and selling of base oil	SK Lubricants Co., Ltd.	70
SK Lubricants Russia LLC	Russia	Selling of lubricants	SK Lubricants Co., Ltd.	100
SK IE technology Co., Ltd.	Korea	Manufacturing of plastic film	SK Innovation Co., Ltd.	100
SK Hi-tech Battery Materials (Jiang su) Co., Ltd.	China	Manufacturing of separator for secondary batteries	SK IE Technology Co., Ltd.	100
SK Hi-tech Battery Materials Poland Sp. Zo.o.	Poland	Manufacturing of separator for secondary batteries	SK IE Technology Co., Ltd.	100

(*1) The Group has a call option to purchase interests held by a co-participant and determines that it has control over the subsidiary because such call option is a valid potential voting right.

1.3 Changes in scope of consolidation

Details of changes in scope of consolidation for the nine-month period ended September 30, 2020 are as follows:

Description	Subsidiary	Details
Included	Super Seed NY, LLC.	Newly established through contribution
Included	SK Future Energy (Shanghai) Co., Ltd.	Newly established through contribution
Excluded	Shandong SK Hightech Oil Co., Ltd.	Classified as a joint venture

2. Basis of preparation and summary of significant accounting policies

The Company and its subsidiaries (collectively referred to as the “Group”) maintain their official accounting records in Korean won and prepares interim condensed consolidated financial statements in conformity with Korean International Financial Reporting Standards (“KIFRS”), in the Korean language. Accordingly, these interim condensed consolidated financial statements are intended for use by those who are informed about KIFRS and Korean practices. The Group’s interim condensed consolidated financial statements have been restructured and translated into English with certain expanded descriptions from the Korean language financial statements. Certain information included in the Korean language financial statements, but not required for a presentation of the Group’s consolidated financial position, comprehensive income, changes in equity or cash flows, is not presented in the Group’s interim condensed consolidated financial statements.

The Group’s interim condensed consolidated financial statements are stated in Korean won, the currency of the country in which the Group is incorporated and operates. The translation of Korean won amounting into U.S. dollar amounts is included solely for the convenience of readers of the consolidated financial statements and has been made at the rate of ₩1,173.5 to USD1.00, the basic exchange rate in the Seoul Money Brokerage Service for cable transfers in Korean won on the last business day of the period ended September 30, 2020. Such translations into U.S. dollar should not be construed as representations that the Korean won amounts could be converted into U.S. dollar at that or any other rate.

2.1 Basis of preparation

The Group prepares statutory interim condensed consolidated financial statements in the Korean language in accordance with KIFRS 1034 *Interim Financial Reporting* enacted by the *Act on External Audit of Stock Companies*. The accompanying interim condensed 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 there on, the Korean version, which used for regulatory reporting purposes, shall prevail.

The interim condensed 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 financial statements as of December 31, 2019.

2.2 Significant accounting policies

The significant accounting policies used for the preparation of the interim condensed consolidated financial statements as of and for the three-month and nine-month periods ended September 30, 2020 are the same as the accounting policies adopted for the preparation of consolidated financial statements as of and for the year ended December 31, 2019, except for the adoption of new and revised KIFRSs applied in the current period, which are summarized below.

2.2.1. New and revised KIFRSs adopted in the current period

The Group has applied amendments to KIFRS issued that are mandatorily effective for accounting periods beginning on or after January 1, 2020.

Amendments to KIFRS 1001 and KIFRS 1008: *Definition of Material*

The amendments to KIFRS 1001 *Presentation of Financial Statements* and KIFRS 1008 *Accounting Policies, Changes in Accounting Estimates and Errors* were made to align the definition of ‘material’ across the standards and to clarify certain aspects of the definition. The new definition states that, ’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.

The amendments clarify that materiality will depend on the nature or magnitude of information, either individually or in combination with other information, in the context of the financial statements. A misstatement of information is material if it could reasonably be expected to influence decisions made by the primary users. The amendments do not have any significant impact on the Group’s financial position or management performance.

2.2.1. New and revised KIFRSs adopted in the current period (cont'd)

Amendments to KIFRS 1103: *Definition of a Business*

The amendment 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. The amendments do not have any significant impact on the Group's financial position or management performance.

Amendments to KIFRS 1107 *Financial Instruments: Disclosures*, KIFRS 1109 *Financial Instruments*, and KIFRS 1039 *Financial Instruments: Recognition and Measurement*

The amendments provide a number of reliefs, which apply to all hedging relationships that are directly affected by interest rate benchmark reform. A hedging relationship is affected if the reform gives rise to uncertainties about the timing and or amount of benchmark-based cash flows of the hedged item or the hedging instrument. The amendments do not have any significant impact on the Group's financial position or management performance.

2.2.2. New and revised KIFRS issued, but not yet effective

Amendments to KIFRS 1116: *COVID-19 related Rent Concessions*

The amendment to KIFRS 1116 provides lessees with a practical expedient to elect not to assess whether rent concessions arising as a direct consequence of the COVID-19 pandemic constitutes a lease modification. Lessees may apply the practical expedient only if all conditions of the practical expedient are met and lessees that makes this election accounts for any change in lease payments resulting from the rent concessions the same way it would account for the change applying this standard if the change were not a lease modification. The amendment may be retrospectively applied to annual reporting periods beginning on or after June 1, 2020 and earlier application is permitted. The amendment is not expected to have significant impact on the Group's financial position or management performance.

3. Significant accounting judgments, estimates and assumptions

When preparing the interim condensed consolidated financial statements, management is required to make judgments, estimates and assumptions that affect the reported amount of assets, liabilities, revenues and expenses. Actual results may be different from those estimates. Those accounting judgments made by management for the preparation of the interim condensed consolidated financial statements as of and for the three-month and nine-month periods ended September 30, 2020 are the same as those used for the preparation of consolidated financial statements as of and for the year ended December 31, 2019.

In order to prevent the spread of COVID-19, various prevention and control measures including restrictions on movement are being implemented worldwide, and as a result, the global economy is being affected extensively. In particular, in the case of the petroleum and chemical business operated by the Group, the volatility of the market increased abnormally as a result of the impact of COVID-19. As of September 30, 2020, uncertainties relating to the impact of COVID-19 have not yet been resolved, and these uncertainties may have a significant impact the financial performance and cash flows of the Group.

4. Financial instruments

Details of financial assets as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)				
	Financial assets at FVTPL (*1)	Financial assets at amortized cost	Financial assets at FVOCI (*2)	Derivatives designated as hedging instruments	Total
Current assets:					
Cash and cash equivalents	₩ 975,638	₩ 2,619,041	₩ -	₩ -	₩ 3,594,679
Short-term financial instruments	1,247,350	68,219	-	-	1,315,569
Trade receivables	-	2,820,166	-	-	2,820,166
Current portion of long-term investment securities	432	-	-	-	432
Short-term loans	-	37,224	-	-	37,224
Other receivables	-	528,378	-	-	528,378
Accrued income	-	9,631	-	-	9,631
Current portion of guarantee deposits	-	173,713	-	-	173,713
Current portion of derivative assets	39,050	-	-	385	39,435
	₩ 2,262,470	₩ 6,256,372	₩ -	₩ 385	₩ 8,519,227
Non-current assets:					
Long-term financial instruments	₩ 4,452	₩ 69	₩ -	₩ -	₩ 4,521
Long-term investment securities	108,072	-	231,769	-	339,841
Long-term loans	-	472,085	-	-	472,085
Long-term other receivables	-	11,722	-	-	11,722
Long-term guarantee deposits	-	97,086	-	-	97,086
Derivative assets	54,326	-	-	-	54,326
	₩ 166,850	₩ 580,962	₩ 231,769	₩ -	₩ 979,581
	₩ 2,429,320	₩ 6,837,334	₩ 231,769	₩ 385	₩ 9,498,808

	December 31, 2019				
	Financial assets at FVTPL (*1)	Financial assets at amortized cost	Financial assets at FVOCI (*2)	Derivatives designated as hedging instruments	Total
Current assets:					
Cash and cash equivalents	₩ 433,828	₩ 1,762,173	₩ -	₩ -	₩ 2,196,001
Short-term financial instruments	2,067,931	308,163	-	-	2,376,094
Trade receivables	-	4,138,302	-	-	4,138,302
Current portion of long-term investment securities	1,051	-	-	-	1,051
Short-term loans	-	34,480	-	-	34,480
Other receivables	9,653	739,860	-	-	749,513
Accrued income	-	5,184	-	-	5,184
Current portion of guarantee deposits	-	123,852	-	-	123,852
Current portion of derivative assets	34,458	-	-	-	34,458
	₩ 2,546,921	₩ 7,112,014	₩ -	₩ -	₩ 9,658,935
Non-current assets:					
Long-term financial instruments	₩ 4,528	₩ 88	₩ -	₩ -	₩ 4,616
Long-term investment securities	92,144	-	277,343	-	369,487
Long-term loans	-	403,691	-	-	403,691
Long-term other receivables	-	8,456	-	-	8,456
Long-term guarantee deposits	-	83,567	-	-	83,567
Derivative assets	40,828	-	-	-	40,828
	₩ 137,500	₩ 495,802	₩ 277,343	₩ -	₩ 910,645
	₩ 2,684,421	₩ 7,607,816	₩ 277,343	₩ -	₩ 10,569,580

(*1) FVTPL: Fair value through profit or loss
(*2) FVOCI: Fair value through other comprehensive income

4. Financial instruments (cont'd)

Details of financial liabilities as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)			
	Financial liabilities at FVTPL	Financial liabilities at amortized cost	Derivatives designated as hedging instruments	Total
Current liabilities:				
Short-term borrowings	₩ -	₩ 2,101,921	₩ -	₩ 2,101,921
Trade payables	-	3,109,919	-	3,109,919
Other payables	887	1,943,190	-	1,944,077
Accrued expenses	-	1,330,064	-	1,330,064
Current portion of long-term debt	-	1,287,374	-	1,287,374
Current portion of lease liabilities	-	217,459	-	217,459
Current portion of leasehold deposits received	-	8,736	-	8,736
Current portion of derivative liabilities	21,344	-	84	21,428
	₩ 22,231	₩ 9,998,663	₩ 84	₩ 10,020,978
Non-current liabilities:				
Bonds payable and long-term borrowings	₩ -	₩ 11,144,850	₩ -	₩ 11,144,850
Lease liabilities	-	920,101	-	920,101
Long-term other payables	38,047	8,366	-	46,413
Leasehold deposits received	-	11,651	-	11,651
Derivative liabilities	1,829	-	29,339	31,168
Financial guarantee liabilities	-	2,125	-	2,125
	₩ 39,876	₩ 12,087,093	₩ 29,339	₩ 12,156,308
	₩ 62,107	₩ 22,085,756	₩ 29,423	₩ 22,177,286

	December 31, 2019			
	Financial liabilities at FVTPL	Financial liabilities at amortized cost	Derivatives designated as hedging instruments	Total
Current liabilities:				
Short-term borrowings	₩ -	₩ 1,131,974	₩ -	₩ 1,131,974
Trade payables	-	4,928,198	-	4,928,198
Other payables	41,057	488,256	-	529,313
Accrued expenses	-	1,470,407	-	1,470,407
Current portion of long-term debt	-	1,155,414	-	1,155,414
Current portion of lease liabilities	-	223,203	-	223,203
Current portion of leasehold deposits received	-	11,570	-	11,570
Current portion of derivative liabilities	13,896	-	169	14,065
	₩ 54,953	₩ 9,409,022	₩ 169	₩ 9,464,144
Non-current liabilities:				
Bonds payable and long-term borrowings	₩ -	₩ 8,843,636	₩ -	₩ 8,843,636
Lease liabilities	-	937,876	-	937,876
Long-term other payables	875	5,305	-	6,180
Leasehold deposits received	-	11,281	-	11,281
Derivative liabilities	687	-	-	687
Financial guarantee liabilities	-	252	-	252
	₩ 1,562	₩ 9,798,350	₩ -	₩ 9,799,912
	₩ 56,515	₩ 19,207,372	₩ 169	₩ 19,264,056

The Group uses the following hierarchy for determining and disclosing the fair value of financial instruments by valuation technique. The levels of hierarchy of fair value are as follows:

Classification	Significance of input variables
Level 1	Quoted (unadjusted) prices in active markets for identical assets or liabilities
Level 2	Other techniques for which all inputs that have a significant effect on the recorded fair value are observable, either directly or indirectly
Level 3	Techniques that use inputs that have a significant effect on the recorded fair value that are not based on observable market data

4. Financial instruments (cont'd)

Fair values of financial instruments by hierarchy level as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)			
	Fair value	Level 1	Level 2	Level 3
Financial assets:				
Financial assets at FVTPL (Exclusion of derivative assets)	₩ 2,335,944	₩ 2,222,988	₩ -	₩ 112,956
Financial assets at FVOCI	231,769	158,221	-	73,548
Derivative assets	93,761	-	93,761	-
	₩ 2,661,474	₩ 2,381,209	₩ 93,761	₩ 186,504
Financial liabilities:				
Financial liabilities at FVTPL (Exclusion of derivative liabilities)	₩ 38,934	₩ -	₩ -	₩ 38,934
Derivative liabilities	52,596	-	52,596	-
	₩ 91,530	₩ -	₩ 52,596	₩ 38,934

	December 31, 2019			
	Fair value	Level 1	Level 2	Level 3
Financial assets:				
Financial assets at FVTPL (Exclusion of derivative assets)	₩ 2,609,135	₩ 2,501,759	₩ -	₩ 107,376
Financial assets at FVOCI	277,343	205,757	-	71,586
Derivative assets	75,286	-	75,286	-
	₩ 2,961,764	₩ 2,707,516	₩ 75,286	₩ 178,962
Financial liabilities:				
Financial liabilities at FVTPL (Exclusion of derivative liabilities)	₩ 41,932	₩ -	₩ -	₩ 41,932
Derivative liabilities	14,752	-	14,752	-
	₩ 56,684	₩ -	₩ 14,752	₩ 41,932

The Group recognizes transfers between levels at the time of events or changes in circumstances that result in shifts between levels, and there were no transfers between levels 1 and 2 for the nine-month period ended September 30, 2020.

Changes in level 3 financial instruments for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended September 30, 2020 (Unaudited)						
	Beginning balance	Acquisition	Disposals	Profit or loss	Other comprehens-ive income	Others	Ending balance
Financial assets:							
Financial assets at FVTPL	₩ 107,376	₩ 17,104	₩ (11,528)	₩ 3	₩ -	₩ 1	₩ 112,956
Financial assets at FVOCI	71,586	-	(1)	-	-	1,963	73,548
Financial liabilities:							
Financial liabilities at FVTPL	₩ 41,932	₩ -	₩ (3,125)	₩ -	₩ -	₩ 127	₩ 38,934

4. Financial instrument (cont'd)

	For the nine-month period ended September 30, 2019 (Unaudited)						
	Beginning balance	Acquisition	Disposals	Profit or loss	Other comprehensive income	Others	Ending balance
Financial assets:							
Financial assets at FVTPL	₩ 95,281	₩ 20,269	₩ (15,295)	₩ 156	₩ -	₩ 719	₩ 101,130
Financial assets at FVOCI	85,977	2,096	-	-	-	1,064	89,137
Financial liabilities:							
Financial liabilities at FVTPL	₩ 6,584	₩ -	₩ (2,700)	₩ -	₩ -	₩ 288	₩ 4,172

Descriptions of the inputs and the valuation techniques measuring the fair value of financial instruments classified as Level 2 and Level 3 are as follows:

1) Currency forward and swap
Fair value of currency forward and currency swap was measured, in principle, by the posted "forward rate" of the period corresponding to the remaining maturity of the evaluation subject as of September 30, 2020. If the posted "forward rate" of the period corresponding to the remaining maturity of the evaluation subject does not exist, the currency forward and currency swap were measured by the estimated "forward rate" of the period similar to the remaining maturity by the interpolation method. Discount rate used in fair value measurement was determined by the yield curve derived from the posted interest rate as of September 30, 2020.

2) Commodity swap
Fair value of commodity swap was measured, in principle, by the posted "future price" of the period corresponding to the remaining maturity of the evaluation subject as of September 30, 2020. In addition, the discount rate used to measure the fair value of the spot swap was determined using the yield curve derived from the interest rate announced on the market at the end of the reporting period.

3) Interest rate swap
Fair value of interest rate swap was measured, in principle, by the posted "interest rate of swap" of the period corresponding to the remaining maturity of the evaluation subject as of September 30, 2020. If the posted "interest rate of swap" of the period corresponding to the remaining maturity of the evaluation subject does not exist, the interest rate swap was measured by the estimated "interest rate of swap" of the period similar to the remaining maturity by the interpolation.

4) Debt securities
Fair value of debt securities was measured by future cash flows discounted at the market rate that reflects similar credit rating to debt issuer.

5) Investments in non-listed companies
The fair value of investments in non-listed companies was measured using the Discounted Cash Flow model and certain assumptions which were not based on observable market prices or rates, such as for sales growth, pre-tax profit margin, and weighted average cost of capital, were used for estimating the future cash flow. The weighted average cost of capital for discounting the future cash flows was calculated applying the Capital Asset Pricing Model ("CAPM"). As the Group determined that the effect of the above-mentioned assumptions and estimates for measuring the fair value of investments in non-listed companies was significant, the fair value measurement of investments in non-listed companies was classified as Level 3 in the fair value hierarchy.

6) Convertible bond securities
The fair value of the convertible debt securities was measured at the sum of the fair value of the elements of common bonds that did not include conversion rights and the conversion rights that were embedded derivative instruments (call option). The fair value of common bonds that did not include conversion rights was measured by discounting the future cash flows of the bonds by applying market interest rates applicable to companies with similar credit ratings to convertible bond issuers. The fair value of the conversion rights was measured using the option pricing model. Stock price volatility, a significant input variable used to measure the fair value of the conversion rights, was estimated based on historical stock price changes. As the Group determined that the fair value of the conversion rights was a significant portion for measuring the fair value of the convertible debt securities, the fair value measurement of the convertible debt securities was classified as Level 3 in the fair value hierarchy.

4. Financial instruments (cont'd)

7) Contingent consideration
The fair value of contingent consideration was measured at present value of the probability-weighted average of consideration to be received from each scenario based on estimate of net income before interest and tax for each scenario.

For the nine-month period ended September 30, 2020, there was no change in valuation techniques used for measuring the fair value of financial instruments classified as Level 2 and Level 3.

5. Trade and other receivables

Details of trade and other receivables as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)			December 31, 2019		
	Cost	Loss allowance	Book value	Cost	Loss allowance	Book value
Trade receivables	₩ 3,098,204	₩ (278,038)	₩ 2,820,166	₩ 4,416,160	₩ (277,858)	₩ 4,138,302
Short-term loans	41,761	(4,537)	37,224	39,017	(4,537)	34,480
Other receivables	551,590	(23,212)	528,378	771,854	(22,341)	749,513
Accrued income	9,631	-	9,631	5,184	-	5,184
Current portion of guarantee deposits	173,713	-	173,713	123,852	-	123,852
Long-term trade receivables	91	(91)	-	91	(91)	-
Long-term loans	585,426	(113,341)	472,085	530,331	(126,640)	403,691
Long-term other receivables	11,722	-	11,722	8,456	-	8,456
Long-term guarantee deposits	97,086	-	97,086	83,567	-	83,567
	₩ 4,569,224	₩ (419,219)	₩ 4,150,005	₩ 5,978,512	₩ (431,467)	₩ 5,547,045

6. Inventories

Details of inventories as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)			December 31, 2019		
	Cost	Valuation allowance	Book value	Cost	Valuation allowance	Book value
Merchandise	₩ 22,986	₩ (1,199)	₩ 21,787	₩ 7,626	₩ -	₩ 7,626
Finished goods	1,275,164	(41,293)	1,233,871	1,757,710	(28,760)	1,728,950
Semi-finished goods	705,430	(37,325)	668,105	897,172	(32,206)	864,966
Raw materials	1,156,012	(26,080)	1,129,932	1,609,472	(2,647)	1,606,825
Materials in transit	1,307,032	-	1,307,032	2,139,653	-	2,139,653
Supplies	126,117	(149)	125,968	114,803	(1,005)	113,798
Others	50,707	-	50,707	33,392	-	33,392
	₩ 4,643,448	₩ (106,046)	₩ 4,537,402	₩ 6,559,828	₩ (64,618)	₩ 6,495,210

Loss on valuation of inventories (including that incurred from loss on valuation of inventories of assets held for sale), which is included in cost of sales was ₩41,490 million for the nine-month period ended September 30, 2020, and reversal of valuation allowances on inventories, which was deducted from cost of sales, was ₩244,788 million for the nine-month period ended September 30, 2019.

7. Long-term investment securities

Details of long-term investment securities as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)		December 31, 2019	
	Cost	Book value	Cost	Book value
Financial assets at FVOCI:				
Debt securities	₩ 11,834	₩ 12,120	₩ 18,869	₩ 18,643
Equity securities (*1)	296,492	219,649	303,772	258,700
	₩ 308,326	₩ 231,769	₩ 322,641	₩ 277,343
Financial assets at FVTPL:				
Debt securities	₩ 1,000	₩ 1,000	₩ 1,000	₩ 1,000
Capital investments, etc.	104,105	107,503	88,796	92,195
	₩ 105,105	₩ 108,503	₩ 89,796	₩ 93,195
	₩ 413,431	₩ 340,272	₩ 412,437	₩ 370,538

(*1) The Group applied the irrevocable option to designate equity instruments that is held for strategic investment as items measured at fair value through other comprehensive income, not held for trading at the date of initial application of KIFRS 1109.

Details of long-term investment securities as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)		December 31, 2019	
	Cost	Book value	Cost	Book value
Equity securities traded in an active market	₩ 220,524	₩ 146,101	₩ 229,830	₩ 187,114
Equity securities not traded in an active market	75,968	73,548	73,942	71,586
Debt securities traded in an active market	11,834	12,120	18,869	18,643
Debt securities not traded in an active market	1,000	1,000	1,000	1,000
Capital investments, etc.	104,105	107,503	88,796	92,195
	₩ 413,431	₩ 340,272	₩ 412,437	₩ 370,538
Less: Current portion	(432)	(432)	(1,051)	(1,051)
	₩ 412,999	₩ 339,840	₩ 411,386	₩ 369,487

Changes in long-term investment securities for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended	
	September 30, 2020 (Unaudited)	September 30, 2019 (Unaudited)
Beginning balance	₩ 370,538	₩ 335,775
Acquisitions	17,104	93,530
Disposals	(24,940)	(20,198)
Valuations	(24,758)	(10,006)
Others	2,328	2,621
Ending balance	₩ 340,272	₩ 401,722

8. Investments in associates, joint ventures and joint operations

Details of investments in associates and joint ventures as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

			September 30, 2020 (Unaudited)			December 31, 2019
	Location	Ownership percentage (%)	Acquisition cost	Proportionate net assets	Book value	Book value
Daehan Oil Pipeline Corp. (*1)	Korea	41.0	₩ 146,183	₩ 332,661	₩ 347,508	₩ 341,756
Peru LNG Company, LLC.	USA	20.0	288,543	266,277	266,171	286,729
SK China Company, Ltd.	China	33.4	728,018	765,525	719,671	712,536
SK Investment Management Co., Ltd. (*2)	China	9.6	1,094	1,094	1,094	1,094
SK Technology Innovation Company	Cayman	29.5	52,548	26,969	26,969	26,547
Troika Resources Investment PEF (*2,3)	Korea	10.1	36,320	444	444	652
Gemini Partners Pte. Ltd. (*3)	Singapore	20.0	12,091	2,183	2,183	2,689
Zhejiang Shenxin SK Packaging Co., Ltd. (*4)	China	34.0	3,896	10,358	5,788	13,793
Hana Alternative Landchip Private REITs 33rd (*1,5)	Korea	48.3	161,500	192,485	192,485	195,590
SK MENA Investment B.V.	Netherlands	34.6	15,579	16,056	16,056	15,839
SK Latin America Investment S.A.	Spain	34.6	15,360	15,079	15,079	14,330
Shanghai-Gaoqiao SK Solvent Co., Ltd. (*5)	China	50.0	5,327	22,171	22,171	5,089
Netruck Franz Co., Ltd. (*5)	Hong Kong	50.0	5,541	7,137	7,137	6,916
SK BRASIL LTDA (*3)	Brazil	23.4	1,602	162	162	162
Oilhub Korea Yeosu Corporation (*1,2)	Korea	11.0	14,810	23,210	25,683	24,591
Korea Consortium Kazakh B.V.	Kazakhstan	25.0	172	-	-	-
SK International Investment Singapore Pte. Ltd. (*3,5)	Singapore	16.7	18,455	-	-	-
Yemen LNG Company, Ltd. (*2,3)	Bermuda	6.9	1	-	-	-
Korea Ras Laffan LNG Ltd. (*1,2)	Bermuda	8.0	3,426	43,620	43,620	51,804
Korea LNG Ltd. (*1,2)	Bermuda	16.0	2	36,435	36,435	37,246
Jinwha SK Baoying Asphalt Co., Ltd.	China	25.0	1,233	1,671	1,671	1,593
Horizon Singapore Terminals Private Ltd. (*1,2)	Singapore	15.0	9,907	27,810	27,810	26,239
SK-SVW (Chongqing) Chemical Co., Ltd. (*3,5)	China	50.0	10,159	3,042	3,042	2,871
Rizhao SK Asphalt Co., Ltd. (*1)	China	25.0	1,739	1,229	1,229	1,641
Beijing BESK Technology Co., Ltd.	China	49.0	247,428	239,042	239,625	233,244
Sinopec-SK (Wuhan) Petrochemical Co., Ltd. (*5)	China	35.0	568,650	944,121	1,015,419	1,003,160
Asia Bitumen Trading Pte. Ltd. (*1,5)	Singapore	50.0	4	1,698	1,698	1,385
SABIC SK Nexlene Company Pte. Ltd. (*5)	Singapore	50.0	167,780	124,388	83,736	81,182
FSK L&S (Shanghai) Co., Ltd.	China	34.0	4,152	4,760	7,969	6,251
SK South East Asia Investment Pte. Ltd. (*6)	Singapore	20.0	345,010	367,739	367,739	245,811
Tankang-SK energy Co., Ltd (*7)	Vietnam	-	-	-	-	283
Hi-Tech Lubricants Ltd. (*1,2)	Pakistan	0.7	589	201	529	523
Best Oil Company Ltd. (*8)	Myanmar	35.0	153,024	95,154	171,889	153,524
The Qoos, Inc. (*9)	USA	41.6	3,423	3,286	3,286	-
Shandong SK Hightech Oil Co., Ltd. (*1,5,10)	China	51.0	7,812	8,043	8,043	-
Zhejiang SK energy Baoying Group Co., Ltd. (*5,9)	China	49.0	77,251	76,254	82,171	-
Energy Solution Holdings Inc. (*2,9)	USA	6.8	6,161	6,161	6,161	-
			₩ 3,114,790	₩ 3,666,465	₩ 3,750,673	₩ 3,495,070

8. Investments in associates, joint ventures and joint operations (cont'd)

(*1) The Group received dividends from investments in associates and joint ventures for the nine-month periods ended September 30, 2020 and 2019, and details are as follows (In millions of Korean won):

	For the nine-month period ended	
	September 30, 2020 (Unaudited)	September 30, 2019 (Unaudited)
Daehan Oil Pipeline Corp.	₩ 3,182	₩ 4,381
Hana Alternative Landchip Private REITs 33rd	11,977	11,897
Oilhub Korea Yeosu Corporation	1,153	576
Korea Ras Laffan LNG Ltd.	4,390	7,139
Korea LNG Ltd.	5,216	8,749
Horizon Singapore Terminals Private Ltd.	1,908	2,545
Rizhao SK Asphalt Co., Ltd.	88	86
Asia Bitumen Trading Pte. Ltd.	-	1,163
Hi-Tech Lubricants Ltd.	-	12
Shandong SK Hightech Oil Co., Ltd.	635	-
	₩ 28,549	₩ 36,548

(*2) Although the Group's equity interest in the entity is less than 20%, the Group has significant influence over the investee, including the right to appoint directors to the Board of Directors.
(*3) Impairment loss on investments in associates was recognized as there was an indication of impairment prior to 2020.
(*4) A portion of the equity interest was sold, and the sale of the investment in the associate, which is expected to take place on July 20, 2021, has been classified as assets held for sale in accordance with the sales contract during the nine months ended September 30, 2020.
(*5) All joint arrangements that the Group has joint control over are structured by a separate entity. If it determines that the parties that have joint control with respect to the joint agreement hold the rights to the net assets of the agreements, and classifies such joint agreements as joint ventures. Also, the Group accounts for its equity interest in joint ventures using the equity method.
(*6) The entity was newly acquired as a result of a paid-in capital increase during the nine months ended September 30, 2020. (See Note 25)
(*7) The liquidation was completed during the nine months ended September 30, 2020.
(*8) The entity was newly acquired during the year ended December 31, 2019 and the cost of the acquired associate was corrected as the measurement of the associate was completed during the nine months ended September 30, 2020.
(*9) The entity was newly acquired during the nine months ended September 30, 2020. (See Note 25)
(*10) Classified as a joint venture for the nine-month period ended September 30, 2020.

Changes in carrying amount of investments in associates and joint ventures for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended	
	September 30, 2020 (Unaudited)	September 30, 2019 (Unaudited)
Beginning balance	₩ 3,495,070	₩ 2,881,803
Acquisitions	207,496	394,105
Disposals	(4,994)	(789)
Gain (loss) on investments in associates and joint ventures	(2,688)	70,928
Changes in equity adjustments	78,970	116,029
Dividends	(28,549)	(36,548)
Classification of assets held for sale	(4,570)	-
Others	9,938	3,861
Ending balance	₩ 3,750,673	₩ 3,429,389

8. Investments in associates, joint ventures and joint operations (cont'd)

The condensed financial positions of major investments in associates and joint ventures as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)				
	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Total equity
Daehan Oil Pipeline Corp.	₩ 164,777	₩ 940,062	₩ 48,317	₩ 245,186	₩ 811,336
Peru LNG Company LLC.	176,029	2,580,638	200,381	1,224,903	1,331,383
SK China Company, Ltd.	379,838	2,255,617	45,556	299,967	2,289,932
Hana Alternative Landchip Private REITs 33rd	17,136	711,693	15,915	314,483	398,431
Korea Ras Laffan LNG Ltd.	1,661	543,831	47	195	545,250
Korea LNG Ltd.	823	227,235	63	276	227,719
Beijing BESK Technology Co., Ltd.	290,696	430,797	216,359	17,293	487,841
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	936,338	4,334,590	1,420,726	1,152,714	2,697,488
SABIC SK Nexlene Company Pte. Ltd.	195,675	542,894	130,499	359,294	248,776
SK South East Asia Investment Pte. Ltd.	864,586	1,952,866	2,680	-	2,814,772
Best Oil Company Ltd.	223,344	248,125	177,444	22,156	271,869
Zhejiang SK energy Baoying Group Co., Ltd.	362,506	42,364	243,808	91	160,971

	December 31, 2019				
	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Total equity
Daehan Oil Pipeline Corp.	₩ 113,639	₩ 964,067	₩ 38,253	₩ 242,265	₩ 797,188
Peru LNG Company LLC.	154,792	2,615,933	127,639	1,208,915	1,434,171
SK China Company, Ltd.	615,986	1,939,664	59,487	215,689	2,280,474
Hana Alternative Landchip Private REITs 33rd	8,761	711,692	1,112	314,483	404,858
Korea Ras Laffan LNG Ltd.	1,103	646,874	188	238	647,551
Korea LNG Ltd.	943	231,992	2	145	232,788
Beijing BESK Technology Co., Ltd.	253,679	377,650	104,153	53,797	473,379
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	884,508	4,278,465	2,492,187	1,182	2,669,604
SABIC SK Nexlene Company Pte. Ltd.	134,276	542,536	69,907	358,365	248,540
SK South East Asia Investment Pte. Ltd.	317,894	1,770,251	1	-	2,088,144
Best Oil Company Ltd.	355,276	182,893	272,317	19,985	245,867

8. Investments in associates, joint ventures and joint operations (cont'd)

The condensed financial performances of major investments in associates and joint ventures for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended September 30, 2020 (Unaudited)			
	Sales	Operating profit (loss)	Net income (loss)	Comprehensive income (loss)
Daehan Oil Pipeline Corp.	₩ 127,042	₩ 29,659	₩ 23,433	₩ 23,433
Peru LNG Company LLC.	255,364	(116,233)	(115,915)	(115,915)
SK China Company, Ltd.	61,995	(15,302)	(8,726)	(11,095)
Hana Alternative Landchip Private REITs 33rd	26,965	18,363	18,363	18,363
Korea Ras Laffan LNG Ltd.	56,249	55,155	(8,548)	(8,548)
Korea LNG Ltd.	33,691	32,233	32,257	23,940
Beijing BESK Technology Co., Ltd	119,439	(1,545)	(3,124)	(3,124)
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	4,445,528	(95,287)	(106,429)	(68,054)
SABIC SK Nexlene Company Pte. Ltd.	234,035	10,560	3,438	(3,208)
SK South East Asia Investment Pte. Ltd.	-	(5,952)	117,643	39,802
Best Oil Company Ltd.	424,328	(5,337)	(9,525)	(9,525)
Zhejiang SK energy Baoying Group Co., Ltd. (*1)	170,641	6,377	7,914	7,914

(*1) Only includes financial performance after the acquisition.

	For the nine-month period ended September 30, 2019 (Unaudited)			
	Sales	Operating profit (loss)	Net income (loss)	Comprehensive income (loss)
Daehan Oil Pipeline Corp.	₩ 124,703	₩ 30,412	₩ 21,628	₩ 21,628
Peru LNG Company LLC.	433,048	(42,702)	(60,894)	(60,894)
SK China Company, Ltd.	68,047	(1,547)	(4,342)	(34,603)
Hana Alternative Landchip Private REITs 33rd	26,994	18,499	18,499	18,499
Korea Ras Laffan LNG Ltd.	91,617	90,359	5,461	5,461
Korea LNG Ltd.	56,721	55,103	55,130	86,669
Beijing BESK Technology Co., Ltd	3,689	(14,793)	(4,107)	(4,107)
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	3,253,046	148,189	104,525	109,130
SABIC SK Nexlene Company Pte. Ltd.	291,778	40,286	20,956	(17,600)
SK South East Asia Investment Pte. Ltd.	-	(4,501)	1,190	1,190

Details of joint operations as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

Company name	Main business location	Ownership percentage	Nature of joint arrangement activities, etc.
Ulsan Aromatics Co., Ltd.	Republic of Korea	50%	(*1,3)
PT. Patra SK	Indonesia	65%	(*2,3)

(*1) Founded on March 30, 2012 as a joint venture with ENEOS Corporation, the investee is engaged in manufacturing aromatic compounds.
(*2) Founded on November 19, 2006 as a joint venture with PT Pertamina Patra Niaga, the investee is engaged in manufacturing and selling lubricant base oils.
(*3) Although the terms of the contractual arrangement do not specify the rights of the assets and the obligations of liabilities to the parties that hold the joint control of the agreement, considering other facts and circumstances, such as contractual arrangements are primarily designed to provide output to parties, the Group classified joint arrangements joint operations.

9. Property, plant and equipment

Changes in property, plant and equipment for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended September 30, 2020 (Unaudited)							
	Beginning balance	Acquisition	Disposals	Transfers (*1)	Depreciation	Reversal (Impairment)	Business combination (*2)	Ending balance
Land	₩ 4,127,986	₩ 98	₩ (1,861)	₩ 3,184	₩ -	₩ (1)	₩ 1,211	₩ 4,130,617
Buildings	1,439,138	205	(1,808)	137,212	(33,159)	(2,728)	1,843	1,540,703
Structures	544,225	164	(989)	101,005	(23,887)	(4,621)	-	615,897
Machinery and equipment	6,188,548	24,222	(2,117)	1,371,571	(533,721)	(57,146)	38,471	7,029,828
Others	809,568	14,344	(5,205)	190,408	(151,859)	(849)	-	856,407
Construction-in-progress	2,352,907	2,691,513	(231)	(1,807,545)	-	(298)	-	3,236,346
	₩15,462,372	₩ 2,730,546	₩ (12,211)	₩ (4,165)	₩ (742,626)	₩ (65,643)	₩ 41,525	₩ 17,409,798

	For the nine-month period ended September 30, 2019 (Unaudited)							
	Beginning balance	Acquisition	Disposals	Transfers (*1)	Depreciation	Reversal (Impairment)	Classified as held for sale	Ending balance
Land	₩ 4,061,960	₩ 6,500	₩ (23,187)	₩ 99,846	₩ -	₩ 97	₩ (18,313)	₩ 4,126,903
Buildings	1,139,283	5,143	(3,255)	69,343	(25,560)	-	(1,858)	1,183,096
Structures	565,536	156	(16,343)	18,908	(23,971)	(1,239)	(3,993)	539,054
Machinery and equipment	6,368,215	2,000	(12,889)	249,367	(488,140)	127	(14)	6,118,666
Others	713,594	2,671	(2,738)	109,811	(118,937)	83	(2,336)	702,148
Construction-in-progress	836,445	1,837,096	(2,081)	(496,783)	-	-	-	2,174,677
	₩13,685,033	₩ 1,853,566	₩ (60,493)	₩ 50,492	₩ (656,608)	₩ (932)	₩ (26,514)	₩ 14,844,544

(*1) Refers to transfers from construction-in-progress to each class of property, plant and equipment and intangible assets, net effect from change in foreign exchange rates, and others.
(*2) The initial accounting for the business combination incurred in the current period has only been provisionally determined as of September 30, 2020 (See Note 30).

Borrowing costs capitalized as part of property, plant and equipment amounted to ₩22,448 million and ₩10,350 million for the nine-month periods ended September 30, 2020 and 2019, respectively.

10. Leases

Details of leases as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

		September 30, 2020 (Unaudited)		December 31, 2019
Net investments in leases (recognized as other receivables)				
Current assets	₩	7,969	₩	7,895
Non-current asset		9,235		4,784
	₩	17,204	₩	12,679
Right-of-use assets				
Land and buildings	₩	174,723	₩	162,216
Tanks		225,181		266,195
Pipes		50,583		26,225
Vehicles		15,004		11,771
Ships		596,846		622,185
Others		32,980		37,120
	₩	1,095,317	₩	1,125,712
Lease liabilities				
Current liabilities	₩	217,459	₩	223,203
Non-current liabilities		920,101		937,876
	₩	1,137,560	₩	1,161,079

Increase in right-of-use assets was ₩154,302 million for the nine-month period ended September 30, 2020.

Details of amounts recognized in interim condensed consolidated statements of comprehensive income (loss) in relation to leases for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended			
		September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited)
Rental income	₩	23,437	₩	28,336
Interest income on net investments in leases		389		202
Depreciation of right-of-use assets		164,066		147,358
Lease payments for short-term leases		42,978		74,054
Lease payments for leases of low-value assets		742		657
Variable lease payments not included in the measurement		116,821		91,466
Interest expenses on lease liabilities		20,765		21,876

11. Goodwill and intangible assets

Details of changes in book value of goodwill and intangible assets for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended September 30, 2020 (Unaudited)							
	Beginning balance	Acquisition	Disposals	Transfers (*1)	Amortization	Classified as held for sale	Business combination (*2)	Ending balance (*3)
Goodwill	₩ 113,040	₩ -	₩ -	₩ 1,734	₩ -	₩ -	₩ 163,398	₩ 278,172
Oil field under exploration (exploitation)	63,459	26,369	-	-	-	-	-	89,828
Oil field under exploration (production)	565,073	29,129	-	4,164	(53,164)	(19,852)	-	525,350
Memberships (*4)	38,234	2,695	(5,218)	15	-	-	-	35,726
Others	339,117	14,722	(120)	(2,228)	(22,483)	-	168,512	497,520
	₩ 1,118,923	₩ 72,915	₩ (5,338)	₩ 3,685	₩ (75,647)	₩ (19,852)	₩ 331,910	₩ 1,426,596

	For the nine-month period ended September 30, 2019 (Unaudited)							
	Beginning balance	Acquisition	Disposals	Transfers (*1,5)	Amortization	Impairment	Classified as held for sale	Ending balance (*3)
Goodwill	₩ 113,247	₩ -	₩ -	₩ 6,971	₩ -	₩ -	₩ -	₩ 120,218
Oil field under exploration (exploitation)	206,668	19,142	-	(131,672)	-	(33,754)	-	60,384
Oil field under exploration (production)	1,306,486	126,203	(33,560)	163,247	(78,253)	-	(598,875)	885,248
Memberships (*4)	38,224	1,407	(1,099)	57	-	-	-	38,589
Others	341,299	11,815	(14)	13,018	(18,665)	-	-	347,453
	₩ 2,005,924	₩ 158,567	₩ (34,673)	₩ 51,621	₩ (96,918)	₩ (33,754)	₩ (598,875)	₩ 1,451,892

(*1) Includes transfers from construction-in-progress to intangible assets, effect from changes in foreign exchange rates, changes in government grants for development of petroleum and provisions for restoration, etc..
(*2) The initial accounting for the business combination incurred in the current period has only been provisionally determined as of September 30, 2020 (See Note 30).
(*3) The book values of intangible assets as of September 30, 2020 and 2019 are presented net of government grants amounting to ₩101,600 million and ₩131,966 million, respectively, related to oil field under exploration.
(*4) The Group classifies its memberships as intangible assets with indefinite useful lives and performs impairment testing annually without amortization.
(*5) For the nine-month period ended September 30, 2019, ₩120,968 million of mining for which the Group can demonstrate the technical feasibility and commercial viability of oil resource extraction was transferred to oil field under exploration (production).

12. Bonds payable and borrowings

Details of bonds payable and borrowings as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)	December 31, 2019
Short-term borrowings	₩ 2,101,921	₩ 1,131,974
Bonds payable and long-term borrowings:		
Bonds payable issued denominated in Korean won	₩ 8,770,000	₩ 7,330,000
Bonds payable issued denominated in foreign currency	586,750	578,900
Long-term borrowings denominated in Korean won	1,046,986	1,214,792
Long-term borrowings denominated in foreign currency	2,054,217	898,479
	₩ 12,457,953	₩ 10,022,171
Less: Discount on long-term borrowings	₩ (23)	₩ (366)
Discount on bonds payable (includes current portion of bonds payable)	(25,706)	(22,755)
Current portion due within one year	(1,287,374)	(1,155,414)
	₩ 11,144,850	₩ 8,843,636

Details of short-term borrowings as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

Description	Financial institution	September 30, 2020 (Unaudited)	December 31, 2019
Usance	Mizuho Bank and others	₩ 899,632	₩ 592,772
Commercial paper	Hi Investment & Securities and others	410,000	250,000
General borrowings	Shinhan Bank and others	792,289	289,202
		₩ 2,101,921	₩ 1,131,974

Details of bonds payable denominated in Korean won as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

Series	Issued date	Maturity date	Interest rate (%)	September 30, 2020 (Unaudited)	December 31, 2019
SK Energy 33rd-3	2013.02.07	2020.02.07	3.3	₩ -	₩ 110,000
SK Incheon Petrochem 15th-1	2017.03.30	2020.03.30	2.2	-	90,000
SK Energy 35th-2	2013.05.06	2020.05.06	2.9	-	190,000
SK Incheon Petrochem 13rd-2	2015.07.28	2020.07.28	3.0	-	120,000
SK Energy 37th-3	2013.10.25	2020.10.25	3.6	50,000	50,000
SK Lubricants 7th-2	2015.11.26	2020.11.26	2.6	90,000	90,000
SK Global Chemical 11th-3	2013.11.29	2020.11.29	4.0	60,000	60,000
SK Incheon Petrochem 16th-1	2018.04.05	2021.04.05	2.6	130,000	130,000
SK Energy 43rd-1	2018.04.26	2021.04.26	2.5	150,000	150,000
SK Energy 38th-3	2014.06.10	2021.06.10	3.4	80,000	80,000
SK Innovation 2nd-2	2014.07.16	2021.07.16	3.2	100,000	100,000
SK Global Chemical 13th-3	2014.07.21	2021.07.21	3.2	50,000	50,000
SK Incheon Petrochem 12th-1	2014.08.07	2021.08.07	3.6	20,000	20,000
SK Incheon Petrochem 14th-2	2016.09.05	2021.09.05	2.5	110,000	110,000
SK Innovation 3rd-1	2018.09.13	2021.09.13	2.1	150,000	150,000
SK Lubricants 8th-1	2018.09.20	2021.09.23	2.3	120,000	120,000
SK Energy 39th-2	2014.10.10	2021.10.10	2.9	110,000	110,000
SK Global Chemical 14th-1	2018.10.11	2021.10.11	2.3	110,000	110,000
SK Energy 44th-1	2018.10.30	2021.10.30	2.2	100,000	100,000
SK Incheon Petrochem 18th-1	2019.01.22	2022.01.22	2.1	120,000	120,000
SK Energy 45th-1	2019.02.21	2022.02.21	2.0	140,000	140,000
SK Incheon Petrochem 15th-2	2017.03.30	2022.03.30	2.8	180,000	180,000
SK Global Chemical 15th-1	2019.06.13	2022.06.13	1.7	90,000	90,000
SK Energy 41st-2	2015.06.25	2022.06.25	2.7	170,000	170,000
SK Lubricants 9th-1	2019.08.27	2022.08.26	1.4	100,000	100,000
SK Energy 31st-3	2012.09.21	2022.09.21	3.4	50,000	50,000
SK Energy 46th-1	2019.09.26	2022.09.26	1.6	120,000	120,000
SK Global Chemical 9th-3	2012.10.25	2022.10.25	3.8	50,000	50,000
SK Energy 42nd-2	2015.11.04	2022.11.04	2.6	70,000	70,000
SK Incheon Petrochem 16th-2	2018.04.05	2023.04.05	2.9	150,000	150,000
SK Energy 47th-1	2020.04.24	2023.04.24	2.0	340,000	-

12. Bonds payable and borrowings (cont'd)

Series	Issued date	Maturity date	Interest rate (%)	September 30, 2020 (Unaudited)	December 31, 2019
SK Energy 43rd-2	2018.04.26	2023.04.26	2.8	₩ 190,000	₩ 190,000
SK Incheon Petrochem 10th	2013.05.06	2023.05.06	3.1	100,000	100,000
SK Lubricants 10th-1	2020.05.26	2023.05.26	1.6	180,000	-
SK Global Chemical 16th-1	2020.06.29	2023.06.29	1.7	230,000	-
SK Incheon Petrochem 19th-1	2020.07.13	2023.07.13	2.3	180,000	-
SK Innovation 3rd-2	2018.09.13	2023.09.13	2.3	140,000	140,000
SK Innovation 4th-1	2020.09.16	2023.09.15	1.4	210,000	-
SK Lubricants 8th-2	2018.09.20	2023.09.20	2.5	120,000	120,000
SK Global Chemical 14th-2	2018.10.11	2023.10.11	2.5	230,000	230,000
SK Energy 44th-2	2018.10.30	2023.10.30	2.3	250,000	250,000
SK Incheon Petrochem 18th-2	2019.01.22	2024.01.22	2.3	210,000	210,000
SK Energy 45th-2	2019.02.21	2024.02.21	2.1	180,000	180,000
SK Incheon Petrochem 15th-3	2017.03.30	2024.03.30	3.3	30,000	30,000
SK Global Chemical 15th-2	2019.06.13	2024.06.13	1.7	70,000	70,000
SK Innovation 2nd-3	2014.07.16	2024.07.16	3.3	60,000	60,000
SK Incheon Petrochem 12th-2	2014.08.07	2024.08.07	4.1	30,000	30,000
SK Lubricants 9th-2	2019.08.27	2024.08.27	1.4	70,000	70,000
SK Energy 46th-2	2019.09.26	2024.09.26	1.7	190,000	190,000
SK Energy 39th-3	2014.10.10	2024.10.10	3.1	70,000	70,000
SK Incheon Petrochem 16th-3	2018.04.05	2025.04.05	3.4	120,000	120,000
SK Energy 47th-2	2020.04.24	2025.04.24	2.3	100,000	-
SK Lubricants 10th-2	2020.05.26	2025.05.26	1.7	50,000	-
SK Energy 41st-3	2015.06.25	2025.06.25	3.2	100,000	100,000
SK Global Chemical 16th-2	2020.06.29	2025.06.27	1.9	170,000	-
SK Incheon Petrochem 19th-2	2020.07.13	2025.07.11	2.6	60,000	-
SK Innovation 4th-2	2020.09.16	2025.09.16	1.6	110,000	-
SK Incheon Petrochem 18th-3	2019.01.22	2026.01.22	2.7	150,000	150,000
SK Global Chemical 15th-3	2019.06.13	2026.06.13	1.8	150,000	150,000
SK Lubricants 9th-3	2019.08.27	2026.08.27	1.5	100,000	100,000
SK Energy 46th-3	2019.09.26	2026.09.26	1.8	70,000	70,000
SK Energy 40th	2014.10.27	2026.10.27	3.3	100,000	100,000
SK Lubricants 10th-3	2020.05.26	2027.05.26	1.8	70,000	-
SK Energy 43rd-3	2018.04.26	2028.04.26	3.2	160,000	160,000
SK Incheon Petrochem 17th	2018.06.18	2028.06.18	4.0	100,000	100,000
SK Innovation 3rd-3	2018.09.13	2028.09.13	2.6	210,000	210,000
SK Global Chemical 14th-3	2018.10.11	2028.10.11	2.9	160,000	160,000
SK Energy 44th-3	2018.10.30	2028.10.30	2.6	150,000	150,000
SK Incheon Petrochem 18th-4	2019.01.22	2029.01.22	3.5	120,000	120,000
SK Energy 45th-3	2019.02.21	2029.02.21	2.4	180,000	180,000
SK Global Chemical 15th-4	2019.06.13	2029.06.13	2.1	190,000	190,000
SK Lubricants 9th-4	2019.08.27	2029.08.27	1.7	30,000	30,000
SK Energy 46th-4	2019.09.26	2029.09.26	1.8	120,000	120,000
SK Energy 47th-3	2020.04.24	2030.04.24	2.6	110,000	-
SK Incheon Petrochem 19th-3	2020.07.13	2030.07.12	3.7	60,000	-
SK Innovation 4th-3	2020.09.16	2030.09.16	1.9	80,000	-
				8,770,000	7,330,000
Less: Discount on bonds payable				(23,042)	(19,558)
Current portion due within one year				(1,109,157)	(709,672)
				₩ 7,637,801	₩ 6,600,770

Details of bonds payable denominated in foreign currency as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

Series	Issued date	Maturity date	Interest rate (%)	September 30, 2020 (Unaudited)	December 31, 2019
Singapore Exchange Ltd.	2018.07.13	2023.07.13	4.1	₩ 586,750	₩ 578,900
Less: Discount on bonds payable				(2,664)	(3,197)
				₩ 584,086	₩ 575,703

12. Bonds payable and borrowings (cont'd)

Details of long-term borrowings denominated in Korean won as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

Description	Financial institution	Interest rate (%)	September 30, 2020 (Unaudited)	December 31, 2019
Energy efficiency fund	Shinhan Bank	-	₩ -	₩ 630
Securitization loan (*1,2)	IPC 1st Special Purpose Co., Ltd.	3.0	88,000	189,000
General borrowings	Korea Development Bank	CD + 0.9	39,962	69,934
General borrowings	The Export-Import Bank of Korea and others	1.3~4.4	919,024	955,228
			₩ 1,046,986	₩ 1,214,792
Less: Discount on long-term borrowings			₩ (21)	₩ (203)
Transfer to current portion			(143,013)	(248,381)
			₩ 903,952	₩ 966,208

(*1) Securitization loans of SK Incheon Petrochem Co., Ltd., a subsidiary of the Company, are associated with the trade receivables due from SK Energy Co., Ltd. and SK Global Chemical Co., Ltd., which are trusted through the securitization agreement.

(*2) Early repayment of the securitization loans may occur if the effective credit rating of the corporate bonds issued by SK Incheon Petrochem Co., Ltd. is lower than or equal to BBB or if the effective credit rating of corporate bonds issued by SK Energy Co., Ltd. and SK Global Chemical Co., Ltd. is lower than or equal to A-.

Details of long-term borrowings denominated in foreign currency as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

Description	Financial institution	Interest rate (%)	September 30, 2020 (Unaudited)	December 31, 2019
Oil exploration fund (*1)	Korea Energy Agency	0.0 ~ 7.0	₩ 78,111	₩ 77,066
Acquisition borrowings	Creditors (Citi, JPM, BOA, KDB, ANZ and others)	LIBOR(3M) + 1.6 EURIBOR(3M) + 0.7	428,778	185,248
General borrowings	Credit Agricole and others	LIBOR + 0.8 ~ 1.5	821,069	624,738
General borrowings	KDB and others	2.0 ~ 8.0	726,259	11,427
			₩ 2,054,217	₩ 898,479
Less: Discount on long-term borrowings			₩ (2)	₩ (163)
Current portion due within one year			(35,204)	(197,360)
			₩ 2,019,011	₩ 700,956

(*1) For the borrowings amounting to ₩48,740 million and ₩48,090 million as of September 30, 2020 and December 31, 2019, respectively, from the Korea Energy Agency, which are directly attributable to exploration for the oil fields, the Company has no obligation to repay the borrowings for oil fields with no commercial productivity.

13. Derivative instruments

13.1 Derivative instruments designated as cash flow hedge accounting

As of September 30, 2020 and December 31, 2019, the Group has entered into derivative contracts to hedge the risk of fluctuations in sales price of petroleum products and fluctuations in interest on borrowings, and the financial positions of outstanding derivative financial instruments are presented as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)		December 31, 2019	
	Assets	Liabilities	Assets	Liabilities
Currency forward contracts	₩ 385	₩ -	₩ -	₩ -
Interest rate swap contracts	-	29,423	-	169
	₩ 385	₩ 29,423	₩ -	₩ 169

13.2 Derivative instruments for which no hedge accounting is applied

The Group has entered into derivative contracts to hedge the risk of fluctuations in exchange rates on liabilities denominated in foreign currencies and fluctuations in price of petroleum products, crude oil, chemical and other materials, fluctuations in interest on borrowings. The financial positions of outstanding derivative instruments of the Group as of September 30, 2020 and December 31, 2019, for which no hedge accounting is applied, are presented as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)		December 31, 2019	
	Assets	Liabilities	Assets	Liabilities
Petroleum products swap contracts	₩ -	₩ 153	₩ 14,109	₩ 2,377
Interest rate swap contracts	-	1,830	1,253	687
Chemical raw material swap contracts	15,444	18,172	9,908	6,342
UCO swap contracts	376	-	-	239
Currency swap contracts	54,326	-	39,575	-
Currency forward contracts, etc.	23,230	3,018	10,442	4,939
	₩ 93,376	₩ 23,173	₩ 75,287	₩ 14,584

13.3 Gain and loss on derivative financial instruments

Details of gross gain and loss on valuation and settlement of derivative financial instruments (including other comprehensive income) for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended September 30, 2020 (Unaudited)					
	Recognized in profit or loss (before tax)				Other comprehensive income or loss (after tax)	
	Gain on valuation	Loss on valuation	Gain on settlement	Loss on settlement	Gain on valuation	Loss on valuation
Derivative instruments designated as cash flow hedge accounting	₩ -	₩ -	₩ -	₩ -	₩ 385	₩ (31,218)
Derivative instruments for which no hedge accounting is applied	109,078	(35,744)	1,979,075	(1,949,425)	-	-
	₩ 109,078	₩ (35,744)	₩ 1,979,075	₩ (1,949,425)	₩ 385	₩ (31,218)

	For the nine-month period ended September 30, 2019 (Unaudited)					
	Recognized in profit or loss (before tax)				Other comprehensive income or loss (after tax)	
	Gain on valuation	Loss on valuation	Gain on settlement	Loss on settlement	Gain on valuation	Loss on valuation
Derivative instruments designated as cash flow hedge accounting	₩ -	₩ -	₩ -	₩ -	₩ (92,525)	₩ 83,489
Derivative instruments for which no hedge accounting is applied	444,441	(457,674)	1,066,039	(1,127,008)	-	-
	₩ 444,441	₩ (457,674)	₩ 1,066,039	₩ (1,127,008)	₩ (92,525)	₩ 83,489

14. Retirement benefit plans

Details of liabilities related to defined benefit plans and other long-term benefit obligations as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)		December 31, 2019	
Present value of defined benefit obligations	₩	530,028	₩	502,255
Fair value of plan assets		(445,196)		(465,495)
Other long-term benefit liabilities		15,022		11,833
	₩	99,854	₩	48,593

Changes in defined benefit liabilities for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended September 30, 2020 (Unaudited)					
	Present value of defined benefit obligations		Fair value of plan assets		Total	
Beginning balance	₩	502,255	₩	(465,495)	₩	36,760
Retirement benefits:						
Current service costs		52,004		-		52,004
Interest expenses (income)		7,759		(7,316)		443
Past service costs		(496)		-		(496)
	₩	59,267	₩	(7,316)	₩	51,951
Remeasurements	₩	(5,305)	₩	646	₩	(4,659)
Effects of changes in foreign exchange rates		(15)		-		(15)
Benefit payments		(45,444)		42,666		(2,778)
Business combination		2,960		-		2,960
Others		16,310		(15,697)		613
Ending balance	₩	530,028	₩	(445,196)	₩	84,832

	For the nine-month period ended September 30, 2019 (Unaudited)					
	Present value of defined benefit obligations		Fair value of plan assets		Total	
Beginning balance	₩	453,707	₩	(388,142)	₩	65,565
Retirement benefits:						
Current service costs		49,204		-		49,204
Interest expenses (income)		7,748		(6,525)		1,223
	₩	56,952	₩	(6,525)	₩	50,427
Remeasurements		16,995		1,772		18,767
Effects of changes in foreign exchange rates		106		-		106
Contributions by employer directly to plan assets		-		(2,405)		(2,405)
Benefits payments		(54,986)		49,419		(5,567)
Others		16,343		(13,453)		2,890
Ending balance	₩	489,117	₩	(359,334)	₩	129,783

15. Commitments and contingencies

As of September 30, 2020, the Group has provided 32 blank promissory notes and 27 blank checks to various financial institutions as collateral in connection with its borrowings.

On April 29, 2019, LG Chem and others (Collectively, “LGC”) filed their complaints with the U.S. International Trade Commission (“ITC”) against the Company and its subsidiary, SK Battery America, Inc. (collectively, “SKI”), alleging SKI’s infringement of LGC’s trade secrets and seeking a ban on SKI’s importation of certain lithium ion batteries, battery cells and etc. into the United States as remedy. On November 5, LGC filed a Motion for default judgment basing its argument on SKI’s spoliation of evidence and violation of a forensic order. On February 14, 2020, the ITC accepted the claim and entered the default judgment omitting any other proceedings such as pleading against trade secrets. The SKI has requested a review by the ITC on default judgment, and the committee has decided to review the entire default judgment on April 17, 2020 and is currently in progress. According to an announcement by the ITC, it is scheduled to make a final judgement on trade secrets in December 2020.

Meanwhile, LGC additionally filed its complaint with the ITC against SKI seeking an import ban as a remedy for SKI’s alleged infringement of LGC’s patents on September 26, 2019. The lawsuit is in progress, and the final outcome of the lawsuit is not predictable.

In addition, LGC filed its complaints for the misappropriation of trade secrets owned by them and the infringement on the patents owned by them with U.S District Court of Delaware against SKI on April 29, 2019 and September 26, 2019, respectively. The statuses of the lawsuits are currently pending, and the final outcomes of the lawsuits are not predictable.

Attorney General Office in California, USA, on May 4, 2020, brought a civil lawsuit in a district court in San Francisco, California against Vitol Inc. and subsidiaries of the Company, SK Trading International Co., Ltd and SK Energy Americas Inc., for manipulation of the market price of gasoline products and anti-competitive behavior during the refinery explosion in the region in 2015. The lawsuit is in progress, and a duration and a final result are unpredictable at this time. Since May 6, 2020, gasoline's end-users have filed a number of class actions related to the lawsuit in a federal court in California. The duration and final results of class actions are also unpredictable at this time.

Details of joint and several guarantees provided by the Group for any losses or liabilities suffered or incurred prior to the spin-off date are as follows:

Spin-off date	Details of spin-off	The counterparts of joint and several guarantees
July 1, 2007	Spin-off between SK Holdings Co., Ltd. and the Group	SK Holdings Co., Ltd., SK Innovation Co., Ltd., SK Energy Co., Ltd., SK Lubricants Co., Ltd., SK Global Chemical Co., Ltd., SK Incheon Petrochem Co., Ltd., SK Trading International, Co., Ltd. And SK IE Technology Co., Ltd.

The Company has pledged its whole equity interests in Yemen LNG Company Ltd. to the project financing lenders of the Yemen LNG Project as collateral.

In addition, SK Incheon Petrochem Co., Ltd., a subsidiary of the Company, has pledged its land as collateral for borrowings commitments for up to ₩30,000 million under which it does not have an outstanding balance to Korea Development Bank.

Netruck Co., Ltd., a subsidiary of the Company, has pledged its property, plant and equipment as collateral for borrowings commitments for up to ₩4,500 million under which it does not have an outstanding balance to Shinhan Bank.

The Company has provided performance guarantee of HUF 9,810 million to the local government in connection with the construction of a local plant of SK Battery Hungary Kft., a subsidiary of the Company.

In addition, SK Global Chemical Co., Ltd., a subsidiary of the Company, has also provided payment guarantee amounting to USD 10 million in connection with license contract of Ningbo SK Performance Rubber Co., Ltd., a subsidiary of the Company.

Furthermore, the Group has provided Citibank and others with a payment guarantee amounting to USD 188 million (payment guarantee limit of USD 220 million) in connection with long-term borrowings of SABIC SK Nexlene Company Pte. Ltd., a joint venture of the Group.

15. Commitments and contingencies (cont'd)

The Company and SK Energy Co., Ltd. and SK Incheon Petrochem Co., Ltd., subsidiaries of the Company, pay for customs and electricity through credit cards and B2B corporate purchase agreements entered into with certain financial institutions, and payments to the respective credit card companies are made on the payment dates based on the respective agreements. As of September 30, 2020, the Group has recognized payables of ₩1,432,164 million in relation to these agreements.

SK Incheon Petrochem Co., Ltd., a subsidiary of the Company, has an agreement to securitize ₩88,000 million in a way that it trusts its trade receivables due from SK Energy Co., Ltd. and SK Global Chemical Co., Ltd., other subsidiaries of the Company, to Industrial Bank of Korea ("IBK"), and IPC 1st Special Purpose Co., Ltd., who acquired the beneficiary right issued by IBK (the "trustee") issues asset-backed commercial paper (See Note 12).

SK Incheon Petrochem Co., Ltd, a subsidiary of the Company, issued hybrid bonds on March 15, 2019. The key issuance terms of hybrid bonds are as follows:

	Description
Name of bond	The 1st private bond-type hybrid bonds
Amount issued	KRW 600,000 million
Maturity date	March 15, 2049 (30 years) - The expiration date can be extended under the same conditions at the issuer's discretion.
Interest payment	(1) Interest rate - Issue date ~ March 15, 2024 ("First reset date") = 4.200% - " First reset date" ~ March 15, 2025 ("Second reset date") = ① + ② + ③ ① Individual interest rate (average of assessed rates) of 5-year corporate bonds on 2 business days before the "First reset date" ① Spread (4.200% - Individual interest rate (average of assessed rates) on 2 business days before the issue date) ③ Step-up margin (1.500%) - "Second reset date" ~ next "reset date (see definition below)" and Each reset date ~ Next reset date = ① + ② + ③ ① Individual interest rate (average of assessed rates) 2 business days before the first day of each term ② Spread (4.200% - Individual interest rate (average of assessed rates) on 2 business days before the issue date) ③ Step-up margin (1.500%) ※ " Reset Date": The date of the first anniversary of the "Second Reset Date" and every year onwards. (2) Interest payment - Quarterly payments after the issue date However, the issuer may notify the holder, the Korea Securities Depository, and the payment agent 10 business days before the scheduled interest payment date at its discretion and postpone the interest payment scheduled for the interest payment date. (Dividends for common stock cannot be paid and are postponed cumulatively if interest payment is delayed)
Right to early repayment	- SK Incheon Petrochem Co., Ltd. can early redeem all bonds on the 5th anniversary of the issue date (March 15, 2024) or interest payment date thereafter. - SK Incheon Petrochem Co., Ltd. may early redeem in the event of other circumstances (*) (*) Other circumstances include cases when bonds are no longer regarded as equity due to a change in the accounting standards, there is a change in the major shareholder, bonds are accepted as equity by credit rating agencies, and income tax deduction for interests are not allowed
Events of default	- The issuing company is ordered to initiate the liquidation procedure, or a valid decision is made to initiate the liquidation procedure; - The issuing company does not fulfill the obligation to pay on the bond on maturity date of such payment, and 10 days are elapsed thereafter. - The liquidation of the issuing company

15. Commitments and contingencies (cont'd)

Details of provisions and financial guarantee liabilities as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)	December 31, 2019	Guarantees for
Provisions:			
Provision for restoration related to natural resource development	₩ 51,654	₩ 48,471	Field of Vietnam 15-1 and others
Provision for sales warrant and others (*1)	92,326	91,555	
	143,980	140,026	
Financial guarantee liabilities	₩ 2,125	₩ 252	SABIC SK Nexlene Company Pte. Ltd.

(*1) Other current liabilities include current portion of provisions of ₩12,370 million and ₩7,998 million as of September 30, 2020 and December 31, 2019, respectively.

16. Other paid-in capital

Details of other paid-in capital as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)	December 31, 2019
Additional paid-in capital (*1)	₩ 5,683,247	₩ 5,683,247
Other capital surplus	82,522	82,522
Stock options	1,820	1,524
Treasury stock (*2)	(1,634,073)	(1,137,897)
	₩ 4,133,516	₩ 4,629,396

(*1) Additional paid-in capital is paid-in capital in excess of par value, which is restricted in use, except when being used to offset a deficit or being transferred to capital in accordance with the Commercial Code of the Republic of Korea.
(*2) Details of treasury stock as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won, except for number of treasury stock):

	September 30, 2020 (Unaudited)		December 31, 2019	
	Preferred stock	Common stock	Preferred stock	Common stock
Number of treasury stock	296	10,130,137	296	5,502,137
Acquisition amount	₩ 33	₩ 1,634,040	₩ 33	₩ 1,137,864

The Company acquired 4,628,000 shares of treasury stock for ₩496,176 million in accordance with the Article 165-3 of the Capital Markets Act during the nine months ended September 30, 2020.

As of September 30, 2020, treasury stock held by the Company is composed of odd shares acquired in the process of the split-off and business combination and shares acquired to stabilize stock price and increase shareholder value.

17. Share-based payment

The Company granted stock options to the Company's executives based on the resolution of stockholders' meeting. The main items of stock options are as follows:

Description	1-1st	1-2nd	1-3rd	2nd
Grant date		March 20, 2018		February 26, 2020
Types of shares to issue		Common stock		
Distribution on exercise		Distribution of treasury stock		
Number of shares granted	23,517 shares	23,517 shares	23,517 shares	6,312 shares
Exercise price	₩ 205,760	₩ 222,230	₩ 240,000	₩ 131,470
Exercisable period	2020-03-21 ~ 2023-03-20	2021-03-21 ~ 2024-03-20	2022-03-21 ~ 2025-03-20	2023-02-27 ~ 2027-02-26
Vesting conditions	Work more than 2 years from grant date	Work more than 2 years from grant date	Work more than 3 years from grant date	Work more than 2 years from grant date

Details of compensation cost as of September 30, 2020 and December 31, 2019, due to the grant of stock options are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)	December 31, 2019
Total compensation costs	₩ 1,950	₩ 1,895
Accumulated compensation costs recognized for the period	1,820	1,524
Compensation cost to be recognized subsequent to the period end	130	371

The Company calculated the compensation cost of stock options by applying the fair value approach using the binomial option pricing model. The assumptions and variables used to calculate compensation cost are as follows (in Korean won):

Description	1-1st	1-2nd	1-3rd	2nd
Expected option life	5 years	6 years	7 years	7 years
Stock price of the day before grant date	₩ 211,000	₩ 211,000	₩ 211,000	₩ 122,500
Expected volatility	17.90%	17.90%	17.90%	19.80%
Dividend yield	3.03%	3.03%	3.03%	6.50%
Risk-free interest rate	2.50%	2.61%	2.64%	1.40%
Exercise price	₩ 205,760	₩ 222,230	₩ 240,000	₩ 131,470
Fair value per share	₩ 30,450	₩ 26,725	₩ 23,421	₩ 8,723

18. Other components of equity

Details of other components of equity as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)	December 31, 2019
Accumulated net change in fair value of financial assets at FVOCI	₩ (39,087)	₩ (15,149)
Equity adjustments of investments in associates and joint ventures	200,109	121,139
Gain on translation of foreign operations	154,091	88,991
Loss on valuation of derivative instruments	(30,918)	(85)
	₩ 284,195	₩ 194,896

Changes in other components of equity for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended	
	September 30, 2020 (Unaudited)	September 30, 2019 (Unaudited)
Beginning balance	₩ 194,896	₩ 97,000
Net loss on valuation of financial assets at FVOCI	(24,759)	(10,006)
Income tax effect of net changes in financial assets at FVOCI	6,899	1,599
Reclassification to retained earnings	(8,383)	-
Income tax effect of reclassification to retained earnings	2,305	-
Equity adjustments of investments in associates and joint ventures	78,970	116,029
Gain on translation of foreign operations	65,100	186,065
Gain (loss) on valuation of derivative instruments	(30,755)	(11,731)
Reclassification to profit or loss by applying hedge accounting	(78)	-
Income tax effect of net changes in derivative instruments	-	2,695
Ending balance	₩ 284,195	₩ 381,651

19. Sales

Details of sales for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended			
	September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited)	
	Three months	Nine months	Three months	Nine months
Revenue from contracts with customers				
Sales of finished goods and merchandise	₩ 8,232,271	₩ 26,213,943	₩ 12,070,596	₩ 37,443,695
Revenue from petroleum exploration and development	127,437	339,628	163,479	502,866
Revenue from services	51,512	204,775	44,982	113,190
	₩ 8,411,220	₩ 26,758,346	₩ 12,279,057	₩ 38,059,751
Revenue from other sources:				
Rental income	₩ 7,983	₩ 23,437	₩ 9,025	₩ 28,336
	₩ 8,419,203	₩ 26,781,783	₩ 12,288,082	₩ 38,088,087

Classifications of revenue from contracts with customers for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended			
	September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited)	
	Three months	Nine months	Three months	Nine months
Recognized at a point in time	₩ 8,359,708	₩ 26,553,571	₩ 12,234,075	₩ 37,946,561
Recognized over time	51,512	204,775	44,982	113,190
	₩ 8,411,220	₩ 26,758,346	₩ 12,279,057	₩ 38,059,751

20. Selling and administrative expenses

Details of selling and administrative expenses for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended			
	September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited)	
	Three months	Nine months	Three months	Nine months
Salaries	₩ 91,980	₩ 286,444	₩ 83,349	₩ 241,322
Retirement benefits	7,258	22,318	8,337	22,409
Employee welfare benefits	19,963	74,667	16,681	55,772
Travel	4,014	13,534	6,931	22,786
Communications	1,030	3,121	1,399	3,448
Utilities	1,961	6,767	3,757	7,640
Taxes and dues	4,012	22,468	7,936	17,019
Supplies	2,307	7,450	5,060	9,345
Lease payment and rents	34,776	112,602	38,752	114,037
Consignment storage of oil	3,285	9,417	2,461	6,936
Depreciation	18,307	45,774	10,499	31,096
Depreciation of right-of-use asset	25,117	71,480	25,334	70,962
Repairs	2,389	7,911	2,418	6,389
Insurance	3,732	11,098	2,855	6,607
Advertising	14,252	37,383	22,448	55,995
Research and development costs	69,551	197,055	57,709	154,796
Training and examination	11,641	46,503	19,037	51,501
Quality controls	8,725	22,699	5,466	15,973
Outsourcing technology services	36,742	107,787	29,775	91,533
Commissions	73,569	214,700	58,572	152,564
Amortization	8,054	19,299	5,220	15,258
Transport	45,252	126,955	40,452	122,693
Reversal of loss allowance	79	181	126	(5,575)
Others	11,825	50,547	22,602	57,790
	₩ 499,821	₩ 1,518,160	₩ 477,176	₩ 1,328,296

21. Finance income (costs), gain (loss) on investments in associates and joint ventures and other non-operating income (expenses)

Details of finance income and costs for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended			
	September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited)	
	Three months	Nine months	Three months	Nine months
Finance income:				
Interest income	₩ 10,421	₩ 46,777	₩ 24,120	₩ 78,279
Dividend income (*1)	-	8,004	164	3,933
Gain on foreign currency transactions	208,861	885,474	255,421	667,950
Gain on foreign currency translation	(36,404)	117,492	993	167,604
Gain on settlement of derivatives	257,473	1,979,075	218,744	1,066,039
Gain on valuation of derivatives	(97,615)	109,078	170,573	444,441
Others	55	480	-	-
	₩ 342,791	₩ 3,146,380	₩ 670,015	₩ 2,428,246
Finance costs:				
Interest expenses	₩ 91,562	₩ 274,140	₩ 86,631	₩ 257,749
Loss on foreign currency transactions	172,564	969,190	288,835	747,367
Loss on foreign currency translation	(46,141)	104,813	61,051	265,899
Loss on settlement of derivatives	213,018	1,949,425	161,108	1,127,008
Loss on valuation of derivatives	(57,130)	35,744	196,497	457,674
Others	12,682	17,369	184	254
	₩ 386,555	₩ 3,350,681	₩ 794,306	₩ 2,855,951

(*1) There is no dividend related to equity instruments derecognized for the nine-month period ended September 30, 2020, and dividends are related to equity instruments held as of September 30, 2020.

Details of gain and loss on investments in associates and joint ventures for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended			
	September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited)	
	Three months	Nine months	Three months	Nine months
Gain on investments in associates and joint ventures	₩ 87,664	₩ 114,340	₩ 26,680	₩ 103,761
Gain on disposals of investment in associates	12	12	1,744	1,744
Loss on investments in associates and joint ventures	(11,485)	(117,028)	(15,404)	(32,833)
Loss on disposals of investment in associates	(907)	(907)	(97)	(97)
	₩ 75,284	₩ (3,583)	₩ 12,923	₩ 72,575

21. Finance income (costs), gain (loss) on investments in associates and joint ventures and other non-operating income (expenses) (cont'd)

Details of other non-operating income and expenses for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended			
	September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited)	
	Three months	Nine months	Three months	Nine months
Other non-operating income:				
Gain on disposals of property, plant and equipment	₩ 1,574	₩ 3,089	₩ 1,754	₩ 3,828
Gain on disposals of intangible assets	326	1,263	-	1,020
Others	14,118	52,230	33,904	89,215
	₩ 16,018	₩ 56,582	₩ 35,658	₩ 94,063
Other non-operating expenses:				
Loss on disposals of property, plant and equipment	₩ 4,309	₩ 10,915	₩ 8,780	₩ 17,287
Loss on impairment of property, plant and equipment	-	65,643	-	1,239
Loss on disposals of intangible assets	8	87	-	44
Loss on impairment of intangible assets	-	-	14,515	33,754
Donations	778	15,516	3,583	53,241
Others	1,264	28,032	6,631	38,842
	₩ 6,359	₩ 120,193	₩ 33,509	₩ 144,407

22. Classification of expenses by nature

Details of classification based on nature of cost of sales and selling and administrative expenses for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended			
	September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited)	
	Three months	Nine months	Three months	Nine months
Changes in finished goods, merchandise and semi-finished goods	₩ (58,891)	₩ 677,780	₩ (337,261)	₩ (473,283)
Use of raw materials and changes of merchandise	6,804,319	23,540,650	10,807,782	33,184,238
Salaries	293,105	936,010	263,297	787,578
Depreciation of property, plant and equipment and right-of-use assets and amortization	367,161	982,339	310,954	900,884
Transport	104,710	279,382	69,635	256,445
Advertising	14,958	39,900	23,226	58,706
Lease and rent expenses	44,267	160,541	51,073	166,177
Others	878,512	2,409,046	771,470	2,057,043
	₩ 8,448,141	₩ 29,025,648	₩ 11,960,176	₩ 36,937,788

23. Income tax

Components of income tax expense for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended	
	September 30, 2020 (Unaudited)	September 30, 2019 (Unaudited)
Current income tax	₩ 110,101	₩ 235,412
Changes in deferred tax	(749,272)	(59,836)
Deferred tax charged directly to the equity:		
Remeasurement of defined benefit plans	(1,018)	4,961
Net change in fair value of financial assets at FVOCI	6,899	1,599
Reclassification to retained Earnings	2,305	-
Gain (loss) on valuation of derivatives	-	2,695
	₩ 8,186	₩ 9,255
Current income tax adjustment for the past period	₩ 29,740	₩ 55,317
Income tax expense (benefits):	₩ (601,245)	₩ 240,148

The income tax expense was calculated after recognizing adjustments for the following: adjustments recognized during the nine months ended September 30, 2020 in relation to the income tax for the prior period, the amount of deferred tax changes due to the temporary differences and reversals thereof, and the income tax expense associated with items not recognized in profit or loss. The average effective tax rate for the nine-month period ended September 30, 2020 is not calculated due to pre-tax loss. The average effective tax rate for the nine-month period ended September 30, 2019 (Income tax / profit before tax) is 32.2%.

24. Earnings (loss) per share

The Company's basic earnings (loss) per share for the three-month and nine-month periods ended September 30, 2020 and 2019 are computed as follows (In millions of Korean won, except per shares and weighted-average number of common stock outstanding):

	For the nine-month period ended			
	September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited)	
	Three months	Nine months	Three months	Nine months
Profit (loss) for the period attributable to owners of the parent	₩ (23,679)	₩ (1,933,462)	₩ 132,858	₩ 454,545
Preferred stock dividends and residual income (loss) (*1)	(354)	(28,478)	1,941	6,493
Profit (loss) for the period attributable to common stock owners of the parent	₩ (23,325)	₩ (1,904,984)	₩ 130,917	₩ 448,052
Weighted-average number of common stock outstanding (*2)	82,421,847	83,491,789	86,963,427	86,963,427
Basic earnings (loss) per share (in Korean won)	₩ (283)	₩ (22,816)	₩ 1,505	₩ 5,152

(*1) Preferred stock are entitled to receive 1% above (par value basis) the cash dividend rate for common stock.
(*2) Weighted-average number of stock is the number of stock adjusted by the changes in the number of treasury stock for the nine-month period ended of September 30, 2020 and 2019, multiplied by a time-weighting factor.

The Company's basic earnings per share of preferred stock for the three-month and nine-month periods ended September 30, 2020 and 2019 are computed as follows (In millions of Korean won, except per shares and weighted-average number of preferred stock outstanding):

	For the nine-month period ended			
	September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited)	
	Three months	Nine months	Three months	Nine months
Preferred stock dividends and residual income (loss)	₩ (354)	₩ (28,478)	₩ 1,941	₩ 6,493
Weighted-average number of preferred stock outstanding	1,248,130	1,248,130	1,248,130	1,248,130
Basic earnings (loss) per share of preferred stock (in Korean won) (*1)	₩ (283)	₩ (22,816)	₩ 1,555	₩ 5,202

(*1) Earnings per share were calculated with respect to the preferred shares that meet the definition of an ordinary stock as specified in the KIFRS 1033 *Earnings per Share*, which has no such preferential rights for participating in dividends or undistributed earnings.

Diluted earnings (loss) per share for the nine-month periods ended September 30, 2020 and 2019 are the same as basic earnings (loss) per share because of no dilution effect for dilutive potential common stock for the three-month and nine-month periods ended September 30, 2020 and 2019.

25. Transactions with related parties

Related parties of the Group as of September 30, 2020 are as follows:

Relationship	Company name
Ultimate parent	SK Holdings Co., Ltd.
Associates and joint ventures	See Note 8
Other related parties	SK M&Service Co., Ltd., Korea Nexlene Company, SK Biotek Co., Ltd., Hanyu Chemical Co., Ltd., SK(China) Company Management Limited, SK Engineering & Construction Co., Ltd., SKC, Ltd., SK Airgas Inc., Mitsui Chemicals & SKC Polyurethanes Inc., SK Nexilis Co., Ltd., SK Picglobal Co., Ltd., SK E&S Co., Ltd., Ko-one Energy Service, Co., Ltd., Chungcheong Energy Service Co., Ltd., Boryeong LNG Terminal Co. Ltd., Prism Energy International Pte. Ltd., SK Infosec Co., Ltd., SK Networks Co., Ltd., Happynarae Co., Ltd., SK PINX Co., Ltd., SK RENT-A-CAR Co., Ltd., SK Networks (Shanghai) Co. Ltd., SK Telecom Co., Ltd., 11Street Co., Ltd., FSK L&S Co., Ltd., SK Broadband Co., Ltd., SK Planet Co., Ltd., SK Hynix Inc., SK Property Investment Management Co., Ltd., Hi-tech Blending Pvt. Ltd. Huizhou EVE United Energy Co., Ltd., Basic Electronics SK(Jiangsu) Technology Co., Ltd., and others
Conglomerate affiliates (*1)	Ulsan Aromatics Co., Ltd., SK Gas Co., Ltd., SK Advanced Co., Ltd., SK Discovery Co., Ltd., SK D&D Co., Ltd., SK Chemicals Co., Ltd., SK Bioscience Co., Ltd., and others

(*1) These companies are not the related parties as defined in paragraph 9 of KIFRS 1024. However, Large-Scale Business Group affiliates designated by the Korea Fair Trade Commission are classified as related parties in accordance with the decision of the Korean Securities and Futures Commission that those are related parties considering substance of the relationship as stipulated in paragraph 10 of KIFRS 1024.

25. Transactions with related parties (cont'd)

Significant related-party transactions for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

		Revenue, etc. (*1, 2)			
		For the nine-month period ended			
		September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited)	
Relationship	Company name	Three months	Nine months	Three months	Nine months
Ultimate parent	SK Holdings Co., Ltd.	₩ 7,698	₩ 12,657	₩ 1,558	₩ 4,778
Associates and joint ventures	Daehan Oil Pipeline Corporation	18	570	103	195
	Oilhub Korea Yeosu Corporation	-	-	-	-
	Sinopec-SK(Wuhan) Petrochemical Co., Ltd.	362	1,102	199	604
	Beijing BESK Technology Co., Ltd.	60	258	72	215
	FSK L&S (Shanghai) Co., Ltd.	-	8	31	100
	SABIC SK Nexlene Company Pte. Ltd.	71	212	84	295
	Asia Bitumen Trading Pte. Ltd.	5,835	38,363	19,826	88,903
	Hi-tech Lubricants Ltd.	288	1,365	3,644	6,200
	Best Oil Company Ltd.	78,383	357,741	-	-
	Peru LNG Company, LLC.	2,787	12,588	2,882	36,513
	Others	33	232	351	665
Other related parties	SK M&Service Co., Ltd.	34	104	36	154
	Korea Nexlene Company	35,551	102,866	37,902	119,778
	SK Biotek Co., Ltd.	782	2,437	802	1,624
	Hanyu Chemical Co., Ltd.	1,062	3,496	-	-
	SK(China) Company Management Limited	-	363	-	-
	SK Engineering & Construction Co., Ltd.	1,860	4,395	-	-
	SKC, Ltd.	194	29,570	85,754	249,015
	SK Airgas Inc.	37	84	11	17
	Mitsui Chemicals & SKC Polyurethanes Inc.	666	1,866	569	1,491
	SK Nexilis Co., Ltd.	65	83	-	-
	SK Picglobal Co., LTD.	74,374	181,452	-	-
	SK E&S Co., Ltd.	2,239	6,601	1,353	8,542
	Ko-one Energy Service Co., Ltd.	-	-	-	-
	Chungcheong Energy Service Co., Ltd.	-	-	-	-
	Boryeong LNG Terminal Co. Ltd.	-	-	-	-
	Prism Energy International Pte. Ltd.	-	-	-	-
	SK Infosec Co., Ltd.	-	-	-	-
	SK Networks Co., Ltd.	17,223	189,104	148,135	503,744
	Happynarae Co., Ltd.	845	5,419	4,406	15,544
	SK PINX Co., Ltd.	1	34	-	29
	SK RENT-A-CAR Co., Ltd.	31	80	-	-
	SK Networks (Shanghai) Co. Ltd.	-	-	-	-
	SK Telecom Co., Ltd.	5,950	13,320	2,292	5,750
	11Street Co., Ltd.	-	-	-	-
	FSK L&S Co., Ltd.	-	-	-	-
	SK Broadband Co., Ltd.	813	1,921	-	-
	SK Planet Co., Ltd.	66	153	20	138
	SK Hynix Inc.	16,918	65,818	10,427	49,880
	SK Property Investment Management Co., Ltd.	-	-	-	-
	Hi-tech Blending PVT. LTD.	2,545	8,615	3,273	4,953
	Huizhou EVE United Energy Co., Ltd.	16,974	46,518	6,792	8,531
	Baic Electronics SK(Jiangsu) Technology Co., Ltd.	11,250	23,762	-	-
	Others	1,325	3,247	322	466
Conglomerate affiliates	Ulsan Aromatics Co., Ltd.	13,538	36,864	12,664	40,383
	SK Gas Co., Ltd.	2,276	9,434	3,382	93,874
	SK Advanced Co., Ltd. (*3)	23	61	5	31
	SK Chemicals Co., Ltd.	12,898	39,407	18,083	57,144
	SK Shipping Co., Ltd. (*3)	-	-	-	32
	SK B&T Pte Ltd. (*3)	-	-	-	19,389
	SK Shipping Europe Plc. (*3)	-	-	-	-
	SK Shipping (S PORE) Pte, Ltd. (*3)	-	-	-	42
	Others	104	271	15	15
		₩ 315,179	₩ 1,202,441	₩ 364,993	₩ 1,319,034

25.Transactions with related parties (cont'd)

		Purchase, etc. (*2)			
		For the nine-month period ended			
		September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited)	
Relationship	Company name	Three months	Nine months	Three months	Nine months
Ultimate parent	SK Holdings Co., Ltd.	₩ 63,709	₩ 219,344	₩ 80,112	₩ 219,493
Associates and joint ventures	Daehan Oil Pipeline Corporation	14,658	45,095	13,430	40,139
	Oilhub Korea Yeosu Corporation	3,464	11,535	3,611	10,629
	Sinopec-SK(Wuhan) Petrochemical Co., Ltd.	130,584	380,347	127,468	396,671
	Beijing BESK Technology Co., Ltd.	-	1,096	-	-
	FSK L&S (Shanghai) Co., Ltd.	5,910	15,199	4,641	13,128
	SABIC SK Nexlene Company Pte. Ltd.	42,516	117,906	51,104	146,236
	Asia Bitumen Trading Pte. Ltd.	-	1,982	-	-
	Hi-tech Lubricants Ltd.	-	-	-	-
	Best Oil Company Ltd.	-	-	-	-
	Peru LNG Company, LLC.	-	-	-	-
	Others	1	81	142	171
Other related parties	SK M&Service Co., Ltd.	3,771	14,877	1,074	2,132
	Korea Nexlene Company	1	7	5	17
	SK Biotek Co., Ltd.	-	-	-	-
	Hanyu Chemical Co., Ltd.	-	-	-	-
	SK(China) Company Management Limited	238	359	120	350
	SK Engineering & Construction Co., Ltd.	20,468	155,902	143,046	345,119
	SKC, Ltd.	-	14,797	38,858	118,190
	SK Airgas Inc.	7,639	22,469	9,712	28,787
	Mitsui Chemicals & SKC Polyurethanes Inc.	-	-	-	-
	SK Nexilis Co., Ltd.	14,761	34,553	-	-
	SK Picglobal Co., Ltd.	35,969	92,044	-	-
	SK E&S Co., Ltd.	1,455	4,375	1,554	4,638
	Ko-one Energy Service Co., Ltd.	5,923	36,646	7,230	37,803
	Chungcheong Energy Service Co., Ltd.	2,650	9,296	2,345	7,602
	Boryeong LNG Terminal Co. Ltd.	3,518	6,585	-	-
	Prism Energy International Pte. Ltd.	31,779	62,399	-	-
	SK Infosec Co., Ltd.	8,037	27,854	7,714	21,088
	SK Networks Co., Ltd.	15,400	52,694	20,399	66,896
	Happynarae Co., Ltd.	41,448	117,823	43,024	109,365
	SK PINX Co., Ltd.	1,119	3,735	1,111	3,228
	SK RENT-A-CAR Co., Ltd.	620	1,192	15	36
	SK Networks (Shanghai) Co. Ltd.	-	-	7	2,439
	SK Telecom Co., Ltd.	4,140	13,940	7,130	14,274
	11Street Co., Ltd.	52	164	93	259
	FSK L&S Co., Ltd.	9,313	31,069	2,017	5,332
	SK Broadband Co., Ltd.	25	73	27	80
	SK Planet Co., Ltd.	1,281	2,182	380	1,145
	SK Hynix Inc.	208	918	215	898
	SK Property Investment Management Co., Ltd.	1,183	1,311	393	619
	Hi-tech Blending Pvt. Ltd.	-	-	-	-
	Huizhou EVE United Energy Co., Ltd.	40,142	97,129	-	-
	Baic Electronics SK(Jiangsu) Technology Co., Ltd.	71,493	97,862	-	-
	Others	1,595	6,361	2,981	5,262
Conglomerate affiliates	Ulsan Aromatics Co., Ltd.	11,841	52,371	20,383	58,309
	SK Gas Co., Ltd.	41,115	188,939	70,319	174,929
	SK Advanced Co., Ltd. (*3)	7,087	17,360	2,674	7,200
	SK Chemicals Co., Ltd.	5,474	52,197	33,042	90,614
	SK Shipping Co., Ltd. (*3)	-	-	-	53,227
	SK B&T Pte Ltd. (*3)	-	-	-	-
	SK Shipping Europe Plc. (*3)	-	-	-	3,333
	SK Shipping (S PORE) Pte, Ltd. (*3)	-	-	37	2,653
	Others	5	8	-	-
		₩ 650,592	₩ 2,012,076	₩ 696,413	₩ 1,992,291

(*1) Dividends received from investments in associates and joint ventures are excluded above, and disclosed in Note 8.

25. Transactions with related parties (cont'd)

(*2) Lease transaction amounts are included.
(*3) As of February 19, 2019, the entity was excluded from conglomerate affiliates, and the above amount is the transaction amount before such exclusion.

Significant outstanding balances with related parties as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

		Receivables (*1)		Payables (*2)	
Relationship	Company name	September 30, 2020 (Unaudited)	December 31, 2019	September 30, 2020 (Unaudited)	December 31, 2019
Ultimate parent	SK Holdings Co., Ltd.	₩ 11,230	₩ 7,715	₩ 28,599	₩ 64,375
Associates and joint ventures	Daehan Oil Pipeline Corporation	-	-	6,876	2,928
	Oilhub Korea Yeosu Corporation	-	-	5,096	12,295
	Sinopec-SK(Wuhan) Petrochemical Co., Ltd.	385	792	6,845	7,129
	Beijing BESK Technology Co., Ltd.	64	145	-	-
	FSK L&S (Shanghai) Co., Ltd.	24	36	2,267	2,174
	Yemen LNG Company Ltd.	51,364	45,753	-	-
	SABIC SK Nexlene Company Pte. Ltd.	71	2,943	29,864	19,598
	Asia Bitumen Trading Pte. Ltd.	5,793	7,011	-	-
	Hi-tech Lubricants Ltd.	285	248	-	-
	Best Oil Company Ltd.	69,399	133,858	38,046	38,026
	Korea Consortium Kazakh B.V(*3)	146,170	146,170	-	-
	Others	-	42	-	911
Other related parties	SK M&Service Co., Ltd.	440	374	584	590
	Korea Nexlene Company	13,098	7,239	81	169
	SK Biotek Co., Ltd.	591	712	-	23
	Hanyu Chemical Co., Ltd.	379	422	-	-
	SK(China) Company Management Limited	-	-	1,684	9,207
	SK Engineering & Construction Co., Ltd.	1,840	1,308	-	49,737
	SKC, Ltd.	251	28,300	-	3,963
	SK Airgas Inc.	10	-	2,839	3,582
	Mitsui Chemicals & SKC Polyurethanes Inc.	267	238	-	-
	SKC (Jiangsu) High Tech Plastics Co., Ltd.	5,157	-	-	-
	SK Nexilis Co., Ltd.	34	-	11,143	-
	SK Picglobal Co., LTD.	10,903	-	5,788	-
	SK E&S Co., Ltd	3,690	5,683	904	803
	Chungcheong Energy Service Co., Ltd.	905	430	104	10
	Boryeong LNG Terminal Co. Ltd.	-	-	-	-
	Prism Energy International Pte. Ltd.	-	-	4,884	-
	SK Infosec Co., Ltd.	-	-	7,148	5,967
	SK Networks Co., Ltd.	9,236	38,715	9,604	12,894
	Happynarae Co., Ltd.	211	8,597	11,652	12,811
	SK PINX Co., Ltd.	-	-	49	23
	SK RENT-A-CAR Co., Ltd.	11	-	3,773	76
	SK Networks (Shanghai) Co., Ltd.	-	-	-	-
	SK Telecom Co., Ltd.	2,170	2,817	4,466	5,970
	11Street Co., Ltd.	-	-	4	33
	FSK L&S Co., Ltd.	-	-	3,305	1,117
	SK Broadband Co., Ltd.	1,399	1,506	1	2
	SK Planet Co., Ltd.	58	17	526	768
	SK Hynix Inc.	9,253	13,050	139	56
	SK Property Investment Management Co., Ltd.	563	115	964	113
	Hi-tech Blending PVT. LTD.	2,528	4,427	-	-
	Huizhou EVE United Energy Co., Ltd	352,641	280,324	44,240	-
	Baic Electronics SK(Jiangsu) Technology Co., Ltd.	2,231	477	67,472	-
	Others	3,076	258	1,475	2,889

25. Transactions with related parties (cont'd)

Relationship	Company name	Receivables (*1) September 30, 2020 (Unaudited)	Receivables (*1) December 31, 2019	Payables (*2) September 30, 2020 (Unaudited)	Payables (*2) December 31, 2019
Conglomerate affiliates	Ulsan Aromatics Co., Ltd.	₩ 3,283	₩ 3,693	₩ 5,921	₩ 7,969
	SK Gas Co., Ltd.	11,629	1,201	262,045	305,605
	SK Advanced Co., Ltd.	17	-	2,375	1,348
	SK Chemicals Co., Ltd.	4,407	7,156	1,875	8,992
	Others	41	-	-	-
		₩ 725,104	₩ 751,772	₩ 572,638	₩ 582,153

(*1) Consists of trade receivables, other receivables, guarantee deposits and loans that were accounted before deduction of allowance for doubtful accounts.

(*2) Consists of trade payables, other payables, accrued expenses and lease liabilities.

(*3) As of September 30, 2020 and December 31, 2019, loss on investments in associates amounting to ₩13,843 million exceeding the carrying amount of the investment in associates was recognized as allowance for doubtful accounts on loans, and long-term loan to Korea Consortium Kazakh B.V. was impaired and fully recognized as the Group's loss allowance.

Details of equity and capital investment transactions with related parties for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

Relationship	Company name	Description	September 30, 2020 (Unaudited)	September 30, 2019 (Unaudited)
Associates and joint ventures	Zhejiang Shenxin SK Packaging Co., Ltd..	Loan provided	₩ 8	₩ -
		Loan collected	868	-
	Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	Paid-in capital increase	-	187,523
	Beijing BESK Technology Co., Ltd.	Paid-in capital increase	-	93,112
	Yemen LNG Company Ltd.	Loan provided	5,191	7,236
	SK South East Asia Investment Pte. Ltd.	Paid-in capital increase	120,660	113,470
	Zhejiang SK energy Baoying Group Co., Ltd.	Paid-in capital increase	77,251	-
	The Qoos Inc.	Paid-in capital increase	3,423	-
	Energy Solution Holdings Inc.	Establishment	6,161	-
Others	Huizhou EVE United Energy Co., Ltd	Loan provided	69,810	111,773
	SKC (Jiangsu) High Tech Plastics Co., Ltd.	Loan provided	5,189	-
		Loan collected	32	-
	SK Networks (Shanghai) Co., Ltd.	Loan collected	-	5,075

The Company defines key management as registered directors who have substantial roles and responsibilities for planning, operating, and controlling of the business, and the compensations for key management for the three-month and nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended September 30, 2020 (Unaudited) Three months	September 30, 2020 (Unaudited) Nine months	September 30, 2019 (Unaudited) Three months	September 30, 2019 (Unaudited) Nine months
Salaries and others	₩ 477	₩ 3,230	₩ 386	₩ 4,562
Provision for severance and retirement benefits	167	483	141	744
Share-based payment	57	296	214	642
	₩ 701	₩ 4,009	₩ 741	₩ 5,948

Outstanding balances with related parties are unsecured and interest free, except for specific transactions with agreed terms and conditions. There are no guarantees provided to or from related parties related to the above outstanding balances. The Group also provides guarantees for some of the related parties as of September 30, 2020 (See Note 15).

26. Segment information

The Group has several reportable business segments - Petroleum, Petrochemicals, Lubricants, Battery, E&P and Others - with each segment representing a strategic business unit that offers different products and serves different markets.

Profit or loss by business segments for the nine-month periods ended September 30, 2020 and 2019 is as follows (In millions of Korean won):

	For the nine-month period ended September 30, 2020 (Unaudited)							
	Petroleum	Petro-chemicals	Lubricants	Battery	E&P	Others	Consolidation adjustments	Total
Sales	₩ 39,964,183	₩ 8,238,602	₩ 2,986,022	₩ 1,361,751	₩ 340,217	₩ 2,441,095	₩ (28,550,087)	₩ 26,781,783
Intersegment sales	(22,095,435)	(2,803,937)	(1,266,738)	(248,776)	-	(2,135,201)	28,550,087	-
Net sales	17,868,748	5,434,665	1,719,284	1,112,975	340,217	305,894	-	26,781,783
Operating profit (loss)	₩ (2,030,324)	₩ (74,975)	₩ 136,878	₩ (317,584)	₩ 75,086	₩ (32,946)	₩ -	₩ (2,243,865)

	For the nine-month period ended September 30, 2019 (Unaudited)							
	Petroleum	Petro-chemicals	Lubricants	Battery	E&P	Others	Consolidation adjustments	Total
Sales	₩ 62,609,902	₩ 11,493,159	₩ 3,718,615	₩ 491,118	₩ 503,534	₩ 1,877,746	₩ (42,605,987)	₩ 38,088,087
Intersegment sales	(35,256,227)	(4,113,891)	(1,540,594)	(25,797)	-	(1,669,478)	42,605,987	-
Net sales	27,353,675	7,379,268	2,178,021	465,321	503,534	208,268	-	38,088,087
Operating profit (loss)	₩ 342,326	₩ 698,393	₩ 207,042	₩ (196,705)	₩ 154,853	₩ (55,610)	₩ -	₩ 1,150,299

There are no customers accounting for 10% or more of the consolidated sales of the Group for the nine-month period ended September 30, 2020.

Non-current assets of the Group by business segments as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)							
	Petroleum	Petro-chemicals	Lubricants	Battery	E&P	Others	Consolidation adjustments	Total
Non-current assets (*1)	₩ 8,795,921	₩ 4,133,573	₩ 1,198,083	₩ 3,420,004	₩ 620,619	₩ 1,780,697	₩ 2,719	₩ 19,951,616

	December 31, 2019							
	Petroleum	Petro-chemicals	Lubricants	Battery	E&P	Others	Consolidation adjustments	Total
Non-current assets (*1)	₩ 8,741,288	₩ 3,835,593	₩ 1,265,318	₩ 1,876,338	₩ 634,509	₩ 1,368,423	₩ 4,355	₩ 17,725,824

(*1) Includes property, plant and equipment, right-of-use asset, goodwill, intangible assets and other non-current assets.

The financial information of the Group by geographic segments (based on country of domicile) for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended September 30, 2020 (Unaudited)						
	Domestic	Asia	Europe	USA	Others	Consolidation adjustments	Total
Sales	₩ 35,208,025	₩ 14,967,791	₩ 2,173,506	₩ 2,981,867	₩ 681	₩ (28,550,087)	₩ 26,781,783
Intersegment sales	(20,754,577)	(4,287,264)	(1,359,665)	(2,148,581)	-	28,550,087	-
Net sales	14,453,448	10,680,527	813,841	833,286	681	-	26,781,783

	For the nine-month period ended September 30, 2019 (Unaudited)						
	Domestic	Asia	Europe	USA	Others	Consolidation adjustments	Total
Sales	₩ 51,986,105	₩ 20,999,395	₩ 3,686,894	₩ 4,020,710	₩ 970	₩ (42,605,987)	₩ 38,088,087
Intersegment sales	(32,597,946)	(4,738,916)	(1,896,318)	(3,372,807)	-	42,605,987	-
Net sales	19,388,159	16,260,479	1,790,576	647,903	970	-	38,088,087

26. Segment information (cont'd)

Non-current assets of the Group by geographic segments (based on country of domicile) as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)													
		Domestic		Asia		Europe		USA		Others		Consolidation adjustments		Total
Non-current assets (*1)	₩	15,280,650	₩	867,207	₩	2,245,287	₩	1,555,753	₩	-	₩	2,719	₩	19,951,616

	December 31, 2019													
		Domestic		Asia		Europe		USA		Others		Consolidation adjustments		Total
Non-current assets (*1)	₩	15,288,636	₩	405,892	₩	1,096,469	₩	930,472	₩	-	₩	4,355	₩	17,725,824

(*1) Includes property, plant and equipment, right-of-use asset, goodwill, intangible assets and other non-current assets.

27. Cash flow information

Details of non-cash adjustments for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended			
		September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited)
Bad debt expenses (reversal of allowance for doubtful accounts)	₩	181	₩	(5,575)
Loss on (reversal of) valuation of inventories		41,490		(244,788)
Depreciation		742,626		656,608
Depreciation of right-of-use assets		164,066		147,358
Amortization		75,647		96,918
Retirement benefits		51,951		50,427
Interest expenses		274,140		257,749
Loss on foreign currency translation		104,813		265,899
Loss on valuation of derivatives		35,744		457,674
Loss on investments in associates and joint ventures		117,028		32,833
Loss on disposals of investments in associates		907		97
Loss on disposals of property, plant and equipment		10,915		17,287
Impairment loss on property, plant and equipment		65,643		1,239
Loss on disposals of intangible assets		87		44
Impairment loss on intangible assets		-		33,754
Interest income		(46,777)		(78,279)
Dividends income		(8,004)		(3,933)
Gain on foreign currency translation		(117,492)		(167,604)
Gain on valuation of derivatives		(109,078)		(444,441)
Gain on investments in associates and joint ventures		(114,340)		(103,761)
Gain on disposals of investments in associates		(12)		(1,744)
Gain on disposals of property, plant and equipment		(3,089)		(3,828)
Gain on disposals of intangible assets		(1,263)		(1,020)
Income tax expense (benefit)		(601,245)		240,148
Others		6,049		4,143
	₩	689,987	₩	1,207,205

27. Cash flow information (cont'd)

Details of working capital adjustments for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended			
		September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited)
Trade receivables	₩	1,340,641	₩	471,827
Other receivables		230,595		(176,156)
Accrued income		208		(234)
Advanced payments		(360,633)		45,554
Guarantee deposits		(33,677)		35,886
Prepaid expenses		(6,619)		(6,954)
Derivative assets		24,280		411,750
Inventories		1,984,460		(19,538)
Trade payables		(1,291,258)		(164,076)
Other payables		(617,832)		(94,106)
Accrued expenses		1,415,849		(9,135)
Advances received		82,751		91,772
Withholdings		(61,799)		(38,643)
Derivative liabilities		37,088		(481,489)
Retirement benefits paid		(45,444)		(54,986)
Plan assets		42,666		47,014
Others		6,076		(9,578)
	₩	2,747,352	₩	48,908

Significant non-cash transactions for the nine-month periods ended September 30, 2020 and 2019 are as follows (In millions of Korean won):

	For the nine-month period ended			
		September 30, 2020 (Unaudited)		September 30, 2019 (Unaudited)
Transfers from construction-in-progress to property, plant and equipment and intangible assets	₩	1,802,502	₩	528,674
Transfers from long-term debt to current portion		998,376		1,043,475
Decrease(Increase) in other payables due to acquisition of property, plant and equipment		9,003		(16,526)
Increase(decrease) in other receivables due to disposal of property, plant and equipment		(137)		4,260
Increase in other payables due to acquisition of intangible assets		-		9,132
Decrease in advances received due to disposal of intangible assets		-		16,891
Increase in right-of-use assets		154,302		1,292,401
Transfers to assets held for sale		20,009		694,470
Transfers to liabilities held for sale		(455)		7,904
Transfers to other payables under B2B corporate purchase and national tax card agreement		2,091,155		-

28. Financial risk management

The Group's principal financial liabilities comprise borrowings, bonds payable, lease liabilities and trade and other payables. The main purpose of these financial liabilities is to finance the operations of the Group. Further, the Group has various financial assets, including trade and other receivables that are directly related to these operations.

The Group is exposed to market risk, credit risk and liquidity risk. Key management of the Group is responsible for the financial risk-taking activities of the Group, and such activities are governed by appropriate policies and procedures.

28.1 Market risk

Market risk is the risk that the fair value of future cash flows of a financial instrument will fluctuate because of changes in market prices. Market prices comprises four types of risk: interest rate risk, foreign currency risk, crude oil and petroleum product price risk and other price risk.

28.1.1 Interest rate risk

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The exposure to the risk of changes in market interest rates relates primarily to the long-term debt obligations of the Group with floating interest rates. The Group entered into currency forward contracts and interest rate swaps to hedge the risks from changes in future cash flows of a financial instrument. Except for these changes, key management of the Group determined that the effect of the changes in market interest rates is not significant.

28.1.2 Foreign currency risk

Foreign currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. The exposure to the risk of changes in foreign exchange rates relates primarily to the operating activities of the Group and the net investments in foreign subsidiaries. The Group manages its foreign currency risk periodically. Specifically, the Group entered into currency forward contracts and currency interest rate swaps to hedge the risks from changes in foreign exchange rates.

Significant monetary assets and liabilities denominated in foreign currencies as of September 30, 2020 and December 31, 2019 are as follows (in thousands of USD, EUR, JPY, CNY, IDR and in millions of KRW):

		September 30, 2020 (Unaudited)		December 31, 2019	
	Currency	Foreign currencies	Korean won equivalent	Foreign currencies	Korean won equivalent
Assets	USD	3,148,210	₩ 3,694,424	4,094,376	₩ 4,740,469
	EUR	128,963	176,605	54,743	71,025
	JPY	8,093,628	90,001	10,764,596	114,478
	CNY	747,551	128,504	593,201	98,317
	IDR	113,088,996	9,047	241,774,920	20,092
Liabilities	USD	4,490,228	5,269,283	6,474,306	7,495,951
	EUR	366,179	501,453	69,024	89,554
	JPY	1,706,781	18,979	585,258	6,224
	CNY	6,201	1,066	3,932	652
	IDR	390,413,072	31,233	270,724,975	22,497

Should the exchange rate of aforementioned currencies fluctuate by 5%, the effects on profit before income taxes as of September 30, 2020 and December 31, 2019 would be as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)		December 31, 2019	
	Increase by 5%	Decrease by 5%	Increase by 5%	Decrease by 5%
Increase (decrease) in income before income taxes	₩ (88,942)	₩ 88,942	₩ (78,828)	₩ 78,828

28.1.3 Crude oil and petroleum product price risk

Crude oil and petroleum product price risk is the risk that profit or cash flow will fluctuate because of changes in international market prices of crude oil and petroleum products. The Group manages these risks to maintain stable margins through the use of fixed-price contracts with customers and derivative contracts of fluctuations in fair values according to changes in international market prices. Key management of the Group determined that the risk from changes in the price of crude oil and petroleum products and the risk to fluctuations in fair values are approximately managed.

28.1.4 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 those arising from interest rate risk or foreign currency risk. The marketable long-term investment securities of the Group are susceptible to market price risks arising from fluctuations in the price of securities. However, key management of the Group determined that the effect of fluctuation in the price of securities is not significant.

28.2 Credit risk

Credit risk refers to the risk that a counter party will default on its contractual obligations under financial instruments or customer contract, resulting in financial loss to the Group.

28.2.1 Trade and other receivables

Customer credit risk is managed by each business unit subject to the Group’s established policies, procedures and control related to customer credit risk management. Credit quality of the customer is assessed based on an extensive credit rating scorecard and individual credit limits are defined in accordance with this assessment. Outstanding customer receivables are regularly monitored and any shipments to major customers are generally covered by letters of credit or other forms of credit insurance.

As of September 30, 2020, trade receivables from top five major customers accounted for 14.6%, which were ₩411,929 million, of the Group’s total trade receivables.

Maximum exposure to credit risk at the reporting date is the book value of each class of financial assets. The requirement for impairment is analyzed at each reporting date on an individual basis for major clients. In addition, multiple receivables with low-value amounts are included in the aggregate of financial assets with similar credit risk characteristics and are reviewed for impairment collectively. Impairment of financial assets are determined based on historical data.

28.2.2 Other financial assets

Credit risks associated with the other financial assets of the Group that consist of short-term and long-term financial assets arise from the default by the counterparties. Maximum exposure to credit risks at the reporting date is the book value of the other financial assets. The Group deposits its surplus funds in the financial institutions whose credit ratings are high; therefore, credit risk related to financial institutions is considered limited.

28.2.3 Exposure to credit risk

The maximum exposure to credit risk as of September 30, 2020 and December 31, 2019 is carrying value of each class of financial assets as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)		
	Book value before deduction	Accumulated impairment	Book value (maximum exposure amount)
Cash and cash equivalents	₩ 3,594,679	₩ -	₩ 3,594,679
Long-term and short-term financial instruments	1,320,090	-	1,320,090
Trade and other receivables	4,570,999	(419,219)	4,151,780
Long-term investment securities	120,623	-	120,623
Derivative assets	93,761	-	93,761
Financial guarantee contracts	220,618	-	220,618
	₩ 9,920,770	₩ (419,219)	₩ 9,501,551

	December 31, 2019		
	Book value before deduction	Accumulated impairment	Book value (maximum exposure amount)
Cash and cash equivalents	₩ 2,196,001	₩ -	₩ 2,196,001
Long-term and short-term financial instruments	2,380,710	-	2,380,710
Trade and other receivables	5,980,914	(431,467)	5,549,447
Long-term investment securities	111,838	-	111,838
Derivative assets	75,287	-	75,287
Financial guarantee contracts	193,932	-	193,932
	₩ 10,938,682	₩ (431,467)	₩ 10,507,215

28.3 Liquidity risk

Liquidity risk refers to the risk that the Group may default on the contractual obligations that become due. The Group manages its risk of shortage of funds using a recurring liquidity planning tool.

The objective of the Group is to maintain a balance between continuity of funding and flexibility through the use of bank overdrafts, bank borrowings, bonds payable and lease liabilities. The maturity profile of the Group's bonds payable, borrowings, lease liabilities and financial guarantee contracts among financial liabilities based on contractual nominal amount as of September 30, 2020 is as follows (In millions of Korean won):

	Less than 3 months	3 ~ 12 months	1 ~ 5 years	More than 5 years	Total
Bonds payable and borrowings	₩ 1,122,978	₩ 2,267,182	₩ 8,603,526	₩ 2,566,189	₩ 14,559,875
Lease liabilities	56,825	164,306	611,958	409,115	1,242,204
Financial guarantee contracts	-	-	220,618	-	220,618
	₩ 1,179,803	₩ 2,431,488	₩ 9,436,102	₩ 2,975,304	₩ 16,022,697

Meanwhile, the Group has extended the actual maturity of the payables for the payments made by credit card and purchase-only cards. Payments will be paid to the credit card company at the end of the credit grant period according to the contract. As of September 30, 2020, the outstanding amount is ₩1,432,164 million, of which ₩1,411,052 million has a remaining credit period of less than 3 months, and ₩21,112 million has a remaining credit period of more than three months and less than a year.

Based on the carrying value of bonds payable, borrowings and lease liabilities reflected in the consolidated financial statements, 23% of the debt will mature in less than one year from September 30, 2020. The Group determined that the risk of a shortage of funds was properly managed considering the cash and cash equivalents that the Group retains.

28.4 Capital management

The primary objective of capital management is to ensure that the Group maintains a strong credit rating and healthy capital ratios in order to support its business and maximize stockholders' value. The Group manages its capital structure and makes adjustments to it in light of changes in economic conditions. No changes were made in the objectives, policies or processes for the nine-month period ended September 30, 2020.

The debt-to-equity ratio as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

	September 30, 2020 (Unaudited)	December 31, 2019
Liabilities	₩ 23,513,825	₩ 21,316,433
Equity	15,755,373	18,209,624
Debt-to-equity ratio	149.2%	117.1%

29. Assets and liabilities held for sale

Details of assets held for sale and related liabilities as of September 30, 2020 and December 31, 2019 are as follows (In millions of Korean won):

		September 30, 2020 (Unaudited)		December 31, 2019	
		Assets	Liabilities	Assets	Liabilities
Intangible assets and others	Peru 56, 88 (*1)	₩ 677,926	₩ 7,410	₩ 662,487	₩ 7,865
Property, plant and equipment	Land, etc. (*2)	-	-	67,000	-
Investments in associates and joint ventures	Zhejiang Shenxin SK Packaging Co., Ltd	4,570	-	-	-
		₩ 682,496	₩ 7,410	₩ 729,487	₩ 7,865

(*1) The Company entered into an agreement to sell its entire stake in the 56th and 88th Peru blocks to Pluspetrol for the year ended December 31, 2019, for the purpose of adjusting its E&P business portfolio and converting its business model.
(*2) SK Incheon Petrochem Co., Ltd., a subsidiary of the Company, has completed the sale of the land, an asset held for sale, in Seoknam-dong, Seo-gu, Incheon as of September 30, 2020.

30.Business combination

30.1 Nine months ended September 30, 2020

Details of business combination as of September 30, 2020 are as follows (In millions of Korean won):

	Primary business	Date of acquisition	The consideration transferred
Arkema France SA's functional polymer business	Selling and manufacturing of petrochemical products	June 1, 2020	₩ 448,781

In accordance with the resolution of the board of directors on October 14, 2019, the Group decided to acquire the French functional polymer business and related property, plant and equipment and intangible assets owned by Arkema France SA, and the acquisition was completed during the nine months ended September 30, 2020. Accordingly, the Group expects to be able to expand its business portfolio in high value-added packaging field.

30.1 Nine months ended September 30, 2020 (cont'd)

The fair values of assets acquired and liabilities assumed on the acquisition date from business combination incurred during the nine months ended September 30, 2020 are as follows (In millions of Korean won):

		Arkema France SA's functional polymer business
Current assets		
Other receivables	₩	22,585
Inventories		59,016
Non-current assets		
Property, plant and equipment		41,525
Intangible assets		168,512
The fair value of the identifiable assets acquired	₩	291,638
Current liabilities	₩	1,476
Non-current liabilities		4,779
The fair value of the identifiable liabilities assumed	₩	6,255
	₩	285,383

The initial accounting for the acquisition of Arkema France SA's functional polymers business has only been provisionally determined as of September 30, 2020.

Goodwill arising on business combination incurred for the nine-month period ended September 30, 2020 is as follows (In millions of Korean won):

		Arkema France SA's functional polymer business
Consideration transferred	₩	448,781
Less: fair value of the net identifiable asset		(285,383)
Goodwill	₩	163,398

30.2 The year ended December 31, 2019

The Group entered into a joint venture agreement with REPSOL PETROLEO S.A. ("REPSOL"), a joint operator of Iberian Lube Base Oil Company, S.A. ("ILBOC"), in April, 2012. The agreement has included a call option that enables to purchase the shares of the joint operator after a period of five years commencing from commercial operation date. As of December 31, 2019, the Group concluded that the call option had effective potential voting right and therefore, the Group has obtained control over ILBOC.

The Group evaluated identifiable net assets at fair values at the date the Group obtains the control. The adjustments for acquisition of control are as follows (In millions of Korean won):

		Amounts
Book value of assets acquired:		
Current assets:		
Cash and cash equivalents	₩	22,056
Trade and other receivables		87,391
Inventories		46,009
Other current assets		2,046
	₩	157,502
Non-current assets:		
Property, plant and equipment	₩	251,306
Goodwill and intangible assets		3,599
Right-of-use assets		20,173
Other non-current assets		442
	₩	275,520
Total	₩	433,022
Book value of liabilities assumed	₩	132,160
Book value of identifiable net assets	₩	300,862
Non-controlling interests (*1)	₩	(90,259)
Consideration transferred		233,500
Goodwill	₩	22,897

(*1) Non-controlling interests (30%) arising from a business combination have been measured by its proportionate share of the acquiree's net identifiable assets.

As of September 30, 2020 and December 31, 2019, the initial accounting for the acquisition of control of ILBOC has only been provisionally determined.

31. Restatement of financial statements

The Group has concluded that the joint approvals with each of the joint-operator companies PT Pertamina Patra Niaga Company Limited and REPSOL PETROLEO S.A. ("REPSOL") are significant in the decision-making requirement for the management of PT. Patra SK and Iberian Lube Base Oil Company, S.A. ("ILBOC"), respectively. As a result, the Group reclassified PT. Patra SK and ILBOC from a subsidiary to a joint operation and restated the interim condensed consolidated financial statements for the three-month and nine-month periods ended September 30, 2019, presented for comparative purposes.

32. Subsequent events

SK IE Technology Co., Ltd., a subsidiary of the Company, has increased its paid-in capital by allocation to third parties in accordance with the resolution of the board of directors on September 22, 2020. The number of new shares issued due to paid-in capital increase amounted to 6,274,160 shares (issue price: ₩47,816 per share), and the payment has been completed on October 6, 2020. As a result, the Company's equity interest in SK IE Technology Co., Ltd. has decreased from 100% to 90%.

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 Shareholders and Board of Directors
SK Innovation Co., Ltd.

Opinion
We have audited the consolidated financial statements of SK Innovation Co., Ltd. and its subsidiaries (the "Group"), which comprise the consolidated statement of financial position as of December 31, 2019, and the consolidated statement of comprehensive income, 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 accompanying 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 Korean International Financial Reporting Standards ("KIFRS").

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.

Key audit matters
Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

(1) Lease identification of consecutive voyage charter contracts

The Group has ship charter contracts with shipping companies related to a transportation of crude oil. Among the ship charter contracts, there are consecutive voyage charter contracts that give the shipping companies a substitution right of the ship. The Group reviews whether the contract is a lease or contains a lease element in accordance with the KIFRS 1116 *Leases* initial applied as of January 1, 2019 as described in Note 2 and recognizes right-of use assets and lease liabilities for contracts in which lease elements are identified.

The lease identification related to the consecutive voyage charter contract in which the substitution right of the ship was granted to the shipping company, the supplier, among ship charter contracts includes management's significant judgment on whether such substitution right granted is substantive. Also, since whether or not the lease is identified based on this judgment has a significant impact on the consolidated financial statements, we have decided to identify the lease identification of consecutive voyage charter contracts that granted the substitution right of the ship to shipping companies as a key audit matter.

The main audit procedures we performed in this regard are as follows:

- Understanding and review of substitution rights granted to shipping companies through contract analysis
- Review of shipping companies' legal and economic ability to exercise substitution rights
- Evaluation on the feasibility of economic benefits through understanding the freight and settlement structure in the Group's maritime transport contract
- Analytical procedures for historical data, similar substitution cases in the past, and substitution cases incurred during the current period
- Recalculation of right-of-use assets and lease liabilities presented by the Group

Other matters
The consolidated financial statements of the Group for the year ended December 31, 2018, were audited by Deloitte Anjin LLC, whose report dated March 5, 2019 expressed an unqualified opinion on those consolidated financial statements. The consolidated financial statements for which the auditor expressed unqualified opinion are consolidated financial statements prior to retrospective reflection of adjustments described in Note 37 to the consolidated financial statements.

Meanwhile, as part of our audit of the consolidated financial statements for the year ended December 31, 2019, we also audited adjustments applied to restate the consolidated financial statements for the year ended December 31, 2018 as described in Note 37 to the consolidated financial statements. In our opinion, the adjustments were appropriate and applied correctly.

Except for the above adjustments, we have not entered into any audit, review, or other contracts for the Group's consolidated financial statements for the year ended December 31, 2018. Therefore, we do not express an audit opinion or any other form of assurance on the consolidated financial statements as a whole for the year ended December 31, 2018.

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 KIFRS, 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.

EY 한영

Building a better working world

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.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partner on the audit resulting in this independent auditor's report is Bok Han Lee.

Ernst & Young Han Young

March 6, 2020

This audit report is effective as of March 6, 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.

SK Innovation Co., Ltd. and its subsidiaries
Consolidated statements of financial position
as of December 31, 2019 and 2018
(Korean won and U.S. dollar in thousands)

		Korean won		Translation into U.S. dollar (Note 2)	
	Notes	**2019**	**2018 (restated)**	**2019**	**2018 (restated)**
Assets					
Current assets:					
Cash and cash equivalents	4	₩ 2,196,001,396	₩ 1,825,558,285	$ 1,896,702	$ 1,576,748
Short-term financial instruments	4	2,376,093,788	2,671,963,400	2,052,249	2,307,794
Trade receivables	4, 5	4,138,301,739	4,413,854,740	3,574,280	3,812,277
Current portion of long-term investment securities	4, 7	1,051,171	2,591,171	908	2,238
Short-term loans	4, 5	34,480,166	43,550,898	29,781	37,615
Other receivables	4, 5	749,512,768	683,702,009	647,359	590,518
Accrued income	4, 5	5,183,656	5,083,257	4,477	4,390
Advanced payments		402,684,301	470,726,025	347,801	406,569
Prepaid expenses		50,097,240	46,792,972	43,269	40,415
Current tax assets		15,919,531	9,266,155	13,750	8,003
Guarantee deposits	4, 5	123,852,149	171,798,101	106,972	148,383
Derivative assets	4, 13	34,458,260	72,206,845	29,762	62,366
Inventories	6	6,495,210,174	6,151,889,697	5,609,959	5,313,430
Assets classified as held for sales	30	729,486,873	65,500,000	630,063	56,573
Other current assets		443,657	243,924	383	212
Total current assets		17,352,776,869	16,634,727,479	14,987,715	14,367,531
Non-current assets:					
Long-term financial instruments	4	4,615,948	4,720,012	3,987	4,077
Long-term trade receivables	4, 5	-	78,836	-	68
Long-term investment securities	4, 7	369,486,521	333,183,684	319,128	287,773
Investments in associates and joint ventures	8	3,495,069,938	2,881,803,332	3,018,716	2,489,034
Long-term loans	4, 5	403,691,278	196,242,473	348,671	169,496
Long-term other receivables	4, 5	8,455,857	12,857,090	7,303	11,105
Property, plant and equipment	9, 26	15,462,371,776	13,685,031,864	13,354,959	11,819,858
Right-of-use assets	10, 26	1,125,712,493	-	972,286	-
Goodwill and intangible assets	11, 26	1,118,922,800	2,005,923,554	966,421	1,732,530
Long-term guarantee deposits	4, 5	83,566,701	42,565,096	72,177	36,764
Long-term derivative finanacial assets	4, 13	40,828,407	8,502,747	35,264	7,344
Deferred tax assets		41,740,920	23,934,019	36,052	20,672
Other non-current assets	26	18,817,099	23,812,327	16,254	20,567
Total non-current assets		22,173,279,738	19,218,655,034	19,151,218	16,599,288
Total assets		₩ 39,526,056,607	₩ 35,853,382,513	$ 34,138,933	$ 30,966,819
Liabilities and equity					
Liabilities					
Current liabilities:					
Short-term borrowings	4, 12	₩ 1,131,974,169	₩ 153,742,080	$ 977,694	$ 132,788
Trade payables	4	4,928,198,197	4,588,331,578	4,256,519	3,962,974
Other payables	4	529,313,420	465,067,560	457,172	401,682
Accrued expenses	4	1,470,407,321	1,341,253,207	1,270,001	1,158,450
Advances received		145,159,282	117,420,458	125,375	101,417
Withholdings		705,518,790	642,579,054	609,362	555,000
Current tax liabilities		83,390,901	220,772,167	72,025	190,682
Current portion of long-term debt	4, 12	1,155,413,760	1,213,849,009	997,939	1,048,410
Current portion of lease liabilities	4, 10	223,202,897	20,509	192,782	18
Current portion of leasehold deposits received	4	11,569,721	12,357,819	9,993	10,674
Derivative liabilities	4, 13	14,065,053	55,846,355	12,148	48,235
Liabilities classified as held for sales	30	7,865,246	-	6,793	-
Other current liabilities		50,301,978	55,393,418	43,446	47,843
Total current liabilities		10,456,380,735	8,866,633,214	9,031,249	7,658,173
Non-current liabilities:					
Bonds payable and long-term borrowings	4, 12	8,843,635,957	6,646,149,336	7,638,311	5,740,326
Lease liabilities	4, 10	937,875,544	3,876	810,050	3
Long-term other payables	4	6,179,602	12,590,361	5,337	10,874
Defined benefit liabilities	14	48,592,812	77,883,773	41,970	67,269
Long-term provisions	15	132,027,862	118,805,835	114,033	102,613
Leasehold deposits received	4	11,280,590	10,020,252	9,743	8,655
Long-term derivative liabilities	4, 13	687,454	-	594	-
Financial guarantee liablilities	4, 15	252,275	721,035	218	623
Deferred tax liabilities		879,452,103	946,255,025	759,589	817,287
Other non-current liabilities		67,911	65,582	59	57
Total non-current liabilities		10,860,052,110	7,812,495,075	9,379,904	6,747,707
Total liabilities		21,316,432,845	16,679,128,289	18,411,153	14,405,880
Equity					
Equity attributable to owners of the parent:					
Capital stock	1	468,569,950	468,569,950	404,707	404,707
Other paid-in capital	16, 17	4,629,395,914	4,628,540,029	3,998,442	3,997,703
Retained earnings		12,175,219,414	12,928,527,378	10,515,822	11,166,460
Other components of equity	18	194,895,970	96,999,819	168,334	83,779
Total equity attributable to owners of parent		17,468,081,248	18,122,637,176	15,087,305	15,652,649
Non-controlling interests		741,542,514	1,051,617,048	640,475	908,290
Total equity		18,209,623,762	19,174,254,224	15,727,780	16,560,939
Total liabilities and equity		₩ 39,526,056,607	₩ 35,853,382,513	$ 34,138,933	$ 30,966,819

The accompanying notes are an integral part of the consolidated financial statements.

SK Innovation Co., Ltd. and its subsidiaries
Consolidated statements of comprehensive income
for the years ended December 31, 2019 and 2018
(Korean won and U.S. dollar in thousands except for earnings per share)

		Korean won		Translation into U.S. dollar (Note 2)	
	Notes	**2019**	**2018 (restated)**	**2019**	**2018 (restated)**
Sales	19, 26	₩ 49,876,534,172	₩ 54,216,524,175	$ 43,078,713	$ 46,827,193
Cost of sales	22	46,745,610,183	50,251,193,139	40,374,512	43,402,309
Gross profit		3,130,923,989	3,965,331,036	2,704,201	3,424,884
Selling and administrative expenses	20, 22	1,861,631,739	1,862,165,944	1,607,904	1,608,366
Operating profit		1,269,292,250	2,103,165,092	1,096,297	1,816,518
Finance income	21	2,713,268,605	3,177,703,256	2,343,469	2,744,605
Finance costs	21	3,260,335,156	2,945,638,828	2,815,974	2,544,169
Gain on investments in associates and joint ventures, net	8, 21	54,208,955	155,164,442	46,821	134,017
Other non-operating income	21	117,781,924	109,082,989	101,729	94,216
Other non-operating expenses	21	517,757,708	212,012,324	447,192	183,117
Profit before tax from continuing operation		376,458,870	2,387,464,627	325,150	2,062,070
Income tax expense from continuing operation	23	310,684,280	701,483,046	268,340	605,876
Profit for the year from continuing operations		65,774,590	1,685,981,581	56,810	1,456,194
Profit for the year from discontinued operations	27	-	13,065,342	-	11,286
Profit for the year		₩ 65,774,590	₩ 1,699,046,923	$ 56,810	$ 1,467,480
Attributable to:					
Owners of the parent		₩ (35,740,135)	₩ 1,651,140,324	$ (30,869)	$ 1,426,103
Non-controlling interests		101,514,725	47,906,599	87,679	41,377
Other comprehensive income (loss)	18				
Items that will not be reclassified subsequently to profit or loss:					
Remeasurement of defined benefit plans		(11,812,966)	(19,519,151)	(10,204)	(16,859)
Net change in fair value of financial assets at FVOCI		(37,870,260)	(12,771,446)	(32,708)	(11,031)
Net gain (loss) on translation of foreign operations		(1,208,923)	230,564	(1,044)	199
Items that may be reclassified subsequently to profit or loss:					
Net change in fair value of financial assets at FVOCI		212,017	49,592	183	43
Equity adjustments of investments in associates and joint ventures		54,245,404	58,819,987	46,852	50,803
Net gain on translation of foreign operations		88,971,192	71,897,840	76,846	62,099
Net gain (loss) on valuation of derivative financial instruments for the cash flow hedges		(7,662,202)	8,170,486	(6,618)	7,056
Total comprehensive income		₩ 150,648,852	₩ 1,805,924,795	$ 130,117	$ 1,559,790
Attributable to:					
Owners of the parent		50,343,050	1,757,787,632	43,482	1,518,214
Non-controlling interests		100,305,802	48,137,163	86,635	41,576
		₩ 150,648,852	₩ 1,805,924,795	$ 130,117	$ 1,559,790
Earnings (loss) per share (Korean won and U.S. dollar)	24				
Basic earnings (loss) per share		₩ (434)	₩ 18,264	$ (0.37)	$ 15.77
Basic earnings per share of preferred stocks		1,600	18,314	1.38	15.82
Basic earnings (loss) per share from continuing operations		(434)	18,119	(0.37)	15.65
Basic earnings per share of preferred stocks from continuing operations		1,600	18,169	1.38	15.69

The accompanying notes are an integral part of the consolidated financial statements.

SK Innovation Co., Ltd. and its subsidiaries
Consolidated statements of change in equity
for the years ended December 31, 2019 and 2018
(Korean won in thousands)

	Capital stock	Other paid-in capital: Additional paid-in capital	Other paid-in capital: Treasury stock	Other paid-in capital: Other	Retained earnings	Other components of equity	Equity attributable to owners of the parent	Non-controlling interests	Total
As of January 1, 2018	₩ 468,569,950	₩ 5,683,247,356	₩ (136,097,148)	₩ 82,522,290	₩ 12,041,707,801	₩ (54,171,000)	₩ 18,085,779,249	₩ 1,223,553,649	₩ 19,309,332,898
Effect of change in accounting policy	-	-	-	-	(3,101,787)	25,004,360	21,902,573	-	21,902,573
Effect of corrections of prior year error	-	-	-	-	(1,478,569)	-	(1,478,569)	(147,978,127)	(149,456,696)
Restated balance after adjustment	468,569,950	5,683,247,356	(136,097,148)	82,522,290	12,037,127,445	(29,166,640)	18,106,203,253	1,075,575,522	19,181,778,775
Total comprehensive income (loss):									
Profit for the year	-	-	-	-	1,651,140,324	-	1,651,140,324	47,906,599	1,699,046,923
Remeasurement of defined benefit plans	-	-	-	-	(19,519,151)	-	(19,519,151)	-	(19,519,151)
Net change in fair value of financial assets at FVOCI	-	-	-	-	-	(12,721,854)	(12,721,854)	-	(12,721,854)
Equity adjustments of investments in associates and joint ventures	-	-	-	-	-	58,819,987	58,819,987	-	58,819,987
Net gain on translation of foreign operations	-	-	-	-	-	71,897,840	71,897,840	230,564	72,128,404
Net gain on valuation of derivative financial instruments for cash flow hedges	-	-	-	-	-	8,170,486	8,170,486	-	8,170,486
Transactions with stockholders recognized directly to equity:									
Acquisiton of treasury stock	-	-	(1,001,800,177)	-	-	-	(1,001,800,177)	-	(1,001,800,177)
Stock compensation cost	-	-	-	667,708	-	-	667,708	-	667,708
Dividends	-	-	-	-	(740,221,240)	-	(740,221,240)	(72,095,637)	(812,316,877)
As of December 31, 2018 (restated)	₩ 468,569,950	₩ 5,683,247,356	₩ (1,137,897,325)	₩ 83,189,998	₩ 12,928,527,378	₩ 96,999,819	₩ 18,122,637,176	₩ 1,051,617,048	₩ 19,174,254,224
As of January 1, 2019 (restated)	₩ 468,569,950	₩ 5,683,247,356	₩ (1,137,897,325)	₩ 83,189,998	₩ 12,928,527,378	₩ 96,999,819	₩ 18,122,637,176	₩ 1,051,617,048	₩ 19,174,254,224
Total comprehensive income (loss):									
Profit for the year	-	-	-	-	(35,740,135)	-	(35,740,135)	101,514,725	65,774,590
Remeasurement of defined benefit plans	-	-	-	-	(11,812,966)	-	(11,812,966)	-	(11,812,966)
Net change in fair value of financial assets at FVOCI	-	-	-	-	-	(37,658,243)	(37,658,243)	-	(37,658,243)
Equity adjustments of investments in associates and joint ventures	-	-	-	-	-	54,245,404	54,245,404	-	54,245,404
Net gain on translation of foreign operations	-	-	-	-	-	88,971,192	88,971,192	(1,208,923)	87,762,269
Net loss on valuation of derivative financial instruments for cash flow hedges	-	-	-	-	-	(7,662,202)	(7,662,202)	-	(7,662,202)
Transactions with stockholders recognized directly to equity:									
Stock compensation cost	-	-	-	855,885	-	-	855,885	-	855,885
Dividends	-	-	-	-	(705,754,863)	-	(705,754,863)	(298,195,984)	(1,003,950,847)
Issuance of hybrid bonds	-	-	-	-	-	-	-	597,559,480	597,559,480
Repayment of redeemable convertible preferred stock	-	-	-	-	-	-	-	(800,002,369)	(800,002,369)
Changes in scope of consolidation	-	-	-	-	-	-	-	90,258,537	90,258,537
As of December 31, 2019	₩ 468,569,950	₩ 5,683,247,356	₩ (1,137,897,325)	₩ 84,045,883	₩ 12,175,219,414	₩ 194,895,970	₩ 17,468,081,248	₩ 741,542,514	₩ 18,209,623,762

(Continued)

SK Innovation Co., Ltd. and its subsidiaries
Consolidated statements of change in equity
for the nine months ended September 30, 2019 and 2018 (cont'd)
(U.S. dollar in thousands)

	Capital stock	Other paid-in capital: Additional paid-in capital	Other paid-in capital: Treasury stock	Other paid-in capital: Other	Retained earnings	Other components of equity	Equity attributable to owners of the parent	Non-controlling interests	Total
As of January 1, 2018	$ 404,707	$ 4,908,661	$ (117,548)	$ 71,275	$ 10,400,508	$ (46,788)	$ 15,620,815	$ 1,056,792	$ 16,677,607
Effect of change in accounting policy	-	-	-	-	(2,680)	21,597	18,917	-	18,917
Effect of corrections of prior year error	-	-	-	-	(1,278)	-	(1,278)	(127,809)	(129,087)
Restated balance after adjustment	404,707	4,908,661	(117,548)	71,275	10,396,550	(25,191)	15,638,454	928,983	16,567,437
Total comprehensive income (loss):									
Profit for the year	-	-	-	-	1,426,103	-	1,426,103	41,377	1,467,480
Remeasurement of defined benefit plans	-	-	-	-	(16,859)	-	(16,859)	-	(16,859)
Net change in fair value of financial assets at FVOCI	-	-	-	-	-	(10,988)	(10,988)	-	(10,988)
Equity adjustments of investments in associates and joint ventures	-	-	-	-	-	50,803	50,803	-	50,803
Net gain on translation of foreign operations	-	-	-	-	-	62,099	62,099	199	62,298
Net gain on valuation of derivative financial instruments for cash flow hedges	-	-	-	-	-	7,056	7,056	-	7,056
Transactions with stockholders recognized directly to equity:									
Acquisiton of treasury stock	-	-	(865,262)	-	-	-	(865,262)	-	(865,262)
Stock compensation cost	-	-	-	577	-	-	577	-	577
Dividends	-	-	-	-	(639,334)	-	(639,334)	(62,269)	(701,603)
As of December 31, 2018 (restated)	$ 404,707	$ 4,908,661	$ (982,810)	$ 71,852	$ 11,166,460	$ 83,779	$ 15,652,649	$ 908,290	$ 16,560,939
As of January 1, 2019 (restated)	$ 404,707	$ 4,908,661	$ (982,810)	$ 71,852	$ 11,166,460	$ 83,779	$ 15,652,649	$ 908,290	$ 16,560,939
Total comprehensive income (loss):									
Profit for the year	-	-	-	-	(30,869)	-	(30,869)	87,679	56,810
Remeasurement of defined benefit plans	-	-	-	-	(10,204)	-	(10,204)	-	(10,204)
Net change in fair value of financial assets at FVOCI	-	-	-	-	-	(32,525)	(32,525)	-	(32,525)
Equity adjustments of investments in associates and joint ventures	-	-	-	-	-	46,852	46,852	-	46,852
Net gain on translation of foreign operations	-	-	-	-	-	76,846	76,846	(1,044)	75,802
Net loss on valuation of derivative financial instruments for cash flow hedges	-	-	-	-	-	(6,618)	(6,618)	-	(6,618)
Transactions with stockholders recognized directly to equity:									
Stock compensation cost	-	-	-	739	-	-	739	-	739
Dividends	-	-	-	-	(609,565)	-	(609,565)	(257,554)	(867,119)
Issuance of hybrid bonds	-	-	-	-	-	-	-	516,116	516,116
Repayment of redeemable convertible preferred stock	-	-	-	-	-	-	-	(690,968)	(690,968)
Changes in scope of consolidation	-	-	-	-	-	-	-	77,956	77,956
As of December 31, 2019	$ 404,707	$ 4,908,661	$ (982,810)	$ 72,591	$ 10,515,822	$ 168,334	$ 15,087,305	$ 640,475	$ 15,727,780

The accompanying notes are an integral part of the consolidated financial statements.

SK Innovation Co., Ltd. and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2019 and 2018
(Korean won and U.S. dollar in thousands)

	Notes	Korean won 2019	Korean won 2018 (restated)	Translation into U.S. dollar (Note 2) 2019	Translation into U.S. dollar (Note 2) 2018 (restated)
Cash flows from operating activities:					
Profit for the year		₩ 65,774,590	₩ 1,699,046,923	$ 56,810	$ 1,467,479
Non-cash adjustments	28	1,955,044,416	1,997,128,178	1,688,586	1,724,934
Working capital adjustments	28	535,287,473	(1,158,193,360)	462,332	(1,000,340)
Interest received		99,004,065	87,066,881	85,511	75,200
Interest paid		(350,641,611)	(244,005,916)	(302,852)	(210,750)
Dividends received		50,324,968	48,111,050	43,466	41,554
Income taxes paid		(528,960,097)	(729,672,268)	(456,868)	(630,223)
Net cash provided by operating activities		1,825,833,804	1,699,481,488	1,576,985	1,467,854
Cash flows from investing activities:					
Net decrease(increase) in long-term and short-term financial instruments		301,258,691	(424,229,128)	260,199	(366,410)
Acquisition of long-term investment securities		(107,296,517)	(61,469,170)	(92,673)	(53,091)
Disposal of long-term investment securities		26,032,759	15,341,957	22,485	13,251
Acquisition of investments in associates		(510,481,382)	(298,421,691)	(440,906)	(257,749)
Disposal of investments in associates		2,684,209	30,065,431	2,318	25,968
Acquisition of property, plant and equipment		(2,576,601,285)	(1,271,505,428)	(2,225,429)	(1,098,208)
Disposal of property, plant and equipment		79,577,375	37,119,656	68,732	32,061
Acquisition of intangible assets		(177,748,701)	(211,770,089)	(153,523)	(182,907)
Disposal of intangible assets		10,577,657	2,636,070	9,136	2,277
Net change in short-term loans		17,037,969	9,367,336	14,716	8,091
Net change in long-term loans		(225,181,346)	(64,568,331)	(194,491)	(55,768)
Net change in guarantee deposits		(13,999,458)	(11,474,495)	(12,092)	(9,912)
Net cashflow from business combination		-	(310,681,612)	-	(268,338)
Cash inflow from changes in scope of consolidation		22,812,943	-	19,704	-
Cash outflow from changes in scope of consolidation		(15,439,396)	-	(13,335)	-
Disposal of assets classified held for sale		-	90,204,190	-	77,909
Net cash used in investing activities		(3,166,766,482)	(2,469,385,304)	(2,735,159)	(2,132,826)
Cash flows from financing activities:					
Net change in short-term borrowings		977,044,924	(89,818,127)	843,881	(77,577)
Proceeds from bonds payable and long-term borrowings		3,370,551,362	3,820,166,744	2,911,169	3,299,505
Repayment of bonds payable and long-term borrowings		(1,261,717,115)	(1,313,138,575)	(1,089,754)	(1,134,167)
Decrease in lease liabilities		(193,813,605)	-	(167,398)	-
Net change in leasehold deposits received		402,724	1,141,890	348	986
Dividends paid		(1,003,950,847)	(812,285,011)	(867,119)	(701,576)
Acquisiton of treasury stock		-	(1,001,800,177)	-	(865,261)
Issuance of hybrid bonds		597,559,480	-	516,116	-
Repayment of redeemable convertible preferred stock		(800,002,369)	-	(690,968)	-
Net cash provided by financing activities		1,686,074,554	604,266,744	1,456,275	521,910
Net increase (decrease) in cash and cash equivalents		345,141,876	(165,637,072)	298,101	(143,062)
Cash and cash equivalents at the beginning of the year		1,825,558,285	1,977,555,524	1,576,749	1,708,029
Effects of exchange rate changes on cash and cash equivalents		25,301,235	13,639,833	21,852	11,781
Cash and cash equivalents at the end of the year		₩ 2,196,001,396	₩ 1,825,558,285	$ 1,896,702	$ 1,576,748

The accompanying notes are an integral part of the consolidated financial statements.

1. General

1.1 Overview of the Parent company

SK Innovation Co., Ltd. (the "Company" or "Parent company"), a Parent company in accordance with Korean International Financial Reporting Standards ("KIFRS") 1110 *Consolidated Financial Statement*, was spun off by SK Holdings Co., Ltd. on July 1, 2007, under the laws of the Republic of Korea to engage in i) the manufacturing and selling of petroleum, petrochemical and lubricant products, and ii) conducting alternative energy business as well as iii) oil exploration and production activities. The Group re-listed in the Korea Exchange on July 25, 2007. The Group's issued capital at the date of its incorporation amounted to ₩463,110 million, which increased to ₩468,570 million as of December 31, 2019 through additional increase in paid-in capital. As of December 31, 2019, major stockholders (equity ratio based on number of issued shares) of the Group and their equity interests include SK Holdings Co., Ltd. and related parties (33.4%) and the National Pension Service (10.5%). The Group's headquarter is located at 26 Jongro, Jongro-gu, Seoul, Korea.

The Parent company changed its name from SK Energy Co., Ltd. to SK Innovation Co., Ltd. on January 1, 2011.

1.2 Consolidated subsidiaries

As of December 31, 2019, the consolidated subsidiaries of the Group are as follows:

Subsidiary	Primary business	Largest stockholder	Ownership percentage (%)	Location
SK Mobile Energy Co., Ltd.	Manufacturing of lithium battery	SK Innovation Co., Ltd.	100.0	Korea
SK Innovation Insurance (Bermuda), Ltd.	Insurance	SK Innovation Co., Ltd.	100.0	Bermuda
SK USA, Inc.	Business consulting	SK Innovation Co., Ltd.	51.0	USA
SK E&P Company, Ltd.	Oil exploration	SK Innovation Co., Ltd.	100.0	USA
SK E&P America, Inc.	Investment in equity	SK Innovation Co., Ltd.	100.0	USA
Blue Dragon Energy Co., Ltd.	Investment in equity	SK Innovation Co., Ltd.	100.0	Hong Kong
SK Battery Hungary Kft.	Manufacturing of lithium battery	SK Innovation Co., Ltd.	100.0	Hungary
SK Battery America, Inc.	Manufacturing of lithium battery	SK Innovation Co., Ltd.	100.0	USA
SK Battery Manufacturing Kft.	Manufacturing of lithium battery	SK Innovation Co., Ltd.	100.0	Hungary
SK Hi-tech Battery Materials (Jiang su) Co., Ltd.	Manufacturing of separator for secondary batteries	SK Innovation Co., Ltd.	100.0	China
SK Hi-tech Battery Materials Poland Sp. Zo.o.	Manufacturing of separator for secondary batteries	SK Innovation Co., Ltd.	100.0	Poland
Happykium Co., Ltd.	Service	SK Innovation Co., Ltd.	100.0	Korea
Blue Sky United Energy Co., Ltd.	Manufacturing of lithium battery	SK Innovation Co., Ltd.	100.0	China
SK Plymouth, LLC	Oil exploration and production	SK E&P America, Inc.	100.0	USA
SK Permian, LLC	Oil exploration and production	SK E&P America, Inc.	100.0	USA
SK E&P Operations America, LLC	Oil exploration and production	SK E&P America, Inc.	100.0	USA
SK Nemaha, LLC	Oil exploration and production	SK E&P America, Inc.	100.0	USA
Jiangsu SK Battery Certification Center	Certification and evaluation of lithium battery	Blue Dragon Energy Co., Ltd.	100.0	China
SK Energy Co., Ltd.	Manufacturing and selling of petroleum products	SK Innovation Co., Ltd.	100.0	Korea
Netruck Co., Ltd.	Transporting and selling of petroleum	SK Energy Co., Ltd.	100.0	Korea
Jeju United FC Co., Ltd.	Operating sports club	SK Energy Co., Ltd.	100.0	Korea
SK Energy Road Investment Co., Ltd.	Investment in equity	SK Energy Co., Ltd.	100.0	Cayman
SK Energy Hong Kong Co., Ltd.	Investment in equity	SK Energy Co., Ltd.	100.0	Hong Kong
Happydidim Co., Ltd.	Service	SK Energy Co., Ltd.	100.0	Korea
Shandong SK Hightech Oil Co., Ltd.	Operating petrol station	SK Energy Hong Kong Co., Ltd.	51.0	China
SK Energy Road Investment (HK) Co., Ltd.	Investment in equity	SK Energy Road Investment Co., Ltd.	100.0	Hong Kong
Ningbo SK Baoying Asphalt Storage Co., Ltd.	Manufacturing	SK Energy Road Investment (HK) Co., Ltd.	51.0	China
Hefei SK Baoying Asphalt Co., Ltd.	Manufacturing	SK Energy Road Investment (HK) Co., Ltd.	51.0	China
Chongqing SK Asphalt Co., Ltd.	Manufacturing	SK Energy Road Investment (HK) Co., Ltd.	51.0	China
SK Asphalt Shanghai) Co., Ltd.	Distribution business	SK Energy Road Investment (HK) Co., Ltd.	100.0	China

1.2 Consolidated subsidiaries (cont'd)

Subsidiary	Primary business	Largest stockholder	Ownership percentage (%)	Location
SK Incheon Petrochem Co., Ltd.	Selling and manufacturing of petroleum products	SK Innovation Co., Ltd.	100.0	Korea
SK Trading International Co., Ltd.	Trading of petroleum products	SK Innovation Co., Ltd.	100.0	Korea
SK Energy International Pte. Ltd.	Trading	SK Trading International Co., Ltd.	100.0	Singapore
SK Energy Europe, Ltd.	Trading	SK Energy International Pte. Ltd.	100.0	U.K.
SK Energy Americas, Inc.	Trading	SK Energy International Pte. Ltd.	100.0	USA
SK Terminal B.V.	Investment in equity	SK Energy International Pte. Ltd.	100.0	Netherlands
SK Global Chemical Co., Ltd.	Selling and manufacturing of petrochemical products	SK Innovation Co., Ltd.	100.0	Korea
SK Global Chemical (China) Holding Co., Ltd.	Investment in equity	SK Global Chemical Co., Ltd.	100.0	China
SK Global Chemical China, Ltd.	Investment in equity	SK Global Chemical Co., Ltd.	100.0	Hong Kong
SK Global Chemical Americas, Inc.	Selling of petrochemical products	SK Global Chemical Co., Ltd.	100.0	USA
SK Global Chemical Singapore Pte. Ltd.	Selling of petrochemical products	SK Global Chemical Co., Ltd.	100.0	Singapore
SK Global Chemical Investment Hong Kong Ltd.	Investment in equity	SK Global Chemical Co., Ltd.	100.0	Hong Kong
SK Global Chemical Japan Co., Ltd.	Selling of petrochemical products	SK Global Chemical Co., Ltd.	100.0	Japan
Happymoeun Co., Ltd.	Service	SK Global Chemical Co., Ltd.	100.0	Korea
SK Functional Polymer S.A.S	Selling of petrochemical products	SK Global Chemical Co., Ltd.	100.0	France
SK Global Chemical International Trading (Shanghai) Co., Ltd.	Selling of petrochemical products	SK Global Chemical China, Ltd.	100.0	China
SK Global Chemical International Trading (Guangzhou) Co., Ltd.	Selling of petrochemical products	SK Global Chemical China, Ltd.	100.0	China
Ningbo SK Performance Rubber Co., Ltd.	Manufacturing	SK Global Chemical Investment Hong Kong Ltd.	80.0	China
SK Primacor Americas LLC	Selling of petrochemical products	SK Global Chemical Americas, Inc.	100.0	USA
SK Primacor Europe, S.L.U.	Selling of petrochemical products	SK Global Chemical Americas, Inc.	100.0	Spain
SK Saran Americas LLC	Selling of petrochemical products	SK Global Chemical Americas, Inc.	100.0	USA
SK Lubricants Co., Ltd.	Manufacturing and selling of lubricants and base oil	SK Innovation Co., Ltd.	100.0	Korea
SK Energy Lubricants (Tianjin) Co., Ltd.	Manufacturing and selling of lubricants and base oil	SK Lubricants Co., Ltd.	100.0	China
SK Lubricants Americas, Inc.	Selling of lubricants and base oil	SK Lubricants Co., Ltd.	100.0	USA
SK Lubricants Europe B.V.	Selling of lubricants and base oil	SK Lubricants Co., Ltd.	100.0	Netherlands
SK Lubricants Japan Co., Ltd.	Selling of lubricants and base oil	SK Lubricants Co., Ltd.	100.0	Japan
Yubase Manufacturing Asia Corporation	Manufacturing and selling of base oil	SK Lubricants Co., Ltd.	70.0	Korea
SK Lubricants & Oils India Private Limited	Selling of lubricants	SK Lubricants Co., Ltd.	100.0	India
Iberian Lube Base Oils Company, S.A.	Manufacturing and selling of base oil	SK Lubricants Co., Ltd.	70.0	Spain
SK Lubricants Russia LLC	Selling of lubricants	SK Lubricants Co., Ltd.	100.0	Russia
SK ie technology Co., Ltd.	Manufacturing of plastic film	SK Innovation Co., Ltd.	100.0	Korea

Condensed financial information of the subsidiaries as of and for the year ended December 31, 2019, is as follows (Korean won in millions):

Subsidiary	Assets	Liabilities	Equity	Sales	Net income (loss)
SK Mobile Energy Co., Ltd.	₩ 25,864	₩ 10,381	₩ 15,483	₩ 56,420	₩ 3,735
SK Innovation Insurance (Bermuda), Ltd.	20,190	2,509	17,681	1,308	(282)
SK USA, Inc.	23,472	14,243	9,229	16,949	615
SK E&P Company	5,723	1,146	4,577	1,503	63
SK E&P America, Inc.	349,576	81,841	267,735	-	(310,716)
Blue Dragon Energy Co., Limited.	285,087	252	284,835	-	1,151
SK Battery Hungary Kft.	757,099	288,476	468,623	1,691	(17,348)
SK Battery America, Inc.	414,554	313,169	101,385	-	(504)
SK Battery Manufacturing Kft.	240,970	24,630	216,340	-	(1,350)
SK Hi-tech Battery Materials(Jiang su) Co.,Ltd.	205,740	68,317	137,423	-	(394)
SK Hi-tech Battery Materials Poland Sp. Zo.o.	315,008	10,280	304,728	-	(5,760)
Happykium Co., Ltd.	931	92	839	690	(161)
Blue Sky United Energy Co., Ltd.	107,446	49,807	57,639	-	(398)
SK Plymouth, LLC	88,496	9,910	78,586	18,324	(59,335)

1.2 Consolidated subsidiaries (cont'd)

Subsidiary		Assets		Liabilities		Equity		Sales		Net income (loss)
SK Permian, LLC	₩	7,865	₩	1,235	₩	6,630	₩	2,537	₩	(2,283)
SK E&P Operations America, LLC		3,995		1,679		2,316		-		-
SK Nemaha, LLC		264,554		19,664		244,890		53,771		(245,462)
Jiangsu SK Battery Cetification Center		7,457		306		7,151		-		(34)
SK Energy Co., Ltd.		14,593,983		9,270,409		5,323,574		32,253,828		(37,109)
Netruck Co., Ltd.		143,949		60,943		83,006		212,623		4,731
Jeju United FC Co., Ltd.		13,422		869		12,553		19,007		3
SK Energy Road Investment Co., Ltd.		41,435		-		41,435		-		5,318
SK Energy Hong Kong Co., Ltd.		7,652		13		7,639		-		355
Happydidim Co., Ltd.		508		50		458		268		(82)
Shandong SK Hightech Oil Co., Ltd.		17,899		2,583		15,316		10,865		1,332
SK Energy Road Investment(HK) Co., Ltd.		47,521		93		47,428		-		2,360
Ningbo SK Baoying Asphalt Storage Co., Ltd.		12,678		1,841		10,837		14,304		1,307
Hefei SK Baoying Asphalt Co., Ltd.		7,643		283		7,360		10,451		(135)
Chongqing SK Asphalt Co., Ltd.		17,633		7,111		10,522		33,578		1,484
SK Asphalt (Shanghai) Co., Ltd.		11,577		2,429		9,148		29,004		56
SK Incheon Petrochem Co., Ltd. (*1)		5,740,045		3,558,499		2,181,546		6,766,525		(17,087)
SK Trading International, Co., Ltd		1,855,284		1,057,627		797,657		11,478,913		188,168
SK Energy International Pte. Ltd.		2,851,912		2,153,260		698,652		24,292,166		68,526
SK Energy Europe, Ltd.		164,882		86,131		78,751		3,565,047		(7,947)
SK Energy Americas, Inc.		483,267		405,750		77,517		4,570,263		6,004
SK Terminal B.V.		37,377		-		37,377		-		1,909
SK Global Chemical Co., Ltd.		5,888,445		2,186,116		3,702,329		9,894,988		365,330
SK Global Chemical (China) Holding Co., Ltd.		216,414		6,533		209,881		31,799		1,545
SK Global Chemical China, Ltd.		74,500		1		74,499		-		(11)
SK Global Chemical Americas, Inc.		473,545		215,046		258,499		10,124		(83,242)
SK Global Chemical Singapore Pte. Ltd.		92,548		74,594		17,954		826,160		(1,463)
SK Global Chemical Investment Hong Kong Ltd.		104,750		2		104,748		-		4,787
SK Global Chemical Japan Co., Ltd.		42,934		33,859		9,075		331,323		654
Happymoeun Co., Ltd.		463		28		435		-		(85)
SK Functional Polymer S.A.S		130		-		130		-		-
SK Global Chemical International Trading (Shanghai) Co., Ltd.		174,253		146,371		27,882		1,419,871		4,153
SK Global Chemical International Trading (Guangzhou) Co., Ltd.		22,205		17,377		4,828		141,266		2,320
Ningbo SK Performance Rubber Co., Ltd.		111,795		193,571		(81,776)		86,860		(16,425)
SK Primacor Americas LLC		326,671		170,663		156,008		109,615		(1,220)
SK Primacor Europe, S.L.U		138,780		91,256		47,524		97,563		(5,404)
SK Saran Americas LLC		48,012		7,881		40,131		18,931		(61,163)
SK Lubricants Co., Ltd.		2,566,358		1,257,937		1,308,421		2,992,148		199,076
SK Energy Lubricants (Tianjin) Co., Ltd.		148,555		48,042		100,513		325,216		2,470
SK Lubricants Americas, Inc.		416,997		362,286		54,711		663,581		1,139
SK Lubricants Europe B.V.		171,542		159,983		11,559		596,126		1,589
SK Lubricants Japan Co., Ltd.		52,073		40,519		11,554		308,536		600
Yubase Manufacturing Asia Co., Ltd. (*1)		225,079		78,462		146,617		67,574		1,742
SK Lubricants & Oils India Pvt. Ltd.		3,484		1,987		1,497		7,247		(371)
Iberian Lube Base Oils Company, S.A. (*1)		433,022		132,160		300,862		-		-
SK Lubricants Russia LLC		21,101		17,144		3,957		54,279		3,834
SK IE technology Co., Ltd.		780,371		388,570		391,801		263,037		61,320

(*1) The Group has a call option to take over a stake in a co-participant and determines that it has control over the subsidiary because such call option is a valid potential voting right.

The above-mentioned condensed financial information is the consolidated financial information, which is not adjusted to reflect the consolidation adjustment.

1.2 Consolidated subsidiaries (cont'd)

Details of changes in scope of consolidation for the year ended December 31, 2019 are as follows:

'	Subsidiary	Details
Included	SK Battery America, Inc.	Newly established through contribution
	SK Battery Manufacturing Kft.	Newly established through contribution
	SK Hi-tech Battery Materials Poland Sp. Zo.o.	Newly established through contribution
	Happykium Co., Ltd.	Newly established through contribution
	Blue Sky United Energy Co., Ltd.	Newly established through contribution
	Jiangsu SK Battery Certification Center	Newly established through contribution
	Happydidim Co., Ltd.	Newly established through contribution
	Happymoeun Co., Ltd.	Newly established through contribution
	SK Functional Polymer S.A.S	Newly established through contribution
	Iberian Lube Base Oils Company, S.A. (*1)	Acquisition of control
	SK IE technology Co., Ltd.	Newly established through split off
Excluded	SK Golden Tide Plastics (Yantai) Co., Ltd.	Disposal

(*1) PT. Patra SK and Iberian Lube Base Oil Company, S.A. which were previously considered as subsidiaries were excluded from subsidiaries due to a modification to the scope of consolidation as of December 31, 2018 as described in Note 37. Of these, the Group obtained control over Iberian Lube Base Oil Company, S.A. on December 31, 2019.

As of December 31, 2019 and 2018, the accumulated non-controlling interests of the consolidated subsidiaries, which are material to the Group, are as follows (Korean won in millions):

	2019					
Subsidiary	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Controlling interest	Non-controlling interest
SK Incheon Petrochem Co., Ltd. (*1)	₩ 2,715,607	₩ 3,024,439	₩ 1,954,055	₩ 1,604,445	₩ 1,583,987	₩ 597,559
Ningbo SK Performance Rubber Co., Ltd.	27,552	84,243	192,798	773	(65,421)	(16,355)
Yubase Manufacturing Asia Co., Ltd.	10,853	214,226	36,028	42,433	102,633	43,985
Iberian Lube Base Oils Company, S.A.	157,502	275,520	112,552	19,608	210,603	90,259

(*1) Although the Group's voting rights are 100%, the amount related to hybrid bonds classified as equity is attributed to non-controlling interests (See Note 16-(7)).

	2018					
Subsidiary	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Controlling interest	Non-controlling interest
SK Incheon Petrochem Co., Ltd.	₩ 2,720,491	₩ 2,958,508	₩ 1,602,342	₩ 1,380,477	₩ 1,701,946	₩ 994,234
Ningbo SK Performance Rubber Co., Ltd.	28,725	91,118	29,658	154,633	(51,558)	(12,890)
Yubase Manufacturing Asia Co., Ltd.	9,041	214,569	27,473	51,261	101,413	43,463

The above-mentioned condensed financial information is the financial information, which is adjusted to reflect the consolidation adjustment except for intragroup transaction.

1.2 Consolidated subsidiaries (cont'd)

The profit or loss allocated to non-controlling interests of the consolidated subsidiaries which are material to the Group for the years ended December 31, 2019 and 2018, is as follows (Korean won in millions):

	2019				
Subsidiary	Sales	Operating profit (loss)	Net income (loss)	Controlling Interests	Non-controlling interests
SK Incheon Petrochem Co., Ltd.	₩ 6,766,525	₩ 7,743	₩ (17,087)	₩ (119,109)	₩ 102,022
Ningbo SK Performance Rubber Co., Ltd.	86,860	(9,368)	(16,425)	(13,140)	(3,285)
Yubase Manufacturing Asia Co., Ltd.	67,574	4,859	1,742	1,219	523

	2018				
Subsidiary	Sales	Operating profit (loss)	Net income (loss)	Controlling Interests	Non-controlling interests
SK Incheon Petrochem Co., Ltd.	₩ 8,931,444	₩ 140,253	₩ 51,780	₩ 3,390	₩ 48,390
Ningbo SK Performance Rubber Co., Ltd.	89,010	(13,075)	(19,585)	(15,668)	(3,917)
Yubase Manufacturing Asia Co., Ltd.	71,621	5,345	2,357	1,650	707

The above-mentioned condensed result of operations is the financial information, which is adjusted to reflect the consolidation adjustment except for intragroup transaction.

The summary of cash flows of the consolidated subsidiaries which have non-controlling interests that are material to the Group, for the years ended December 31, 2019 and 2018, is as follows (Korean won in millions):

	2019						
	Cash flows from operating activities	Cash flows from investing activities	Cash flows from financing activities	Net decrease	Beginning balance	Effects of exchange rate changes	Ending balance
SK Incheon Petrochem Co., Ltd.	₩ (189,403)	₩ (185,688)	₩ 242,997	₩ (132,094)	₩ 183,681	₩ -	₩ 51,587
Ningbo SK Performance Rubber Co., Ltd.	(2,638)	(1,734)	3,545	(827)	2,651	64	1,888
Yubase Manufacturing Asia Co., Ltd.	15,570	(5,612)	(10,031)	(73)	138	-	65

	2018						
	Cash flows from operating activities	Cash flows from investing activities	Cash flows from financing activities	Net increase (decrease)	Beginning balance	Effects of exchange rate changes	Ending balance
SK Incheon Petrochem Co., Ltd.	₩ (9,784)	₩ (162,658)	₩ 202,882	₩ 30,440	₩ 153,241	₩ -	₩ 183,681
Ningbo SK Performance Rubber Co., Ltd.	(2,048)	(478)	3,327	801	1,849	1	2,651
Yubase Manufacturing Asia Co., Ltd.	17,558	(9,848)	(10,032)	(2,322)	2,460	-	138

2. Basis of preparation and summary of significant accounting policies

The Group maintains its official accounting records in Korean won and prepares consolidated financial statements in conformity with Korean International Financial Reporting Standards ("KIFRS"), in the Korean language. Accordingly, these consolidated financial statements are intended for use by those who are informed about KIFRS and Korean practices. The Group's consolidated financial statements have been restructured and translated into English with certain expanded descriptions from the Korean language financial statements. Certain information included in the Korean language financial statements, but not required for a presentation of the consolidated financial position, comprehensive income, changes in equity or cash flows of the Group, is not presented in the Group's consolidated financial statements.

The Group's consolidated financial statements are stated in Korean won, the currency of the country in which the Group is incorporated and operates. The translation of Korean won amounting into U.S. dollar amounts is included solely for the convenience of readers of financial statements and has been made at the rate of ₩1,157.80 to USD1.00, the basic exchange rate in the Seoul Money Brokerage Service for cable transfers in Korean won on the last business day of the period ended December 31, 2019. Such translations into U.S. dollars should not be construed as representations that the Korean won amounts could be converted into U.S. dollars at that or any other rate.

2.1 Basis of preparation

The significant accounting policies used for the preparation of the accompanying consolidated financial statements as of and for the year ended December 31, 2019 are the same as the accounting policies adopted for the preparation of consolidated financial statements as of and for the year ended December 31, 2018, except for adoption of new and revised KIFRSs applied in the current period, which are summarized below.

The consolidated financial statements were approved at the Company's Board of Directors' meeting held on February 26, 2020.

2.1.1. New and revised KIFRSs adopted in the current year

The Group has applied amendments to KIFRS issued that are mandatorily effective for accounting periods beginning on or after January 1, 2019.

Amendments to KIFRS 1019: *Plan Amendment, Curtailment or Settlement*

The amendments to KIFRS 1019 address the accounting when a plan amendment, curtailment or settlement occurs during a reporting period. The amendments specify that when a plan amendment, curtailment or settlement occurs during the annual reporting period, an entity is required to:

- Determine current service cost for the remainder of the period after the plan amendment, curtailment or settlement, using the actuarial assumptions used to remeasure the net defined benefit liability (asset) reflecting the benefits offered under the plan and the plan assets after that event

- Determine net interest for the remainder of the period after the plan amendment, curtailment or settlement using: the net defined benefit liability (asset) reflecting the benefits offered under the plan and the plan assets after that event; and the discount rate used to remeasure that net defined benefit liability (asset).

The amendments also clarify that an entity first determines any past service cost, or a gain or loss on settlement, without considering the effect of the asset ceiling. This amount is recognized in profit or loss. An entity then determines the effect of the asset ceiling after the plan amendment, curtailment or settlement. Any change in that effect, excluding amounts included in the net interest, is recognized in other comprehensive income. The amendments do not have any significant impact on the Group's financial position or management performance.

2.1.1. New and revised KIFRSs adopted in the current period (cont'd)

Amendments to KIFRS 1023 *Borrowing Costs*

The amendments clarify that an entity treats as part of general borrowings any borrowing originally made to develop a qualifying asset when substantially all of the activities necessary to prepare that asset for its intended use or sale are complete.

An entity applies those amendments to borrowing costs incurred on or after the beginning of the annual reporting period in which the entity first applies those amendments. The amendments do not have any significant impact on the Group's financial position or management performance.

Amendments to KIFRS 1028 *Long-term Investments in Associates and Joint Ventures*

The amendments clarify that an entity applies KIFRS 1109 to long-term interests in an associate or joint venture to which the equity method is not applied but that, in substance, form part of the net investment in the associate or joint venture (long-term interests). This clarification is relevant because it implies that the expected credit loss model in KIFRS 1109 applies to such long-term interests. The amendments do not have any significant impact on the Group's financial position or management performance.

Amendments to KIFRS 1109 *Financial Instruments*

The amendments clarify that financial assets with prepayment features with negative compensation can be measured at amortized cost, and the effect of modification should be recognized in profit or loss if financial liabilities at amortized costs is modified in respect to conditions but not derecognized. The amendments do not have any significant impact on the Group's financial position or management performance.

Enactment to KIFRS 1116 – *Leases*

KIFRS 1116 replaces KIFRS 1017 *Leases*, KIFRS 2104 *Determining whether an Arrangement contains a Lease*, KIFRS 2015 *Operating Leases-Incentives* and KIFRS 2027 *Evaluating the Substance of Transactions Involving the Legal Form of a Lease*. KIFRS 1116 sets out the principles for the recognition, measurement, presentation and disclosure of leases and requires lessees to account for all leases under a single on-balance sheet model similar to the accounting for finance leases under KIFRS 1017.

Lessor accounting under KIFRS 1116 is not significantly changed from current accounting under KIFRS 1017. Lessor will continue to classify the lease as an operating lease or a finance lease using principles similar to those in KIFRS 1017. Accordingly, KIFRS 1116 has no impact on the lease contracts in which the Group is the lessor.

In relation to sale and leaseback transactions, the Group (the seller-lessee) will apply the requirements of KIFRS 1115 to determine whether the transfer of an asset is accounted for as a sale of the asset. However, the Group does not reassess sale and leaseback transactions entered into before the date of initial application.

The Group applied KIFRS 1116 using the cumulative effect adjustment method with January 1, 2019 as the date of initial application. The Group has recognized the cumulative effect of the initial application of this standard in the opening balances at the date of initial application, and the comparative consolidated financial statements have not been restated.

The Group decided to apply the practical expedient only to contracts that have already been identified as leases before the date of initial application in accordance with KIFRS 1017 and Interpretation 2104. In addition, the Group elected to apply an exemption for lease contracts that, at the commencement date, have a lease term of 12 months or less and do not contain a purchase option ('short-term lease') and lease contracts for which the underlying asset is of low value ('low-value assets').

2.1.1. New and revised KIFRSs adopted in the current period (cont'd)

The impact of the initial adoption of the standard on the Group's consolidated statement of financial position statements as of January 1, 2019 is as follows (Korean won in millions):

		Increase (decrease)
Assets:		
Prepaid expenses	₩	(5,603)
Advanced payments		(28)
Short and long-term other receivables		14,048
Property, plant and equipment		(1,425)
Right-of-use assets		1,208,632
Total		1,215,623
Liabilities:		
Lease liabilities		1,215,623
Total equity	₩	-

Details of the lease liabilities as of January 1, 2019 and the adjustment of the operating lease commitments as of December 31, 2018 are as follows (Korean won in millions):

		Amount
Operating lease commitments as of December 31, 2018	₩	1,450,085
Less: short-term leases and leases of low-value assets commitments		(90,082)
Operating lease commitments as of December 31, 2018 (After short-term leases and leases of low-value assets adjustments)		1,360,003
Weighted-average incremental borrowing rate as of January 1, 2019		2.44%
Discounted operating lease commitments as of January 1, 2019		1,215,623
Adjustment:		
Commitments formerly classified as a finance lease		24
Lease liabilities as of January 1, 2019	₩	1,215,647

1) Effects of adoption of KIFRS 1116

The Group has lease contracts for various items of land, buildings, ships and so forth.

Upon adoption of KIFRS 1116, the Group applied a single recognition and measurement approach for all leases, except for short-term leases and leases of low-value assets. The standard provides specific transition requirements and practical expedients, which has been applied by the Group.

➢ Leases previously classified as finance leases

For leases previously classified by the Group as finance leases, the carrying amount of right-of-use assets and lease liabilities as of the date of initial application is the carrying amount of the leased asset and lease liabilities measured in accordance with KIFRS 1017 just before the date. The Group shall account for the lease by applying this standard from the date of initial application.

➢ Leases previously classified as operating leases

The Group recognized right-of-use assets and lease liabilities for those leases previously classified as operating leases, except for short-term leases and leases of low-value assets. The right-of-use assets for most leases were recognized based on the carrying amount as if the standard had always been applied, apart from the use of incremental borrowing rate at the date of initial application. In some leases, the right-of-use assets were recognized based on the amount equal to the lease liabilities, adjusted for any related prepaid and accrued lease payments previously recognized. Lease liabilities were recognized based on the present value of the remaining lease payments, discounted using the incremental borrowing rate at the date of initial application.

2.1.1. New and revised KIFRSs adopted in the current period (cont'd)

The practical expedients applied by the Group are as follows:

- Used a single discount rate to a portfolio of leases with reasonably similar characteristics
- Relied on its assessment of whether leases are onerous immediately before the date of initial application
- Applied the short-term leases exemptions to leases with lease term that ends within 12 months at the date of initial application
- Excluded the initial direct costs from the measurement of the right-of-use assets at the date of initial application
- Used hindsight in determining the lease where the contract contains the options to extend or terminate

2) Summary of new accounting policies

The followings are the new accounting policies that Group applied when adopting KIFRS 1116 from the date of initial application:

- Right-of-use assets

The Group recognizes right-of-use assets at the commencement date of the lease (i.e., the date the underlying asset is available for use). Right-of-use assets are measured at cost, less any accumulated depreciation and impairment losses, and adjusted for any re-measurement of lease liabilities. The cost of right-of-use assets includes the amount of lease liabilities recognized, initial direct costs incurred, and lease payments made at or before the commencement date less any lease incentives received. Unless the Group is reasonably certain to obtain ownership of the leased asset at the end of the lease term, the recognized right-of-use assets are depreciated on a straight-line basis over the shorter of its estimated useful life and the lease term. Right-of- use assets are subject to impairment.

- Lease liabilities

At the commencement date of the lease, the Group recognizes lease liabilities measured at the present value of lease payments to be made over the lease term. The lease payments include fixed payments (including in-substance fixed payments) less any lease incentives receivable, variable lease payments that depend on an index or a rate, and amounts expected to be paid under residual value guarantees. The lease payments also include the exercise price of a purchase option reasonably certain to be exercised by the Group and payments of penalties for terminating a lease, if the lease term reflects the Group exercising the option to terminate. The variable lease payments that do not depend on an index or a rate are recognized as expense in the period on which the event or condition that triggers the payment occurs.

In calculating the present value of lease payments, the Group uses the incremental borrowing rate at the lease commencement date if the interest rate implicit in the lease is not readily determinable. After the commencement date, the amount of lease liabilities is increased to reflect the accretion of interest and reduced for the lease payments made. In addition, the carrying amount of lease liabilities is remeasured if there is a modification, a change in the lease term, a change in the in-substance fixed lease payments or a change in the assessment to purchase the underlying asset.

- Short-term lease and leases of low-value assets

The Group applies the short-term lease recognition exemption to its short-term leases of buildings, vehicles and so forth (i.e., those leases that have a lease term of 12 months or less from the commencement date and do not contain a purchase option). It also applies the lease of low-value assets recognition exemption to leases of office equipment that are considered of low value (i.e., below $5,000). Lease payments on short-term leases and leases of low-value assets are recognized as expense on a straight-line basis over the lease term.

- Significant judgment in determining the lease term of contracts with renewal options

The Group determines the lease term as the non-cancellable term of the lease, together with any periods covered by an option to extend the lease if it is reasonably certain to be exercised, or any periods covered by an option to terminate the lease, if it is reasonably certain not to be exercised. The Group applies judgment in evaluating whether it is reasonably certain to exercise the option to renew. That is, it considers all relevant factors that create an economic incentive for it to exercise the renewal. After the commencement date, the Group reassesses the lease term if there is a significant event or change in circumstances that is within its control and affects its ability to exercise (or not to exercise) the option to renew (e.g., a change in business strategy).

2.1.1. New and revised KIFRSs adopted in the current period (cont'd)

IFRIC 2123 Interpretation *Uncertainty over Income Tax Treatment*

The Interpretation addresses the accounting for income taxes when tax treatments involve uncertainty that affects the application of KIFRS 1012 and does not apply to taxes or levies outside the scope of KIFRS 1012, nor does it specifically include requirements relating to interest and penalties associated with uncertain tax treatments. The Interpretation specifically addresses the following:

- Whether an entity considers uncertain tax treatments separately
- The assumptions an entity makes about the examination of tax treatments by taxation authorities
- How an entity determines taxable profit (tax loss), tax bases, unused tax losses, unused tax credits and tax rates
- How an entity considers changes in facts and circumstances

The Group has to determine whether to consider each uncertain tax treatment separately or together with one or more other uncertain tax treatments. The approach that better predicts the resolution of the uncertainty should be followed. The amendments do not have any significant impact on the Group's financial position or management performance.

2.1.2. New and revised KIFRS issued, but not yet effective

Amendments to KIFRS 1001 and KIFRS 1008: *Definition of Material*

In October 2018, the KASB issued amendments to KIFRS 1001 *Presentation of Financial Statements* and KIFRS 1008 *Accounting Policies, Changes in Accounting Estimates and Errors* to align the definition of 'material' across the standards and to clarify certain aspects of the definition. The new definition states that, '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.' The Group plans to apply the standard for annual reporting period beginning on or after January 1, 2020, with early application permitted. In addition, the amendments to the definition of material is not expected to have a significant impact on the Group's consolidated financial statements.

Amendments to KIFRS 1103: *Definition of a Business*

In October 2018, the KASB issued amendments to the definition of a business in KIFRS 1103 *Business Combinations* to help entities determine whether an acquired set of activities and assets is a business or not. They clarify the minimum requirements for a business, remove the assessment of whether market participants are capable of replacing any missing elements, add guidance to help entities assess whether an acquired process is substantive, narrow the definitions of a business and of outputs, and introduce an optional fair value concentration test. The Group plans to apply the standard for annual reporting period beginning on or after January 1, 2020, with early application permitted. In addition, the amendments to the standard is not expected to have a significant impact on the Group's consolidated financial statements.

2.2 Basis of Consolidation

The consolidated financial statements incorporate the financial statements of the Company and entities (including structured entities) controlled by the Company and/or its subsidiaries. Control is achieved where the Group 1) has the power over the investee, 2) is exposed, or has rights, to variable returns from its involvement with the investee, and 3) has the ability to use its power to affect its returns. The Group reassesses whether or not it controls an investee if facts and circumstances indicate that there are changes to one or more of the three elements of control listed above.

2.2 Basis of Consolidation (cont'd)

When the Group has less than a majority of the voting rights of an investee, it has power over the investee when the voting rights are sufficient to give it the practical ability to direct the relevant activities of the investee unilaterally. The Group considers all relevant facts and circumstances in assessing whether or not the Group's voting rights in an investee are sufficient to give it power, including:

- the size of the Group's holding of voting rights relative to the size and dispersion of holdings of the other vote holders;
- potential voting rights held by the Group, other vote holders or other parties;
- rights arising from other contractual arrangements; and
- any additional facts and circumstances that indicate that the Group has, or does not have, the current ability to direct the relevant activities at the time that decisions need to be made, including voting patterns at previous stockholders' meetings.

Income and expenses of subsidiaries acquired or disposed of during the year are included in the consolidated statement of comprehensive income from the date the Group gains control until the date when the Group ceases to control the subsidiary. Profit or loss and each component of other comprehensive income are attributed to the owners of the Group and to the non-controlling interests. Total comprehensive income of subsidiaries is attributed to the owners of the Group and to the non-controlling interests even if this results in the non-controlling interests having a deficit balance.

When necessary, adjustments are made to the financial statements of subsidiaries to bring their accounting policies in line with the Group's accounting policies.
All intragroup transactions and related assets and liabilities, income and expenses are eliminated in full on consolidation.

Changes in the Group's ownership interests in subsidiaries, without a loss of control, are accounted for as equity transactions. The carrying amounts of the Group's controlling and non-controlling interests are adjusted to reflect changes in the relative interest in subsidiaries. The difference between the adjusted amount of a non-controlling interest and the fair value of the consideration paid or received is recognized directly in equity and attributed to owners of the parent.

When the Group loses control of a subsidiary, a gain or loss on disposal is calculated as the difference between (i) the aggregate of the fair value of the consideration received and the fair value of any retained interest and (ii) the previous carrying amount of the assets (including goodwill) and liabilities of the subsidiary and any non-controlling interests. When assets of the subsidiary are carried at revalued amounts or fair values and the related cumulative gain or loss has been recognized in other comprehensive income and accumulated in equity, the amounts previously recognized in other comprehensive income and accumulated in equity are accounted for as if the Group had directly disposed of the relevant assets (i.e., reclassified to profit or loss or transferred directly to retained earnings).

2.3 Business Combination

Acquisitions of businesses are accounted for using the acquisition method. The consideration transferred in a business combination is measured at fair value, which is calculated as the sum of the fair values of the assets transferred by the Group, liabilities incurred by the Group to the former owners of the acquiree and the equity interests issued by the Group in exchange for control of the acquiree. Acquisition-related costs are generally recognized in profit or loss as incurred.

Goodwill is measured as the excess of the sum of a) the consideration transferred, b) the amount of any non-controlling interests in the acquiree, and c) the fair value of the acquirer's previously held equity interest in the acquiree (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 a) the consideration transferred, b) the amount of any non-controlling interests in the acquiree and c) the fair value of the acquirer's previously held interest in the acquiree (if any); the excess is recognized immediately in profit or loss as a bargain purchase gain.

2.3 Business Combination (cont'd)

When a business combination is achieved in stages, the Group's previously held equity interest in the acquiree is remeasured to fair value at the acquisition date and the resulting gain or loss, if any, is recognized in profit or loss. Amounts arising from interests in the acquiree 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 interest were disposed of.

If the net amount of the fair value of the identifiable assets acquired and liabilities assumed on the acquisition date exceeds the total amount of the consideration paid, the amount of non-controlling interests to the acquiree, and the fair value of interests in the acquiree held by the Group after this review, the excess amount is immediately reflected in profit or loss as a gain on bargain purchase.

If the initial accounting for a business combination is incomplete by 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, or additional assets or liabilities are recognized, to reflect new information obtained about facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognized at that date.

2.4 Foreign currencies

The financial statements are presented in the currency of the primary economic environment in which the Group operates (its functional currency). For the purpose of the financial statements, the results of operations and financial position of the Group are expressed in Korean won, which is the functional currency of the Group and the presentation currency for the financial statements.

In preparing the consolidated financial statements of the individual entities, transactions in currencies other than the entity's functional currency (foreign currencies) are recognized at the rates of exchange prevailing at the dates of the transactions. At the end of each reporting period, monetary items denominated in foreign currencies are retranslated at the rates prevailing at that date. Non-monetary items carried at fair value that are denominated in foreign currencies are retranslated at the rates prevailing at the date when the fair value was determined. Non-monetary items that are measured in terms of historical cost in a foreign currency are not retranslated.

Exchange differences are recognized in profit or loss in the period in which they arise, except for:

- Exchange differences on foreign currency borrowings relating to assets under construction for future productive use, which are included in the cost of those assets when they are regarded as an adjustment to interest costs on those foreign currency borrowings
- Exchange differences on transactions entered into in order to hedge certain foreign currency risks
- Exchange differences arising from monetary items that are part of the net investment in foreign operations as receivables or payables that are neither planned nor likely to be settled in the foreseeable future in connection with foreign operations. These foreign exchange differences are recognized in other comprehensive income and are reclassified from equity to profit or loss at the time of disposal of all or part of the net investment.

To prepare the consolidated financial statements, assets and liabilities of the Group's foreign operations are presented in Korean won using the exchange rate at the end of the reporting period. If the exchange rate does not fluctuate significantly during the reporting period. When the exchange rate on the trading day is not used, the profit or loss items are converted to the average exchange rate during the reporting period and the difference in foreign exchange incurred is classified as equity and recognized as gain or loss on translation of foreign operations. This is recognized in profit or loss for the period in which such foreign operation is disposed.

2.5 Cash and cash equivalents

Cash and cash equivalents include cash, bank balances and short-term highly liquid investments with an original maturity of three months or less.

2.6 Financial assets

2.6.1 Classification

The Group categorizes financial assets into the following measurement categories:

- Financial assets at fair value through profit or loss (FVTPL)
- Financial assets at fair value through other comprehensive income (FVOCI)
- Financial assets 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.

2.6.2 Measurement

Financial assets are initially measured at fair value, and transaction costs that are directly attributable to the acquisition of financial assets (other than financial assets at fair value through profit or loss) are added to the fair value of the financial assets, as appropriate, on initial recognition. Transaction costs directly attributable to the acquisition of financial assets at fair value through profit or loss are recognized immediately in profit or loss.

The Group considers the hybrid contract which contains embedded derivatives as the entire hybrid contract for the purpose of assessing whether the contractual cashflows represent solely payments of principal and interest on the principal amount outstanding.

1) 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:

- Financial assets at 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.

- Financial assets at FVOCI

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 costs' and impairment losses are presented in 'finance costs'.

- Financial assets at FVTPL

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 costs' in the year in which it arises.

2.6.2 Measurement (cont'd)

2) 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 and costs' in the statement of comprehensive income 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.

2.6.3 Impairment

The Group assesses expected credit losses (ECLs) on debt instruments measured at amortized cost or other comprehensive income at fair value based on forward-looking information. The method of impairment depends on whether the credit risk increases significantly. For trade receivables and contract assets, the Group applies a simplified approach in calculating ECLs.

2.6.4 Recognition and derecognition

Ordinary purchases or sales of financial assets are recognized or derecognized on the trade date. Financial assets are derecognized when the right to contractual cash flows is removed or the Group has transferred substantially all the risks and rewards of the asset. In relation to the transfer of financial asset, if the Group retains most of the risks and rewards associated with the ownership of the financial asset in which a debtor has a right to exercise recourse upon default, the Group continues to recognize the transferred financial assets as a whole, and consideration received from such transaction is recognized as financial liabilities.

2.6.5 Offsetting financial instruments

Financial assets and financial liabilities are offset and the net amount is reported in the statements of financial position if there is a currently enforceable legal right to offset the recognized amounts and there is an intention to settle on a net basis, to realize the assets and settle the liabilities simultaneously. Enforceable legal right to offset is not affected by the future events, and it remains enforceable in case of ordinary course of business, bankruptcy and default.

2.7 Inventories

Inventories are stated at the lower of cost and net realizable value, with cost being determined using the weighted-average method and the specific identification method for materials-in-transit. The cost of finished goods and semi-finished goods includes cost of raw materials, direct labor costs and other direct costs, manufacturing overheads. Net realizable value represents the estimated selling price for inventories less all estimated costs of completion and costs necessary to make the sale.

The Group recorded valuation allowance on a periodic basis and recognized loss from inventory valuation as cost of sales, when significant changes with an adverse effect (an oversupply, an obsolete or decline in the price of goods) on the entity have taken place during the period.

2.8 Investments in associates and joint ventures

An associate is an entity over which the Group has significant influence. Significant influence is the power to participate in the financial and operating policy decisions of the investee but is not in control or joint control over those policies.

A joint venture is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the joint arrangement. Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions about the relevant activities require unanimous consent of the parties sharing control.

2.8 Investments in associates and joint ventures (cont'd)

The results and assets and liabilities of associates or joint ventures 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 KIFRS 1105 Non-current Assets Held for Sale and Discontinued Operations. Under the equity method, an investment in an associate or a joint venture is initially recognized in the consolidated statement of financial position at cost and adjusted thereafter to recognize the Group's share of the profit or loss and other comprehensive income of the associate or joint venture. When the Group's share of losses of an associate or a joint venture exceeds the Group's interest in that associate or joint venture (which includes any long-term interests that, in substance, form part of the Group's net investment in the associate or joint venture), the Group discontinues recognizing its share of further losses. Additional losses are recognized only to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the associate or joint venture.

Any excess of the cost of acquisition over the Group's share of the net fair value of the identifiable assets, liabilities and contingent liabilities of an associate or a joint venture recognized at the date of acquisition is recognized as goodwill, which is included within the carrying amount of the investment. Any excess of the Group'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.

When a group entity transacts with an associate or a joint venture of the Group, profits and losses resulting from the transactions with the associate or joint venture are recognized in the Group's consolidated financial statements only to the extent of interests in the associate or joint venture that are not related to the Group.

2.9 Interests in joint operations

A joint operation is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement. Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions about the relevant activities require unanimous consent of the parties sharing control.

When a group entity undertakes its activities under joint operations, the Group accounts for the assets, liabilities, revenues and expenses relating to its interest in a joint operation in accordance with the KIFRSs applicable to the particular assets, liabilities, revenues and expenses.

When a group entity transacts with a joint operation in which a group entity is a joint operator (such as a sale or contribution of assets), the Group is considered to be conducting the transaction with the other parties to the joint operation, and gains and losses resulting from the transactions are recognized in the Group's consolidated financial statements only to the extent of other parties' interests in the joint operation.

When a group entity transacts with a joint operation in which a group entity is a joint operator (such as a purchase of assets), the Group does not recognize its share of the gains and losses until it resells those assets to a third party.

2.10 Property, plant and equipment

Construction in progress is stated at cost, net of accumulated impairment losses, and property, plant and equipment is stated at cost, less subsequent accumulated depreciation and accumulated impairment losses. The cost of an item of property, plant and equipment is directly attributable to its purchase or construction, which includes 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. It also includes the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

Subsequent costs are recognized in the carrying amount of an asset or as a separate asset if it is probable that future economic benefits associated with the assets will flow into the Group and the cost of an asset can be measured reliably. Routine maintenance and repairs are expensed as incurred.

2.10 Property, plant and equipment (cont'd)

The Group does not depreciate land. Depreciation expense is computed using the straight-line method based on the estimated useful lives of the assets as follows:

Description	Useful lives (years)	Description	Useful lives (years)
Buildings	25 – 50	Structures	20 – 40
Tanks	15 – 25	Machinery	5 – 40
Oil pipeline	10 – 25	Vehicles	5 – 20
Others	2 – 13		

The Group reviews the depreciation method, the estimated useful lives and residual values of property, plant and equipment at the end of each annual reporting period. If expectations differ from previous estimates, the changes are accounted for as a change in an accounting estimate.

An item of property, plant and equipment is derecognized upon disposal or when no future economic benefits are expected to arise from the continued use of the asset. Any gain or loss arising on derecognition of the property (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in profit or loss in the period in which the property is derecognized.

2.11 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 the purpose of impairment testing, goodwill is allocated to each of the Group's cash-generating units (or groups of cash-generating units) that is expected to benefit from the synergies of the combination.

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. An impairment loss recognized for goodwill is not reversed in subsequent periods.

2.12 Intangible assets

Intangible assets are measured initially at cost and, subsequently, are carried at cost, less accumulated amortization and accumulated impairment losses. The cost of intangible asset acquired in a business combination, separately from goodwill, is its fair value at the acquisition date and shall be carried at its cost less any accumulated amortization and any accumulated impairment losses.

Amortization of development cost, industrial property rights and other intangible assets is calculated on a straight-line basis over the estimated useful lives of intangible assets from the date that they are available for use. The residual value is zero. Development cost for petroleum resource is amortized by the unit of production method based on the amount of proved reserves. However, intangible assets with indefinite useful lives such as membership are not amortized as there is no foreseeable limit to the period over which the asset is expected to use.

Development costs are amortized using the straight-line method over the estimated useful lives of 4 years. Other intangible assets are amortized using the straight-line method over the estimated useful lives of 3~35 years.

2.12.1 Development cost for petroleum resource

The Group accounts for expenditures with high probability of future economic benefits related to the acquisition costs of assets, exploration and evaluation, and development activities as intangible assets.

Expenditures for exploration and evaluation of oil and natural gas are related to geographical, geological, geochemical, geophysical research, and prospect for commercialization. Development expenditures are related to the construction of various production equipment and drilling oil wells. Impairment testing is performed when the carrying amount of the intangible asset exceeds the estimated recoverable amounts.

Oil-producing fields refer to those which acquired the permission of development for reserves with economic benefits. The cost of an item of oil-producing fields includes the costs directly attributable to its purchase, construction, other expenditures for production, and the estimated costs of provision for restoration. The Group amortizes oil-producing fields by the unit of production method based on the amount of proved reserves.

2.12.2 Research and development

Expenditures on research activities, undertaken with the prospect of gaining new scientific or technical knowledge and understanding, are recognized in profit or loss as incurred. Development expenditures are capitalized only if development costs can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable, and the Group intends to and has sufficient resources to complete development and to use or sell the asset. Other development expenditures are recognized in profit or loss as incurred.

2.12.3 Subsequent expenditures

Subsequent expenditures are capitalized only when they increase the future economic benefits embodied in the specific asset to which they relate. All other expenditures, including expenditures on internally generated goodwill and brands, are recognized in profit or loss as incurred.

2.13 Impairment of tangible and intangible assets other than goodwill

At the end of each reporting period, the Group reviews the carrying amounts of its tangible and intangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss. When it is not possible to estimate the recoverable amount of an individual asset, the Group estimates the recoverable amount of the CGU to which the asset belongs.

Intangible assets with indefinite useful lives and intangible assets not yet available for use are tested for impairment at least annually, and whenever there is an indication that the asset may be impaired. Recoverable amount is the higher of fair value, less costs to sell and value in use. If the recoverable amount of an asset (or a CGU) is estimated to be less than its carrying amount, the carrying amount of the asset (or the CGU) is reduced to its recoverable amount and the reduced amount is recognized in profit or loss.

On the other hand, if an impairment loss recognized in the past period is reversed, the carrying amount of an individual asset (or CGU) is determined to be the smaller amount of the revised recoverable amount and the carrying amount that would be recorded if the impairment loss was not recognized in the past period, and the reversal of that impairment loss is immediately recognized in profit or loss.

2.14 Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use or sale, are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale. Investment income earned on the temporary investment of specific borrowings, pending their expenditure on qualifying assets, is deducted from the borrowing costs eligible for capitalization. All other borrowing costs are recognized in profit or loss in the period in which they are incurred.

2.15 Government grants

Government grants are not recognized until there is reasonable assurance that the Group will comply with the conditions attaching to them and that the grants will be received.

Government grants related to assets are presented in the statement of financial position by deducting the grant from the carrying amount of the asset. The related grant is recognized in profit or loss over the life of a depreciable asset as a reduced depreciation expense.

Government grants related to income are recognized in profit or loss on a systematic basis over the periods in which the Group recognizes as expenses the related costs for which the grants are intended to compensate. 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.

2.16 Non-current assets held for sale and discontinued operations

Non-current assets and disposal groups are classified as held for sale if their carrying amount will be recovered principally through a sale transaction rather than through continuing use. Non-current assets held for sale are measured at the lower of carrying amount and fair value less costs to sell. In the consolidated statement of comprehensive income, the resulting profit or loss (after taxes) from discontinued operations are reported separately from income and expenses from continuing activities. Property, plant and equipment and intangible assets once classified as held for sale are not depreciated or amortized.

2.17 Discount (premium) on bonds

Discount (premium) on bonds is presented as a direct deduction from (addition to) the nominal value of the bonds and is amortized using the effective interest rate method over the lives of the bonds.

2.18 Leases

At inception of a contract, the Group assesses whether the contract is, or contains, a lease considering if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

2.18.1 Group as a lessee

The Group applied a single recognition and measurement approach for all leases, except for short-term leases and leases of low-value assets. The Group recognizes 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

➢ Right-of-use assets

The Group recognizes right-of-use assets at the commencement date of the lease (i.e., the date the underlying asset is available for use). Right-of-use assets are measured at cost, less any accumulated depreciation and impairment losses, and adjusted for any re-measurement of lease liabilities. The cost of right-of-use assets includes the amount of lease liabilities recognized, initial direct costs incurred, and lease payments made at or before the commencement date less any lease incentives received.

Depreciation of right-of-use asset is computed using the straight-line method based on the shorter of the lease term and the estimated useful lives of the assets as follows:

Description	Lease term (years)	Description	Lease term (years)
Land and buildings	1 – 18	Vehicles	1 – 4
Tanks	1 – 10	Ships	10 – 11
Oil Pipelines	1 – 10	Others	1 – 9

Unless the Group is reasonably certain to obtain ownership of the leased asset at the end of the lease term, the recognized right-of-use assets are depreciated on a straight-line basis over the shorter of its estimated useful life and the lease term. Right-of-use assets are subject to impairment.

2.18.2 Group as a lessee (cont'd)

- Lease liabilities

At the commencement date of the lease, the Group recognizes lease liabilities measured at the present value of lease payments to be made over the lease term. The lease payments include fixed payments (including in-substance fixed payments) less any lease incentives receivable, variable lease payments that depend on an index or a rate, and amounts expected to be paid under residual value guarantees. The lease payments also include the exercise price of a purchase option reasonably certain to be exercised by the Group and payments of penalties for terminating a lease, if the lease term reflects the Group exercising the option to terminate. The variable lease payments that do not depend on an index or a rate are recognized as expense in the period on which the event or condition that triggers the payment occurs.

In calculating the present value of lease payments, the Group uses the incremental borrowing rate at the lease commencement date if the interest rate implicit in the lease is not readily determinable. After the commencement date, the amount of lease liabilities is increased to reflect the accretion of interest and reduced for the lease payments made. In addition, the carrying amount of lease liabilities is remeasured if there is a modification, a change in the lease term, a change in the in-substance fixed lease payments or a change in the assessment to purchase the underlying asset.

The Group included lease liabilities as financial liabilities.

- Short-term lease and leases of low-value assets

The Group applies the short-term lease recognition exemption to its short-term leases of real estate, vehicles and so forth (i.e., those leases that have a lease term of 12 months or less from the commencement date and do not contain a purchase option). It also applies the lease of low-value assets recognition exemption to leases of office equipment that are considered of low value (i.e., below $5,000). Lease payments on short-term leases and leases of low-value assets are recognized as expense on a straight-line basis over the lease term.

2.16.2 Group as a lessor

Leases are classified as finance leases whenever the terms of the lease transfer substantially all the risks and rewards of ownership to the lessee. All other leases are classified as operating leases.

Amounts due from lessees under finance leases are recognized as receivables at the amount of the Group's net investment in the leases. Finance lease income is allocated to accounting periods so as to reflect a constant periodic rate of return on the Group's net investment outstanding in respect of the leases.

Rental income from operating leases is recognized on a straight-line basis over the term of the relevant lease. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the leased asset and recognized on a straight-line basis over the lease term.

2.19 Financial liabilities and equity instruments

2.19.1 Classification as debt or equity

Debt and equity instruments are classified as either financial liabilities or as equity in accordance with the substance of the contractual arrangement and the definitions of financial liability and an equity instrument.

2.19.2 Equity instruments

An equity instrument is any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities. Equity instruments issued by the Group are recognized as the proceeds are received, net of direct issue costs.

Repurchase of the Group's own equity instruments is recognized and deducted directly in equity. No gain or loss is recognized in profit or loss on the purchase, sale, issue or cancellation of the Group's own equity instruments.

2.19.3 Compound instruments

The component parts of compound instruments (convertible bonds) issued by the Group are classified separately as financial liabilities and equity in accordance with the substance of the contractual arrangements and the definitions of a financial liability and equity instrument. Conversion option that will be settled by the exchange of a fixed amount of cash or another financial asset for a fixed number of the Group's own equity instruments is an equity instrument.

At the date of issue, the fair value of the liability component is estimated using the prevailing market interest rate for a similar non-convertible instrument. This amount is recorded as a liability on an amortized cost basis using the effective interest method until extinguished upon conversion or at the instrument's maturity date.

The conversion option classified as equity is determined by deducting the amount of the liability component from the fair value of the compound instrument as a whole. This is recognized and included in equity, net of income tax effects, and is not subsequently remeasured. In addition, the conversion option classified as equity will remain in equity until the conversion option is exercised, in which case, the balance recognized in equity will be transferred to share premium. No gain or loss is recognized in profit or loss upon conversion or expiration of the conversion option.

Transaction costs that relate to the issue of the convertible notes are allocated to liability and equity components in proportion to the allocation of the gross proceeds. Transaction costs relating to equity component are recognized directly in equity. Transaction costs relating to the liability component are included in the carrying amount of the liability component and are amortized over the lives of the convertible notes using the effective interest method.

2.19.4 Financial liabilities

All financial liabilities are measured subsequently at amortized cost using the effective interest method or at FVTPL. However, financial liabilities that arise when a transfer of a financial asset does not qualify for derecognition or when the continuing involvement approach applies, and financial guarantee contracts issued by the Group, are measured in accordance with the specific accounting policies set out below.

2.19.4.1 Financial liabilities at FVTPL

Financial liabilities are classified as at FVTPL when the financial liability is (i) contingent consideration of an acquirer in a business combination, (ii) held for trading or (iii) it is designated as at FVTPL.

A financial liability is classified as held for trading if:

- It has been acquired principally for the purpose of repurchasing it in the near term; or
- On initial recognition it is part of a portfolio of identified financial instruments that the Group manages together and has a recent actual pattern of short-term profit-taking; or
- It is a derivative that is not designated and effective as a hedging instrument.

A financial liability other than a financial liability held for trading or contingent consideration of an acquirer in a business combination may be designated as at FVTPL upon initial recognition if:

- Such designation eliminates or significantly reduces a measurement or recognition inconsistency that would otherwise arise; or
- The financial liability forms part of a group of financial assets or financial liabilities or both, which is managed and its performance is evaluated on a fair value basis, in accordance with the Group's documented risk management or investment strategy, and information about the Companying is provided internally on that basis; or
- It forms part of a contract containing one or more embedded derivatives, and KIFRS 1109 permits the entire combined contract to be designated as at FVTPL.

Financial liabilities at FVTPL are measured at fair value, with any gains or losses arising on changes in fair value recognized in profit or loss to the extent that they are not part of a designated hedging relationship

2.19.4.1 Financial liabilities at FVTPL (cont'd)

However, for financial liabilities that are designated as at FVTPL, the amount of change in the fair value of the financial liability that is attributable to changes in the credit risk of that liability is recognized in other comprehensive income, unless the recognition of the effects of changes in the liability's credit risk in other comprehensive income would create or enlarge an accounting mismatch in profit or loss. The remaining amount of change in the fair value of liability is recognized in profit or loss. Changes in fair value attributable to a financial liability's credit risk that are recognized in other comprehensive income are not subsequently reclassified to profit or loss; instead, they are transferred to retained earnings upon derecognition of the financial liability.

Gains or losses on financial guarantee contracts issued by the Group that are designated by the Group as at FVTPL are recognized in profit or loss.

2.19.4.2 Financial liabilities measured at amortized cost

Financial liabilities that are not (a) contingent consideration of an acquirer in a business combination, (b) held-for-trading, or (c) designated as at FVTPL, are measured subsequently at amortized cost using the effective interest method.

2.19.5 Financial guarantee contracts

A financial guarantee contract is a contract that requires the issuer to make specified payments to reimburse the holder for a loss it incurs because a specified debtor fails to make payments when due in accordance with the terms of debt instruments.

Financial guarantee contract liabilities are initially measured at their fair values and, if not designated as at FVTPL, are subsequently measured at the higher of:

- The amount of the loss allowance determined in accordance with KIFRS 1109 (see financial assets above); and
- The amount recognized initially less, where appropriate, cumulative amortization recognized in accordance with KIFRS 1115.

2.19.6 Derecognition of financial liabilities

Financial liabilities are removed from the statement of financial position when it is extinguished; for example, when the obligation specified in the contract is discharged or cancelled or expired or when the terms of an existing financial liability are substantially modified. The difference between the carrying amount of a financial liability extinguished or transferred to another party and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

2.20 Retirement benefit costs

Contributions to defined contribution retirement benefit plans are recognized as an expense when employees have rendered service entitling them to the contributions.

For defined benefit retirement benefit plans, the cost of providing benefits is determined using the projected unit credit method, with actuarial valuations being carried out at the end of each reporting period. Remeasurement, comprising actuarial gains and losses, the effect of the changes to the asset ceiling (if applicable) and the return on plan assets (excluding interest), is reflected immediately in the consolidated statement of financial position with a charge or credit recognized in OCI in the period in which it occurs. Remeasurement recognized in OCI is reflected immediately in retained earnings and will not be reclassified to profit or loss. Past service cost is recognized in profit or loss in the period of a plan amendment. Net interest is calculated by applying the discount rate at the beginning of the period to the net defined benefit liability or asset. Defined benefit costs are composed of service cost (including current service cost and past service cost, as well as gains and losses on curtailments and settlements), net interest expense (income) and remeasurement.

The Group presents the service cost and net interest expense (income) components in profit or loss, and the remeasurement component in OCI. Curtailment gains and losses are accounted for as past service costs.

2.21 Share-based payment arrangements

Equity-settled share-based payments to employees and others providing similar services are measured at the fair value of the equity instruments at the grant date.

The fair value determined at the grant date of the equity-settled share-based payments is expensed on a straight-line basis over the vesting period, based on the Group's estimate of equity instruments that will eventually vest. At the end of each reporting period, the Group revises its estimate of the number of equity instruments expected to vest. The impact of the revision of the original estimates, if any, is recognized in profit or loss such that the cumulative expense reflects the revised estimate, with a corresponding adjustment in other component of equity as the equity-settled employee benefits reserve.

Equity-settled share-based payment transactions with parties other than employees are measured at the fair value of the goods or services received, except where that fair value cannot be estimated reliably, in which case they are measured at the fair value of the equity instruments granted, measured at the date the entity obtains the goods or the counterparty renders the service.

For cash-settled share-based payments, a liability is recognized for the goods or services acquired, measured initially at the fair value of the liability. At the end of each reporting period until the liability is settled, and at the date of settlement, the fair value of the liability is remeasured, with any changes in fair value recognized in profit or loss for the year.

2.22 Provision

Provisions are recognized when the Group has a present obligation (legal or constructive) as a result of a past event, it is probable that the Group will be required to settle that obligation and a reliable estimate can be made of the amount of the obligation.

The amount recognized as a provision is the best estimate of the consideration required to settle the present obligation at the reporting date, taking into account the risks and uncertainties surrounding the obligation. Where a provision is measured using the cash flows estimated to settle the present obligation, its carrying amount is the present value of those cash flows (when the effect of the time value of money is material). The discount rate used is a pretax rate that reflects current market assessments of the time value of money and the risks specific to the liability. Where discounting is used, the increase in the provision due to the passage is recognized in profit or loss as financial costs.

2.23 Derivative financial instruments

The Group enters into a variety of derivative financial instruments to manage its exposure to interest rate risk and foreign currency risks. 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 such case the timing of the recognition in profit or loss depends on the nature of the hedge relationship.

2.23.1 Embedded derivatives

An embedded derivative is a component of a hybrid contract that also includes a non-derivative host – with the effect that some of the cash flows of the combined instrument vary in a way similar to a stand-alone derivative.

Derivatives embedded in hybrid contracts with a financial asset host within the scope of KIFRS 1109 are not separated. The entire hybrid contract is classified and subsequently measured as either amortized cost or fair value as appropriate.

Derivatives embedded in hybrid contracts with hosts that are not financial assets within the scope of KIFRS 1109 (e.g. financial liabilities) are treated as separate derivatives when they meet the definition of a derivative, their risks and characteristics are not closely related to those of the host contracts and the host contracts are not measured at FVTPL.

2.23.2 Hedge accounting

The Group designates certain derivatives as hedging instruments in respect of foreign currency risk and interest rate risk in fair value hedges, cash flow hedges, or hedges of net investments in foreign operations. Hedges of foreign exchange risk on firm commitments are accounted for as cash flow hedges.

At the inception of the hedge relationship, the Group documents the relationship between the hedging instrument and the hedged item, along with its risk management objectives and its strategy for undertaking various hedge transactions.

Furthermore, at the inception of the hedge and on an ongoing basis, the Group documents whether the hedging instrument is effective in offsetting changes in fair values or cash flows of the hedged item attributable to the hedged risk, which is when the hedging relationships meet all of the following hedge effectiveness requirements:

- There is an economic relationship between the hedged item and the hedging instrument;
- The effect of credit risk does not dominate the value changes that result from that economic relationship; and
- The hedge ratio of the hedging relationship is the same as that resulting from the quantity of the hedged item that the Group actually hedges and the quantity of the hedging instrument that the Group actually uses to hedge that quantity of hedged item.

2.23.3 Fair value hedges

The fair value change on qualifying hedging instruments is recognized in profit or loss except when the hedging instrument hedges an equity instrument designated at FVOCI in which case it is recognized in other comprehensive income.

The carrying amount of a hedged item not already measured at fair value is adjusted for the fair value change attributable to the hedged risk with a corresponding entry in profit or loss. For debt instruments measured at FVOCI, the carrying amount is not adjusted as it is already at fair value, but the hedging gain or loss is recognized in profit or loss instead of other comprehensive income. When the hedged item is an equity instrument designated at FVOCI, the hedging gain or loss remains in other comprehensive income to match that of the hedging instrument.

Where hedging gains or losses are recognized in profit or loss, they are recognized in the same line as the hedged item.

The Group discontinues hedge accounting only when the hedging relationship (or a part thereof) ceases to meet the qualifying criteria (after rebalancing, if applicable). This includes instances when the hedging instrument expires or is sold, terminated or exercised. The discontinuation is accounted for prospectively. The fair value adjustment to the carrying amount of the hedged item arising from the hedged risk is amortized to profit or loss from that date.

2.23.4 Cash flow hedges

The effective portion of changes in the fair value of derivatives and other qualifying hedging instruments that are designated and qualify as cash flow hedges is recognized in other comprehensive income limited to the cumulative change in fair value of the hedged item from inception of the hedge. The gain or loss relating to the ineffective portion is recognized immediately in profit or loss.

The Group discontinues hedge accounting only when the hedging relationship (or a part thereof) ceases to meet the qualifying criteria (after rebalancing, if applicable). This includes instances when the hedging instrument expires or is sold, terminated or exercised. The discontinuation is accounted for prospectively. Any gain or loss recognized in other comprehensive income and accumulated in cash flow hedge reserve at that time remains in equity and is reclassified to profit or loss when the forecast transaction occurs. When a forecast transaction is no longer expected to occur, the gain or loss accumulated in cash flow hedge reserve is reclassified immediately to profit or loss.

2.24 Revenue Recognition

The Group recognizes revenue from the following key sources:

- Development, production and sale of petroleum and natural gas
- Manufacture and sale of petroleum products
- Manufacture and sale of petrochemical products
- Manufacture and sale of base oil and lubricant products
- Medium and large battery and battery material business

Revenue is measured based on the consideration to which the Group expects to be entitled in a contract with a customer and excludes amounts collected on behalf of third parties. The Group recognizes revenue when it transfers control of a product or service to a customer

2.24.1 Development, production and sale of petroleum and natural gas

The Group carries out crude oil and natural gas exploration and develop, produce and sell them. The Group operates petroleum production blocks in the United States and Peru and recognizes revenue and receivables as control is transferred to customers at the time of delivery of the goods via pipelines or other transportation.

2.24.2 Manufacture and sale of petroleum products

The Group imports crude oil from oil-producing countries and produce and sell petroleum products. The distribution channels of the petroleum business are largely divided into wholesale and retail. Wholesale refers to sales to distributors, gas stations and intermediate sellers, while retail refers to sales to general consumers at gas stations (or charging stations).
In case of sales to wholesalers, the Group recognizes revenue when the goods are delivered to a specific location designated by a wholesaler and the control of the goods is transferred to the wholesaler.

For sales to retail customers, the Group recognizes revenue when the customers purchase the goods at the retail station and the control of the goods is transferred to the customers.

2.24.3 Manufacture and sale of petrochemical products

Petrochemical product business is composed of basic chemicals business and petrochemicals business. Basic chemical business produces olefins products including ethylene and propylene using naphtha as main raw material. Petrochemical business produces chemicals such as synthetic resin and synthetic rubber using basic chemicals such as ethylene.

The Group recognizes revenue when the customers purchase the goods and the control of the goods is transferred to the customers.

2.24.4 Manufacture base oil and lubricant products

The Group manufacture and sells base oil which are used for vehicle engines and transmissions, and lubricant products used for industries and vehicles.

The Group recognizes revenue when the customers purchase the goods and the control of the goods is transferred to the customers.

2.24.5 Medium and large battery and battery material business

The Group manufactures and sells high capacity lithium-ion battery, which is used for electric vehicles and ESS, and LiBS, which is a critical component of high capacity lithium-ion battery and prevents physical contact between anode and cathode while facilitating ion transport in the cell. The Group recognizes revenue and related receivables when the products are delivered to the customers, which is the timing of transfer of control of the products to the customers. However, as warranties in connection with the sale of mid/large-sized battery provide the customer with assurance that the product complies with agreed-upon specifications, the warranties are accounted for in accordance with KIFRS 1037 *Provision, Contingent Liabilities and Contingent Assets* (see note 16).

2.25 Income tax

Income tax expense represents the sum of the tax currently payable and deferred tax. Current and deferred tax are recognized in profit or loss, except when they relate to items that are recognized in OCI or directly in equity, in which case, the current and deferred tax are also recognized in OCI or directly in equity.

2.25.1 Current tax

The tax currently payable is based on taxable profit for the year. Taxable profit differs from profit as reported in the consolidated statement of profit or loss and comprehensive income because of items of income or expense that are taxable or deductible in other years and items that are never taxable or deductible. The Group's liability for current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

2.25.2 Deferred tax

Deferred tax is recognized on temporary differences between the carrying amounts of assets and liabilities in the consolidated financial statements and the corresponding tax bases used in the computation of taxable profit. Deferred tax liabilities are generally recognized for all taxable temporary differences. Deferred tax assets are generally recognized for all deductible temporary differences to the extent it is probable that taxable profits will be available against which those deductible temporary differences can be utilized. Such deferred tax assets and liabilities are not recognized if the temporary difference arises from goodwill or from the initial recognition (other than in a business combination) of other assets and liabilities in a transaction that affects neither the taxable profit nor the accounting profit.

Deferred tax liabilities are recognized for taxable temporary differences associated with investments in subsidiaries and associates and interests in joint ventures, except where the Group is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future.

Deferred tax assets arising from deductible temporary differences associated with such investments and interests are only recognized to the extent it is probable that there will be sufficient taxable profits against which the benefits of the temporary differences can be utilized and they are expected to reverse in the foreseeable future. The carrying amount of deferred tax assets is reviewed at the end of each reporting period and reduced to the extent it is no longer probable that sufficient taxable profits will be available to allow all or part of the asset to be recovered.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the period in which the liability is settled or the asset realized, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period. The measurement of deferred tax liabilities and assets 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.

Deferred tax assets and liabilities are offset if, and only if, the Group has a legally enforceable right to set off current tax assets against current tax liabilities, and the deferred tax assets and liabilities relate to income taxes are levied by the same taxation authority on either the same taxable entity or different taxable entities that intend either to settle current tax liabilities and assets on a net basis, or to realize the assets and settle the liabilities simultaneously, in each future period in which significant amounts of deferred tax liabilities or assets are expected to be settled or recovered.

2.25.3 Current tax and deferred tax for the year

Current tax and deferred tax are recognized in profit or loss, except when they relate to items that are recognized in OCI or directly in equity, in which case the current tax and deferred tax are also recognized in OCI or directly in equity. Where current tax or deferred tax arises from the initial accounting for a business combination, the tax effect is included in the accounting for the business combination.

2.26 Earnings (loss) per share

Basic earnings (loss) per share (EPS) amounts are calculated by dividing profit (loss) for the year attributable to ordinary shareholders of the Group by the weighted-average number of ordinary shares outstanding during the year.

2.27 Fair value

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date, regardless of whether that price is directly observable or estimated using another valuation technique. In estimating the fair value of an asset or a liability, the Group takes into account the characteristics of the asset or liability if market participants would take those characteristics into account when pricing the asset or liability at the measurement date.

Fair value for measurement and/or disclosure purposes in these consolidated financial statements is determined on such a basis, except for share-based payment transactions that are within the scope of KIFRS 1102 *Share-based Payment*; leasing transactions that are within the scope of KIFRS 1116 *Leases*; and measurements that have some similarities to fair value, but are not fair value, such as net realizable value in KIFRS 1002 *Inventories* or value in use in KIFRS 1036 *Impairment of Assets*.

In addition, for financial reporting purposes, fair value measurements are categorized into Level 1, 2 or 3, based on the degree to which the inputs to the fair value measurements are observable and the significance of the inputs to the fair value measurement in its entirety, which are described as follows:

- Level 1: inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that the entity can access at the measurement date;
- Level 2: inputs are inputs, other than quoted prices included within Level 1, that are observable for the asset or liability, either directly or indirectly; and
- Level 3: inputs are unobservable inputs for the asset or liability.

2.28 Accounting treatment related to the emission rights cap and trade scheme

The Group classifies the emission rights as intangible assets. Emission rights allowances the government allocated free of charge are measured at nil, and emission rights allowances purchased are measured at cost, which the Group paid to purchase the allowances. If emission rights the government allocated free of charge are sufficient to settle the emission rights allowances allotted for vintage year, the emissions liabilities are measured at nil. However, for the emissions liabilities that exceed the allowances allocated free of charge, the shortfall is measured at best estimate at the end of the reporting period.

3. Critical accounting judgments and key sources of estimation uncertainty

When preparing the consolidated financial statements, management is required to make judgments, estimates and assumptions that affect the reported amount of assets, liabilities, revenues and expenses. Actual results may be different from those estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimate is revised if the revision affects only that period or in the period of the revision and future periods if the revision affects both current and future periods.

The followings are the key assumptions, and other key sources of estimation uncertainty at the end of the reporting period, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year:

3.1 Valuation of financial instruments

Subsequent to initial recognition, certain financial instruments including long-term investment securities and derivative financial instruments are stated at fair value, with any gains or losses arising on remeasurement recognized in profit or loss or other comprehensive income. Where the fair value of financial assets and financial liabilities recorded in the consolidated statements of financial position cannot be derived from active markets, the Group uses valuation techniques that require the management's judgments on the expected future cash flows and discount rates.

3.2 Bad debt allowance for trade receivables, loans and other receivables

When measuring expected credit losses (ECL), the Group uses reasonable and supportable forward looking information, which is based on assumptions for the future movement of different economic drivers and how these drivers will affect each other.

Loss given default is an estimate of the loss arising on default. It is based on the difference between the contractual cash flows due and those that the lender would expect to receive, taking into account cash flows from collateral and integral credit enhancements.

Probability of default constitutes a key input in measuring ECL. Probability of default is an estimate of the likelihood of default over a given time horizon, the calculation of which includes historical data, assumptions and expectations of future conditions.

3.3 Measurement of net realizable value of inventories

Net realizable value is the estimated selling price in the ordinary course of business, less estimated costs necessary to make the sale.

3.4 Impairment of tangible and intangible assets other than goodwill

If there is any indication that tangible and intangible assets other than goodwill for impairment, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss as the higher of fair value less costs to sell and value in use. Where the fair value of such assets cannot be derived from active markets, the Group measures fair value to estimate the price that would be received from a disposal of an asset in an orderly transaction between market participants at the measurement date. In estimating value in use, it is necessary to determine the expected future cash flows and discount rates and the judgment of the management will play an important role in these estimates.

3.5 Measurement and useful lives of tangible and intangible assets

If the Group acquires property, plant and equipment or intangible assets from business combination, it is required to estimate the fair value of these assets at the acquisition date. Also, for estimating the useful lives of property, plant and equipment and intangible assets, significant management judgment is required.

3.6 Defined benefit plan

The Group's defined benefit obligation is determined based on the actuarial valuation carried out at the end of each annual reporting period. Actuarial assumptions are the Group's best estimates of the variables in determining the cost of providing post-retirement benefits such as discount rates, rates of expected future salary increases and mortality rates. Significant estimation uncertainty is likely to persist in making such assumptions due to the long-term nature of post-retirement benefit plan.

3.7 Probability on the realization of unused deferred tax assets

Recognition and measurement of deferred tax assets and liabilities require significant management judgment. Especially, determination of whether deferred tax assets will be realizable or not in the future involves significant management assumptions and judgment on the Group's future performance.

4. Financial instruments

Details of financial assets as of December 31, 2019, and 2018 are as follows (Korean won in millions):

	2019				
	Financial assets at FVTPL	Financial assets at amortized cost	Financial assets at FVOCI	Derivatives designated as hedging instruments	Total
Current assets:					
Cash and cash equivalents	₩ 433,828	₩ 1,762,173	₩ -	₩ -	₩ 2,196,001
Short-term financial instruments	2,067,931	308,163	-	-	2,376,094
Trade receivables	-	4,138,302	-	-	4,138,302
Current portion of long-term investment securities	1,051	-	-	-	1,051
Short-term loans	-	34,480	-	-	34,480
Other receivables	9,653	739,860	-	-	749,513
Accrued income	-	5,184	-	-	5,184
Guarantee deposits	-	123,852	-	-	123,852
Derivative assets	34,458	-	-	-	34,458
	2,546,921	7,112,014	-	-	9,658,935
Non-current assets:					
Long-term financial instruments	4,528	88	-	-	4,616
Long-term investment securities	92,144	-	277,343	-	369,487
Long-term loans	-	403,691	-	-	403,691
Long-term other receivables	-	8,456	-	-	8,456
Long-term guarantee deposits	-	83,567	-	-	83,567
Long-term derivative assets	40,828	-	-	-	40,828
	137,500	495,802	277,343	-	910,645
	₩ 2,684,421	₩ 7,607,816	₩ 277,343	₩ -	₩ 10,569,580

	2018				
	Financial assets at FVTPL	Financial assets at amortized cost	Financial assets at FVOCI	Derivatives designated as hedging instruments	Total
Current assets:					
Cash and cash equivalents	₩ 809,783	₩ 1,015,775	₩ -	₩ -	₩ 1,825,558
Short-term financial instruments	2,498,286	173,677	-	-	2,671,963
Trade receivables	-	4,413,855	-	-	4,413,855
Current portion of long-term investment securities	2,591	-	-	-	2,591
Short-term loans	-	43,551	-	-	43,551
Other receivables	8,826	674,876	-	-	683,702
Accrued income	-	5,083	-	-	5,083
Guarantee deposits	-	171,798	-	-	171,798
Derivative assets	70,913	-	-	1,294	72,207
	3,390,399	6,498,615	-	1,294	9,890,308
Non-current assets:					
Long-term financial instruments	4,634	86	-	-	4,720
Long-term trade receivables	-	79	-	-	79
Long-term investment securities	71,133	-	262,051	-	333,184
Long-term loans	-	196,242	-	-	196,242
Long-term other receivables	8,097	4,760	-	-	12,857
Long-term guarantee deposits	-	42,565	-	-	42,565
Long-term derivative assets	8,503	-	-	-	8,503
	92,367	243,732	262,051	-	598,150
	₩ 3,482,766	₩ 6,742,347	₩ 262,051	₩ 1,294	₩ 10,488,458

4. Financial instruments (cont'd)

Details of financial liabilities as of December 31, 2019, and 2018 are as follows (Korean won in millions):

	2019			
	Financial liabilities at FVTPL	Financial liabilities at amortized cost	Derivatives designated as hedging instruments	Total
Current liabilities:				
Short-term borrowings	₩ -	₩ 1,131,974	₩ -	₩ 1,131,974
Trade payables	-	4,928,198	-	4,928,198
Other payables	41,057	488,256	-	529,313
Accrued expenses	-	1,470,407	-	1,470,407
Current portion of long-term debt	-	1,155,414	-	1,155,414
Current portion of lease liabilities	-	223,203	-	223,203
Current portion of leasehold deposits received	-	11,570	-	11,570
Derivative liabilities	13,896	-	169	14,065
	54,953	9,409,022	169	9,464,144
Non-current liabilities:				
Bonds payable and long-term borrowings	-	8,843,636	-	8,843,636
Lease liabilities	-	937,876	-	937,876
Long-term other payables	875	5,305	-	6,180
Leasehold deposits received	-	11,281	-	11,281
Long-term derivative liabilities	687	-	-	687
Financial guarantee liabilities	-	252	-	252
	1,562	9,798,350	-	9,799,912
	₩ 56,515	₩ 19,207,372	₩ 169	₩ 19,264,056

	2018			
	Financial liabilities at FVTPL	Financial liabilities at amortized cost	Derivatives designated as hedging instruments	Total
Current liabilities:				
Short-term borrowings	₩ -	₩ 153,742	₩ -	₩ 153,742
Trade payables	-	4,588,332	-	4,588,332
Other payables	2,700	462,368	-	465,068
Accrued expenses	-	1,341,253	-	1,341,253
Current portion of long-term debt	-	1,213,849	-	1,213,849
Current portion of lease liabilities	-	20	-	20
Current portion of leasehold deposits received	-	12,358	-	12,358
Derivative liabilities	54,774	-	1,072	55,846
	57,474	7,771,922	1,072	7,830,468
Non-current liabilities:				
Bonds payable and long-term borrowings	-	6,646,149	-	6,646,149
Lease liabilities	-	4	-	4
Long-term other payables	3,884	8,706	-	12,590
Leasehold deposits received	-	10,020	-	10,020
Financial guarantee liabilities	-	721	-	721
	3,884	6,665,600	-	6,669,484
	₩ 61,358	₩ 14,437,522	₩ 1,072	₩ 14,499,952

4. Financial instruments (cont'd)

Details of income and costs arising from financial instruments at each category for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

Financial assets:

	2019			
	Financial assets at FVTPL	Financial assets measured at amortized cost	Financial assets measured at FVOCI	Total
Profit:				
Interest income	₩ 63,200	₩ 36,288	₩ 412	₩ 99,900
Derivative profit	1,457,154	-	-	1,457,154
Profit related to foreign currency transactions	7,379	119,346	2	126,727
Others	8,969	(113)	3,376	12,232
	1,536,702	155,521	3,790	1,696,013
Other comprehensive loss:				
Loss related to investment securities	-	-	(48,670)	(48,670)
	₩ 1,536,702	₩ 155,521	₩ (44,880)	₩ 1,647,343

	2018			
	Financial assets at FVTPL	Financial assets measured at amortized cost	Financial assets measured at FVOCI	Total
Profit:				
Interest income	₩ 48,109	₩ 39,152	₩ 604	₩ 87,865
Derivative profit	1,962,700	-	-	1,962,700
Profit related to foreign currency transactions	-	127,015	62	127,077
Others	5,168	(88)	4,640	9,720
	2,015,977	166,079	5,306	2,187,362
Other comprehensive loss:				
Loss related to investment securities	-	-	(20,239)	(20,239)
	₩ 2,015,977	₩ 166,079	₩ (14,933)	₩ 2,167,123

Financial liabilities:

	2019		
	Financial liabilities at FVTPL	Financial labilities measured at amortized cost	Total
Profit:			
Interest expenses	₩ -	₩ (343,699)	₩ (343,699)
Derivative loss	(1,667,958)	-	(1,667,958)
Loss related to foreign currency transactions	(24,879)	(206,543)	(231,422)
Others	-	-	-
	(1,692,837)	(550,242)	(2,243,079)
Other comprehensive income:			
Loss related to investment securities	-	-	-
	₩ (1,692,837)	₩ (550,242)	₩ (2,243,079)

	2018		
	Financial liabilities at FVTPL	Financial labilities measured at amortized cost	Total
Profit:			
Interest expenses	₩ -	₩ (259,186)	₩ (259,186)
Derivative loss	(1,468,182)	-	(1,468,182)
Loss related to foreign currency transactions	(32,677)	(195,253)	(227,930)
Others	-	-	-
	(1,500,859)	(454,439)	(1,955,298)
Other comprehensive income:			
Loss related to investment securities	-	-	-
	₩ (1,500,859)	₩ (454,439)	₩ (1,955,298)

Bad debt expenses (reversal of allowance for doubtful accounts) are excluded and presented in Note 5.

4. Financial instrument (cont'd)

The Group uses the following hierarchy for determining and disclosing the fair value of financial instruments by valuation technique. The level of hierarchy of fair value is as follows:

Classification	Significance of input variables
Level 1	Quoted (unadjusted) prices in active markets for identical assets or liabilities
Level 2	Other techniques for which all inputs that have a significant effect on the recorded fair value are observable, either directly or indirectly
Level 3	Techniques that use inputs that have a significant effect on the recorded fair value that are not based on observable market data

Fair values of financial instruments by hierarchy level as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019			
	Fair value	Level 1	Level 2	Level 3
Financial assets:				
Financial assets at FVTPL				
(Exclusion of derivative assets)	₩ 2,609,135	₩ 2,501,759	₩ -	₩ 107,376
Financial assets at FVOCI	277,343	205,757	-	71,586
Derivative assets	75,286	-	75,286	-
	₩ 2,961,764	₩ 2,707,516	₩ 75,286	₩ 178,962
Financial liabilities:				
Financial liabilities at FVTPL				
(Exclusion of derivative liabilities)	₩ 41,932	₩ -	₩ -	₩ 41,932
Derivative liabilities	14,752	-	14,752	-
	₩ 56,684	₩ -	₩ 14,752	₩ 41,932

	2018			
	Fair value	Level 1	Level 2	Level 3
Financial assets:				
Financial assets at FVTPL				
(Exclusion of derivative assets)	₩ 3,403,350	₩ 3,308,069	₩ -	₩ 95,281
Financial assets at FVOCI	262,051	176,074	-	85,977
Derivative assets	80,710	6,762	73,948	-
	₩ 3,746,111	₩ 3,490,905	₩ 73,948	₩ 181,258
Financial liabilities:				
Financial liabilities at FVTPL				
(Exclusion of derivative liabilities)	₩ 6,584	₩ -	₩ -	₩ 6,584
Derivative liabilities	55,846	-	55,846	-
	₩ 62,430	₩ -	₩ 55,846	₩ 6,584

The Group recognizes movements between levels at the time of events or changes in circumstances that result in transfers between levels, and there were no transfers between levels 1 and 2 for the year ended December 31, 2019.

Changes in level 3 financial assets for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019						
	Beginning balance	Acquisition	Disposals	Profit or loss	Other comprehensive loss	Other	Ending balance
Financial assets:							
Financial assets at FVTPL	₩ 95,281	₩ 25,660	₩ (19,384)	₩ 4,992	₩ -	₩ 827	₩ 107,376
Financial assets at FVOCI	85,977	4,596	-	-	(19,535)	548	71,586
Financial liabilities:							
Financial liabilities at FVTPL	₩ 6,584	₩ 38,683	₩ (2,700)	₩ -	₩ -	₩ (635)	₩ 41,932

4. Financial instrument (cont'd)

	2018						
	Beginning balance (*1)	Acquisition	Disposals	Profit or loss	Other comprehensive income	Other	Ending balance
Financial assets:							
Financial assets at FVTPL	₩ 85,946	₩ 13,135	₩ (7,744)	₩ 692	₩ -	₩ 3,252	₩ 95,281
Financial assets at FVOCI	81,850	2,240	-	-	1,876	11	85,977
Financial liabilities:							
Financial liabilities at FVTPL	₩ 6,536	₩ -	₩ -	₩ (233)	₩ -	₩ 281	₩ 6,584

(*1) In accordance with adoption of KIFRS 1109, long-term investment securities that had been measured at cost were classified as level 3 as of the date of initial application, January 1, 2018.

Description of the inputs and the valuation techniques measuring the fair value of financial instruments classified as Level 2 and Level 3 is as follows:

1) Currency forward and swap
Fair value of currency forward and currency swap was measured, in principle, by the posted “forward rate” of the period corresponding to the remaining maturity of the evaluation subject as of December 31, 2019. If the posted “forward rate” of the period corresponding to the remaining maturity of the evaluation subject does not exist, the currency forward and currency swap were measured by the estimated “forward rate” of the period similar to the remaining maturity by the interpolation method. Discount rate used in fair value measurement was determined by the yield curve derived from the posted interest rate as of December 31, 2019.

2) Commodity swap
Fair value of commodity swap was measured, in principle, by the posted “future price” of the period corresponding to the remaining maturity of the evaluation subject as of December 31, 2019. In addition, the discount rate used to measure the fair value of the spot swap was determined using the yield curve derived from the interest rate announced on the market at the end of the reporting period.

3) Interest rate swap
Fair value of interest rate swap was measured, in principle, by the posted “interest rate of swap” of the period corresponding to the remaining maturity of the evaluation subject as of December 31, 2019. If the posted “interest rate of swap” of the period corresponding to the remaining maturity of the evaluation subject does not exist, the interest rate swap was measured by the estimated “interest rate of swap” of the period similar to the remaining maturity by the interpolation.

4) Debt securities
Fair value of debt securities was measured by future cash flows discounted at the market rate that reflects similar credit rating to debt issuer.

5) Investments in non-listed companies and capital contributions
The fair value of investments in non-listed companies was measured using the Discounted Cash Flow model and certain assumptions which were not based on observable market prices or rates, such as for sales growth, pre-tax profit margin, and weighted average cost of capital, were used for estimating the future cash flow. The weighted average cost of capital for discounting the future cash flows was calculated applying the Capital Asset Pricing Model (“CAPM”). As the Group determined that the effect of the above mentioned assumptions and estimates for measuring the fair value of investments in non-listed companies was significant, the fair value measurement of investments in non-listed companies was classified as Level 3 in the fair value hierarchy

4. Financial instruments (cont'd)

6) Convertible bond securities

The fair value of the convertible debt securities was measured at the sum of the fair value of the elements of common bonds that did not include conversion rights and the conversion rights that were embedded derivative instruments (call option). The fair value of common bonds that did not include conversion rights was measured by discounting the future cash flows of the bonds by applying market interest rates applicable to companies with similar credit ratings to convertible bond issuers. The fair value of the conversion rights was measured using the option pricing model. Stock price volatility, a significant input variable used to measure the fair value of the conversion rights, was estimated based on historical stock price changes. As the Group determined that the fair value of the conversion rights was a significant portion for measuring the fair value of the convertible debt securities, the fair value measurement of the convertible debt securities was classified as Level 3 in the fair value hierarchy.

7) Contingent consideration

The fair value of contingent consideration was measured at present value of the probability-weighted average of consideration to be received from each scenario based on estimate of profit before interest and tax for each scenario.

For the years ended December 31, 2019, there was no change in valuation techniques used for measuring the fair value of financial instruments classified as level 2 and level 3.

Details of restricted deposits as of December 31, 2019 and 2018, are as follows (Korean won in millions):

Accounts	Financial institution	2019	2018	Restriction details
Short-term financial instruments	IBK Bank	₩ 22,000	₩ 22,000	Charitable trust funds
	KDB Bank and others	12,200	12,200	Deposits related to funding for mutual growth and others
Long-term financial instruments	KEB Hana Bank and others	70	68	Guarantee deposits and others
	Samsung Securities	4,528	4,634	Deposits related to carbon emission rights
		₩ 38,798	₩ 38,902	

5. Trade and other receivables

Details of trade and other receivables as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019			2018		
	Cost	Allowance for doubtful accounts	Book value	Cost	Allowance for doubtful accounts	Book value
Trade receivables	₩ 4,416,160	₩ (277,858)	₩ 4,138,302	₩ 4,696,684	₩ (282,829)	₩ 4,413,855
Short-term loans	39,017	(4,537)	34,480	48,090	(4,539)	43,551
Other receivables	771,854	(22,341)	749,513	706,045	(22,343)	683,702
Accrued income	5,184	-	5,184	5,083	-	5,083
Guarantee deposits	123,852	-	123,852	171,798	-	171,798
Long-term trade receivables	91	(91)	-	170	(91)	79
Long-term loans	530,331	(126,640)	403,691	322,969	(126,727)	196,242
Long-term other receivables	8,456	-	8,456	12,857	-	12,857
Long-term guarantee deposits	83,567	-	83,567	42,565	-	42,565
	₩ 5,978,512	₩ (431,467)	₩ 5,547,045	₩ 6,006,261	₩ (436,529)	₩ 5,569,732

5. Trade and other receivables (cont'd)

Details of aging analysis of trade and other receivables as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019					
		Overdue but not individually impaired				
	Account receivable not overdue	Less than 3 months	3 ~ 6 months	6 ~ 12 months	Individually impaired	Total
Trade accounts receivable	₩ 4,017,064	₩ 116,574	₩ 3,851	₩ 813	₩ 277,949	₩ 4,416,251
Other accounts receivables (*1)	1,381,265	12,243	2,090	11,140	155,523	1,562,261
Allowance for doubtful accounts	-	-	-	-	(431,467)	(431,467)
	₩ 5,398,329	₩ 128,817	₩ 5,941	₩ 11,953	₩ 2,005	₩ 5,547,045

	2018					
		Overdue but not individually impaired				
	Account receivable not overdue	Less than 3 months	3 ~ 6 months	6 ~ 12 months	Individually impaired	Total
Trade accounts receivable	₩ 4,244,972	₩ 145,257	₩ 24,736	₩ 1,543	₩ 280,346	₩ 4,696,854
Other accounts receivables (*1)	1,147,298	3,578	212	2,671	155,648	1,309,407
Allowance for doubtful accounts	(737)	(1,877)	(71)	(1)	(433,843)	(436,529)
	₩ 5,391,533	₩ 146,958	₩ 24,877	₩ 4,213	₩ 2,151	₩ 5,569,732

(*1) It consists of long-term and short-term other receivables, accrued income, long-term and short-term loans, and long-term and short-term deposits.

Details of changes in allowance for doubtful accounts for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Beginning balance	₩ 436,529	₩ 451,187
Provision(reversal) of allowance for doubtful accounts	(5,057)	2,706
Write-off	(97)	(18,925)
Others (changes in scope of consolidation, etc.)	92	1,561
Ending balance	₩ 431,467	₩ 436,529

6. Inventories

Details of inventories as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019			2018		
	Cost	Valuation allowance	Book value	Cost	Valuation allowance	Book value
Merchandise	₩ 7,626	₩ -	₩ 7,626	₩ 18,902	₩ -	₩ 18,902
Finished goods	1,757,710	(28,760)	1,728,950	1,980,692	(148,321)	1,832,371
Semi-finished goods	897,172	(32,206)	864,966	737,984	(97,283)	640,701
Raw materials	1,609,472	(2,647)	1,606,825	1,605,778	(71,271)	1,534,507
Materials in transit	2,139,653	-	2,139,653	1,992,625	-	1,992,625
Supplies	114,803	(1,005)	113,798	102,802	(902)	101,900
Others	33,392	-	33,392	30,884	-	30,884
	₩ 6,559,828	₩ (64,618)	₩ 6,495,210	₩ 6,469,667	₩ (317,777)	₩ 6,151,890

A reversal of valuation allowances on inventories, which was deducted from cost of sales, amounted to ₩253,159 million for the year ended December 31, 2019, and loss on valuation of inventories (including the amounts incurred from discontinued operations), which was added to cost of sales, amounted to ₩274,033 million for the year ended December 31, 2018.

7. Loans

Long-term loans as of December 31, 2019 and 2018 are as follows (Korean won in millions):

Details	Counterparty	2019	2018
Assistance in investments	Yemen LNG Company Ltd.	₩ 45,753	₩ 33,632
Assistance in operation	Petroleum products wholesalers and others	75,980	81,505
	Korea Kamchatka Consortium (*1)	9,669	9,669
	Korea Consortium Kazakh B.V. (*1,2)	146,170	146,170
	Huizhou EVE United Energy Co., Ltd.	274,789	81,048
	Others	29,810	23,367
		582,171	375,391
Less: Discount on long-term loans		(2,245)	(2,827)
Allowance for doubtful accounts (*2)		(126,640)	(126,727)
Development grants (*3)		(49,595)	(49,595)
		₩ 403,691	₩ 196,242

(*1) Loans are connected with the borrowings related to exploration of oil fields.
(*2) Long-term loans to Korea Consortium Kazakh B.V. were impaired and fully provided through the Group's allowance for doubtful accounts.
(*3) Refers to the reclassification of borrowings related to exploration of oil fields for which the Group has no obligation to repay, as they are determined to have no commercial productivity.

In addition, short-term loans were granted to gas stations for the purpose of assistance in operations as of December 31, 2019 and 2018.

8. Long-term investment securities

Details of long-term investment securities as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
	Cost	Book value	Cost	Book value
Financial assets at FVOCI:				
Debt securities	₩ 18,869	₩ 18,643	₩ 25,103	₩ 24,500
Equity securities (*1)	303,772	258,700	233,391	237,551
	322,641	277,343	258,494	262,051
Financial assets at FVTPL:				
Debt securities	1,000	1,000	4,000	4,000
Capital investments, etc.	88,796	92,195	73,874	69,724
	89,796	93,195	77,874	73,724
	₩ 412,437	₩ 370,538	₩ 336,368	₩ 335,775

(*1) The Group irrevocably designates an equity instrument that is held for strategic investment as item measured at fair value through other comprehensive income at the date of initial application for adopting KIFRS 1109.

8. Long-term investment securities (cont'd)

Details of long-term investment securities as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
	Cost	Book value	Cost	Book value
Equity securities traded in an active market	₩ 229,830	₩ 187,114	₩ 164,566	₩ 151,574
Equity securities not traded in an active market	73,942	71,586	68,825	85,977
Debt securities traded in an active market	18,869	18,643	25,103	24,500
Debt securities not traded in an active market	1,000	1,000	4,000	4,000
Capital investments, etc.	88,796	92,195	73,874	69,724
	412,437	370,538	336,368	335,775
Less : Current portion	(1,051)	(1,051)	(2,591)	(2,591)
	₩ 411,386	₩ 369,487	₩ 333,777	₩ 333,184

Details of investments in listed companies as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019			2018	
	Ownership percentage (%)	Cost	Book value	Cost	Book value
JXTG Holdings, Inc.	0.5	₩ 98,095	₩ 81,121	₩ 98,095	₩ 89,320
Korea Environment Technology Co., Ltd.	2.5	2,377	12,200	2,377	9,386
Kumho Industrial Co., Ltd.	1.6	10,000	6,609	10,000	6,782
LTC Co., Ltd.	9.2	8,000	8,724	8,000	6,696
PV-Oil	5.2	46,094	22,460	46,094	39,390
PETROLIMEX (*1)	1.7	65,264	56,000	-	-
		₩ 229,830	₩ 187,114	₩ 164,566	₩ 151,574

(*1) For the year ended December 31, 2019, the Group newly acquired.

Details of investments in non-listed companies as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019			2018	
	Ownership percentage (%)	Cost	Book value	Cost	Book value
Nongshim Development Co., Ltd.	1.1	₩ 12,647	₩ 348	₩ 12,647	₩ 348
Intellectual Discovery Co., Ltd.	3.5	2,000	545	2,000	545
Korea ePlatform Co., Ltd.	6.4	2,000	2,000	2,000	2,000
Machinery Financial Cooperative	0.4	800	800	800	800
Q-BioTech Corp.	3.6	24	9	24	9
Esco Co., Ltd.	13.2	500	250	500	250
K.K. Korea Kamchatka Co. Limited	10.0	1,323	-	1,323	-
Kyungsangilbo Co., Ltd.	10.0	1,760	381	1,760	381
Samhwa Oil Co., Ltd. (*1)	19.9	3,747	9,443	3,747	9,443
Euro Tank Terminal B.V.	5.0	36,377	35,231	35,865	37,744
Hanju Co., Ltd.	9.2	1,104	13,414	1,104	29,898
Tesla Nano Coatings, Inc.	10.0	2,404	-	2,404	-
Clean Technology Co., Ltd.	17.9	1,964	1,964	1,964	1,964
Joomma Co., Ltd (*2)	19.9	3,836	3,836	2,240	2,240
Injine Co., Ltd. (*3)	5.5	2,500	2,500	-	-
Others		956	865	447	355
		₩ 73,942	₩ 71,586	₩ 68,825	₩ 85,977

(*1) As a result of the measurement of the fair value as of the initial application date in accordance with the adoption of KIFRS 1109, the difference between the acquisition cost and fair value of Samhwa Oil Co, Ltd.'s AFS financial assets was reflected to the book value of the beginning balance of the previous year.
(*2) The Group acquired additional shares of Joomma Co., Ltd. during the year ended December 31, 2019.
(*3) Injine Co., Ltd. was newly acquired by the Group during the year ended December 31, 2019.

8. Long-term investment securities (cont'd)

Details of debt securities in listed companies as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
	Cost	Book value	Cost	Book value
Debenture	₩ 18,869	₩ 18,643	₩ 25,103	₩ 24,500

Details of debt securities in non-listed companies as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
	Cost	Book value	Cost	Book value
Convertible debt securities issued by 4EN Co., Ltd	₩ 1,000	₩ 1,000	₩ -	₩ -
Convertible debt securities issued by LTC Co., Ltd	-	-	4,000	4,000
	₩ 1,000	₩ 1,000	₩ 4,000	₩ 4,000

Details of capital contributions as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019			2018	
	Ownership percentage (%)	Cost	Book value	Cost	Book value
Prostar Asia-Pacific Energy Infrastructure SK Fund L.P. (*1,2)	24.8	₩ 24,664	₩ 31,253	₩ 23,880	₩ 23,366
Green Future Private Equity Fund (*3)	19.9	1,051	1,051	2,591	2,591
KoFC KDBC-SKS Shared Growth No.3. Private Equity Fund (*3)	7.5	2	2	144	144
First Reserve Fund XIII, L.P. (*2)	1.5	47,833	44,643	32,153	31,159
CFC-SK ElDorado Latam Fund, L.P. (*4)	-	-	-	5,106	2,464
Kumho Busline Co., Ltd.	3.6	10,000	10,000	10,000	10,000
Multi Asset Eco-friendly Ship Equipment Specialized Investment Type Private Investment Trust No. 1 (*1,5)	33.3	5,246	5,246	-	-
		₩ 88,796	₩ 92,195	₩ 73,874	₩ 69,724

(*1) Although the Company holds more than 20% of the equity shares as a limited partner, the Group concluded that it does not have significant influence over the investees because general partner has the right to appoint the member of investee's Board of Directors to determine operating and financial policies and the Group does not have the right to replace general partner.
(*2) For the year ended December 31, 2019, the Group participated in the investee's paid-in capital increase and made additional capital contributions.
(*3) For the year ended December 31, 2019, the Group disposed part of its shares.
(*4) The liquidation has been completed for the year ended December 31, 2019.
(*5) For the year ended December 31, 2019, the Group newly acquired.

8. Long-term investment securities (cont'd)

Changes in long-term investment securities for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Beginning balance	₩ 335,775	₩ 276,338
Effect of change in accounting policy	-	30,210
Restated balance after adjustment	335,775	306,548
Acquisition	107,297	61,469
Disposal	(29,569)	(15,354)
Valuation	(43,764)	(20,111)
Transfer	-	(569)
Other	799	3,792
Ending balance	₩ 370,538	₩ 335,775

9. Investments in associates, joint ventures and joint operations

Details of investments in associates and joint ventures entities as of December 31, 2019 and 2018 are as follows (Korean won in millions):

			2019			2018
	Location	Ownership percentage (%)	Acquisition cost	Proportionate net assets	Book value	Book value
Daehan Oil Pipeline Corp. (*1)	Korea	41.0	₩ 146,183	₩ 326,860	₩ 341,756	₩ 339,664
Peru LNG Company, LLC	USA	20.0	288,543	286,834	286,729	293,027
SK China Company, Ltd.	China	33.4	728,018	759,370	712,536	687,741
SK Investment Management Co., Limited (*2)	China	9.6	1,094	1,094	1,094	1,094
SK Technology Innovation Company	USA	29.5	52,548	26,547	26,547	25,586
Troika Resources Investment PEF (*2,3)	Korea	10.1	36,320	652	652	1,508
Gemini Partners Pte. Ltd. (*3)	Singapore	20.0	12,091	2,689	2,689	2,539
Zhejiang Shenxin SK Packaging Co., Ltd.	China	50.0	5,729	13,793	13,793	13,345
Hana alternative investment landchip Private REITs 33rd (*1,4)	Korea	48.3	161,500	195,590	195,590	195,451
SK MENA Investment B.V.	Netherlands	34.6	15,579	15,839	15,839	15,292
SK Latin America Investment S.A.	Spain	34.6	15,360	14,330	14,330	14,080
Shanghai-Gaoqiao SK Solvent Co., Ltd. (*4)	China	50.0	5,327	5,089	5,089	5,325
Netruck Franz Co., Ltd. (*4)	Hongkong	50.0	5,541	6,916	6,916	6,505
SK BRASIL LTDA (*3)	Brazil	23.4	1,602	162	162	162
Oilhub Korea Yeosu Corporation (*1,2)	Korea	11.0	14,810	22,118	24,591	22,705
Korea Consortium Kazakh B.V. (*5)	Kazakhstan	25.0	172	-	-	-
SK International Investment Singapore Pte. Ltd. (*3,4,5)	Singapore	16.7	18,455	-	-	-
Yemen LNG Company, Ltd. (*2,3,5)	Yemen	6.9	1	-	-	-
Korea Ras Laffan LNG Limited (*1,2)	Bermuda	8.0	3,426	51,804	51,804	61,519
Korea LNG Limited (*1,2)	Bermuda	16.0	2	37,246	37,246	31,089
Jinwha SK Baoying Asphalt Co., Ltd.	China	25.0	1,233	1,593	1,593	1,600
Horizon Singapore Terminals Private Limited (*1,2)	Singapore	15.0	9,907	26,239	26,239	26,935
SK-SVW (Chongqing) Chemical Co., Ltd. (*3,4)	China	50.0	10,159	2,871	2,871	2,776
Rizhao SK Asphalt Co., Ltd. (*1)	China	25.0	1,739	1,641	1,641	1,547
Beijing BESK Technology Co., Ltd. (*6)	China	49.0	247,428	231,956	233,244	143,198
SK Hualun Specialty Chemical Co., Ltd. (*7)	China	-	-	-	-	1,708
Sinopec-SK (Wuhan) Petrochemical Co., Ltd. (*4,6)	China	35.0	568,650	973,600	1,003,160	775,577
Asia Bitumen Trading Pte. Ltd. (*1,4)	Singapore	50.0	4	1,385	1,385	1,495
SABIC SK Nexlene Company Pte. Ltd. (*4)	Singapore	50.0	167,780	124,270	81,182	88,680
Huizhou SK TCL Taidong Chemical (*4,7)	China	50.0	-	-	-	4,883
FSK L&S (Shanghai) Co., Ltd.	China	34.0	4,152	3,157	6,251	4,027
SK South East Investment Pte. Ltd. (*6)	Singapore	20.0	224,350	245,811	245,811	111,810
Tankang-SK energy Co., Ltd (*4)	Vietnam	50.0	283	283	283	283
Hi-Tech Lubricants Limited (*1,2)	Pakistan	0.7	589	195	523	652
Best Oil Company Limited (*8)	Myanmar	35.0	154,732	66,423	153,524	-
			₩ 2,903,307	₩ 3,446,357	₩ 3,495,070	₩ 2,881,803

9. Investments in associates, joint ventures and joint operations (cont'd)

(*1) The Group received dividends from investments in associates and joint ventures for the years ended December 31, 2019 and 2018, and details are as follows (Korean won in millions):

	2019	2018
Daehan Oil Pipeline Corp.	₩ 4,381	₩ 4,796
Hana alternative investment landchip Private REITs 33rd	11,897	9,800
Oilhub Korea Yeosu Corporation	576	1,153
Korea Ras Laffan LNG Limited	8,153	8,396
Korea LNG Limited	10,724	8,432
Horizon Singapore Terminals Private Limited	5,121	5,840
Rizhao SK Asphalt Co., Ltd.	86	127
Asia Bitumen Trading Pte., Ltd.	1,167	-
Hi-Tech Lubricants Limited	14	67
	₩ 42,119	₩ 38,611

(*2) The Group retains significant influence over the associate despite having less than 20% equity interests.

(*3) An impairment loss on investments in associates as a result of an incurred "loss event" was accounted for prior to 2019.

(*4) All joint arrangements that the Group has joint control over are structured by a separate entity. The parties that have joint control with respect to the joint agreement hold the rights to the net assets of the agreements, so that the entities are classified as joint ventures and accounted for using the equity method of accounting.

(*5) As of December 31, 2019, the investment loss on the associates exceeded the book value which led discontinuation of applying the equity method. The unrecognized cumulative equity method loss of related investments is ₩213,534 million.

(*6) For the year ended December 31, 2019, the Group acquired additional shares through an increase in paid-in capital.

(*7) For the year ended December 31, 2019, the Group disposed of all of shares.

(*8) For the year ended December 31, 2019, 35.0% of common stocks were newly acquired, and the initial accounting for the acquisition of the shares was tentatively determined as of December 31, 2019.

9. Investments in associates, joint ventures and joint operations (cont'd)

Changes in carrying amount of investments in associates and joint ventures for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019							
	Beginning balance	Acquisition	Disposal	Equity in earnings of investment in associates	Changes in equity adjustment	Transfer	Other	Ending balance
Daehan Oil Pipeline Corp.	₩ 339,664	₩ -	₩ -	₩ 6,259	₩ 214	₩ (4,381)	₩ -	₩ 341,756
Peru LNG Company LLC	293,027	-	-	(16,823)	10,525	-	-	286,729
SK China Company, Ltd.	687,741	-	-	4,165	20,630	-	-	712,536
SK Investment Management Co., Limited	1,094	-	-	-	-	-	-	1,094
SK Technology Innovation Company	25,586	-	-	53	908	-	-	26,547
Troika Resources Investment PEF	1,508	-	-	(856)	-	-	-	652
Gemini Partners Pte. Ltd.	2,539	-	-	21	129	-	-	2,689
Zhejiang Shenxin SK Packaging Co., Ltd.	13,345	-	-	207	-	-	241	13,793
Hana Alternative Investment Landchip Private REITs 33rd	195,451	-	-	12,036	-	(11,897)	-	195,590
SK MENA Investment B.V.	15,292	-	-	4	543	-	-	15,839
SK Latin America Investment S.A.	14,080	-	-	49	201	-	-	14,330
Shanghai-Gaoqiao SK Solvent Co., Ltd.	5,325	-	-	(339)	103	-	-	5,089
Netruck Franz Co., Ltd.	6,505	-	-	143	-	-	268	6,916
SK BRASIL LTDA	162	-	-	-	-	-	-	162
Oilhub Korea Yeosu Corporation	22,705	-	-	2,467	(5)	(576)	-	24,591
Korea Consortium Kazakh B.V.	-	-	-	-	-	-	-	-
SK International Investment Singapore Pte. Ltd.	-	-	-	-	-	-	-	-
Yemen LNG Company Ltd.	-	-	-	-	-	-	-	-
Korea Ras Laffan LNG Limited	61,519	-	-	(3,773)	2,091	(8,153)	120	51,804
Korea LNG Limited	31,089	-	-	10,802	6,079	(10,724)	-	37,246
Jinwha SK Baoying Asphalt Co., Ltd.	1,600	-	-	(38)	(36)	-	67	1,593
Horizon Singapore Terminals Private Limited	26,935	-	-	3,113	344	(5,121)	968	26,239
SK-SVW (Chongqing) Chemical Co., Ltd.	2,776	-	-	45	(49)	-	99	2,871
Rizhao SK Asphalt Co., Ltd.	1,547	-	-	151	(35)	(86)	64	1,641
Beijing BESK Technology Co., Ltd.	143,198	93,112	-	(3,473)	407	-	-	233,244
SK Hualun Specialty Chemical Co., Ltd.	1,708	-	(790)	(979)	-	-	61	-
Sinopec-SK (Wuhan)Petrochemical Co., Ltd.	775,577	187,523	-	29,434	10,713	-	(87)	1,003,160
Asia Bitumen Trading Pte. Ltd.	1,495	-	-	1,002	(6)	(1,167)	61	1,385
SABIC SK Nexlene Company Pte. Ltd.	88,680	-	-	(2,924)	(4,574)	-	-	81,182
Huizhou SK TCL Taidong Chemical	4,883	-	(4,972)	-	-	-	89	-
FSK L&S (Shanghai) Co., Ltd	4,027	-	-	2,187	-	-	37	6,251
SK South East Investment Pte. Ltd	111,810	113,470	-	14,348	6,183	-	-	245,811
Tankang-SK energy Co., Ltd	283	-	-	-	-	-	-	283
Hi-Tech Lubricants Limited	652	-	-	5	(120)	(14)	-	523
Best Oil Company Limited	-	154,732	-	-	-	-	(1,208)	153,524
	₩ 2,881,803	₩ 548,837	₩ (5,762)	₩ 57,286	₩ 54,245	₩ (42,119)	₩ 780	₩ 3,495,070

9. Investments in associates, joint ventures and joint operations (cont'd)

	2018							
	Beginning balance	Acquisition	Disposal	Equity in earnings of investment in associates	Changes in equity adjustment	Transfer	Other	Ending balance
Daehan Oil Pipeline Corp.	₩ 334,331	₩ -	₩ -	₩ 10,662	₩ (533)	₩ (4,796)	₩ -	₩ 339,664
Peru LNG Company LLC	274,738	-	-	(26,526)	44,815	-	-	293,027
SK China Company, Ltd.	649,307	-	-	7,620	30,814	-	-	687,741
SK Investment Management Co., Limited	1,094	-	-	-	-	-	-	1,094
SK Technology Innovation Company	25,611	-	-	(1,132)	1,107	-	-	25,586
Troika Resources Investment PEF	2,699	-	-	(1,191)	-	-	-	1,508
Gemini Partners Pte. Ltd.	2,434	-	-	91	14	-	-	2,539
Zhejiang Shenxin SK Packaging Co., Ltd.	13,581	-	-	(164)	(92)	-	20	13,345
Hana Alternative Investment Landchip Private REITs 33rd	106,531	68,500	-	30,220	-	(9,800)	-	195,451
SK MENA Investment B.V.	14,679	-	-	(27)	640	-	-	15,292
SK Latin America Investment S.A.	14,549	-	-	(475)	6	-	-	14,080
Happynarae Co., Ltd.	21,894	-	(25,010)	3,127	(11)	-	-	-
Shanghai-Gaoqiao SK Solvent Co., Ltd.	6,856	-	-	(1,528)	(3)	-	-	5,325
Netruck Franz Co., Ltd.	6,045	-	-	205	-	-	255	6,505
SK BRASIL LTDA	162	-	-	-	-	-	-	162
Oilhub Korea Yeosu Corporation	21,610	-	-	2,311	(63)	(1,153)	-	22,705
Korea Consortium Kazakh B.V.	-	-	-	-	-	-	-	-
SK International Investment Singapore Pte. Ltd.	-	-	-	-	-	-	-	-
Yemen LNG Company Ltd.	-	-	-	-	-	-	-	-
Korea Ras Laffan LNG Limited	58,081	-	-	8,377	3,457	(8,396)	-	61,519
Korea LNG Limited	28,669	-	-	8,436	2,416	(8,432)	-	31,089
Jinwha SK Baoying Asphalt Co., Ltd.	1,558	-	-	52	(74)	-	64	1,600
Horizon Singapore Terminals Private Limited	27,233	-	-	4,976	(597)	(5,840)	1,163	26,935
SK-SVW (Chongqing) Chemical Co., Ltd.	2,695	-	-	98	(134)	-	117	2,776
Rizhao SK Asphalt Co., Ltd.	1,587	-	-	92	(67)	(127)	62	1,547
Beijing BESK Technology Co., Ltd.	28,487	118,758	-	(2,728)	(1,319)	-	-	143,198
SK Hualun Specialty Chemical Co., Ltd.	2,686	-	-	(985)	-	-	7	1,708
Sinopec-SK (Wuhan)Petrochemical Co., Ltd.	681,901	-	-	105,805	(12,129)	-	-	775,577
Asia Bitumen Trading Pte. Ltd.	1,306	-	-	132	2	-	55	1,495
SABIC SK Nexlene Company Pte. Ltd.	91,907	-	-	2,531	(5,758)	-	-	88,680
Huizhou SK TCL Taidong Chemical	4,908	-	-	-	-	-	(25)	4,883
FSK L&S (Shanghai) Co., Ltd	4,049	-	-	-	-	-	(22)	4,027
SK South East Investment Pte. Ltd	-	110,881	-	-	929	-	-	111,810
Tankang-SK energy Co., Ltd	-	283	-	-	-	-	-	283
Hi-Tech Lubricants Limited	-	-	-	130	-	(67)	589	652
	₩ 2,431,188	₩ 298,422	₩ (25,010)	₩ 150,109	₩ 63,420	₩ (38,611)	₩ 2,285	₩ 2,881,803

9. Investments in associates, joint ventures and joint operations (cont'd)

The condensed financial positions of major investments in associates and joint ventures as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019				
	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Total equity
Daehan Oil Pipeline Corp.	₩ 113,639	₩ 964,067	₩ 38,253	₩ 242,265	₩ 797,188
Peru LNG Company, LLC	154,792	2,615,933	127,639	1,208,915	1,434,171
SK China Company, Ltd.	615,986	1,939,664	59,487	215,689	2,280,474
Hana alternative investment landchip Private REITs 33rd	8,761	711,692	1,112	314,483	404,858
Korea Ras Laffan LNG Limited	1,103	646,874	188	238	647,551
Korea LNG Limited	943	231,992	2	145	232,788
Beijing BESK Technology Co., Ltd.	253,679	377,650	104,153	53,797	473,379
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	884,508	4,390,574	2,492,187	1,182	2,781,713
SABIC SK Nexlene Company Pte. Ltd.	134,276	542,536	69,907	358,365	248,540
SK South East Asia Investment Pte. Ltd.	317,894	1,770,251	1	-	2,088,144
Best Oil Company Limited	327,848	134,250	272,319	-	189,779

	2018				
	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Total equity
Daehan Oil Pipeline Corp.	₩ 142,352	₩ 911,217	₩ 34,054	₩ 236,708	₩ 782,807
Peru LNG Company, LLC	348,860	2,526,235	244,329	1,164,784	1,465,982
SK China Company, Ltd.	677,686	1,712,751	71,414	117,077	2,201,946
Hana alternative investment landchip Private REITs 33rd	8,737	711,400	1,083	314,483	404,571
Korea Ras Laffan LNG Limited	730	790,566	95	22,210	768,991
Korea LNG Limited	712	193,701	5	105	194,303
Beijing BESK Technology Co., Ltd.	269,107	24,441	3,938	-	289,610
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	447,617	2,052,807	379,704	112	2,120,608
SABIC SK Nexlene Company Pte. Ltd.	173,228	557,896	126,417	336,006	268,701

The condensed financial performances of major investments in associates and joint ventures for the year ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019			
	Sales	Operating profit (loss)	Net income (loss)	Comprehensive income (loss)
Daehan Oil Pipeline Corp.	₩ 172,930	₩ 40,348	₩ 23,874	₩ 24,394
Peru LNG Company, LLC	580,709	(57,272)	(82,643)	(82,643)
SK China Company, Ltd.	116,269	16,990	9,601	(4,866)
Hana alternative investment landchip Private REITs 33rd	36,057	24,914	24,914	24,914
Korea Ras Laffan LNG Limited	104,538	102,866	(48,125)	(48,125)
Korea LNG Limited	69,597	67,495	67,527	99,183
Beijing BESK Technology Co., Ltd	6,453	(11,610)	(7,088)	(7,088)
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	5,228,647	126,861	94,716	94,716
SABIC SK Nexlene Company Pte. Ltd.	346,787	28,994	(11,013)	(29,903)
SK South East Asia Investment Pte. Ltd.	-	(4,592)	42,533	42,533
Best Oil Company Limited	842,365	15,196	14,290	14,290

	2018			
	Sales	Operating profit (loss)	Net income (loss)	Comprehensive income (loss)
Daehan Oil Pipeline Corp.	₩ 161,460	₩ 44,712	₩ 31,631	₩ 30,300
Peru LNG Company, LLC	1,041,065	3,345	(146,044)	(58,204)
SK China Company, Ltd.	117,132	18,446	17,179	17,179
Hana alternative investment landchip Private REITs 33rd	101,046	90,083	90,083	90,083
Korea Ras Laffan LNG Limited	107,294	105,778	104,719	104,719
Korea LNG Limited	54,323	52,655	52,687	59,861
Beijing BESK Technology Co., Ltd.	91	(6,308)	(6,080)	(6,080)
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	2,851,082	416,336	312,693	294,502
SABIC SK Nexlene Company Pte. Ltd.	347,876	19,361	1,729	24,998

9. Investments in associates, joint ventures and joint operations (cont'd)

Details of reconciliation from net assets of associates and jointly controlled entities to book value of investments in associates and jointly controlled entities as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019				
	Net assets	Ownership percentage (%)	The Group's interest in net asset	Goodwill and others	Book value
Daehan Oil Pipeline Corp.	₩ 797,188	41.0	₩ 326,860	₩ 14,896	₩ 341,756
Peru LNG Company LLC	1,434,171	20.0	286,834	(105)	286,729
SK China Company, Ltd.	2,270,608	33.4	759,370	(46,834)	712,536
Hana Alternative Investment Landchip Private REITs 33rd	404,858	48.3	195,590	-	195,590
Korea Ras Laffan LNG Limited	647,551	8.0	51,804	-	51,804
Korea LNG Limited	232,788	16.0	37,246	-	37,246
Beijing BESK Technology Co., Ltd	473,379	49.0	231,956	1,288	233,244
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	2,781,713	35.0	973,600	29,560	1,003,160
SABIC SK Nexlene Company Pte. Ltd.	248,540	50.0	124,270	(43,088)	81,182
SK South East Asia Investment Pte. Ltd.	1,229,056	20.0	245,811	-	245,811
Best Oil Company Limited	189,779	35.0	66,423	87,101	153,524
Other			146,593	5,895	152,488
			₩ 3,446,357	₩ 48,713	₩ 3,495,070

	2018				
	Net assets	Ownership percentage (%)	The Group's interest in net asset	Goodwill and others	Book value
Daehan Oil Pipeline Corp.	₩ 782,807	41.0	₩ 320,964	₩ 18,700	₩ 339,664
Peru LNG Company LLC	1,465,982	20.0	293,196	(169)	293,027
SK China Company, Ltd.	2,201,947	33.4	735,880	(48,139)	687,741
Hana Alternative Investment Landchip Private REITs 33rd	404,571	48.3	195,451	-	195,451
Korea Ras Laffan LNG Limited	768,992	8.0	61,519	-	61,519
Korea LNG Limited	194,304	16.0	31,089	-	31,089
Beijing BESK Technology Co., Ltd	289,610	49.0	141,909	1,289	143,198
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	2,120,608	35.0	742,213	33,364	775,577
SABIC SK Nexlene Company Pte. Ltd.	268,701	50.0	134,350	(45,670)	88,680
SK South East Asia Investment Pte. Ltd.	559,050	20.0	111,810	-	111,810
Other			151,139	2,908	154,047
			₩ 2,919,520	₩ (37,717)	₩ 2,881,803

Details of joint operations as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	Ownership percentage				
Company name	2019	2018	Main business location	Date of financial statements	Nature of joint arrangement activities, etc.
Ulsan Aromatics Co., Ltd.	50%	50%	Republic of Korea	December 31	(*1,2)
PT. Patra SK	65%	65%	Indonesia	December 31	(*1,3)
Iberian Lube Base Oil Company, S.A.	-	70%	Spain	December 31	(*1,4)

(*1) Although the terms of the contractual arrangement do not specify the rights of the assets and the obligations of liabilities to the parties that hold the joint control of the agreement, considering other facts and circumstances, such as contractual arrangements are primarily designed to provide output to parties, the Group classified joint arrangements joint operations.
(*2) Founded on March 30, 2012 as a joint venture with JXTG Nippon Oil & Energy Corporation, the investee is engaged in manufacturing aromatic compounds.
(*3) Founded on November 19, 2006 as a joint venture with PT Pertamina Patra Niaga, the investee is engaged in manufacturing and selling lubricant base oils.
(*4) Founded on April 10, 2012 as a joint venture with Repsol Petroleo S.A., the investee is engaged in manufacturing and selling lubricant base oils. Meanwhile, the Group acquired control of Iberian Lube Base Oil Company, S.A. for the year ended December 31, 2019, and classified it as a subsidiary (see Note 38).

10. Property, plant and equipment

Details of property, plant and equipment as of December 31, 2019 and 2018 are as follows (Korean won in thousands):

	2019				2018
	Acquisition cost	Depreciation	Impairment	Book value	Book value
Land	₩ 4,127,986	₩ -	₩ -	₩ 4,127,986	₩ 4,061,959
Buildings	1,796,171	(323,987)	(33,046)	1,439,138	1,139,282
Structures	1,119,592	(566,834)	(8,533)	544,225	565,536
Machinery and equipment	11,146,282	(4,861,317)	(96,417)	6,188,548	6,368,215
Others	2,260,276	(1,447,459)	(3,249)	809,568	713,595
Construction-in-progress	2,352,907	-	-	2,352,907	836,445
	₩ 22,803,214	₩ (7,199,597)	₩ (141,245)	₩ 15,462,372	₩ 13,685,032

Changes in property, plant and equipment for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019									
	Beginning balance	Acquisition	Disposals	Disposal of joint operations	Transfers, etc. (*1)	Depreciation	Reversal (impairment)	Classified as held for sale	Changes in scope of consolidation	Ending balance
Land	₩ 4,061,959	₩ 7,321	₩ (40,037)	₩ (363)	₩ 99,991	₩ -	₩ 97	₩ (1,500)	₩ 518	₩ 4,127,986
Buildings	1,139,282	249,595	(5,005)	(10,408)	88,987	(34,998)	(3,184)	-	14,869	1,439,138
Structures	565,536	307	(20,496)	-	31,967	(31,706)	(1,383)	-	-	544,225
Machinery and equipment	6,368,215	8,574	(19,187)	(95,563)	453,377	(652,723)	(10,663)	-	136,518	6,188,548
Others	713,595	5,175	(7,425)	(59,864)	235,233	(162,437)	(229)	-	85,520	809,568
Construction-in - progress	836,445	2,439,085	(3,275)	(9,716)	(908,059)	-	(15,454)	-	13,881	2,352,907
	₩ 13,685,032	₩ 2,710,057	₩ (95,425)	₩ (175,914)	₩ 1,496	₩ (881,864)	₩ (30,816)	₩ (1,500)	₩ 251,306	₩ 15,462,372

	2018							
	Beginning balance	Acquisition	Disposals (*2)	Transfers, etc. (*1)	Depreciation	Impairment (*3)	Classified as held for sale (*3)	Ending balance
Land	₩ 4,150,605	₩ 8,978	₩ (27,768)	₩ 7,030	₩ -	₩ (13,628)	₩ (63,258)	₩ 4,061,959
Buildings	996,811	231	(21,465)	198,806	(32,860)	-	(2,241)	1,139,282
Structures	561,391	393	(7,622)	43,857	(32,483)	-	-	565,536
Machinery and equipment	6,396,754	16,040	(47,716)	638,612	(635,475)	-	-	6,368,215
Others	624,442	13,892	(8,646)	216,799	(132,892)	-	-	713,595
Construction-in -progress	749,699	1,239,319	-	(1,152,573)	-	-	-	836,445
	₩ 13,479,702	₩ 1,278,853	₩ (113,217)	₩ (47,469)	₩ (833,710)	₩ (13,628)	₩ (65,499)	₩ 13,685,032

(*1) Refers to transfers from construction-in-progress to each class of property, plant and equipment and intangible assets, net effect from change in foreign exchange rates, and others.
(*2) This amounts include disposals of property, plant and equipment related to Flexible Copper Clad Lamination ("FCCL") business decided to discontinue for the year ended December 31, 2018.
(*3) The Group classified the assets as held for sale by entering into a disposal contract for land located in Seoknam-dong, Seo-gu, Incheon, during the previous year. On the other hand, as the proceeds from the sale were less than the carrying amount, the Group recognized the impairment loss on this asset at the time this asset is classified as held for sale.

Borrowing costs capitalized as part of property, plant and equipment amounted to ₩19,807 million and ₩10,739 million for the year ended December 31, 2019 and 2018, respectively.

11. Lease

Details of right-of-use as of December 31, 2019 and 2018 are as follows (Korean won in thousands):

	2019			
	Acquisition cost	Depreciation	Impairment	Book value
Land and buildings	₩ 226,919	₩ (64,228)	₩ (475)	₩ 162,216
Tanks	326,107	(59,912)	-	266,195
Pipes	29,147	(2,922)	-	26,225
Vehicles	18,571	(6,722)	(78)	11,771
Ships	685,862	(63,677)	-	622,185
Others	40,254	(3,082)	(52)	37,120
	₩ 1,326,860	₩ (200,543)	₩ (605)	₩ 1,125,712

Changes in right-of-use assets for the year ended December 31, 2019 are as follows (Korean won in millions):

	Beginning balance	Change in accounting policy	Acquisition	Disposals	Disposal of joint operations	Depreciation	impairment	Others	Changes in scope of consolidation	Ending balance
Land and buildings	₩ -	₩ 188,866	₩ 45,124	₩ (8,744)	₩ (14,024)	₩ (63,609)	₩ (475)	₩ (4,957)	₩ 20,035	₩ 162,216
Tanks	-	306,785	24,248	(5,402)	-	(60,389)	-	953	-	266,195
Pipes	-	29,065	138	-	-	(2,922)	-	(56)	-	26,225
Vehicles	-	11,690	8,525	(1,069)	(97)	(7,477)	(78)	139	138	11,771
Ships	-	664,330	21,532	-	-	(63,677)	-	-	-	622,185
Others	-	7,896	32,268	-	-	(3,092)	(52)	100	-	37,120
	₩ -	₩ 1,208,632	₩ 131,835	₩ (15,215)	₩ (14,121)	₩ (201,166)	₩ (605)	₩ (3,821)	₩ 20,173	₩ 1,125,712

For the year ended December 31, 2019, the Group recognized ₩96,346 million, ₩910 million, and ₩162,111 million of lease expenses relating to short-term leases, leases of low-value assets, and variable lease payments, respectively.

Changes in lease liabilities for the year ended December 31, 2019 are as follows (Korean won in millions):

	2019
Beginning balance	₩ 24
Effect of change in accounting policy	1,215,623
Increase	117,702
Repayment	(222,988)
Interest expenses	29,174
Others	16,118
Disposal of joint operations	(12,659)
Change in scope of consolidation	18,084
Ending balance	₩ 1,161,078

11. Lease (cont'd)

As of December 31, 2019, the present value of the total lease investments and minimum lease payments for finance leases is as follows (Korean won in millions):

	2019
Less than 1 year	₩ 8,305
1 ~ 2 years	2,961
2 ~ 3 years	774
3 ~ 4 years	417
4 ~ 5 years	204
More than 5 years	-
Subtotal: undiscounted lease fees	12,661
Addition: unguaranteed residual value	271
Subtotal	12,932
Less: unrealized interest income	(253)
Subtotal: present value of minimum lease payments	12,679
Less: accumulated impairment	-
Net investment in the lease	₩ 12,679

12. Goodwill and intangible assets

Details of Goodwill and intangible assets as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019				2018
	Acquisition cost	Depreciation	Impairment	Book value	Book value
Goodwill	₩ 139,501	₩ -	₩ (26,461)	₩ 113,040	₩ 113,247
Oil field under exploration (exploitation)	377,851	-	(314,392)	63,459	206,668
Oil field under exploration (production)	1,928,650	(697,176)	(666,401)	565,073	1,306,486
Memberships	60,005	-	(21,771)	38,234	38,224
Others	391,547	(49,457)	(2,973)	339,117	342,350
	₩ 2,897,554	₩ (746,633)	₩ (1,031,998)	₩ 1,118,923	₩ 2,006,975

Changes in goodwill and intangible assets for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019									
	Beginning balance	Acquisition	Disposals	Disposal of joint operations	Transfers, etc. (*1)	Depreciation	Impairment (reversal)	Classified as held for sale	Changes in scope of consolidation	Ending Balance (*2)
Goodwill (*3)	₩ 113,247	₩ -	₩ -	₩ -	₩ 3,537	₩ -	₩ (26,641)	₩ -	₩ 22,897	₩ 113,040
Oil field under exploration (exploitation) (*4)	206,668	31,555	-	-	(133,818)	-	(40,946)	-	-	63,459
Oil field under exploration (production)	1,306,486	132,625	(33,560)	-	142,110	(100,395)	(281,592)	(600,601)	-	565,073
Memberships (*3)	38,224	1,407	(1,710)	-	158	-	155	-	-	38,234
Others	341,299	12,162	-	(2,521)	10,910	(24,845)	(1,487)	-	3,599	339,117
	₩ 2,005,924	₩ 177,749	₩ (35,270)	₩ (2,521)	₩ 22,897	₩ (125,240)	₩ (350,511)	₩ (600,601)	₩ 26,496	₩ 1,118,923

12. Goodwill and intangible assets (cont'd)

	2018							
	Beginning balance	Acquisition	Disposals	Transfers, etc. (*1)	Amortization	Impairment	Business combination	Ending Balance (*2)
Goodwill (*3)	₩ 109,797	₩ -	₩ -	₩ 3,450	₩ -	₩ -	₩ -	₩ 113,247
Oil field under exploration (exploitation)	170,045	49,066	-	(2,221)	-	(10,222)	-	206,668
Oil field under exploration (production)	904,002	138,418	-	20,828	(72,364)	(180)	315,782	1,306,486
Memberships (*3)	36,943	5,077	(2,969)	36	-	(863)	-	38,224
Others	280,363	19,209	(39)	62,308	(20,542)	-	-	341,299
	₩ 1,501,150	₩ 211,770	₩ (3,008)	₩ 84,401	₩ (92,906)	₩ (11,265)	₩ 315,782	₩ 2,005,924

(*1) Refers to transfers from construction-in-progress to intangible assets, and effect from change in foreign exchange rates, changes in grants for oil field under exploration intangible assets, and others.
(*2) The net book values of intangible assets as of December 31, 2019, and 2018 are presented net of government grants amounting to ₩134,112 million and ₩124,058 million, respectively, related to oil field under exploration.
(*3) The Group classifies its goodwill and memberships as intangible assets with indefinite useful lives and performs impairment testing annually without amortization.
(*4) For the year ended December 31, 2019, ₩120,968 million of mining for which the Group can demonstrate the technical feasibility and commercial viability of oil resource extraction was transferred to oil field under exploration (production).

Before recognizing an impairment loss, the book value of goodwill allocated to the cash-generating unit for the year ended December 31, 2019 is as follows (Korean won in millions):

	2019				
	Beginning balance	Acquisition	Impairment	Others	Ending Balance
EAA business	₩ 86,693	₩ -	₩ -	₩ 2,450	₩ 89,143
PVDC business	25,554	-	(26,641)	1,087	-
ILBOC business (*1)	-	22,897	-	-	22,897
Other	1,000	-	-	-	1,000
	₩ 113,247	₩ 22,897	₩ (26,641)	₩ 3,537	₩ 113,040

(*1) Iberian Lube Base Oil Company, S.A. ("ILBOC business")

1) Dow Chemical EAA business
Goodwill recognized by the Group amounting to ₩89,143 million arose from the acquisition of the Dow Chemical EAA business on September 1, 2017. The recoverable amount of cash-generating unit to which goodwill was allocated was measured at the value in use calculated by applying a discount rate of 11.0% for the U.S. and 9.0% for Europe per year to cash flow estimated based on the management's approved financial budget for the next five years. Cash flows exceeding five years were estimated assuming a growth rate of 2%. Management believes that the total book value of the cash-generating unit will not exceed the total recoverable amount due to the reasonably possible change in the major assumption used to estimate the recoverable amount.

2) Dow Chemical PVDC business
Goodwill recognized by the Group amounting to ₩25,554 million arose from the acquisition of the Dow Chemical PVDC business on December 15, 2017. As a result of the impairment assessment, the Group recognized the impairment loss for all goodwill as the total book value of the cash-generating unit exceeds the total recoverable amount.

3) ILBOC business
As of December 31, 2019, goodwill recorded by the Group at ₩22,897 million was occurred as of December 31, 2019 when the Group obtained a control over ILBOC (See Note 38).

13. Borrowings and bonds payable

Details of borrowings and bonds payable as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Short-term borrowings	₩ 1,131,974	₩ 153,742
Long-term borrowings and bonds payable:		
Bonds issued denominated in Korean won	7,330,000	5,980,000
Bonds issued denominated in foreign currency	578,900	559,050
Long-term borrowings denominated in Korean won	1,214,792	933,318
Long-term borrowings denominated in foreign currency	898,479	406,958
	10,022,171	7,879,326
Less: Discount on long-term borrowings	(366)	(1,048)
Discount on bonds payable (includes current portion of bonds payable)	(22,755)	(18,280)
Current portion due within one year	(1,155,414)	(1,213,849)
	₩ 8,843,636	₩ 6,646,149

Detail of short-term borrowings as of December 31, 2019 and 2018 are as follows (Korean won in millions):

Description	Financial institution	2019	2018
Usance	Bank of America and others	₩ 592,772	₩ 96,876
Commercial paper	NH Investment & Securities and others	250,000	-
General borrowings	Shinhan Bank and others	289,202	56,866
		₩ 1,131,974	₩ 153,742

Details of bonds payable (unsecured bearer bonds) denominated in Korean won as of December 31, 2019 and 2018 are as follows (Korean won in millions):

Series	Issue date	Maturity	Interest rate (%)	2019	2018
SK Global Chemical 12th-2	2014.04.15	2019.04.15	3.4	₩ -	₩ 100,000
SK Energy 38th-2	2014.06.10	2019.06.10	3.2	-	100,000
SK Incheon Petrochem 11th-2	2014.06.27	2019.06.27	3.2	-	150,000
SK Innovation 2nd-1	2014.07.16	2019.07.16	3.0	-	100,000
SK Global Chemical 13th-2	2014.07.21	2019.07.21	3.0	-	100,000
SK Incheon Petrochem 12th-3	2014,08.14	2019.08.14	3.2	-	50,000
SK Lubricants 6th	2014.09.04	2019.09.04	3.1	-	150,000
SK Incheon Petrochem 14th-1	2016.09.05	2019.09.05	2.0	-	70,000
SK Energy 31st-2	2012.09.21	2019.09.21	3.3	-	50,000
SK Global Chemical 9th-2	2012.10.25	2019.10.25	3.5	-	50,000
SK Energy 42nd-1	2015.11.04	2019.11.04	2.3	-	130,000
SK Energy 33rd-3	2013.02.07	2020.02.07	3.3	110,000	110,000
SK Incheon Petrochem 15th-1	2017.03.30	2020.03.30	2.2	90,000	90,000
SK Energy 35th-2	2013.05.06	2020.05.06	2.9	190,000	190,000
SK Incheon Petrochem 13th-2	2015.07.28	2020.07.28	3.0	120,000	120,000
SK Energy 37th-3	2013.10.25	2020.10.25	3.6	50,000	50,000
SK Lubricants 7th-2	2015.11.26	2020.11.26	2.6	90,000	90,000
SK Global Chemical 11th-3	2013.11.29	2020.11.29	4.0	60,000	60,000
SK Incheon Petrochem 16th-1	2018.04.05	2021.04.05	2.6	130,000	130,000
SK Energy 43rd-1	2018.04.26	2021.04.26	2.5	150,000	150,000
SK Energy 38th-3	2014.06.10	2021.06.10	3.4	80,000	80,000
SK Innovation 2nd-2	2014.07.16	2021.07.16	3.2	100,000	100,000
SK Global Chemical 13th-3	2014.07.21	2021.07.21	3.2	50,000	50,000
SK Incheon Petrochem 12th-1	2014.08.07	2021.08.07	3.6	20,000	20,000
SK Incheon Petrochem 14th-2	2016.09.05	2021.09.05	2.5	110,000	110,000
SK Innovation 3rd-1	2018.09.13	2021.09.13	2.1	150,000	150,000
SK Lubricants 8th-1	2018.09.20	2021.09.23	2.3	120,000	120,000
SK Energy 39th-2	2014.10.10	2021.10.10	2.9	110,000	110,000

13. Borrowings and bonds payable (cont'd)

Series	Issue date	Maturity	Interest rate (%)	December 31, 2019	December 31, 2018
SK Global Chemical 14th-1	2018.10.11	2021.10.11	2.3	110,000	110,000
SK Energy 44th-1	2018.10.30	2021.10.30	2.2	100,000	100,000
SK Incheon Petrochem 18th-1	2019.01.22	2022.01.22	2.1	120,000	-
SK Energy 45th-1	2019.02.21	2022.02.21	2.0	140,000	-
SK Incheon Petrochem 15th-2	2017.03.30	2022.03.30	2.8	180,000	180,000
SK Global Chemical 15th-1	2019.06.13	2022.06.13	1.7	90,000	-
SK Energy 41st-2	2015.06.25	2022.06.25	2.7	170,000	170,000
SK Lubricants 9th-1	2019.08.27	2022.08.26	1.4	100,000	-
SK Energy 31st-3	2012.09.21	2022.09.21	3.4	50,000	50,000
SK Energy 46th-1	2019.09.26	2022.09.26	1.6	120,000	-
SK Global Chemical 9th-3	2012.10.25	2022.10.25	3.8	50,000	50,000
SK Energy 42nd-2	2015.11.04	2022.11.04	2.6	70,000	70,000
SK Incheon Petrochem 16th-2	2018.04.05	2023.04.05	2.9	150,000	150,000
SK Energy 43rd-2	2018.04.26	2023.04.26	2.8	190,000	190,000
SK Incheon Petrochem 10th	2013.05.06	2023.05.06	3.1	100,000	100,000
SK Innovation 3rd-2	2018.09.13	2023.09.13	2.3	140,000	140,000
SK Lubricants 8th-2	2018.09.20	2023.09.20	2.5	120,000	120,000
SK Global Chemical 14th-2	2018.10.11	2023.10.11	2.5	230,000	230,000
SK Energy 44th-2	2018.10.30	2023.10.30	2.3	250,000	250,000
SK Incheon Petrochem 18th-2	2019.01.22	2024.01.22	2.3	210,000	-
SK Energy 45th-2	2019.02.21	2024.02.21	2.1	180,000	-
SK Incheon Petrochem 15th-3	2017.03.30	2024.03.30	3.3	30,000	30,000
SK Global Chemical 15th-2	2019.06.13	2024.06.13	1.7	70,000	-
SK Innovation 2nd-3	2014.07.16	2024.07.16	3.3	60,000	60,000
SK Incheon Petrochem 12th-2	2014.08.07	2024.08.07	4.1	30,000	30,000
SK Lubricants 9th-2	2019.08.27	2024.08.27	1.4	70,000	-
SK Energy 46th-2	2019.09.26	2024.09.26	1.7	190,000	-
SK Energy 39th-3	2014.10.10	2024.10.10	3.1	70,000	70,000
SK Incheon Petrochem 16th-3	2018.04.05	2025.04.05	3.4	120,000	120,000
SK Energy 41st-3	2015.06.25	2025.06.25	3.2	100,000	100,000
SK Incheon Petrochem 18th-3	2019.01.22	2026.01.22	2.7	150,000	-
SK Global Chemical 15th-3	2019.06.13	2026.06.13	1.8	150,000	-
SK Lubricants 9th-3	2019.08.27	2026.08.27	1.5	100,000	-
SK Energy 46th-3	2019.09.26	2026.09.26	1.8	70,000	-
SK Energy 40th	2014.10.27	2026.10.27	3.3	100,000	100,000
SK Energy 43rd-3	2018.04.26	2028.04.26	3.2	160,000	160,000
SK Incheon Petrochem 17th	2018.06.18	2028.06.18	4.0	100,000	100,000
SK Innovation 3rd-3	2018.09.13	2028.09.13	2.6	210,000	210,000
SK Global Chemical 14th-3	2018.10.11	2028.10.11	2.9	160,000	160,000
SK Energy 44th-3	2018.10.30	2028.10.30	2.6	150,000	150,000
SK Incheon Petrochem 18th-4	2019.01.22	2029.01.22	3.5	120,000	-
SK Energy 45th-3	2019.02.21	2029.02.21	2.4	180,000	-
SK Global Chemical 15th-4	2019.06.13	2029.06.13	2.1	190,000	-
SK Lubricants 9th-4	2019.08.27	2029.08.27	1.7	30,000	-
SK Energy 46th-4	2019.09.26	2029.09.26	1.8	120,000	-
				7,330,000	5,980,000
Less: Discount on bonds payable				(19,558)	(14,401)
Current portion due with due within one year				(709,672)	(1,049,415)
				₩ 6,600,770	₩ 4,916,184

Details of bonds payable denominated in foreign currency as of December 31, 2019 and 2018 are as follows (Korean won in millions):

Series	Issue date	Maturity	Interest rate (%)	2019	2018
Singapore Exchange Ltd.	2018.07.13	2023.07.13	4.1	₩ 578,900	₩ 559,050
Less: Discount on bonds payable				(3,197)	(3,879)
				₩ 575,703	₩ 555,171

13. Borrowings and bonds payable (cont'd)

Details of long-term borrowings denominated in Korean won as of December 31, 2019 and 2018 are as follows (Korean won in millions):

Description	Financial institution	Interest rate (%)	2019	2018
Energy efficiency fund	Shinhan Bank and others	1.8	₩ 630	₩ 1,607
Facility borrowings	JXTG Nippon Oil & Energy Corporation and others	1.3 ~ 4.4	305,228	253,814
Facility borrowings	Korea Development Bank	CD + 0.9	69,934	109,897
Securitization loan (*1,2)	IPC 1st Special Purpose Co., Ltd.	3.0	189,000	268,000
General borrowings	The Export-Import Bank of Korea	2.4 ~ 2.9	650,000	300,000
			1,214,792	933,318
Less: Discount on long-term borrowings			(203)	(584)
Current portion due within one year			(248,381)	(146,526)
			₩ 966,208	₩ 786,208

(*1) Securitization loans of SK Incheon Petrochem Co., Ltd., a subsidiary of the Group, are associated with the trade receivables due from SK Energy Co., Ltd. and SK Global Chemical Co., Ltd., which are trusted through the securitization agreement.
(*2) Early repayment of the securitization loans may occur if the effective credit rating of the corporate bonds issued by SK Incheon Petrochem Co., Ltd. is lower than or equal to BBB or if the effective credit rating of corporate bonds issued by SK Energy Co., Ltd. and SK Global Chemical Co., Ltd. is lower than or equal to A-.

Details of long-term borrowings denominated in foreign currency as of December 31, 2019 and 2018 are as follows (Korean won in millions):

Description	Financial institution	Interest rate (%)	2019	2018
Oil exploration fund (*1)	Korea Energy Agency	0.0 ~ 7.0	₩ 77,066	₩ 88,278
Facility borrowings	ING Bank	3M EURIBOR + 0.8 ~ 1.0	6,487	22,385
Facility borrowings	Credit Agricole	4.2	11,427	-
Facility borrowings	Kookmin Bank (Hong Kong)	Libor + 1.0	10,406	-
Acquisition borrowings	Creditors (Citi, JPM, BOA, KDB, ANZ)	LIBOR (3M) + 1.0	185,248	212,439
General borrowings	Credit Agricole and others	LIBOR + 0.8 ~ 1.0	607,845	83,856
			898,479	406,958
Less: Discount on long-term borrowings			(163)	(464)
Current portion due within one year			(197,360)	(17,908)
			₩ 700,956	₩ 388,586

(*1) For the borrowings amounting to ₩48,090 million and ₩53,544 million as of December 31, 2019 and 2018, respectively, from the Korea Energy Agency, which are directly attributable to exploration for the oil fields, the Parent Company has no obligation to repay the borrowings for oil fields with no commercial productivity.

14. Derivative instruments

As of December 31, 2019 and 2018, the Group entered into derivative contracts to hedge the risk of fluctuations in sales price of petroleum products and fluctuations in interest on borrowings, and the financial positions of outstanding derivative financial instruments are presented as follows (Korean won in millions):

	2019		2018	
	Assets	Liabilities	Assets	Liabilities
Commodity contracts	₩ -	₩ -	₩ 1,294	₩ 927
Interest rate swap contracts	-	169	-	145
	₩ -	₩ 169	₩ 1,294	₩ 1,072

14. Derivative instruments (cont'd)

The Group entered into derivative contracts to hedge the risk of fluctuations in exchange rates on liabilities denominated in foreign currencies and fluctuations in price of crude oil, petroleum products and chemical base, fluctuations in interest on borrowings. The financial positions of outstanding derivative financial instruments of the Group as of December 31, 2019 and 2018, for which no hedge accounting is applied, are presented as follows (Korean won in millions):

	2019		2018	
	Assets	Liabilities	Assets	Liabilities
Petroleum products swap contracts	₩ 14,109	₩ 2,377	₩ 6,595	₩ 11,674
Interest rate swap contracts	1,253	687	3,452	-
Chemical raw material	9,908	6,342	46,574	41,342
UCO swap contract	-	239	13,456	-
Currency swap contracts	39,575	-	5,051	-
Currency forward contracts, etc.	10,442	4,939	4,288	1,758
	₩ 75,287	₩ 14,584	₩ 79,416	₩ 54,774

Details of gross gain and loss on valuation and settlement of derivative financial instruments (including other comprehensive income) for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019					
	Profit or loss				Other comprehensive income or loss	
	Gain on valuation	Loss on valuation	Gain on settlement	Loss on settlement	Gain on valuation	Loss on valuation
Derivative instruments designated as cash flow hedge accounting	₩ -	₩ -	₩ -	₩ -	₩ (98,792)	₩ 91,130
Derivative instruments for which no hedge accounting is applied	169,842	(202,955)	1,383,111	(1,560,802)	-	-
	₩ 169,842	₩ (202,955)	₩ 1,383,111	₩ (1,560,802)	₩ (98,792)	₩ 91,130

	2018					
	Profit or loss				Other comprehensive income or loss	
	Gain on valuation	Loss on valuation	Gain on settlement	Loss on settlement	Gain on valuation	Loss on valuation
Derivative instruments designated as cash flow hedge accounting	₩ -	₩ -	₩ -	₩ -	₩ 91,635	₩ (83,465)
Derivative instruments for which no hedge accounting is applied	772,653	(754,158)	1,366,734	(890,711)	-	-
	₩ 772,653	₩ (754,158)	₩ 1,366,734	₩ (890,711)	₩ 91,635	₩ (83,465)

15. Retirement benefit obligation

Details of liabilities related to defined benefit plans and other long-term benefit obligations as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Present value of defined benefit obligation	₩ 502,255	₩ 453,707
Fair value of plan assets	(465,495)	(388,142)
Other long-term benefit obligations	11,833	12,319
	₩ 48,593	₩ 77,884

Changes in defined benefit liabilities for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		
	Present value of defined benefit obligation	Fair value of plan assets	Total
Beginning balance	₩ 453,707	₩ (388,142)	₩ 65,565
Provision for retirement benefits:			
Current service cost	66,258	-	66,258
Net interest cost (income)	10,090	(8,295)	1,795
	76,348	(8,295)	68,053
Remeasurement			
Actuarial gain or loss on plan assets	-	2,373	2,373
Actuarial gain or loss from empirical adjustments	2,539	-	2,539
Actuarial gain or loss from changes in demographic assumptions	150	-	150
Actuarial gain or loss from changes in financial assumptions	10,899	-	10,899
	13,588	2,373	15,961
Effects from change in foreign exchange rates	73	-	73
Contributions by employer directly to plan assets	-	(108,679)	(108,679)
Payment of benefits	(58,628)	52,678	(5,950)
Others	17,167	(15,430)	1,737
Ending balance	₩ 502,255	₩ (465,495)	₩ 36,760

	2018		
	Present value of defined benefit obligation	Fair value of plan assets	Total
Beginning balance	₩ 385,677	₩ (323,830)	₩ 61,847
Provision for retirement benefits:			
Current service cost	61,362	-	61,362
Net interest cost (income)	11,656	(9,415)	2,241
	73,018	(9,415)	63,603
Remeasurement			
Actuarial gain or loss on plan assets	-	3,382	3,382
Actuarial gain or loss from empirical adjustments	7,789	-	7,789
Actuarial gain or loss from changes in demographic assumptions	131	-	131
Actuarial gain or loss from changes in financial assumptions	15,482	-	15,482
	23,402	3,382	26,784
Effects from change in foreign exchange rates	8	-	8
Contributions by employer directly to plan assets	-	(82,852)	(82,852)
Payment of benefits	(36,059)	31,358	(4,701)
Others	7,661	(6,785)	876
Ending balance	₩ 453,707	₩ (388,142)	₩ 65,565

15. Retirement benefit obligation (cont'd)

Fair value of plan assets as of December 31, 2019 and 2018 is composed of the following:

	2019	2018
Debt securities	40.70%	38.20%
Deposit assets and others	59.30%	61.80%

Significant actuarial assumptions as of December 31, 2019 and 2018 are as follows:

	2019	2018
Discount rate for defined benefit obligations	1.8% ~ 2.4%	2.2% ~ 2.8%
Expected rate of salary increase	2.6% ~ 4.3%	3.3% ~ 4.3%

The sensitivity analysis for the significant actuarial assumptions as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		
	Change in assumptions	Increase	Decrease
Discount rate	0.5%	₩ (17,014)	₩ 18,246
Expected rate of salary increase	0.5%	17,829	(16,795)

	2018		
	Change in assumptions	Increase	Decrease
Discount rate	0.5%	₩ (14,879)	₩ 15,856
Expected rate of salary increase	0.5%	15,533	(14,729)

The sensitivity analysis above has been done under the assumption that all other variables remain unchanged; however, actual results may be changed through the interaction among other variables.

16. Commitments and contingencies

As of December 31, 2019, the Group has provided one promissory note amounting to ₩3,952 million, 42 blank promissory notes and 30 blank checks to various financial institutions as collateral in connection with its borrowings.

On April 29, 2019, LG Chem and others filed its complaint with the U.S. International Trade Commission ("ITC") against the Company and its subsidiary, SK Battery America, Inc. (collectively, "SKI"), alleging SKI's infringement of LGC's trade secrets and sought as remedy a ban on SKI's importation of certain lithium ion batteries, battery cells and etc. into the United States. On November 5, LG Chem and others filed a Motion for Default Judgment basing its argument on SKI's spoliation of evidence and violation of a forensic order. On February 14, 2020, Administrative Law Judge of ITC issued the Initial Determination, ordering a default against SK, thereby effectively canceling planned events including the hearing on the merits of the case in particular as to whether there was misappropriation and infringement of trade secrets. In accordance with the prior notice by the ITC, Final Determination is scheduled in October, 2020.

In addition, LG Chem and others additionally filed its complaint with the ITC against SKI seeking an import ban as a remedy for SKI's alleged infringement of LGC's patents on September 26, 2019. The lawsuit is in progress, and the final outcome of the lawsuit is not predictable.

In addtion, LG Chem and others filed its complaints for the misappropriation of trade secrets owned by them and the infringement on the patents owned by them with U.S District Court of Delaware against SKI on April 29, 2019 and September 26, 2019, respectively. The lawsuits remain stayed, and the final outcome of the lawsuits is not predictable.

16. Commitments and contingencies (cont'd)

Details of joint and several guarantees provided by the Group for any losses or liabilities suffered or incurred prior to the spin-off date are as follows:

Spin-off date	Details of spin-off	The counterparts of joint and several guarantees
July 1, 2007	Spin-off between SK Holdings Co., Ltd. and the Group	SK Holdings Co., Ltd., SK Innovation Co., Ltd., SK Energy Co., Ltd., SK Lubricants Co., Ltd., SK Global Chemical Co., Ltd., SK Incheon Petrochem Co., Ltd., SK Trading International, Co., Ltd., SK ie technology Co., Ltd.

The Group has pledged its full equity interests in Yemen LNG Company Ltd. to the project financing lenders as collaterals.

In addition, Netruck Co., Ltd., a subsidiary of the Group, has pledged its property, plant and equipment amounting to ₩4,500 million as collateral for borrowings amounting to ₩12,567 million from Shinhan Bank.

The Parent Company has provided HUF 9,810 million of performance guarantee to the local government in connection with the construction of a local plant of SK Battery Hungary Kft., a subsidiary of the Group.

The Group has also provided payment guarantee amounting to USD 10 million in connection with license contract of Ningbo SK Performance Rubber Co., Ltd., a subsidiary of the Group.

In addition, SK Global Chemical Co., Ltd. has provided Citibank and others with a payment guarantee amounting to USD 168 million (payment guarantee limit of USD 220 million) in connection with long-term borrowings of SABIC SK Nexlene Company Pte. Ltd., a joint venture of the Group.

The other guarantees provided by the Group to parties other than related parties as of December 31, 2019 are as follows (Korean won in millions):

Company name	Guaranteed amount (*1)	Guarantees for
SK Shipping Co., Ltd.	₩ -	Charterage

(*1) The fair value of the vessels owned by SK Shipping Co., Ltd. is deducted from the total guarantee amount of ₩12,967 million.

As of December 31, 2019, the financial commitments of the Group are presented as follows (Korean won, U.S. dollars, China Yuan, Euros and Japanese Yen in millions):

		Currency	Commitments amounts
Trading	KEB Hana Bank and Others	KRW	5,000
		USD	9,861
		CNY	120
		EUR	27
Factoring and general loans	Kookmin Bank and Others	KRW	1,106,084
		USD	1,616
		CNY	100
		JPY	2,000
		EUR	55
Facility borrowings	ING Bank and Others	EUR	5

16. Commitments and contingencies (cont'd)

SK Incheon Petrochem Co., Ltd., a subsidiary of the Group, has an agreement to securitize ₩189,000 million in a way that it trusts its trade receivables due from SK Energy Co., Ltd. and SK Global Chemical Co., Ltd., other subsidiaries of the Group, to Industrial Bank of Korea ("IBK"), and IPC 1st Special Purpose Co., Ltd., who acquired the beneficiary right issued by IBK (the "trustee") issues asset-backed commercial paper (See Note 13-(5)).

SK Incheon Petrochemical Co., Ltd, a subsidiary of the Group, issued hybrid bonds on March 15, 2019. The key issuance terms of hybrid bonds are as follows:

	Description
Name of bond	The 1st private bond-type hybrid bonds
Amount issued	KRW 600,000 million
Maturity date	March 15, 2049 (30 years) - The expiration date can be extended under the same conditions at the issuer's discretion.
Interest payment	(1) Interest rate - Issue date ~ March 15, 2024 ("First reset date") = 4.20% - " First reset date" ~ March 15, 2025 ("Second reset date") = ① + ② + ③ ① Individual interest rate (average of assessed rates) of 5-year corporate bonds on 2 business days before the "First reset date" ② Spread (4.20% - Individual interest rate (average of assessed rates) on 2 business days before the issue date) ③ Step-up margin (1.50%) - "Second reset date" ~ next "reset date (see definition below)" and Each reset date ~ Next reset date = ① + ② + ③ ① Individual interest rate (average of assessed rates) 2 business days before the first day of each term ② Spread (4.20% - Individual interest rate (average of assessed rates) on 2 business days before the issue date) ③ Step-up margin (1.50%) ※ " Reset Date": The date of the first anniversary of the "Second Reset Date" and every year onwards. (2) Interest payment - Quarterly payments after the issue date However, the issuer may notify the holder, the Korea Securities Depository, and the payment agent 10 business days before the scheduled interest payment date at its discretion and postpone the interest payment scheduled for the interest payment date. (Dividends for common stock cannot be paid and are postponed cumulatively if interest payment is delayed)
Right to early redemption	- SK Incheon Petrochem Co., Ltd. can early redeem all bonds on the 5th anniversary of the issue date (March 15, 2024) or interest payment date thereafter. - SK Incheon Petrochem Co., Ltd. may early redeem in the event of other circumstances (*) (*) Other circumstances include cases when bonds are no longer regarded as equity due to a change in the accounting standards, there is a change in the major shareholder, bonds are accepted as equity by credit rating agencies, and income tax deduction for interests are not allowed
Events of default	- The issuing company is ordered to initiate the liquidation procedure, or a valid decision is made to initiate the liquidation procedure; - The issuing company does not fulfill the obligation to pay on the bond on maturity date of such payment, and 10 days are elapsed thereafter. - The liquidation of the issuing company

16. Commitments and contingencies (cont'd)

Details of provisions and financial guarantee liabilities as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018	Guarantees for
Provisions (*1):					
Asset retirement obligation related to natural resource development	₩	48,471	₩	42,403	Field of Vietnam 15-1 and others
Provision for sales warrant and others		91,555		79,189	
	₩	140,026	₩	121,592	
Financial guarantee liabilities	₩	252	₩	721	SABIC SK Nexlene Company Pte. Ltd.

(*1) Other current liabilities include current portion of provisions of ₩7,998 million and ₩2,786 million as of December 31, 2019 and 2018, respectively.

17. Capital stock and other paid-in capital

Details of capital stock as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Common stock	₩	462,328	₩	462,328
Preferred stock		6,242		6,242
	₩	468,570	₩	468,570

In accordance with the Group's Articles of Incorporation, the Group is authorized to issue 350 million common stocks and 35 million non-voting preferred stocks, with par values at ₩5,000 per share. As of December 31, 2019, the Group has issued 92,465,564 common stocks amounting to ₩462,328 million, and 1,248,426 outstanding non-voting preferred stocks amounting to ₩6,242 million, with total issued capital amounting to ₩468,570 million.

Preferred stocks are participating and cumulative, and are entitled to receive 1% above (par value basis) the cash dividend rate on ordinary stocks. Where the Group elects not to declare dividend distributions attributable to preferred stocks for a certain period, the participating rights become effective and will have priority over common stocks to the accumulated dividend amounts in the subsequent period when dividends have been declared.

Details of other paid-in capital as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Additional paid-in capital (*1)	₩	5,683,247	₩	5,683,247
Other capital surplus		82,522		82,522
Stock options		1,524		668
Treasury stock (*2)		(1,137,897)		(1,137,897)
	₩	4,629,396	₩	4,628,540

(*1) Additional paid-in capital is paid-in capital in excess of par value, which is restricted in use, except when being used to offset a deficit or being transferred to capital in accordance with the Commercial Code of the Republic of Korea.

17. Capital stock and Other paid-in capital (cont'd)

(*2) Details of treasury stock as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
	Preferred stocks	Common stocks	Preferred stocks	Common stocks
Number of treasury stocks	296	5,502,137	296	5,502,137
Acquisition amount	₩ 33	₩ 1,137,864	₩ 33	₩ 1,137,864

As of December 31, 2019, treasury stock held by Group is composed of odd shares acquired in the process of the split-off and merger and shares acquired to stabilize stock price and increase shareholder value.

18. Share-based payment

The Parent Company granted stock options to the Parent Company's executives based on the resolution of stockholders' meeting dated on March 20, 2018. The main items of stock options are as follows:

Descriptions	1-1st	1-2nd	1-3rd
Grant date		March 20, 2018	
Types of shares to issue		70,551 shares of common stock	
Distribution on exercise		Distribution of treasury stock	
Number of shares granted	23,517 shares	23,517 shares	23,517 shares
Exercise price	₩ 205,760	₩ 222,230	₩ 240,000
Exercisable period	From March 21, 2020 to March 20, 2023	From March 21, 2021 to March 20, 2024	From March 21, 2022 to March 20, 2025
Vesting conditions	Work more than 2 years from grant date	Work more than 2 years from grant date	Work more than 3 years from grant date

Details of compensation cost as of December 31, 2019 and 2018 due to the grant of stock options are as follows. (Korean won in millions):

	2019	2018
Total compensation cost	₩ 1,895	₩ 1,895
Accumulated compensation cost recognized for the period	1,524	668
Compensation cost to be recognized subsequent to the period end	371	1,227

The Parent Company calculated the compensation cost of stock options by applying the fair value approach using the binomial option pricing model. The assumptions and variables used to calculate compensation cost are as follows (in Korean won):

Descriptions	1-1st	1-2nd	1-3rd
Expected option life	5 years	6 years	7 years
Stock price of the day before grant date	₩ 211,000	₩ 211,000	₩ 211,000
Expected volatility	17.90%	17.90%	17.90%
Dividend yield	3.03%	3.03%	3.03%
Risk-free interest rate	2.50%	2.61%	2.64%
Exercise price	₩ 205,760	₩ 222,230	₩ 240,000
Fair value per share	₩ 30,450	₩ 26,725	₩ 23,421

19. Retained earnings

Details of retained earnings as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Legal reserve (*1)	₩	234,285	₩	234,285
Research and human resources development reserve		-		160,000
Unappropriated		11,940,934		12,534,242
	₩	12,175,219	₩	12,928,527

(*1) In accordance with the Commercial Code of the Republic of Korea, an amount equal to at least 10% of cash dividends is required to be appropriated as a legal reserve until the reserve equals 50% of capital stock. The legal reserve may not be utilized for cash dividends, but may only be used to offset a deficit, if any, or transferred to issued capital.

20. Dividends

Dividend payments for the years ended December 31, 2019 and 2018 are as follows:

	2019				2018			
	Preferred stocks		Common stocks		Preferred stocks		Common stocks	
Number of shares issued (*1)		1,248,130		86,963,427		1,248,130		86,963,427
Dividends (Korean won in millions	₩	1,810	₩	121,749	₩	8,050	₩	556,566
Dividends per share (in Korean won)	₩	1,450	₩	1,400	₩	6,450	₩	6,400

(*1) Total issued shares, less the number of treasury shares.

In accordance with the resolution of the Board of Directors on July 26, 2019, the Parent Company decided to pay interim dividends on June 30, 2019, as dividend date. The calculation of interim dividends is as follows.

	2019				2018			
	Preferred stocks		Common stocks		Preferred stocks		Common stocks	
Number of shares issued (*1)		1,248,130		86,963,427		1,248,130		88,581,025
Dividends (Korean won in millions	₩	1,997	₩	139,141	₩	1,997	₩	141,729
Dividends per share (in Korean won)	₩	1,600	₩	1,600	₩	1,600	₩	1,600

(*1) Total issued shares, less the number of treasury shares.

21. Other components of equity

Details of other components of equity as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Accumulated net change in fair value of financial assets at FVOCI	₩	(15,148)	₩	22,510
Equity adjustments of investments in associates and joint ventures		121,139		66,894
Gain on translation of foreign operations		88,990		19
Gain (loss) on valuation of derivative financial instrument		(85)		7,577
	₩	194,896	₩	97,000

21. Other components of equity (cont'd)

Changes in other components of equity for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Beginning balance	₩ 97,000	₩ (54,171)
Effect of change in accounting policies	-	34,489
Income tax effect of change in accounting policies	-	(9,485)
Restated balance after adjustment	97,000	(29,167)
Net change in fair value of financial assets at FVOCI	(48,670)	(20,239)
Income tax effect of net change in financial assets at FVOCI	11,012	7,517
Equity adjustments of investments in associates and joint ventures	54,245	58,820
Net gain on translation of foreign operations	88,971	71,898
Net gain (loss) on valuation of derivative financial instruments	(10,567)	11,270
Income tax effect of net change in derivative financial Instruments	2,905	(3,099)
Ending balance	₩ 194,896	₩ 97,000

22. Sales

Details of sales for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Revenue from contracts with customers:		
Sales of finished goods and merchandise and others	₩ 49,022,273	₩ 53,241,359
Revenues from commercialization of resources	667,639	754,320
Service revenue	157,416	186,442
	49,847,328	54,182,121
Revenue from other sources:		
Lease	29,206	34,403
	₩ 49,876,534	₩ 54,216,524

Classification of revenue from contracts with customers for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Recognized at a point in time	₩ 49,689,912	₩ 53,995,679
Recognized over time	157,416	186,442
	₩ 49,847,328	₩ 54,182,121

23. Selling and administrative expenses

Details of selling and administrative expenses for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Salaries	₩	301,375	₩	381,725
Provision for severance and retirement benefits		34,097		44,771
Employee welfare		74,953		85,294
Travel		33,552		34,814
Communications		4,630		3,887
Utilities		9,805		7,805
Taxes and dues		25,980		33,429
Supplies		17,703		6,779
Lease and rent expenses		155,197		51,276
Consignment storage of oil		10,485		80,373
Depreciation		42,905		44,419
Depreciation of right-of-use asset		97,945		-
Repairs		12,371		10,230
Insurance		8,551		6,512
Advertising		75,817		78,326
Research and development		227,512		233,578
Administration and outsourcing of security services		37,927		29,317
Training and examination		76,507		70,823
Quality controls		22,061		12,162
Outsourcing technology services		136,030		134,295
Commissions		244,831		184,364
Amortization		20,478		17,037
Transport		163,850		279,763
Loss on (reversal of) allowances		(5,057)		2,706
Others		32,127		28,481
	₩	1,861,632	₩	1,862,166

24. Finance income and costs

Details of finance income and costs for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Finance income:				
Interest income under the effective interest rate method	₩	36,288	₩	39,152
Interest income - others		63,612		48,713
Dividend income (*1)		7,524		9,199
Gain on foreign currency transactions		883,933		825,414
Gain on foreign currency translation		161,780		113,814
Gain on settlement of derivatives		1,383,111		1,366,734
Gain on valuation of derivative financial instruments		169,842		772,653
Others		7,179		2,024
		2,713,269		3,177,703
Finance costs:				
Interest expenses		314,525		259,186
Interest expenses on lease liabilities		29,174		-
Loss on foreign currency transactions		968,371		952,515
Loss on foreign currency translation		182,036		87,565
Loss on settlement of derivatives		1,560,802		890,711
Loss on valuation of derivative financial instruments		202,955		754,158
Others		2,472		1,504
	₩	3,260,335	₩	2,945,639

(*1) There is no dividend related to equity instruments derecognized during the year ended December 31, 2019 and dividends are related to equity instruments held at the end of the year.

25. Investments in associates and joint ventures

Details of gain and loss on investments in associates and joint ventures for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Gain on investments in associates and joint ventures	₩	122,171	₩	195,009
Gain on disposals of investment in associates		1,740		5,055
Loss on investments in associates and joint ventures		(64,885)		(44,900)
Loss on disposals of investment in associates		(4,817)		-
	₩	54,209	₩	155,164

26. Other non-operating income and expenses

Details of other non-operating income and non-operating expenses for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Other non-operating income:				
Gain on disposals of property, plant and equipment	₩	17,032	₩	23,113
Reversal on impairment of property, plant and equipment		307		-
Gain on disposals of intangible assets		1,382		230
Reversal on impairment of intangible assets		154		-
Others		98,907		85,740
		117,782		109,083
Other non-operating expenses:				
Loss on disposals of property, plant and equipment		31,548		36,760
Loss on impairment of property, plant and equipment		31,123		13,628
Loss on impairment of right-of-use assets		605		-
Loss on disposals of Intangible assets		51		242
Loss on impairment of intangible assets		350,665		11,265
Donations		57,462		35,073
Others		46,304		115,044
	₩	517,758	₩	212,012

27. Classification of expenses by nature

Details of classification based on nature of cost of sales and selling and administrative expenses for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Changes in finished goods and semi-finished goods	₩	(120,844)	₩	(218,707)
Use of raw materials and changes of merchandise		43,104,718		46,445,057
Salaries		1,050,564		1,298,719
Depreciation of property, plant and equipment right-of-use assets and amortization		1,208,270		926,616
Transport		260,803		369,938
Advertising		79,538		82,177
Lease and rent expenses		259,367		94,954
Others		2,764,826		3,175,828
Less: Reclassification to gain or loss from discontinued operations		-		(61,223)
	₩	48,607,242	₩	52,113,359

28. Income tax expense

Components of income tax expense for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Current income tax	₩ 377,095	₩ 473,739
Deferred tax	(84,610)	229,273
Deferred tax charged directly to the equity:		
Remeasurement of defined benefit plans	4,148	7,265
Net gain on financial assets at FVOCI	11,012	7,517
Gain (loss) on valuation of derivatives	2,905	(3,099)
Effect of change in accounting policy	-	(8,308)
	18,065	3,375
Others (Changes in scope of consolidation, differences in application of exchange rates and others)	134	52
Income tax expense:	₩ 310,684	₩ 706,439
Income tax expense from continuing operation	310,684	701,483
Income tax expense from discontinued operation	-	4,956

The difference between income taxes computed using the statutory corporate income tax rates and the recorded income taxes for the years ended December 31, 2019 and 2018 is attributable to the following (Korean won in millions):

	2019	2018
Income before income tax expense:	₩ 376,459	₩ 2,405,486
Income before income taxes from continuing operation	376,459	2,387,465
Loss before income taxes from discontinued operation	-	18,021
Income tax at statutory income tax rate (*1)	79,976	565,599
Adjustments:		
Non-taxable income	(35,566)	(29,095)
Non-deductible expenses	35,391	35,180
Tax credit and tax reduction	(14,020)	(9,857)
Effect of foreign taxes	106,689	111,125
Changes in tax effects of temporary differences not recognized in deferred tax	128,676	103,350
Others	26,454	(26,011)
	247,624	184,692
Additional income tax payment for prior periods	(16,916)	(43,852)
Income tax expense:		
Income tax expense from continuing operation	310,684	701,483
Income tax expense from discontinued operation	-	4,956
	₩ 310,684	₩ 706,439
Effective tax rate	82.5%	29.4%

(*1) Statutory income tax rate was calculated taking into account the statutory tax rate to be applied differently for each tax authorities for the income of the consolidated entity.

28. Income tax expense (cont'd)

Significant changes in deferred tax assets (liabilities) for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019						
	Beginning balance	Recognized directly in profit or loss	Recognized directly in equity	Others	Disposal of joint operations	Changes in scope of consolidation	Ending balance
Trade accounts receivable and others	₩ 78,216	₩ (2,456)	₩ -	₩ -	₩ -	₩ -	₩ 75,760
Long-term investment securities	2,277	(1,284)	11,012	-	-	-	12,005
Property, plant and equipment	(245,023)	(94,004)	-	(86)	8	(11)	(339,116)
Inventories	15,609	4,076	-	27	(564)	-	19,148
Provisions	24,210	10,347	-	(10)	-	-	34,547
Employee benefit liability	15,232	(15,686)	4,148	11	-	-	3,705
Advance depreciation provision	(839,050)	4,690	-	-	-	-	(834,360)
Others	26,208	161,206	2,905	192	(209)	298	190,600
	₩ (922,321)	₩ 66,889	₩ 18,065	₩ 134	₩ (765)	₩ 287	₩ (837,711)

	2018				
	Beginning balance	Recognized directly in profit or loss	Recognized directly in equity	Others	Ending balance
Trade accounts receivable and others	₩ 78,844	₩ (628)	₩ -	₩ -	₩ 78,216
Long-term investment securities	8,410	(5,342)	(791)	-	2,277
Property, plant and equipment	(123,416)	(121,496)	-	(111)	(245,023)
Inventories	23,668	(8,066)	-	7	15,609
Provisions	23,266	943	-	1	24,210
Employee benefit liability	7,038	1,174	7,265	(245)	15,232
Advance depreciation provision	(622,296)	(216,754)	-	-	(839,050)
Others	(88,562)	117,469	(3,099)	400	26,208
	₩ (693,048)	₩ (232,700)	₩ 3,375	₩ 52	₩ (922,321)

29. Earnings (loss) per share

The Group's basic earnings (loss) per share for the years ended December 31, 2019 and 2018 are computed as follows (Korean won in millions, except per shares and weighted-average number of common stock outstanding):

	2019	2018
Profit (loss) for the year attributable to owners of the parent	₩ (35,740)	₩ 1,651,140
Preferred stock dividends and residual income (*1)	(1,997)	(22,858)
Profit for the year attributable to common stock owners of the parent	₩ (37,737)	₩ 1,628,282
Weighted-average number of common stock outstanding (*2)	86,963,427	89,154,172
Basic earnings (loss) per share (in Korean won)	₩ (434)	₩ 18,264

(*1) Preferred stocks are entitled to receive 1% above (par value basis) the cash dividend rate for common stocks.
(*2) Weighted-average number of shares is the number of shares adjusted by the changes in the number of treasury stock for the years ended of December 31, 2019 and 2018 multiplied by a time-weighting factor.

29. Earnings (loss) per share (cont'd)

The Group's basic earnings per share of preferred stock for the years ended December 31, 2019 and 2018 are computed as follows (Korean won in millions, except per shares and weighted-average number of preferred stock outstanding):

		2019		2018
Preferred stock dividends and residual income	₩	1,997	₩	22,858
Weighted-average number of preferred stock outstanding		1,248,130		1,248,130
Basic earnings per share of preferred stock (in Korean won) (*1)	₩	1,600	₩	18,314

(*1) Earnings per share were calculated with respect to the preferred shares that meet the definition of an ordinary stock as specified in the KIFRS 1033 *Earnings per Share*, which has no such preferential rights for participating in dividends or undistributed earnings.

The Group's basic earnings per share from continuing operations per share for the years ended December 31, 2019 and 2018 are computed as follows (Korean won in millions, except per shares and weighted-average number of common stock outstanding):

		2019		2018
Profit (loss) for the year from continuing operations attributable to owners of the parent	₩	(35,740)	₩	1,638,075
Preferred stocks dividends and residual income		(1,997)		(22,677)
Profit for the year from continuing operations attributable to common stock owners of the parent	₩	(37,737)	₩	1,615,398
Weighted-average number of common stock outstanding		86,963,427		89,154,172
Basic earnings (loss) per share from continuing operations (in Korean won)	₩	(434)	₩	18,119

The Group's basic earnings per share from continuing operations of preferred stock for the years ended December 31, 2019 and 2018 are computed as follows (Korean won in millions, except per share and weighted-average number of preferred stock outstanding):

		2019		2018
Preferred stock dividends and residual income	₩	1,997	₩	22,677
Weighted-average number of preferred stock outstanding		1,248,130		1,248,130
Basic earnings per share from continuing operations of preferred stock (in Korean won)	₩	1,600	₩	18,169

30. Transactions with related parties

Related parties of the Group as of December 31, 2019 are as follows:

	Company name
Parent	SK Holdings Co., Ltd.
Investments in associates and joint ventures	See Note 9-(1)
Other related parties	SK Engineering & Construction Co., Ltd., SK TNS Co., Ltd., SKC, Ltd., SK Air gas, Ltd., SK E&S Co., Ltd., Ko-one energy service, Co., Ltd., Chungcheong Energy Service Co., Ltd., SK Infosec Co., Ltd., SK Networks Co., Ltd., Happynarae Co., Ltd., SK Networks (Shanghai) Co. Ltd., SK Telecom Co., Ltd., FSK L&S Co., Ltd., SK Planet Co., Ltd., SK Hynix Inc., Huizhou EVE United Energy Co., Ltd. and others
Conglomerate affiliates (*1)	Ulsan Aromatics Co., Ltd., SK Discovery Co., Ltd., SK Chemicals Co., Ltd., SK Gas Co., Ltd., SK Advanced Co., Ltd., Dangjin Eco Power Co., Ltd., SK D&D Co., Ltd., B&M Development Co., Ltd., SK Plasma Co., Ltd., and others

(*1) Although, these companies are not designated as related parties as defined in paragraph 9 of KIFRS 1024, they are classified as related parties based on the resolution made by the Securities and Futures Commission that conglomerate affiliates designated by the Fair Trade Commission are related parties based on the substance of relation as regulated by paragraph 10 of KIFRS 1024.

30. Transactions with related parties (cont'd)

Significant related-party transactions for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		Revenue, etc. (*1, 2)		Purchase, etc. (*2)	
Relationship	Company name	2019	2018	2019	2018
Parent	SK Holdings Co., Ltd.	₩ 7,856	₩ 5,775	₩ 313,582	₩ 266,890
Associates and joint ventures	Daehan Oil Pipeline Corp.	35,017	21,620	54,882	52,417
	Oilhub Korea Yeosu Corporation	-	-	15,163	13,899
	SK China (Beijing) Co., Ltd.	-	-	9,350	9,254
	Beijing BESK Technology Co., Ltd.	6,043	-	-	-
	FSK L&S (Shanghai) Co., Ltd.	131	118	18,597	19,996
	SABIC SK Nexlene Company Pte. Ltd.	3,004	3,182	178,516	158,720
	Asia Bitumen Trading Pte. Ltd.	109,381	98,749	-	-
	Hi-Tech Lubricants., Ltd.	6,440	27,052	-	-
	Others	2,123	1,203	1,200	1,044
Others	Korea Nexlene Company	131,839	162,073	218	38
	SK Engineering & Construction Co., Ltd.	1	-	538,403	162,724
	SK TNS Co., Ltd.	140	13,786	-	-
	SKC, Ltd.	324,159	378,690	158,643	165,071
	SK Air gas, Ltd.	22	21	36,251	39,534
	SK E&S Co., Ltd.	13,755	24,463	9,732	1,302
	Ko-one energy service Co., Ltd.	-	-	47,679	43,835
	Chungcheong Energy Service Co., Ltd.	-	-	10,770	10,681
	SK Infosec Co., Ltd.	-	-	27,574	19,257
	SK Networks Co., Ltd.	656,268	1,263,430	86,134	120,789
	Happynarae Co., Ltd.	27,121	12,401	170,790	147,513
	SK Networks (Shanghai) Co. Ltd.	-	3,463	2,431	29,291
	SK Telecom Co., Ltd.	10,451	5,040	19,853	13,814
	FSK L&S Co., Ltd.	-	-	8,205	1,614
	SK Planet Co., Ltd.	140	406	2,726	3,445
	SK Hynix Inc.	68,939	65,977	1,166	1,111
	Hi-Tech Blending PVT. Ltd.	9,757	21,620	-	-
	Huizhou EVE United Energy Co., Ltd.	16,653	-	-	-
	Baic Eletronics SK(Jiangsu) Technology Co., Ltd.	8,487	-	-	-
	Others	5,012	3,764	18,391	13,601
Conglomerate affiliates	Ulsan Aromatics Co., Ltd.	52,778	49,685	78,029	67,891
	SK Gas Co., Ltd.	97,475	321,972	250,165	302,762
	SK Advanced Co., Ltd.	37	99	16,413	7,911
	SK Chemicals Co., Ltd.	72,510	90,851	113,270	119,045
	SK Shipping Co., Ltd. (*3)	32	2,691	53,227	244,661
	SK B&T Pte Ltd. (*3)	19,389	172,747	-	30
	SK Shipping Europe Plc. (*3)	-	-	3,333	44,485
	SK Shipping (S PORE) Pte, Ltd. (*3)	42	495	2,616	11,935
	Others	-	51	-	-
		₩ 1,685,002	₩ 2,751,424	₩ 2,247,309	₩ 2,094,560

(*1) Dividends received from investments in associates and joint ventures are excluded and details are disclosed in Note 9-(1).
(*2) Lease transaction amounts are included.
(*3) SK Holdings, the parent company of the Group, requested the Korea Fair Trade Commission to exclude SK shipping Co., Ltd. from Large-Scale Business Group affiliates of SK on December 28, 2018 and it was approved on February 19, 2019.

30. Transactions with related parties (cont'd)

Significant outstanding balances with related parties as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		Receivables (*1)		Payables (*2)	
Relationship	Company name	2019	2018	2019	2018
Parent	SK Holdings Co., Ltd.	₩ 7,715	₩ 6,462	₩ 64,375	₩ 20,567
Associates and joint ventures	Daehan Oil Pipeline Corp.	-	3,170	2,928	658
	Oilhub Korea Yeosu Corporation	-	-	12,295	1,928
	SK China (Beijing) Co., Ltd.	-	-	9,207	9,060
	Beijing BESK Technology Co., Ltd.	145	-	-	-
	FSK L&S (Shanghai) Co., Ltd.	36	-	2,174	1,895
	Yemen LNG Company Ltd.	45,753	33,632	-	-
	SABIC SK Nexlene Company Pte. Ltd.	2,943	6,160	19,598	34,797
	Korea Consortium Kazkh B.V. (*3)	146,170	146,170	-	-
	Asia Bitumen Trading Pte. Ltd.	7,011	15,803	-	-
	Hi-Tech Lubricants., Ltd.	248	860	-	753
	Best Oil Company Limited	-	-	38,026	-
	Others	834	2,444	911	1,044
Others	Korea Nexlene Company	7,239	15,077	169	26
	SK Engineering & Construction Co., Ltd.	1,308	1,214	49,737	3,328
	SKC, Ltd.	28,300	27,187	3,963	5,845
	SK Air gas, Ltd.	-	-	3,582	3,481
	SK E&S Co., Ltd.	5,683	284	803	1,400
	Chungcheong Energy Service Co., Ltd.	430	330	10	1
	SK Infosec Co., Ltd.	-	-	5,967	4,391
	SK Networks Co., Ltd.	38,715	116,801	12,894	9,105
	Happynarae Co., Ltd.	8,597	1,722	12,811	12,753
	SK Networks (Shanghai) Co. Ltd.	-	4,882	-	213
	SK Telecom Co., Ltd.	2,817	1,517	5,970	3,841
	FSK L&S Co., Ltd.	-	-	1,117	343
	SK Planet Co., Ltd.	17	30	768	1,589
	SK Hynix Inc.	13,050	11,936	56	33
	Hi-Tech Blending PVT. Ltd.	4,427	1,786	-	-
	Huizhou EVE United Energy Co., Ltd.	280,324	81,516	-	-
	Baic Eletronics SK(Jiangsu) Technology Co., Ltd.	477	-	-	-
	Others	3,203	2,573	3,749	3,149
Conglomerate affiliates	Ulsan Aromatics Co., Ltd.	3,693	4,717	7,969	7,320
	SK Gas Co., Ltd.	1,201	31,021	305,605	61,397
	SK Advanced Co., Ltd.	-	7	1,348	1,274
	SK Chemicals Co., Ltd.	7,156	14,080	8,992	9,177
	SK Shipping Co., Ltd. (*3)	-	510	-	17,613
	SK B&T Pte Ltd. (*3)	-	10,773	-	-
	SK Shipping Europe Plc. (*3)	-	-	-	8,256
	SK Shipping (S PORE) Pte, Ltd. (*3)	-	112	-	-
	Others	-	7	-	127
		₩ 617,492	₩ 542,783	₩ 575,024	₩ 225,364

(*1) Consists of trade receivables, other receivables, guarantee deposits and loans that were accounted before deduction of allowance for doubtful accounts.

(*2) Consists of trade payables, other payables, accrued expenses and lease liabilities.

(*3) As of December 31, 2019 and 2018, loss on investments in associates amounting to ₩13,843 million exceeding the carrying amount of the investment in associates was recognized as allowance for doubtful accounts on loans, and long-term loan to Korea Consortium Kazakh B.V. was impaired and fully recognized as the Group's loss allowances.

30. Transactions with related parties (cont'd)

Details of equity and capital investment transactions with related parties for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

Relationship	Company name	Description	2019	2018
Associates	Beijing BESK Technology Co., Ltd.	Paid-in capital increase	₩ 93,112	₩ 118,758
	SK South East Asia Investment Pte. Ltd.	Paid-in capital increase	113,470	110,881
	Tankang-SK energy Co., Ltd.	Equity acquisition (*1)	-	283
	Best Oil Company Limited	Equity acquisition (*2)	154,732	-
Joint ventures	Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	Paid-in capital increase	187,523	-
Others	SK Planet Co., Ltd.	Equity acquisition (*3)	-	68,500
	SK Hynix Inc.	Equity disposal (*4)	-	28,416

(*1) The Group acquired 50.0% shares of common stock for the year ended December 31, 2018.
(*2) The Group newly acquired 35.0% shares of common stock for the year ended December 31, 2019.
(*3) The Group acquired additional 16.9% shares in Hana Alternative Investment Land Chip Corporation Real Estate Investment Trust No. 33 for the year ended December 31, 2018.
(*4) The Group disposed of all of the 45.0% shares in Happynarae Co., Ltd., an associate, for the year ended December 31, 2018.

The Group defines registered directors who have substantial roles and responsibilities for planning, operating, and controlling of the business as key management, and the compensation for key management for the years ended December 31, 2019 and 2018 is as follows (Korean won in millions):

	2019	2018
Salaries and others	₩ 4,947	₩ 4,668
Provision for severance and retirement benefits	885	1,539
Share-based payment	856	668
	₩ 6,688	₩ 6,875

Outstanding balances with related parties are unsecured and interest free, except for specific transactions with agreed terms and conditions. There are no guarantees provided to or from related parties related to the above outstanding balances. The Group also provides guarantees for some of the related parties as of December 31, 2019 (See Note 16).

31. Segment information

The Group has five reportable business segments - petroleum, petrochemicals, lubricants, battery and others - with each segment representing a strategic business unit that offers different products and serves different markets.

The financial information of the Group by business segments for the years ended December 31, 2019 and 2018 is as follows (Korean won in millions):

2019	Petroleum	Petro-chemicals	Lubricants	Battery	E&P	Others	Consolidation adjustments	Total
Sales	₩ 81,363,158	₩ 14,861,916	₩ 5,007,460	₩ 728,861	₩ 668,678	₩ 2,022,628	₩ (54,776,167)	₩ 49,876,534
Intersegment sales	(45,546,840)	(5,319,093)	(2,129,562)	(38,556)	-	(1,742,116)	54,776,167	-
Net sales	35,816,318	9,542,823	2,877,898	690,305	668,678	280,512	-	49,876,534
Operating profit (loss)	₩ 450,309	₩ 705,754	₩ 293,925	₩ (309,124)	₩ 196,074	₩ (67,646)	₩ -	₩ 1,269,292

2018	Petroleum	Petro-chemicals	Lubricants	Battery	E&P	Others	Consolidation adjustments	Total
Sales	₩ 89,479,559	₩ 17,115,481	₩ 5,178,462	₩ 373,123	₩ 755,116	₩ 2,663,039	₩ (61,348,256)	₩ 54,216,524
Intersegment sales	(50,286,031)	(6,431,050)	(2,207,068)	(24,892)	(54)	(2,399,161)	61,348,256	-
Net sales	39,193,528	10,684,431	2,971,394	348,231	755,062	263,878	-	54,216,524
Operating profit (loss)	₩ 709,253	₩ 1,117,587	₩ 446,251	₩ (317,503)	₩ 256,898	₩ (109,321)	₩ -	₩ 2,103,165

Except for transactions with related parites mentioned in Note 30, there are no customers accounting for 10% or more of the consolidated sales of the Group for the year ended December 31, 2019.

Non-current assets of the Group by business segments as of December 31, 2019 and 2018 are as follows (Korean won in millions):

2019	Petroleum	Petro-chemicals	Lubricants	Battery	E&P	Others	Consolidation adjustments	Total
Non-current assets (*1)	₩ 8,741,288	₩ 3,835,593	₩ 1,265,318	₩ 1,876,338	₩ 634,509	₩ 1,368,423	₩ 4,355	₩ 17,725,824

2018	Petroleum	Petro-chemicals	Lubricants	Battery	E&P	Others	Consolidation adjustments	Total
Non-current assets (*1)	₩ 7,419,488	₩ 3,930,812	₩ 907,594	₩ 1,050,693	₩ 1,518,482	₩ 892,807	₩ (5,108)	₩ 15,714,768

(*1) Including property, plant and equipment; right-of-use asset; intangible assets; and other non-current assets.

31. Segment information (cont'd)

The financial information of the Group by geographic segments (based on country of domicile) for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019					
	Domestic	Asia	Europe	Others	Consolidation adjustments	Total
Sales	₩ 66,918,487	₩ 27,899,312	₩ 4,369,497	₩ 5,465,405	₩ (54,776,167)	₩ 49,876,534
Intersegment sales	(41,153,423)	(6,911,103)	(2,315,598)	(4,396,043)	54,776,167	-
Net sales	25,765,064	20,988,209	2,053,899	1,069,362	-	49,876,534

	2018					
	Domestic	Asia	Europe	Others	Consolidation adjustments	Total
Sales	₩ 75,734,667	₩ 31,396,639	₩ 6,583,712	₩ 1,849,762	₩ (61,348,256)	₩ 54,216,524
Intersegment sales	(48,560,435)	(7,742,134)	(4,040,062)	(1,005,625)	61,348,256	-
Net sales	27,174,232	23,654,505	2,543,650	844,137	-	54,216,524

Non-current assets of the Group by geographic segments (based on country of domicile) as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019					
	Domestic	Asia	Europe	Others	Consolidation adjustments	Total
Non-current assets (*1)	₩ 15,288,636	₩ 405,892	₩ 1,412,888	₩ 614,053	₩ 4,355	₩ 17,725,824

	2018					
	Domestic	Asia	Europe	Others	Consolidation adjustments	Total
Non-current assets (*1)	₩ 14,209,132	₩ 225,293	₩ 423,309	₩ 862,142	₩ (5,108)	₩ 15,714,768

(*1) Including property, plant and equipment; right-of-use asset; intangible assets; and other non-current assets.

32. Discontinued operations

The Group decided to discontinue the Flexible Copper Clad Lamination ("FCCL") business for the year ended December 31, 2018, completed the sale of related assets as of December 31, 2019, and classified profit or loss from the business unit for the year ended December 31, 2019 as profit from discontinued operations. The disposal of FCCL business is due to Parent Company's long-term policy of liquidating non-core business and focusing on core businesses.

Profit and loss from discontinued operations for the year ended December 31, 2018 is as follows (Korean won in millions):

	2018
Sales	₩ 63,773
Cost of sales	(55,070)
Selling and administrative expenses	(6,153)
Other non-operating income and expenses	15,471
Profit before income tax expense	18,021
Income tax expense	(4,956)
Profit for the year from discontinued operations	13,065

Cash flows related to discontinued operations for the year ended December 31, 2018 are as follows (Korean won in millions):

	2018
Cash flows from operating activities	₩ 49,408
Cash flows from investing activities (*1)	89,506

(*1) Cash flows related to the disposal of discontinued operations are included.

33. Cash flow information

Details of non-cash adjustments for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Loss on (reversal of) loss allowances	₩	(5,057)	₩	2,706
Loss on (reversal of) valuation of inventories		(253,159)		274,033
Depreciation		881,864		833,710
Depreciation of right-of-use assets		201,166		-
Amortization		125,240		92,906
Provision for severance and retirement benefits		68,053		63,603
Interest expenses		343,699		259,186
Loss on foreign currency translation		182,036		87,565
Loss on valuation of derivative financial instruments		202,955		754,158
Loss on investments in associates and joint ventures		64,885		44,900
Loss on disposals of investments in associates		4,817		-
Loss on disposals of property, plant and equipment		31,548		36,760
Loss on impairment of property, plant and equipment		31,123		13,628
Loss on disposals of intangible assets		51		242
Loss on impairment of intangible assets		350,665		11,265
Income tax expense		310,684		706,439
Interest income		(99,900)		(87,865)
Dividend income		(7,524)		(9,199)
Gain on foreign currency translation		(161,780)		(113,814)
Gain on valuation of derivative financial instruments		(169,842)		(772,653)
Gain on investments in associates and joint ventures		(122,171)		(195,009)
Gain on disposals of investments in associates		(1,740)		(5,055)
Gain on disposals of property, plant and equipment		(17,032)		(23,113)
Gain on disposals of intangible assets		(1,382)		(230)
Others		(4,155)		22,965
	₩	1,955,044	₩	1,997,128

33. Cash flow information (cont'd)

Details of working capital adjustments for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Trade receivables	₩	292,181	₩	416,685
Other receivables		1,419		(196,383)
Accrued income		(680)		(686)
Advanced payments		28,199		(149,527)
Guarantee deposits		21,441		(9,836)
Prepaid expenses		(12,319)		1,308
Derivative assets		165,358		(51,850)
Inventories		(67,012)		(477,395)
Trade payables		324,851		(708,685)
Other payables		(89,271)		58,999
Accrued expenses		120,531		159,709
Advances received		47,356		28,242
Withholdings		65,197		(152,527)
Derivative liabilities		(244,150)		-
Retirement benefits paid		(58,628)		(36,059)
Plan assets		(56,000)		(51,494)
Others		(3,186)		11,306
	₩	535,287	₩	(1,158,193)

Significant non-cash transactions for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Transfer from construction-in-progress to property, plant and equipment and intangible assets	₩	908,059	₩	1,152,573
Transfer of long-term debt to current portion of long-term debt		1,335,183		1,018,846
Increase (decrease) in other payables due to acquisition of property, plant and equipment		113,649		(3,391)
Increase in other receivables due to disposal of property, plant and equipment		1,332		-
Donation due to disposal of property, plant and equipment		-		309
Increase in other receivables due to disposal of intangible asset		9,132		360
Decrease in advances received due to disposal of intangible assets		16,891		-
Increase in right-of-use assets		1,340,467		-
Increase in other receivables due to disposal of long-term investment securities		3,375		-
Other receivables and others related to property, plant and equipment on disposal of assets held for sale		-		28,062
Transfer to assets as held for sale		663,987		65,500
Transfer to liabilities as held for sale		7,865		-
Increase in other payables due to acquisition of investment of associates		38,356		-

33. Cash flow information (cont'd)

Changes in total liabilities from financing activities for the years ended December 31, 2019 and 2018 are as follows (in millions of Korean won):

	2019								
				Non-cash changes					
	Beginning balance	Change in accounting policy	Cash flows from financing activities	Disposal of joint operations	Effects of exchange rate changes	Transfer	Others	Changes in scope of consolidation	Ending balance
Short-term borrowings	₩ 153,742	₩ -	₩ 977,045	₩ -	₩ 1,187	₩ -	₩ -	₩ -	₩ 1,131,974
Bonds payable and long-term borrowings	7,859,998	-	2,108,834	(4,541)	32,821	(12,850)	8,301	6,487	9,999,050
Lease liabilities (*1)	24	1,215,623	(193,814)	(12,659)	2,455	106,114	25,252	18,084	1,161,079
Leasehold deposits received	22,113	-	403	-	-	-	-	-	22,516
Dividends payable	269	-	(1,003,951)	-	21	1,003,951	510		800
Total liabilities from financing activities	₩ 8,036,146	₩ 1,215,623	₩ 1,888,517	₩ (17,200)	₩ 36,484	₩ 1,097,215	₩ 34,063	₩ 24,571	₩ 12,315,419

(*1) In the lease contract from which lease liabilities are not recognized, cash outflows for the year ended December 31, 2019 are ₩259,007 million.

	2018					
			Non-cash changes			
	Beginning balance	Cash flows from financing activities	Effects of exchange rate changes	Transfer	Others	Ending balance
Short-term borrowings	₩ 242,879	₩ (89,818)	₩ 681	₩ -	₩ -	₩ 153,742
Bonds payable and long-term borrowings	5,317,302	2,507,028	30,998	(2,221)	6,891	7,859,998
Leasehold deposits received	20,971	1,142	-	-	-	22,113
Dividends payable	237	(812,285)	-	812,317	-	269
Total liabilities from financing activities	₩ 5,581,389	₩ 1,606,067	₩ 31,679	₩ 810,096	₩ 6,891	₩ 8,036,122

34. Financial risk management

The Group's principal financial liabilities comprise borrowings, bonds payable and trade and other payables. The main purpose of these financial liabilities is to finance the operations of the Group. Further, the Group has various financial assets, including trade and other receivables that are directly related to its operations.

The Group is exposed to market risk, credit risk and liquidity risk. Key management of the Group is responsible for the financial risk-taking activities of the Group, and such activities are governed by appropriate policies and procedures.

34.1 Market risk

Market risk is the risk that the fair value of future cash flows of a financial instrument will fluctuate because of changes in market prices. Market prices comprise four types of risk: interest rate risk, foreign currency risk, crude oil and petroleum product price risk and other price risk.

34.1.1 Interest rate risk

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The exposure to the risk of changes in market interest rates relates primarily to the long-term debt obligations of the Group with floating interest rates. The Group entered into currency forward contracts and interest rate swaps to hedge the risks from changes in future cash flows of a financial instrument. Except for these changes, key management of the Group determined that the effect of the changes in market interest rates is not significant.

34.1.2 Foreign currency risk

Foreign currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. The exposure to the risk of changes in foreign exchange rates relates primarily to the operating activities of the Group and the net investments in foreign subsidiaries. The Group manages its foreign currency risk periodically. Specifically, the Group entered into currency forward contracts and currency interest rate swaps to hedge the risks from changes in foreign exchange rates.

Significant monetary assets and liabilities denominated in foreign currencies as of December 31, 2019 and 2018 are as follows (U.S. dollars, Japanese yen, Chinese yuan and Indonesian rupiah in thousands; and Korean won in millions):

		2019		2018	
	Currency	Foreign currencies	Korean won equivalent	Foreign currencies	Korean won equivalent
Assets	USD	4,094,376	₩ 4,740,469	4,391,539	₩ 4,909,261
	JPY	10,764,596	114,478	13,082,751	132,544
	CNY	593,201	98,317	71,452	11,630
	IDR	241,774,920	20,092	512,824,224	41,910
Liabilities	USD	5,923,534	6,858,267	5,419,553	6,059,602
	JPY	585,258	6,224	135,629	1,374
	CNY	3,932	652	344	56
	IDR	270,724,975	22,497	429,282,808	35,083

Should the exchange rate of aforementioned currencies fluctuate by 5%, the effects on income before income taxes for the years ended December 31, 2019 and 2018 would be as follows (Korean won in thousands):

	2019		2018	
	Increase by 5%	Decrease by 5%	Increase by 5%	Decrease by 5%
Increase (decrease) in income before income taxes	₩ (49,091)	₩ 49,091	₩ (28,742)	₩ 28,742

34. Financial risk management (cont'd)

34.1.3 Crude oil and petroleum product price risk

Crude oil and petroleum product price risk is the risk that profit or cash flow will fluctuate because of changes in international market prices of crude oil and petroleum products. The Group manages these risks to maintain stable margins through the use of fixed-price contracts with customers and derivative contracts of fluctuations in fair values according to changes in international market prices. Key management of the Group determined that the risk from changes in the price of crude oil and petroleum products and the risk to fluctuations in fair values are approximately managed.

34.1.4 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 from interest rate risk and foreign currency risk. The marketable long-term investment securities of the Group are susceptible to market price risks arising from fluctuations in the price of securities. However, key management of the Group determined that the effect of fluctuation in the price of securities is not significant.

34.2 Credit risk

Credit risk refers to the risk that a counter party will default on its contractual obligations under a financial instrument or customer contract, resulting in financial loss to the Group.

34.2.1 Trade and other receivables

Customer credit risk is managed by each business unit subject to the Group's established policies, procedures and control related to customer credit risk management. Credit quality of the customer is assessed based on an extensive credit rating scorecard and individual credit limits are defined in accordance with this assessment. Outstanding customer receivables are regularly monitored and any shipments to major customers are generally covered by letters of credit or other forms of credit insurance.

As of December 31, 2019, trade receivables from top five major customers accounted for 12.6% or ₩556,327 million of total trade receivables. Maximum exposure to credit risk at the reporting date is the book value of each class of financial assets. The requirement for impairment is analyzed at each reporting date on an individual basis for major clients. In addition, multiple receivables with low-value amounts are included in the aggregate of financial assets with similar credit risk characteristics and are reviewed for impairment collectively. Impairment of financial assets are determined based on historical data.

Of the trade receivables balance as of December 31, 2019, ₩139,184 million (December 31, 2018: ₩116,801 million from SK Networks Co., Ltd.) is due from MITSUI & CO. ENERGY TRADING SINGAPORE, the Group's largest customer. Apart from this, the Group does not have significant credit risk exposure to any single counterparty or any group of counterparties having similar characteristics. The Group defines counterparties as having similar characteristics if they are related entities. Concentration of credit risk related to MITSUI & CO. ENERGY TRADING SINGAPORE did not exceed 10% of total current assets at any time during the year. Concentration of credit risk to any other counterparty did not exceed 5% of total current assets at any time during the year. The concentration of credit risk is limited due to the fact that the customer base is large and unrelated.

34.2.2 Other financial assets

Credit risks associated with the other financial assets of the Group that consist of short-term and long-term financial assets arise from the default by the counterparties. Maximum exposure to credit risks at the reporting date is the book value of the other financial assets. The Group deposits its surplus funds in the financial institutions whose credit ratings are high; therefore, credit risk related to financial institutions is considered limited.

34.2.2 Other financial assets (cont'd)

The maximum exposure to credit risk as of December 31, 2019 and 2018 are carrying value of each class of financial assets as follows (Korean won in millions):

	2019		
	Book value before deduction	Accumulated impairment	Book value (maximum exposure amount)
Cash and cash equivalents	₩ 2,196,001	₩ -	₩ 2,196,001
Long-term and short-term financial instruments	2,380,710	-	2,380,710
Trade and other receivables	5,980,914	(431,467)	5,549,447
Long-term investment securities	111,838	-	111,838
Derivative financial instruments	75,287	-	75,287
Financial guarantee contracts	193,932	-	193,932
	₩ 10,938,682	₩ (431,467)	₩ 10,507,215

	2018		
	Book value before deduction	Accumulated impairment	Book value (maximum exposure amount)
Cash and cash equivalents	₩ 1,825,558	₩ -	₩ 1,825,558
Long-term and short-term financial instruments	2,676,683	-	2,676,683
Trade and other receivables	6,009,230	(436,529)	5,572,701
Long-term investment securities	98,224	-	98,224
Derivative financial instruments	80,710	-	80,710
Financial guarantee contracts	211,880	-	211,880
	₩ 10,902,285	₩ (436,529)	₩ 10,465,756

34.3 Liquidity risk

Liquidity risk refers to the risk that the Group may default on the contractual obligations that become due. The Group manages its risk of shortage of funds using a recurring liquidity planning tool.

The objective of the Group is to maintain a balance between continuity of funding and flexibility through the use of bank overdrafts, bank borrowings, bonds and lease liabilities. The maturity profile of the Group's bonds, borrowings, lease liabilities and financial guarantee contracts among financial liabilities based on contractual nominal amount as of December 31, 2019 is as follows (Korean won in millions):

	Less than 3 months	3 ~ 12 months	1 ~ 5 years	More than 5 years	Total
Bonds payable and borrowings	₩ 1,094,954	₩ 1,192,924	₩ 6,513,465	₩ 2,352,802	₩ 11,154,145
Lease liabilities	57,493	170,453	585,852	468,766	1,282,564
Financial guarantee contracts	-	-	193,932	-	193,932
	₩ 1,152,447	₩ 1,363,377	₩ 7,293,249	₩ 2,821,568	₩ 12,630,641

Based on the carrying value of bonds, borrowings and lease liabilities reflected in the consolidated financial statements, 20.4% of the debt will mature in less than one year from December 31, 2019. The Group determined that the risk of a shortage of fund was properly managed considering cash and cash equivalents that the Group retains.

34.4 Capital management

The primary objective of capital management is to ensure that the Group maintains a strong credit rating and healthy capital ratios in order to support its business and maximize stockholders' value. The Group manages its capital structure and makes adjustments to it in light of changes in economic conditions. No changes were made in the objectives, policies or processes for the year ended December 31, 2019.

The debt-to-equity ratio as of December 31, 2019 and 2018 is as follows (Korean won in millions):

		2019		2018
Liabilities	₩	21,316,433	₩	16,679,128
Equity		18,209,624		19,174,254
Debt-to-equity ratio		117.1%		87.0%

35. Emission rights and liabilities

The quantity of emission allowances the government allocated free of charge for the three years from 2018 to 2020 by vintage year as of December 31, 2019 is as follows (in tCO2-eq):

	2018	2019	2020
Emission allowances allocated free of charge (*1)	9,215,841	9,258,760	9,233,497

(*1) It is the amount added to or subtracted from the initial allowances allocated free of charge.

The estimated quantity of emission allowances made for the year ended December 31, 2019 is 9,135,061 tCO2-eq.

Changes in the quantity of the emission allowances for the years ended December 31, 2019 and 2018 are as follows (in tCO2-eq):

		2019 (*1)		2018 (*1)
Beginning balance	₩	(101,633)	₩	(5,625)
Carried forward from prior year		723,920		1,075,450
Free allocation		9,258,760		9,215,841
Emission		(9,135,061)		(9,459,980)
Acquisition (disposal)		8,770		(203,399)
Disposal of joint operations		(3,372)		-
Business combination		4,817		-
Carried forward to subsequent year		(1,020,285)		(723,920)
Ending balance (*2)	₩	(264,084)	₩	(101,633)

(*1) Change in the quantity of the emission allowances of current year is an estimate that may differ from the confirmed emission allowances, and changes in the quantity of the emission allowances of prior year are reflected as the confirmed emission allowances.
(*2) The ending balance is the quantity which is not permitted to carry forward and will be sold during the next period. The Group assessed the quantity at fair value at the end of the year and recorded as current liabilities.

35. Emission rights and liabilities (cont'd)

Changes in the emission liabilities for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Beginning balance	₩ 2,786	₩ 59
Increase	7,914	2,729
Use	(2,790)	-
Difference	3	(2)
Disposal of joint operations	(199)	-
Business combination	284	-
Ending balance (*1)	₩ 7,998	₩ 2,786

(*1) Emission liabilities are included in other current liabilities.

36. Assets and liabilities held for sale

Details of assets held for sale and related liabilities as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018	
		Asset	Liabilities	Asset	Liabilities
Intangible assets and others	Peru 56, 88 (*1)	₩ 662,487	₩ 7,865	₩ -	₩ -
Property, plant and equipment	Land, etc (*2)	67,000	-	65,500	-
		₩ 729,487	₩ 7,865	₩ 65,500	₩ -

(*1) The Parent Company entered into an agreement to sell its entire stake in the 56th and 88th Peru blocks to Pluspetrol in the third quarter for the purpose of adjusting its E&P portfolio and converting its business model.
(*2) SK Incheon Petrochemical Co., Ltd., a subsidiary, has entered into a contract to sell some of the land in Seoknam-dong, Seo-gu, Incheon during the previous year.

37. Restatement of financial statements

The Group restated the consolidated financial statements as of and for the year ended December 31, 2018 presented as comparative purpose due to changes in scope of consolidation of SK Lubricants, a subsidiary of the Group. Details of the restatement are as follows:

The Group has concluded that the joint approvals with PT Pertamina Patra Niaga Company Limited and REPSOL PETROLEO S.A. ("REPSOL") are significant in their decision-making requirement for the management of PT. Patra SK and Iberian Lube Base Oil Company, S.A. ("ILBOC"), respectively. As a result, the Group reclassified PT. Patra SK and ILBOC as a joint operation and determined to restate the consolidated financial statements presented as comparative purpose.

37.1 Consolidated statement of financial position

Details of restatement of the consolidated statement of financial position as of December 31, 2018 are as follows (Korean won in millions):

	2018		
	Before adjustment	After adjustment	Difference
Total assets:			
Current assets	₩ 16,752,415	₩ 16,634,727	₩ (117,688)
Non-current assets	19,332,969	19,218,655	(114,314)
Total liabilities:			
Current liabilities	8,940,623	8,866,633	(73,990)
Non-current liabilities	7,816,778	7,812,495	(4,283)
Total equity:			
Equity attributable to owners of the parent	18,124,448	18,122,637	(1,811)
Non-controlling interests	1,203,535	1,051,617	(151,918)

37.2 Consolidated statement of comprehensive income

Details of restatement of the consolidated statement of comprehensive income for the year ended December 31, 2018 are as follows (Korean won in millions):

	2018		
	Before adjustment	After adjustment	Difference
Sales	₩ 54,510,898	₩ 54,216,524	₩ (294,374)
Operating profit	2,117,590	2,103,165	(14,425)
Profit for the year from continuing operations	1,696,919	1,685,982	(10,937)
Profit for the year from discontinued operations	13,065	13,065	-
Profit for the year	1,709,984	1,699,047	(10,937)
Other comprehensive income	110,108	106,878	(3,230)
Total comprehensive income attributable to:			
Owners of the parent	1,758,120	1,757,788	(332)
Non-controlling interests	61,972	48,137	(13,835)

37.3 Consolidated statement of changes in equity

The consolidated statement of changes in equity for the year ended December 31, 2018, was restated in accordance with the restatement of the consolidated statement of financial position as of December 31, 2018 and the consolidated statement of comprehensive income for the year ended December 31, 2018.

37.4 Consolidated statement of cashflows

Details of restatement of the consolidated statement of cash flows for the year ended December 31, 2018 are as follows (Korean won in millions):

	2018		
	Before adjustment	After adjustment	Difference
Cash flows from operating activities	₩ 1,728,062	₩ 1,699,481	₩ (28,581)
Cash flows from investing activities	(2,476,814)	(2,469,385)	7,429
Cash flows from financing activities	586,079	604,267	18,188
Net decrease in cash and cash equivalents	(162,673)	(165,637)	(2,964)
Cash and cash equivalents at the beginning of the year	2,003,740	1,977,556	(26,184)
Effects of exchange rate changes on cash and cash equivalents	14,853	13,640	(1,213)
Cash and cash equivalents at the end of the year	1,855,920	1,825,559	(30,361)

37.5 Notes to the consolidated financial statements

Notes to the consolidated financial statements were restated in accordance with the restatement of the consolidated statement of financial position as of December 31, 2018 and the consolidated statement of comprehensive income, consolidated statement of changes in equity and consolidated statement of cashflows for the year ended December 31, 2018.

38. Acquisition of control

The Group entered into a joint venture agreement with REPSOL, a joint operator of ILBOC, in April, 2012. The agreement has included a call option that enables to purchase the shares of the joint operator after the period of five years commencing from commercial operation date. As of December 31, 2019, the Group has concluded that the call option has been effective potential voting right and therefore, the Group has obtained the control over ILBOC.

The Group evaluated identifiable net assets at fair values at the date the Group obtains the control. The adjustments for acquisition of control are as follows:

		Amounts
Book value of assets acquired:		
Current assets:		
Cash and cash equivalents	₩	22,056
Trade and other receivables		87,391
Inventories		46,009
Other current assets		2,046
Non-current assets:		
Property, plant and equipment		251,306
Goodwill and intangible assets		3,599
Right-of-use assets		20,173
Other non-current assets		442
Total		433,022
Book value of liabilities assumed		132,160
Book value of identifiable net assets		300,862
Non-controlling interests		(90,259)
Consideration transferred		233,500
Goodwill	₩	22,897

As of December 31, 2019, the initial accounting for the acquisition of control of ILBOC have only been provisionally determined.

39. Subsequent events

In accordance with the resolution of the Board of Directors on October 23, 2019, the Parent Company has decided to participate in the paid-in capital increase of the subsidiary, SK IE Technology Co., Ltd. through contribution-in-kind of 100% equity shares in SK Hi-tech Battery Materials (Jiang su) Co., Ltd. and SK Hi-tech Battery Materials Poland Sp. Zo.o. on January 1, 2020.

In addition, the Parent Company has decided to participate in the paid-in capital increase of the joint venture, SK South East Asia Investment Pte. Ltd. in the Board of Directors' meeting on January 31, 2020. The amount to be invested is USD 100,000,000, and the Parent Company is scheduled to invest in 2020.

In addition, in accordance with the resolution of the Board of Directors dated on January 31, 2020, the Parent Company has decided to acquire treasury stock to stabilize stock prices and enhance stockholders' value. The number of stocks to be acquired is 4,628,000 shares of common stock, and the expected completion date is May 2, 2020. The Parent Company will hold treasury stocks for six months or more from the date of acquisition.

In addition, on April 29, 2019, LG Chem and others filed its complaint with the U.S. International Trade Commission ("ITC") against the Company and its subsidiary, SK Battery America, Inc. (collectively, "SKI"), alleging SKI's infringement of their trade secrets and sought as remedy a ban on SKI's importation of certain lithium ion batteries, battery cells and etc. into the United States. On November 5, 2019 LG Chem and others filed a Motion for Default Judgment basing its argument on SKI's spoliation of evidence and violation of a forensic order. On February 14, 2020, Administrative Law Judge of ITC issued the Initial Determination, ordering a default against SKI, thereby effectively canceling planned events including the hearing on the merits of the case in particular as to whether there was misappropriation and infringement of trade secrets. In accordance with the prior notice by the ITC, Final Determination is scheduled in October, 2020.

Deloitte.

Deloitte Anjin LLC
9F., One IFC,
10, Gukjegeumyung-ro,
Youngdeungpo-gu, Seoul
07326, Korea

Tel: +82 (2) 6676 1000
Fax: +82 (2) 6674 2114
www.deloitteanjin.co.kr

INDEPENDENT AUDITORS' REPORT

English Translation of Independent Auditors' Report Originally Issued in Korean on March 5, 2019.

To the Stockholders and the Board of Directors of
SK Innovation Co., Ltd.:

Our Opinion

We have audited the accompanying consolidated financial statements of SK Innovation Co., Ltd. and its subsidiaries (the "Group"), which comprise the statements of financial position as of December 31, 2018 and December 31, 2017, respectively, and the consolidated statements of comprehensive income, consolidated statements of changes in equity and consolidated statements of cash flows for the years then ended, and a summary of significant accounting policies and other explanatory information.

In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Group as of December 31, 2018 and December 31, 2017, respectively, and its financial performance and its cash flows for the years then ended in accordance with Korean International Financial Reporting Standards ("K-IFRSs").

Basis for Audit Opinion

We conducted our audits in accordance with the Korean Standards on Auditing ("KSAs"). Our responsibilities under those standards are further described in the *Auditor's Responsibility for the Audit of the Financial Statements* section of our report. We are independent of the Group in accordance with the ethical requirements, including those related to independence, that are relevant to our audit of the consolidated financial statements in the Republic of Korea as required by prevailing audit regulations. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Our Key Audit Matters

The key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our audit opinion thereon, and we do not provide a separate opinion in these matters.

(1) Valuation of inventories

As of December 31, 2018, the book value of inventories held by the Group in the petroleum business, petrochemical business and lubricant business amounted to ₩6,021,993 million, which accounted for approximately 17% of total assets, and as international oil and related product prices showed a significant decline for the quarter ended December 31, 2018, the valuation of inventories could have a significant impact on the Group's performance. In addition, as described in Note 3, the valuation of inventories requires management’s judgment on estimation of sales prices and selling expenses. Given the uncertainty of these estimates and the monetary significance associated with the valuation of inventories, we have determined that the valuation of inventories is a key audit matter.

The audit procedures we performed for this key audit matter included:

- obtaining an understanding of the Group’s accounting policies related to the valuation of inventories;
- obtaining an understanding of the Group’s internal controls over valuation of inventories and assessed effectiveness of design of the controls and implementation of the controls;
- obtaining understanding on the management’s methodology used in estimating selling price and selling expenses and assessed appropriateness thereof;
- inspecting supporting documents related to estimated selling price on a sample of inventories;
- recalculating the valuation of inventories; and
- testing the disclosures in the financial statements and checked for compliance with K-IFRS 1002 *inventories.*

(2) Allocation of purchase price in relation to acquisition of Dow Chemical's EAA and PVDC businesses

As described in Note 35, the Group acquired the EAA business, PVDC business and all tangible and intangible assets in the U.S. and Spain from Dow Chemical Company in 2017, in accordance with resolution of board of directors in 2017. The consideration was ₩458,900 million and the identifiable net assets including intangible assets were measured at ₩346,172 million and goodwill amounting to ₩112,728 million was recognized.

The Group completed the accounting for the business combinations by retrospectively adjusting the provisional amounts recognized at the acquisition date as the measurement period in accordance with K-IFRS 1103 ended during the current period. This includes allocating consideration transferred to various identifiable assets and liabilities, and adjusting goodwill. Management used independent external experts to measure the fair value of identifiable assets and liabilities.

We have determined that the allocation of purchase price related to those business combinations is a key audit matter considering the significance of the assets and liabilities recognized in relation to the business combinations and significance of management’s judgment and assumptions used in measuring the assets and liabilities.

The audit procedures we performed for this key audit matter included:

- obtaining an understanding of the business combination by reviewing the asset purchase agreement;
- obtaining an understanding of the methodology applied in allocating the purchase price across intangible assets and goodwill and in measuring identified assets, with support from our valuation experts;
- considering whether management had identified all potential intangible assets based on our understanding of the acquired business and significant contracts;
- assessing appropriateness of the key assumptions in the valuation models, including the discount rate used in measuring the identifiable assets by comparing to available external data;
- recalculating the valuation of identified intangible assets;

- comparing the forecasts used within the intangible asset valuation model to the management-approved budgets; and
- testing the disclosures in the financial statements and checked for compliance with K-IFRS 1103 *Business Combinations.*

Emphasis of Matter

As mentioned in Note 35, the Group acquired all of the Dow Chemical Company's EAA businesses and PVDC businesses and the related tangible and intangible assets. Some of the identifiable net assets acquired from the business combination were presented as provisional amounts by the end of the prior reporting period because the fair value assessment had not been completed. For the year ended December 31, 2018, new information on the pertinent facts and circumstances existing at the acquisition date was obtained and the provisional amount of the identifiable net assets recognized at the acquisition date was retrospectively adjusted.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation of the accompanying consolidated financial statements in accordance with K-IFRSs, and for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management of the Group 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’s responsibilities include overseeing the Group’s financial reporting process.

Auditors’ Responsibility for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the 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 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 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 financial statements, 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.

Deloitte.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of the 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 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 financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance of the Group 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.

We also provide those charged with governance of the Group with a statement that we have complied with relevant ethical requirements, including those related to independence, and to communicate with them all matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter.

The engagement partner on the audit resulting in this independent auditor's report is Eui Yeoul Song

Deloitte Anjin LLC

March 5, 2019

Notice to Readers

This report is effective as of March 5, 2019, the auditors' report date. Certain subsequent events or circumstances may have occurred between the auditors' report date and the time the auditors' report is read. Such events or circumstances could significantly affect the accompanying consolidated financial statements and may result in modifications to the auditors' report.

SK INNOVATION CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF FINANCIAL POSITION
AS OF DECEMBER 31, 2018 AND 2017

		Korean won		Translation into U.S. dollars (Note 2)	
ASSETS		December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017
	Notes	(In thousands)		(In thousands)	
CURRENT ASSETS:					
Cash and cash equivalents	*4*	₩ 1,855,920,813	₩ 2,003,740,408	$ 1,659,888	$ 1,792,094
Short-term financial instruments	*4*	2,671,963,400	2,245,428,888	2,389,736	2,008,254
Trade accounts receivable	*4,5*	4,459,724,118	4,821,306,591	3,988,663	4,312,053
Long-term investment securities - current	*4,8*	2,591,171	-	2,317	-
Short-term loans	*4,5,7*	43,557,329	59,855,377	38,957	53,533
Other accounts receivable	*4,5*	696,153,342	476,188,351	622,622	425,891
Accrued income	*4,5*	5,083,257	5,094,087	4,546	4,556
Advance payments		470,829,270	354,825,152	421,098	317,347
Prepaid expenses		47,657,894	47,616,001	42,624	42,587
Current tax assets		9,266,155	10,396,005	8,287	9,298
Guarantee deposits	*4,5*	171,808,083	164,739,997	153,661	147,339
Derivative financial assets	*4,14*	72,206,845	34,080,164	64,580	30,480
Inventories	*6*	6,179,806,214	5,979,634,285	5,527,060	5,348,032
Other current assets	34	347,161	17,295,939	310	15,469
Assets classified as held for sales	33	65,500,000	-	58,582	-
Total Current Assets		16,752,415,052	16,220,201,245	14,982,931	14,506,933
NON-CURRENT ASSETS:					
Long-term financial instruments	*4*	4,720,012	4,501,038	4,221	4,026
Long-term trade accounts receivable	*4,5*	78,836	152,927	71	137
Long-term investment securities	*4,8*	333,183,684	276,337,835	297,991	247,149
Investments in associates and jointly controlled entities	*9*	2,881,803,332	2,431,188,073	2,577,411	2,174,392
Long-term other accounts receivable	*4,5*	12,857,090	16,832,318	11,499	15,054
Long-term loans	*4,5,7*	196,249,453	106,319,861	175,520	95,090
Property, plant and equipment	*10*	13,798,178,396	13,596,238,753	12,340,737	12,160,129
Goodwill and Intangible assets	*11*	2,006,974,502	1,501,386,906	1,794,987	1,342,802
Long-term guarantee deposits	*4,5*	42,593,848	28,353,284	38,095	25,358
Derivative financial assets	*4,14*	8,502,747	1,975,292	7,605	1,767
Deferred income tax assets	*26*	24,014,790	37,675,259	21,478	33,696
Other non-current assets		23,812,328	28,983,699	21,301	25,922
Total Non-current Assets		19,332,969,018	18,029,945,245	17,290,916	16,125,522
TOTAL ASSETS		₩36,085,384,070	₩34,250,146,490	$ 32,273,847	$ 30,632,455

(Continued)

SK INNOVATION CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF FINANCIAL POSITION (CONTINUED)
AS OF DECEMBER 31, 2018 AND 2017

LIABILITIES AND EQUITY	Notes	Korean won December 31, 2018	Korean won December 31, 2017	Translation into U.S. dollars (Note 2) December 31, 2018	Translation into U.S. dollars (Note 2) December 31, 2017
		(In thousands)		(In thousands)	
CURRENT LIABILITIES:					
Short-term borrowings	4,12	₩ 153,742,080	₩ 242,879,213	$ 137,503	$ 217,225
Trade accounts payable	4	4,650,028,501	5,265,305,725	4,158,866	4,709,156
Other accounts payable	4	465,592,378	446,758,318	416,414	399,569
Accrued expenses	4	1,344,051,227	1,163,595,878	1,202,085	1,040,690
Advance received		117,420,458	80,431,806	105,018	71,936
Withholdings		642,790,322	841,490,319	574,895	752,607
Leasehold deposits received	4	12,357,819	13,412,485	11,053	11,996
Current tax liabilities		221,764,790	481,010,956	198,341	430,204
Derivative financial liabilities	4,14	55,846,355	90,768,855	49,948	81,181
Other current liabilities		55,505,516	56,723,383	49,643	50,732
Current portion of long-term debt	4,12	1,221,523,969	1,272,428,181	1,092,500	1,138,027
Total Current Liabilities		8,940,623,415	9,954,805,119	7,996,266	8,903,323
NON-CURRENT LIABILITIES:					
Bonds payable and long-term borrowings	4,12	6,648,068,076	4,062,637,332	5,945,862	3,633,519
Retirement benefit obligation	13	78,446,689	76,158,303	70,161	68,114
Long-term provisions	15	119,944,900	100,553,633	107,276	89,933
Financial guarantee liabilities	4,15	721,035	1,131,271	645	1,012
Deferred income tax liabilities	26	946,917,218	731,132,521	846,899	653,906
Other accounts payable	4	12,590,361	6,539,755	11,260	5,849
Other non-current liabilities		10,089,711	7,855,657	9,024	7,026
Total Non-current Liabilities		7,816,777,990	4,986,008,472	6,991,127	4,459,359
Total Liabilities		16,757,401,405	14,940,813,591	14,987,393	13,362,682
EQUITY ATTRIBUTABLE TO THE OWNERS' OF THE COMPANY:					
Capital stock	1,16	468,569,950	468,569,950	419,077	419,077
Other paid-in capital	16,17	4,628,540,029	5,629,672,498	4,139,648	5,035,035
Retained earnings	19	12,930,338,005	12,041,707,802	11,564,564	10,769,795
Other capital components	18	96,999,819	(54,171,000)	86,754	(48,449)
Total Equity Attributable to the Owners' of the Company		18,124,447,803	18,085,779,250	16,210,043	16,175,458
NON-CONTROLLING INTERESTS		1,203,534,862	1,223,553,649	1,076,411	1,094,315
Total Equity		19,327,982,665	19,309,332,899	17,286,454	17,269,773
TOTAL LIABILITIES AND EQUITY		₩ 36,085,384,070	₩34,250,146,490	$ 32,273,847	$ 30,632,455

(Concluded)

See accompanying notes to consolidated financial statements.

SK INNOVATION CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

		Korean won		Translation into U.S. dollars (Note 2)	
		December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017
		(In thousands except for per share data)		(In thousands except for per share data)	
	Notes				
SALES	*20,28*	₩54,510,898,386	₩46,162,655,997	$ 48,753,151	$ 41,286,697
COST OF SALES	*25,28*	50,529,216,158	40,824,841,000	45,192,037	36,512,693
GROSS PROFIT		3,981,682,228	5,337,814,997	3,561,114	4,774,004
SELLING AND ADMINISTRATIVE EXPENSES	*21,25,28*	1,864,092,438	2,116,028,938	1,667,197	1,892,522
OPERATING INCOME		2,117,589,790	3,221,786,059	1,893,917	2,881,482
Financial income - interest income calculated using effective interest method	*4,22*	40,226,278	-	35,977	-
Financial income - others	*4,22*	3,141,034,659	-	2,809,261	-
Financial income	*4,22*	-	1,882,361,310	-	1,683,536
Finance costs	*4,22*	2,949,103,372	2,050,667,110	2,637,603	1,834,064
Gain related to investments in associates and jointly controlled entities, net	*9,23*	155,164,442	311,316,658	138,775	278,434
Other non-operating income	*24*	109,416,494	79,579,055	97,859	71,173
Other non-operating expenses	*24*	211,975,494	220,699,009	189,585	197,388
INCOME FROM CONTINUING OPERATION BEFORE INCOME TAX EXPENSE		2,402,352,797	3,223,676,963	2,148,601	2,883,173
INCOME TAX EXPENSE	*26*	705,434,099	1,076,412,588	630,922	962,716
INCOME FROM CONTINUING OPERATIONS		1,696,918,698	2,147,264,375	1,517,679	1,920,457
INCOME(LOSS) FROM DISCONTINUED OPERATIONS	*30*	13,065,343	(2,162,647)	11,687	(1,934)
NET INCOME		₩ 1,709,984,041	₩ 2,145,101,728	$ 1,529,366	$ 1,918,523
Attributable to:					
Owners of the Company		₩ 1,651,472,381	₩ 2,103,771,293	$ 1,477,035	$ 1,881,558
Non-controlling interests		58,511,660	41,330,435	52,331	36,965

(Continued)

SK INNOVATION CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (CONTINUED)
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

	Notes	Korean won December 31, 2018	Korean won December 31, 2017	Translation into U.S. dollars (Note 2) December 31, 2018	Translation into U.S. dollars (Note 2) December 31, 2017
		(In thousands except for per share data)	(In thousands except for per share data)	(In thousands except for per share data)	(In thousands except for per share data)
OTHER COMPREHENSIVE INCOME (LOSS)					
Items not reclassified subsequently to profit or loss:					
Net change in fair value of financial assets measured at FVTOCI		₩ (12,771,446)	₩ -	$ (11,422)	$ -
Remeasurement of defined benefit plan		(19,519,151)	12,709,665	(17,457)	11,367
Net gain (loss) on translation of foreign operations		3,460,040	(9,867,118)	3,095	(8,825)
Items reclassified subsequently to profit or loss:					
Net change in fair value of financial assets measured at FVTOCI		49,592	-	44	-
Net change in fair value of available-for-sale(“AFS”) financial assets		-	25,168,336	-	22,510
Equity adjustments of investments in associates and jointly controlled entitles		58,819,987	(145,009,674)	52,607	(129,693)
Net gain (loss) on translation of foreign operations		71,897,840	(150,071,422)	64,304	(134,220)
Net change on valuation of derivative financial instruments		8,170,486	91,058	7,307	81
TOTAL COMPREHENSIVE INCOME		₩ 1,820,091,389	₩ 1,878,122,573	$ 1,627,844	$ 1,679,743
Attributable to:					
Owners of the Company		₩ 1,758,119,689	₩ 1,846,659,256	$ 1,572,418	$ 1,651,603
Non-controlling interests		61,971,700	31,463,317	55,426	28,140
EARNINGS PER SHARE (in Korean won and U.S. dollars)	27				
Basic earnings per share		₩ 18,267	₩ 22,574	$ 16.34	$ 20.19
Basic earnings per share of preferred stocks		18,317	22,624	16.38	20.23
Basic earnings per share from continuing operations		18,123	22,597	16.21	20.21
Basic earnings per share of preferred stocks from continuing operations		18,173	22,647	16.25	20.25

(Concluded)

See accompanying notes to consolidated financial statements.

SK INNOVATION CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY (CONTINUED)
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

	Common stock	Paid-in surplus	Other paid-in capital: Treasury stock	Other paid-in capital: Other	Retained earnings	Other capital components	Controlling interests	Non-controlling interests	Total
(In thousands of Korean won)									
Balance, January 1, 2017	₩ 468,569,950	₩5,683,247,356	₩ (136,097,148)	₩ 200,956,048	₩ 10,670,829,483	₩ 215,650,702	₩ 17,103,156,391	₩ 1,201,888,868	₩ 18,305,045,259
Total comprehensive income(loss)									
Net income	-	-	-	-	2,103,771,293	-	2,103,771,293	41,330,435	2,145,101,728
Remeasurement of defined benefit plan	-	-	-	-	12,709,665	-	12,709,665	-	12,709,665
Net change on fair value of AFS financial assets	-	-	-	-	-	25,168,336	25,168,336	-	25,168,336
Equity adjustments of investments in associates and jointly controlled entitles	-	-	-	-	-	(145,009,674)	(145,009,674)	-	(145,009,674)
Net loss on translation of foreign operations	-	-	-	-	-	(150,071,422)	(150,071,422)	(9,867,118)	(159,938,540)
Net change on valuation of derivative financial instruments	-	-	-	-	-	91,058	91,058	-	91,058
Transaction with stockholders:									
Increase in paid-in capital of subsidiaries	-	-	-	(1,485,834)	-	-	(1,485,834)	1,485,834	-
Changes due to business combination	-	-	-	(116,947,924)	-	-	(116,947,924)	-	(116,947,924)
Dividends	-	-	-	-	(745,602,639)	-	(745,602,639)	(11,284,370)	(756,887,009)
Balance, December 31, 2017	₩ 468,569,950	₩5,683,247,356	₩ (136,097,148)	₩ 82,522,290	₩ 12,041,707,802	₩ (54,171,000)	₩ 18,085,779,250	₩ 1,223,553,649	₩ 19,309,332,899
Balance, January 1, 2018	₩ 468,569,950	₩5,683,247,356	₩ (136,097,148)	₩ 82,522,290	₩ 12,041,707,802	₩ (54,171,000)	₩ 18,085,779,250	₩ 1,223,553,649	₩ 19,309,332,899
Effect of change in accounting policy	-	-	-	-	(3,101,787)	25,004,360	21,902,573	-	21,902,573
Balance after adjustment	468,569,950	5,683,247,356	(136,097,148)	82,522,290	12,038,606,015	(29,166,640)	18,107,681,823	1,223,553,649	19,331,235,472
Total comprehensive income(loss)									
	-	-	-	-	1,651,472,381	-	1,651,472,381	58,511,660	1,709,984,041
Remeasurement of defined benefit plan	-	-	-	-	(19,519,151)	-	(19,519,151)	-	(19,519,151)
Net change in fair value of financial assets measured at FVTOCI	-	-	-	-	-	(12,721,854)	(12,721,854)	-	(12,721,854)
Equity adjustments of investments in associates and jointly controlled entitles	-	-	-	-	-	58,819,987	58,819,987	-	58,819,987
Net gain on translation of foreign operations	-	-	-	-	-	71,897,840	71,897,840	3,460,040	75,357,880
Net change on valuation of derivative financial instruments	-	-	-	-	-	8,170,486	8,170,486	-	8,170,486
Transaction with stockholders:									
Acquisition of treasury stock	-	-	(1,001,800,177)	-	-	-	(1,001,800,177)	-	(1,001,800,177)
Stock compensation cost	-	-	-	667,708	-	-	667,708	-	667,708
Dividends	-	-	-	-	(740,221,240)	-	(740,221,240)	(81,990,487)	(822,211,727)
Balance, December 31, 2018	₩ 468,569,950	₩5,683,247,356	₩ (1,137,897,325)	₩ 83,189,998	₩ 12,930,338,005	₩ 96,999,819	₩ 18,124,447,803	₩ 1,203,534,862	₩ 19,327,982,665

(Continued)

SK INNOVATION CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY (CONTINUED)
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

			Other paid-in capital						
	Common stock	Paid-in surplus	Treasury stock	Other	Retained earnings	Other capital components	Controlling interests	Non-controlling interests	Total
(In thousands of U.S. dollars)									
Balance, January 1, 2017	$ 419,077	$ 5,082,951	$ (121,722)	$ 179,730	$ 9,543,717	$ 192,872	$ 15,296,625	$ 1,074,939	$ 16,371,564
Total comprehensive income(loss)									
Net income	-	-	-	-	1,881,558	-	1,881,558	36,965	1,918,523
Remeasurement of defined benefit plan	-	-	-	-	11,367	-	11,367	-	11,367
Net change on fair value of AFS financial assets	-	-	-	-	-	22,510	22,510	-	22,510
Equity adjustments of investments in associates and jointly controlled entitles	-	-	-	-	-	(129,693)	(129,693)	-	(129,693)
Net loss on translation of foreign operations	-	-	-	-	-	(134,220)	(134,220)	(8,825)	(143,045)
Net change on valuation of derivative financial instruments	-	-	-	-	-	81	81	-	81
Transaction with stockholders:									
Increase in paid-in capital of subsidiaries	-	-	-	(1,329)	-	-	(1,329)	1,329	-
Changes due to business combination	-	-	-	(104,595)	-	-	(104,595)	-	(104,595)
Dividends	-	-	-	-	(666,848)	-	(666,848)	(10,092)	(676,940)
Balance, Decemember 31, 2017	$ 419,077	$ 5,082,951	$ (121,722)	$ 73,806	$ 10,769,794	$ (48,450)	$ 16,175,456	$ 1,094,316	$ 17,269,772
Balance, January 1, 2018	$ 419,077	$ 5,082,951	$ (121,722)	$ 73,806	$ 10,769,795	$ (48,449)	$ 16,175,458	$ 1,094,315	$ 17,269,773
Effect of change in accounting policy	-	-	-	-	(2,774)	22,363	19,589	-	19,589
Balance after adjustment	419,077	5,082,951	(121,722)	73,806	10,767,021	(26,086)	16,195,047	1,094,315	17,289,362
Total comprehensive income(loss)									
Net income	-	-	-	-	1,477,035	-	1,477,035	52,331	1,529,366
Remeasurement of defined benefit plan	-	-	-	-	(17,457)	-	(17,457)	-	(17,457)
Net change in fair value of financial assets measured at FVTOCI	-	-	-	-	-	(11,378)	(11,378)	-	(11,378)
Equity adjustments of investments in associates and jointly controlled entitles	-	-	-	-	-	52,607	52,607	-	52,607
Net gain on translation of foreign operations	-	-	-	-	-	64,304	64,304	3,095	67,399
Net change on valuation of derivative financial instruments	-	-	-	-	-	7,307	7,307	-	7,307
Transaction with stockholders:									
Acquisition of treasury stock	-	-	(895,984)	-	-	-	(895,984)	-	(895,984)
Stock compensation cost	-	-	-	597	-	-	597	-	597
Dividends	-	-	-	-	(662,035)	-	(662,035)	(73,330)	(735,365)
Balance, December 31, 2018	$ 419,077	$ 5,082,951	$ (1,017,706)	$ 74,403	$ 11,564,564	$ 86,754	$ 16,210,043	$ 1,076,411	$ 17,286,454

(Concluded)

See accompanying notes to consolidated financial statements.

SK INNOVATION CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

		Korean won		Translation into U.S. dollars (Note 2)	
		December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017
	Notes	(In thousands)		(In thousands)	
CASH FLOWS FROM OPERATING ACTIVITIES:					
Cash generated from operating activities					
Net income		₩ 1,709,984,041	₩ 2,145,101,728	$ 1,529,366	$ 1,918,523
Non-cash adjustments	*31*	2,013,438,213	1,992,216,107	1,800,768	1,781,787
Working capital adjustments	*31*	(1,154,204,770)	(1,214,241,460)	(1,032,291)	(1,085,986)
Subtotal		2,569,217,484	2,923,076,375	2,297,843	2,614,324
Interest received		87,536,960	78,104,043	78,291	69,854
Interest paid		(244,289,390)	(211,089,273)	(218,486)	(188,793)
Dividends received		48,111,050	41,348,453	43,029	36,981
Income taxes paid		(732,513,738)	(651,275,119)	(655,142)	(582,484)
Net Cash Provided by Operating Activities		1,728,062,366	2,180,164,479	1,545,535	1,949,882
CASH FLOWS FROM INVESTING ACTIVITIES:					
Net change of long-term and short-term financial assets		(424,229,128)	780,324,468	(379,420)	697,902
Acquisition of long-term investment securities		(61,469,170)	(45,741,189)	(54,976)	(40,910)
Proceeds from disposal of long-term investment securities		15,341,957	38,279,752	13,721	34,236
Acquisition of investments in associates		(298,421,691)	(125,897,922)	(266,901)	(112,600)
Proceeds from disposal of investments in associates		30,065,431	-	26,890	-
Acquisition of property, plant and equipment		(1,278,933,740)	(938,406,756)	(1,143,846)	(839,287)
Proceed from disposal of property, plant and equipment		37,123,713	74,507,251	33,202	66,637
Acquisition of intangible assets		(211,772,198)	(71,912,263)	(189,404)	(64,316)
Proceeds from disposal of intangible assets		2,636,070	2,227,387	2,358	1,992
Net change of guarantee deposits		(11,475,924)	(5,752,544)	(10,264)	(5,145)
Net change of short-term loans		9,367,336	(16,906,282)	8,378	(15,121)
Net change of long-term loans		(64,568,783)	(622,483)	(57,749)	(557)
Cashflow from changes in scope of consolidation		-	8,003,924	-	7,159
Net cashflow from business combination		(310,681,612)	(764,671,921)	(277,866)	(683,903)
Proceeds from disposal of assets classified held for sale		90,204,190	-	80,676	-
Others		-	421,979	-	377
Net Cash Used in Investing Activities		₩ (2,476,813,549)	₩ (1,066,146,599)	$ (2,215,201)	$ (953,536)

(Continued)

SK INNOVATION CO., LTD. AND ITS SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS (CONTINUED)
FOR THE YEARS ENDED DECEMBER 31, 2018 AND 2017

	Notes	Korean won		Translation into U.S. dollars (Note 2)	
		December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017
		(In thousands)		(In thousands)	
CASH FLOWS FROM FINANCING ACTIVITIES:	*31*				
Net change of short-term borrowings		₩ (89,818,127)	₩ 223,446,551	$ (80,331)	$ 199,845
Proceeds from long-term borrowings and bonds payable		3,820,166,744	548,481,831	3,416,659	490,548
Repayment of long-term borrowings and bonds payable		(1,321,431,698)	(1,682,543,770)	(1,181,855)	(1,504,824)
Payment of dividend		(822,179,861)	(756,649,584)	(735,337)	(676,728)
Net change in leasehold deposits received		1,141,890	(4,157,063)	1,021	(3,718)
Increase in paid-in-capital of subsidiaries		-	690,530	-	618
Acquisition of treasury stock		(1,001,800,177)	-	(895,984)	-
Net Cash Provided by (Used in) Financing Activities		586,078,771	(1,670,731,505)	524,173	(1,494,259)
NET CHANGES IN CASH AND CASH EQUIVALENTS		(162,672,412)	(556,713,625)	(145,493)	(497,913)
CASH AND CASH EQUIVALENTS AT BEGINNING OF THE PERIOD		2,003,740,408	2,644,213,511	1,792,094	2,364,917
EFFECTS OF EXCHANGE RATE CHANGES ON CASH AND CASH EQUIVALENTS HELD IN FOREIGN CURRENCY		14,852,817	(83,759,478)	13,287	(74,910)
CASH AND CASH EQUIVALENTS AT END OF THE PERIOD		₩ 1,855,920,813	₩ 2,003,740,408	$ 1,659,888	$ 1,792,094

(Concluded)

See accompanying notes to consolidated financial statements.

1. GENERAL:

a. Outline of the Parent

SK Innovation Co., Ltd. (the "Company"), a parent company in accordance with Korean International Financial Reporting Standards ("K-IFRS") 1110 *Consolidated Financial Statement*, was spun off by SK Holdings Co., Ltd. on July 1, 2007, under the laws of the Republic of Korea to engage in i) manufacturing and selling of petroleum, petrochemical and lubricant products, and ii) conducting alternative energy business as well as oil exploration and production activities. The Company listed its ordinary and preferred stocks on the Korea Exchange on July 25, 2007. The Company's issued capital at the date of its incorporation amounted to ₩463,110 million, which increased to ₩468,570 million as of December 31, 2018, through additional paid-in capital. As of December 31, 2018, major stockholders of the Company and their equity interests include SK Holdings Co., Ltd. and related parties (33.4%) and the National Pension Service (9.6%). The Company's headquarter is located at 26 Jong-ro, Jongno-gu, Seoul, Korea.

The Company changed its name from SK Energy Co., Ltd. to SK Innovation Co., Ltd. on January 1, 2011.

b. Consolidated Subsidiaries

As of December 31, 2018, the consolidated subsidiaries of the Company are as follows.

Subsidiary	Primary business	Largest stockholder	Ownership percentage (%)	Location
SK Mobile Energy Co., Ltd.	Manufacturing of lithium battery	SK Innovation Co., Ltd.	100.0	Korea
SK Innovation Insurance (Bermuda), Ltd.	Insurance	SK Innovation Co., Ltd.	100.0	Bermuda
SK USA, Inc.	Business consulting	SK Innovation Co., Ltd.	51.0	USA
SK E&P Company	Oil exploration	SK Innovation Co., Ltd.	100.0	USA
SK E&P America, Inc.	Investment in equity	SK Innovation Co., Ltd.	100.0	USA
Blue Dragon Energy Co., Limited.	Investment in equity	SK Innovation Co., Ltd.	100.0	Hong Kong
SK Battery Hungary Kft.	Manufacturing of lithium battery	SK Innovation Co., Ltd.	100.0	Hungary
SK Plymouth, LLC	Oil exploration and production	SK E&P America, Inc.	100.0	USA
SK Permian, LLC	Oil exploration and production	SK E&P America, Inc.	100.0	USA
SK E&P Operations America, LLC	Oil exploration and production	SK E&P America, Inc.	100.0	USA
SK Nemaha, LLC	Oil exploration and production	SK E&P America, Inc.	100.0	USA
SK Energy Co., Ltd.	Manufacturing and selling of petroleum products	SK Innovation Co., Ltd.	100.0	Korea
Netruck Co., Ltd.	Transporting and selling of petroleum	SK Energy Co., Ltd.	100.0	Korea
Jeju United FC Co., Ltd.	Professional football club	SK Energy Co., Ltd.	100.0	Korea
SK Energy Road Investment Co., Ltd.	Investment in equity	SK Energy Co., Ltd.	100.0	Cayman
SK Energy Hong Kong Co., Ltd.	Investment in equity	SK Energy Co., Ltd.	100.0	Hong Kong
Shandong SK Hightech Oil Co., Ltd.	Operating petrol station	SK Energy Hong Kong Co., Ltd.	51.0	China
SK Energy Road Investment (HK) Co., Ltd.	Investment and trading	SK Energy Road Investment Co., Ltd.	100.0	Hong Kong
Ningbo SK Baoying Asphalt Storage Co., Ltd.	Manufacturing	SK Energy Road Investment (HK) Co., Ltd.	51.0	China
Hefei SK Baoying Asphalt Co., Ltd.	Manufacturing	SK Energy Road Investment (HK) Co., Ltd.	51.0	China
Chongqing SK Asphalt Co., Ltd.	Manufacturing	SK Energy Road Investment (HK) Co., Ltd.	51.0	China
SK Shanghai Asphalt Co., Ltd.	Manufacturing	SK Energy Road Investment (HK) Co., Ltd.	100.0	China
SK Incheon Petrochem Co., Ltd. (*1)	Manufacturing and selling of petroleum products	SK Innovation Co., Ltd.	68.0	Korea

Subsidiary	Primary business	Largest stockholder	Ownership percentage (%)	Location
SK Trading International Co., Ltd.	Trading of petroleum products	SK Innovation Co., Ltd.	100.0	Korea
SK Energy International Pte. Ltd.	Trading	SK Trading International Co., Ltd.	100.0	Singapore
SK Energy Europe, Ltd.	Trading	SK Energy International Pte. Ltd.	100.0	U.K.
SK Energy Americas, Inc.	Trading	SK Energy International Pte. Ltd.	100.0	USA
SK Terminal B.V.	Investment in equity	SK Energy International Pte. Ltd.	100.0	Netherlands
SK Global Chemical Co., Ltd.	Selling and manufacturing of petrochemical products	SK Innovation Co., Ltd.	100.0	Korea
SK Global Chemical (China) Holding Co., Ltd.	Investment in equity	SK Global Chemical Co., Ltd.	100.0	China
SK Global Chemical China LTD.	Investment in equity	SK Global Chemical Co., Ltd.	100.0	Hong Kong
SK Global Chemical Americas, Inc.	Selling of petrochemical products	SK Global Chemical Co., Ltd.	100.0	USA
SK Global Chemical Singapore Pte. Ltd.	Selling of petrochemical products	SK Global Chemical Co., Ltd.	100.0	Singapore
SK Global Chemical Investment Hong Kong Ltd.	Investment in equity	SK Global Chemical Co., Ltd.	100.0	Hong Kong
SK Global Chemical Japan Co., Ltd.	Selling of petrochemical products	SK Global Chemical Co., Ltd.	100.0	Japan
SK Global Chemical International Trading (Shanghai) Co., Ltd.	Selling of petrochemical products	SK Global Chemical (China) Holding Co., Ltd.	100.0	China
SK Global Chemical International Trading (Guangzhou) Co., Ltd.	Selling of petrochemical products	SK Global Chemical (China) Holding Co., Ltd.	100.0	China
SK Golden Tide Plastics (Yantai) Co., Ltd.	Selling of petrochemical products	SK Global Chemical (China) Holding Co., Ltd.	51.0	China
Ningbo SK Performance Rubber Co., Ltd.	Manufacturing	SK Global Chemical Investment Hong Kong Ltd.	80.0	China
SK Primacor Americas LLC	Selling of petrochemical products	SK Global Chemical Americas, Inc.	100.0	USA
SK Primacor Europe, S.L.U.	Selling of petrochemical products	SK Global Chemical Americas, Inc.	100.0	Spain
SK Saran Americas LLC	Selling of petrochemical products	SK Global Chemical Americas, Inc.	100.0	USA
SK Lubricants Co., Ltd.	Manufacturing of lubricants and base oil	SK Innovation Co., Ltd.	100.0	Korea
SK Energy Lubricants (Tianjin) Co., Ltd.	Manufacturing and selling of lubricants and base oil	SK Lubricants Co., Ltd.	100.0	China
PT. Patra SK	Manufacturing and selling of base oil	SK Lubricants Co., Ltd.	65.0	Indonesia
SK Lubricants Americas, Inc.	Selling of lubricants and base oil	SK Lubricants Co., Ltd.	100.0	USA
SK Lubricants Europe B.V.	Selling of lubricants and base oil	SK Lubricants Co., Ltd.	100.0	Netherlands
SK Lubricants Japan Co., Ltd.	Selling of lubricants and base oil	SK Lubricants Co., Ltd.	100.0	Japan
Yubase Manufacturing Asia Corporation	Manufacturing and selling of base oil	SK Lubricants Co., Ltd.	70.0	Korea
SK Lubricants & Oils India Private Limited	Selling of lubricants	SK Lubricants Co., Ltd.	100.0	India
Iberian Lube Base Oils, S.A.	Manufacturing and selling of base oil	SK Lubricants Co., Ltd.	70.0	Spain
SK Lubricants Russia LLC	Selling of lubricants	SK Lubricants Co., Ltd.	100.0	Russia

(*1) The Company owns 100% of the common shares, but 68.0% of the voting rights due to an issuance of its preferred stock (6,826,483 shares), which has voting rights.

c. Condensed Financial Information of Consolidated Subsidiaries

Condensed financial information of the subsidiaries as of and for the year ended December 31, 2018, is as follows (in millions of Korean won):

Subsidiary	Assets	Liabilities	Equity	Sales	Net income (loss)
SK Mobile Energy Co., Ltd.	₩ 19,899	₩ 8,104	₩ 11,795	₩ 41,446	₩ 2,438
SK Innovation Insurance (Bermuda), Ltd.	28,027	822	27,205	1,179	2,515
SK USA, Inc.	23,561	12,108	11,453	13,242	573
SK E&P Company	7,108	2,644	4,464	11,506	915
SK E&P America, Inc.	570,258	78,511	491,747	-	(9,984)
Blue Dragon Energy Co., Limited.	81,529	3	81,526	-	254
SK Battery Hungary Kft.	217,673	28,004	189,669	-	(1,281)
SK Hi-tech Battery Materials(Jiang su) Co.,Ltd.	33,536	102	33,434	-	(301)
SK Plymouth, LLC	137,927	12,836	125,091	26,808	(5,728)
SK Permian, LLC	9,961	1,368	8,593	3,595	1,125
SK E&P Operations America, LLC	4,929	2,692	2,237	-	-
SK Nemaha, LLC	437,889	42,502	395,387	25,246	976
SK Energy Co., Ltd.	13,769,959	8,015,390	5,754,569	34,807,660	835,574
Netruck Co., Ltd.	143,087	64,489	78,598	212,054	5,138
Jeju United FC Co., Ltd.	13,402	852	12,550	18,578	(406)
SK Energy Road Investment Co., Ltd.	39,766	-	39,766	-	(6)
SK Energy Hong Kong Co., Ltd.	8,381	6	8,375	-	580
Shandong SK Hightech Oil Co., Ltd.	16,800	2,314	14,486	11,384	869
SK Energy Road Investment(HK) Co., Ltd.	48,441	38	48,403	-	2,199
Ningbo SK Baoying Asphalt Storage Co., Ltd.	13,649	2,173	11,476	15,611	2,077
Hefei SK Baoying Asphalt Co., Ltd.	9,880	2,522	7,358	11,474	(152)
Chongqing SK Asphalt Co., Ltd.	11,722	1,771	9,951	31,458	2,197
SK Shanghai Asphalt Co., Ltd.	15,256	6,327	8,929	50,501	19
SK Incheon Petrochem Co., Ltd.	5,678,999	2,982,819	2,696,180	8,931,444	51,520
SK Trading International, Co., Ltd	1,812,977	1,003,267	809,710	13,586,671	152,020
SK Energy International Pte. Ltd.	2,133,309	1,563,477	569,832	27,539,366	26,344
SK Energy Europe, Ltd.	565,466	481,793	83,673	5,782,114	(18,926)
SK Energy Americas, Inc.	284,707	215,606	69,101	974,535	(863)
SK Terminal B.V.	37,994	6	37,988	-	95
SK Global Chemical Co., Ltd.	5,934,621	2,057,588	3,877,033	11,328,779	537,236
SK Global Chemical (China) Holding Co., Ltd.	212,432	7,816	204,616	27,670	113,396
SK Global Chemical China, Ltd.	114,139	40,970	73,169	-	(91)
SK Global Chemical Americas, Inc.	582,806	253,324	329,482	6,412	(277)
SK Global Chemical Singapore Pte. Ltd.	182,750	164,007	18,743	930,434	6,869
SK Global Chemical Investment Hong Kong Ltd.	265,871	59	265,812	-	(4,345)
SK Global Chemical Japan Co., Ltd.	34,730	26,701	8,029	322,410	581
SK Global Chemical International Trading (Shanghai) Co., Ltd.	209,006	185,635	23,371	1,558,235	(1,091)
SK Global Chemical International Trading (Guangzhou) Co., Ltd.	16,383	13,882	2,501	166,539	548
SK Golden Tide Plastics (Yantai) Co., Ltd.	4,070	307	3,763	4,817	138
Ningbo SK Performance Rubber Co., Ltd.	119,843	184,291	(64,448)	89,010	(19,313)
SK Primacor Americas LLC	327,950	176,121	151,829	107,829	7,063
SK Primacor Europe, S.L.U	131,387	79,235	52,152	65,912	(4,733)
SK Saran Americas LLC	108,252	10,828	97,424	18,959	(16,908)
SK Lubricants Co., Ltd.	2,241,260	846,176	1,395,084	3,056,651	307,300
SK Energy Lubricants (Tianjin) Co., Ltd.	161,834	65,513	96,321	342,882	1,826
PT. Patra SK	260,341	61,075	199,266	375,328	16,755
SK Lubricants Americas, Inc.	282,550	230,808	51,742	671,955	2,395
SK Lubricants Europe B.V.	214,088	204,449	9,639	641,216	1,812
SK Lubricants Japan Co., Ltd.	50,329	39,887	10,442	271,829	224
Yubase Manufacturing Asia Corporation	223,610	78,734	144,876	71,621	2,357
SK Lubricants & Oils India Private Limited	3,113	1,280	1,833	7,119	(294)

Subsidiary	Assets	Liabilities	Equity	Sales	Net income (loss)
Iberian Lube Base Oils, S.A.	469,642	190,338	279,304	544,502	16,261
SK Lubricants Russia LLC	19,956	19,968	(12)	50,273	(1,153)

The above-mentioned condensed financial information is the consolidated financial information, which is not adjusted to reflect the consolidation adjustment.

d. Changes in scope of consolidation

Details of changes in scope of consolidation for the year ended December 31, 2018, are as follows:

Description	Subsidiary	Details
Included	SK E&P Operations America, LLC	Newly established
	SK Global Chemical China, Ltd.	Newly established
	SK Hi-tech Battery Materials(Jiangsu) Co., Ltd.	Newly established
	SK Nemaha, LLC	Newly acquisition
Excluded	Bergaya International Pte. Ltd.	Liquidation
	SK Battery Systems Co., Ltd.	Liquidation

e. Disclosure of non-controlling interest in subsidiaries

As of December 31, 2018 and 2017, the accumulated non-controlling interests of the consolidated subsidiaries, which are material to the Company and its subsidiaries (“Group”), are as follows (in millions of Korean won):

	December 31, 2018					
Subsidiary	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Controlling interest	Non-controlling interest
SK Incheon Petrochem Co., Ltd.	₩ 2,720,491	₩ 2,958,508	₩ 1,602,342	₩ 1,380,477	₩ 1,701,946	₩ 994,234
Ningbo SK Performance Rubber Co., Ltd.	28,725	91,118	29,658	154,633	(51,558)	(12,890)
PT. Patra SK	155,267	100,185	54,516	6,559	126,345	68,032
Yubase Manufacturing Asia Corporation	9,041	214,569	27,473	51,261	101,413	43,463
Iberian Lube Base Oils, S.A.	203,751	264,164	183,930	6,408	194,309	83,268

	December 31, 2017					
Subsidiary	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Controlling interest	Non-controlling interest
SK Incheon Petrochem Co., Ltd.	₩ 2,611,708	₩ 3,101,912	₩ 1,770,736	₩ 1,224,800	₩ 1,702,147	₩ 1,015,937
Ningbo SK Performance Rubber Co., Ltd.	22,479	102,127	14,654	155,487	(36,428)	(9,107)
PT. Patra SK	149,852	109,379	55,034	5,659	129,050	69,488
Yubase Manufacturing Asia Corporation	11,050	220,627	25,241	63,917	99,763	42,756
Iberian Lube Base Oils, S.A.	137,983	264,874	109,242	31,981	183,144	78,490

The above-mentioned condensed financial information is the financial information, which is adjusted to reflect the consolidation adjustment except for intragroup transaction.

The profit or loss allocated to non-controlling interest of the consolidated subsidiaries which are material to the Group for the years ended December 31, 2018 and 2017, is as follows (in millions of Korean won):

Subsidiary	For the year ended December 31, 2018 Sales	Operating income	Net income (loss)	Controlling interest	Non-controlling interest
SK Incheon Petrochem Co., Ltd.	₩ 8,931,444	₩ 140,253	₩ 51,780	₩ 3,390	₩ 48,390
Ningbo SK Performance Rubber Co., Ltd.	89,010	(13,075)	(19,585)	(15,668)	(3,917)
PT. Patra SK	375,328	19,760	14,658	9,528	5,130
Yubase Manufacturing Asia Corporation	71,621	5,345	2,357	1,650	707
Iberian Lube Base Oils, S.A.	544,502	22,527	16,206	11,344	4,862

Subsidiary	For the year ended December 31, 2017 Sales	Operating income	Net income (loss)	Controlling interest	Non-controlling interest
SK Incheon Petrochem Co., Ltd.	₩ 7,236,355	₩ 396,568	₩ 265,356	₩ 216,966	₩ 48,390
Ningbo SK Performance Rubber Co., Ltd.	51,905	(24,398)	(87,044)	(69,635)	(17,409)
PT. Patra SK	293,562	17,697	11,047	7,181	3,866
Yubase Manufacturing Asia Corporation	68,106	5,705	1,656	1,159	497
Iberian Lube Base Oils, S.A.	430,442	18,721	11,205	7,844	3,361

The above-mentioned condensed result of operations is the financial information which is adjusted to reflect the consolidation adjustment, except for intragroup transaction.

The summary of cash flows of the consolidated subsidiaries which have non-controlling interests that are material to the group, for the years ended December 31, 2018 and 2017, is as follows (in millions of Korean won):

Subsidiary	For the year ended December 31, 2018 Cash flows from operating activities	Cash flows from investing activities	Cash flows from financing activities	Total
SK Incheon Petrochem Co., Ltd.	₩ (9,784)	₩ (162,658)	₩ 202,882	₩ 30,440
Ningbo SK Performance Rubber Co., Ltd.	(2,048)	(478)	3,327	801
PT. Patra SK	25,618	(237)	(27,509)	(2,128)
Yubase Manufacturing Asia Corporation	17,558	(9,848)	(10,032)	(2,322)
Iberian Lube Base Oils, S.A.	65,382	(24,484)	(27,643)	13,255

Subsidiary	For the year ended December 31, 2017 Cash flows from operating activities	Cash flows from investing activities	Cash flows from financing activities	Total
SK Incheon Petrochem Co., Ltd.	₩ 218,691	₩ 50,832	₩ (418,294)	₩ (148,771)
Ningbo SK Performance Rubber Co., Ltd.	(12,566)	504	11,555	(507)
PT. Patra SK	32,031	(2,026)	(22,617)	7,388
Yubase Manufacturing Asia Corporation	18,013	(800)	(18,481)	(1,268)
Iberian Lube Base Oils, S.A.	28,507	(6,607)	(40,277)	(18,377)

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES:

The Group maintains its official accounting records in Korean won and prepares consolidated financial statements in conformity with K-IFRSs, in the Korean language (Hangul). Accordingly, these consolidated financial statements are intended for use by those who are informed about K-IFRSs and Korean practices. The accompanying consolidated financial statements have been condensed, restructured and translated into English with certain expanded descriptions from the Korean language financial statements. Certain information included in the Korean language consolidated financial statements, but not required for a fair presentation of the financial position, comprehensive income, changes in equity or cash flows of the Group, is not presented in the accompanying consolidated financial statements.

The accompanying consolidated financial statements are stated in Korean won, the currency of the country in which the Company is incorporated and operates. The translation of Korean won amounts into U.S. dollar amounts is included solely for the convenience of readers of consolidated financial statements and has been made at the rate of ₩1,118.1 to USD 1.00, the basic exchange rate in the Seoul Money Brokerage Service for cable transfers in Korean won on the last business day of the year ended December 31, 2018. Such translations into U.S. dollars should not be construed as representations that the Korean won amounts could be converted into U.S. dollars at that or any other rate.

a. Basis of Preparation

The Group has prepared the consolidated financial statements in accordance with Korean International Financial Reporting Standards ("K-IFRSs").

The principal accounting policies are set out below. Except for the effect of the amendments to K-IFRSs and new interpretations set out below, the principal accounting policies used to prepare the consolidated financial statements as of and for the year ended December 31, 2018, are consistent with the accounting policies used to prepare the consolidated financial statements as of and for the year ended December 31, 2017.

The accompanying consolidated financial statements have been prepared on a historical cost basis, except for certain non-current assets and financial instruments that are measured at fair values, as explained in the accounting policies below. Historical cost is based on the fair values of the consideration given.

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date, regardless of whether that price is directly observable or estimated using another valuation technique. In estimating the fair value of an asset or a liability, the Group takes into account the characteristics of the asset or liability if market participants would take those characteristics into account when pricing the asset or liability at the measurement date. Fair value for measurement and/or disclosure purposes in these consolidated financial statements is determined on such a basis, except for share-based payment transactions that are within the scope of K-IFRS 1102 *Share-Based Payment*; leasing transactions that are within the scope of K-IFRS 1017 *Leases*; and measurements that have some similarities to fair value but are not fair value, such as net realizable value in K-IFRS 1002 *Inventories* or value in use in K-IFRS 1036 *Impairment of Assets*.

The consolidated financial statements of the Group as of and for the year ended December 31, 2018, which will be presented at the annual stockholder's meeting, were approved by the Company's Board of Directors at their meeting on February 27, 2019.

(1) Amendments to K-IFRSs and new interpretations that are mandatorily effective for the current year

- K-IFRS 1109 *Financial Instruments (Enactment)*

The Group has applied K-IFRS 1109 *Financial Instruments* and the related consequential amendments to other K-IFRSs that are effective for an annual period that begins on or after January 1, 2018. K-IFRS 1109 introduced new requirements for:

1) The classification and measurement of financial assets and financial liabilities,
2) Impairment of financial assets, and
3) General hedge accounting.

Additionally, the Group adopted consequential amendments to K-IFRS 1107 *Financial Instruments: Disclosures* that were applied to the disclosures for 2018.

When adopting this standard for the first-time, the Group chose the approach not to restate prior periods and the Group did not restate the Group's consolidated financial statements for comparative reporting periods. The details of the enactment to the K-IFRS 1109 and the impacts on the Group's consolidated financial statements are as follows:

(a) Classification and measurement of financial assets

All recognized financial assets that are within the scope of K-IFRS 1109 are required to be measured subsequently at amortized cost or fair value on the basis of the entity's business model for managing the financial assets and the contractual cash flow characteristics of the financial assets:

- debt instruments that are held within a business model whose objective is to collect the contractual cash flows, and that have contractual cash flows that are solely payments of principal and interest on the principal amount outstanding, are measured subsequently at amortized cost("AC");
- debt instruments that are held within a business model whose objective is both to collect the contractual cash flows and to sell the debt instruments, and that have contractual cash flows that are solely payments of principal and interest on the principal amount outstanding, are measured subsequently at fair value through other comprehensive income ("FVTOCI");
- all other debt investments and equity investments are measured subsequently at fair value through profit or loss ("FVTPL").

Despite the aforegoing, the Group may make the following irrevocable election / designation at initial recognition of a financial asset:

- the Group may irrevocably elect to present subsequent changes in fair value of an equity investment that is neither held for trading nor contingent consideration recognized by an acquirer in a business combination in other comprehensive income; and
- the Group may irrevocably designate a debt investment that meets the amortized cost or FVTOCI criteria as measured at FVTPL if doing so eliminates or significantly reduces an accounting mismatch.

There is no debt instrument designated as FVTPL that meets the requirements of a financial asset measured at AC or FVTOCI as of December 31, 2018.

When a debt investment measured at FVTOCI is derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss as a reclassification adjustment. When an equity investment designated as measured at FVTOCI is derecognized, the cumulative gain or loss previously recognized in other comprehensive income is subsequently transferred to retained earnings. Debt instruments that are measured subsequently at amortized cost or at FVTOCI are subject to impairment.

The management of the Group reviewed and assessed the Group's existing financial assets as at January 1, 2018 based on the facts and circumstances that existed at that date and concluded that the initial application of K-IFRS 1109 has had the following impact on the Group's financial assets as regards their classification and measurement:

- the Group's investments in equity instruments (neither held for trading nor a contingent consideration arising from a business combination) that were previously classified as available-for-sale financial assets and were measured at fair value at each reporting date under K-IFRS 1109 have been designated as at FVTOCI. The change in fair value on these equity instruments continues to be accumulated in the investment revaluation reserve;
- financial assets classified as held-to-maturity and loans and receivables under K-IFRS 1039 that were measured at amortized cost continue to be measured at amortized cost under K-IFRS 1109 as they are held within a business model to collect contractual cash flows and these cash flows consist solely of payments of principal and interest on the principal amount outstanding.

Note (e) below tabulates the change in classification of the Group's financial assets upon application of K-IFRS 1109. None of the other reclassifications of financial assets have had any impact on the Group's financial position, profit or loss, other comprehensive income or total comprehensive income in the current year.

(b) Impairment of financial assets

In relation to the impairment of financial assets, K-IFRS 1109 requires an expected credit loss model as opposed to an incurred credit loss model under K-IFRS 1039. The expected credit loss model requires the Group to account for expected credit losses and changes in those expected credit losses at each reporting date to reflect changes in credit risk since initial recognition of the financial assets. In other words, it is no longer necessary for a credit event to have occurred before credit losses are recognized.

Specifically, K-IFRS 1109 requires the Group to recognize a loss allowance for expected credit losses on:

1) Debt investments measured subsequently at amortized cost or at FVTOCI,
2) Lease receivables,
3) Trade receivables and contract assets, and
4) Financial guarantee contracts to which the impairment requirements of K-IFRS 1109 apply.

In particular, K-IFRS 1109 requires the Group to measure the loss allowance for a financial instrument at an amount equal to the lifetime expected credit losses ("ECL") if the credit risk on that financial instrument has increased significantly since initial recognition, or if the financial instrument is a purchased or originated credit-impaired financial asset. However, if the credit risk on a financial instrument has not increased significantly since initial recognition (except for a purchased or originated credit-impaired financial asset), the Group is required to measure the loss allowance for that financial instrument at an amount equal to 12-month ECL. K-IFRS 1109 also requires a simplified approach for measuring the loss allowance at an amount equal to lifetime ECL for trade receivables, contract assets and lease receivables in certain circumstances.

The application of the K-IFRS 1109 impairment requirements has had no significant impact on the Group's loss allowance for a financial instrument.

(c) Classification and measurement of financial liabilities

A significant change introduced by K-IFRS 1109 in the classification and measurement of financial liabilities relates to the accounting for changes in the fair value of a financial liability designated as at FVTPL attributable to changes in the credit risk of the issuer. Specifically, K-IFRS 1109 requires that the changes in the fair value of the financial liability that is attributable to changes in the credit risk of that liability be presented in other comprehensive income, unless the recognition of the effects of changes in the liability's credit risk in other comprehensive income would create or enlarge an accounting mismatch in profit or loss. Changes in fair value attributable to a financial liability's credit risk are not subsequently reclassified to profit or loss, but are instead transferred to retained earnings when the financial liability is derecognized. Previously, under K-IFRS 1039, the entire amount of the change in the fair value of the financial liability designated as at FVTPL was presented in profit or loss.

The application of K-IFRS 1109 has had no significant impact on the classification and measurement of the Group's financial liabilities. In addition, as there are no financial liabilities designated as at FVTPL, there is no reclassification from retained earnings to accumulated other comprehensive income related to change on a financial liability's credit risk.

(d) General hedge accounting

The new general hedge accounting requirements retain the three types of hedge accounting. However, greater flexibility has been introduced to the types of transactions eligible for hedge accounting, specifically broadening the types of instruments that qualify for hedging instruments and the types of risk components of non-financial items that are eligible for hedge accounting. In addition, the effectiveness test has been replaced with the principle of an 'economic relationship'. Retrospective assessment of hedge effectiveness is also no longer required. Enhanced disclosure requirements about the group's risk management activities have also been introduced.
In accordance with K-IFRS 1109's transition provisions for hedge accounting, the Group has applied the K-IFRS 1109 hedge accounting requirements prospectively from the date of initial application on 1 January 2018. The group's qualifying hedging relationships in place as at 1 January 2018 also qualify for hedge accounting in accordance with K-IFRS 1109 and were therefore regarded as continuing hedging relationships. No rebalancing of any of the hedging relationships was necessary on 1 January 2018. As the critical terms of the hedging instruments match those of their corresponding hedged items, all hedging relationships continue to be effective under K-IFRS 1109's effectiveness assessment requirements. The Group has also not designated any hedging relationships under IFRS 9 that would not have met the qualifying hedge accounting criteria under K-IFRS 1039.

(e) Disclosures in relation to the initial application of K-IFRS 1109

There were no financial assets or financial liabilities which the Group had previously designated as at FVTPL under K-IFRS 1039 that were subject to reclassification or which the Group has elected to reclassify upon the application of K-IFRS 1109. There were no financial assets or financial liabilities which the Group has elected to designate as at FVTPL at the date of initial application of K-IFRS 1109.

The table below shows information relating to financial assets and financial liabilities that have been reclassified as a result of transition to K-IFRS 1109 from K-IFRS 1039 (in thousands of Korean won):

Account	Classification according to K-IFRS 1039	Classification according to K-IFRS 1109	Book value under K-IFRS 1039	Adjustments	K-IFRS 1109
Cash and cash equivalents	Loans and receivables	Financial assets measured at AC	₩ 871,886	-	₩ 871,886
Cash and cash equivalents	Loans and receivables	Financial asset measured at FVTPL	1,131,854	-	1,131,854
Short- and long-term financial instruments	Loans and receivables	Financial assets measured at AC	161,977	-	161,977
Short- and long-term financial instruments	Loans and receivables	Financial asset measured at FVTPL	2,087,953	-	2,087,953
Trade and other receivables (*1,2)	Loans and receivables	Financial assets measured at AC	5,662,878	-	5,662,878
Trade and other receivables (*1,2)	Financial assets designated as FVTPL	Financial asset measured at FVTPL	15,964	-	15,964
Other investments	AFS financial assets	Financial asset measured at FVTPL	65,845	(4,279)	61,566
Investments in listed companies (*3)	AFS financial assets	Financial asset measured at FVTOCI	128,096	-	128,096
Investments in non-listed companies (*3)	AFS financial assets	Financial asset measured at FVTOCI	47,362	34,489	81,851
Convertible debt securities	AFS financial assets	Financial asset measured at FVTPL	4,000	-	4,000
Debt securities	AFS financial assets	Financial asset measured at FVTOCI	31,035	-	31,035
Derivative financial assets	Financial assets designated as FVTPL	Financial asset measured at FVTPL	35,643	-	35,643
Derivative financial assets	Derivatives designated as hedging instruments	Derivatives designated as hedging instruments	412	-	412
Trade and other payable (*1,4)	Other financial liabilities	Financial liabilities measured at AC	6,889,076	-	6,889,076
Trade and other payable (*1,4)	Financial liabilities designated as FVTPL	Financial liabilities measured at FVTPL	6,536	-	6,536
Bonds payable and borrowings	Other financial liabilities	Financial liabilities measured at AC	5,577,944	-	5,577,944
Derivative financial liabilities	Financial liabilities designated as FVTPL	Financial liabilities measured at FVTPL	89,600	-	89,600
Derivative financial liabilities	Derivatives designated as hedging instruments	Derivatives designated as hedging instruments	1,169	-	1,169
Financial guarantee liabilities	Other financial liabilities	Financial liabilities measured at AC	1,131	-	1,131

(*1) Includes retrospective adjustments of identifiable net assets attributable to the business combination.(see Note 35).
(*2) Trade and other receivables consist of short-term and long-term trade receivables, short-term and long-term other account receivables, accrued income, short-term and long-term loans and short-term and long-term guarantee deposits.
(*3) As of December 31, 2017, investments in listed and unlisted companies of AFS financial assets are designated as financial asset measured at FVTOCI by making the irrevocable election at the date of initial application.
(*4) Trade and other accounts payable consist of trade payable, other accounts payable, accrued expenses and leasehold deposits received.

- K-IFRS 1115 *Revenue from Contracts with Customers (Enactment)*

The Group has applied K-IFRS *1115 Revenue from Contracts with Customers* which is effective for an annual period that begins on or after January 1, 2018. K-IFRS 1115 introduced a 5-step approach to revenue recognition. Far more prescriptive guidance has been added in K-IFRS 1115 to deal with specific scenarios. Details of the new requirements as well as the Group's revenue recognition policy is described in note 2 - x.

The Group decided to apply K-IFRS 1115 for the reporting periods after January 1, 2018 and chose to recognize the cumulative effect of initially applying this standard on January 1, 2018, the date of initial application, in accordance with the transition provision of K-IFRS 1115. Also, the Group used the practical expedient that (a) applies retrospectively only to the contracts that are not completed on January 1, 2018 and (b) does not retrospectively restate all the contract modification before the date of initial application.

For assessing the financial impact for the application of K-IFRS 1115, the Group analyzed the impact on the financial statements based on the current situation and information available at the end of the year and the expected impacts on the Group's financial statements are as follows:

(a) Identify the performance obligations in the contract and principal-agent

The Group is an operating holding company to engage in the (1) oil exploration and production activity, (2) production and sales of battery, information and electronical materials. Revenues from sales of the merchandise and products are incurred under various trading terms and there are contracts with incoterms such as CIF, CFR and etc.

In accordance with K-IFRS 1115, (a) sale of goods and (b) transportation services can be identified as a separate performance obligation in contracts with trade terms including shipping charges. If the Group is acting as an 'agent' for the transportation services, the revenue for the transportation services should be recognized as net amount.

The adoption of K-IFRS 1115 has no effect on the Group's statement of financial position, but the impact on each item of the statement of comprehensive income for the year ended December 31, 2018 is as follows (in millions of Korean won):

		Amount under prior standard		Adjustments		Amount under K-IFRS 1115
Sales	₩	54,706,795	₩	(195,897)	₩	54,510,898
Cost of sales		(50,572,413)		43,197		(50,529,216)
Gross profit		4,134,382		(152,700)		3,981,682
Selling and administrative expenses		(2,016,792)		152,700		(1,864,092)
Operating income		2,117,590		-		2,117,590
Net income		1,709,984		-		1,709,984

- K-IFRS 1102 *Share-based Payment (Amendment)*

The amendments include: 1) when measuring the fair value of share-based payment, the effects of vesting and non-vesting conditions on the measurement of cash-settled share-based payment should be consistent with the measurement of equity-settled share-based payment, 2) Share-based payment transaction in which the Group settles the share-based payment arrangement net by withholding a specified portion of the equity instruments per statutory tax withholding requirements would be classified as equity-settled in its entirety, if otherwise would be classified as equity-settled without the net settlement feature, and 3) when a cash-settled share-based payment changes to an equity-settled share-based payment because of modifications of the terms and conditions, the original liability recognized is derecognized and the equity-settled share-based payment is recognized at the modification date fair value. Any difference between the carrying amount of the liability at the modification date and the amount recognized in equity at the same date would be recognized in profit and loss immediately. The application of K-IFRS 1102 has not had a significant impact on the financial position and/or financial performance of the Group.

➢ K-IFRS 2122 *Foreign Currency Transactions and Advance Consideration (Enactment)*

The interpretation addresses how to determine the 'date of transaction' for the purpose of determining the exchange rate to use on initial recognition of an asset, expense or income, when consideration for that item has been paid or received in advance in a foreign currency which resulted in the recognition of a non-monetary asset or non-monetary liability.

The interpretation specifies that the date of transaction is the date on which the entity initially recognizes the non-monetary asset or non-monetary liability arising from the payment or receipt of advance consideration. If there are multiple payments or receipts in advance, the Interpretation requires an entity to determine the date of transaction for each payment or receipt of advance consideration. As the Group has accounted for the payment or receipt of advance consideration in line with the interpretation, the application of the interpretation has no impact on the Group's financial statements.

The effect of changes in accounting policies on the items of equity as of the date of initial application is as follows. (in millions of Korean won):

	Retained earnings		Other capital component	
December 31, 2017 (Reported amount)	₩	12,041,708	₩	(54,171)
Initial application of K-IFRS 1109				
Effect from classification and measurement		(4,279)		34,489
Less: Tax effect		1,177		(9,485)
Subtotal		(3,102)		25,004
Initial application of K-IFRS 1115		-		-
January 1, 2018 (Date of initial application)	₩	12,038,606	₩	(29,167)

(2) New and revised K-IFRSs in issue, but not yet effective

➢ K-IFRS 1116 *Leases (Enactment)*

(a) General impact of application of K-IFRS 1116 *Leases*

K-IFRS 1116 provides a comprehensive model for the identification of lease arrangements and their treatments in the financial statements for both lessors and lessees. K-IFRS 1116 will supersede the current lease guidance including K-IFRS 1017 *Leases* and the related interpretations when it becomes effective for accounting periods beginning on or after January 1, 2019. The date of initial application of K-IFRS 1116 for the Group will be January 1, 2019.

The lessees has an option to choose between the full retrospective application for each reporting date and modified retrospective application at the initial application date.

The Group plans to apply modified retrospective approach on January 1, 2019 in accordance with K-IFRS 1116. Therefore, the cumulative effect of applying K-IFRS 1116 will be adjusted in the retained earnings (or, where appropriate, other components of equity) at the date of initial application, and the comparative financial statements will not be restated.

The lessee and lessor must account for each lease element of the lease, separately from the non-lease element ("non-lease element") in a lease contract. The lessee is required to recognize lease assets and liabilities that represents the right to use the underlying assets and the obligation to pay the lease payments. However, in the case of short-term lease and small-value-based lease, the exemption provisions of the standard may be selected. In addition, the lessee is not required to separate the lease component from the non-lease component in accordance with the simplified approach, and can account for each lease component and related non-lease component as one lease component.

In contrast to lessee accounting, K-IFRS 1116 substantially carries forward the lessor accounting requirements in K-IFRS 1017.

(b) Impact of the new definition of a lease

The Group will make use of the practical expedient available on transition to K-IFRS 1116 not to reassess whether a contract is or contains a lease. Accordingly, the definition of a lease in accordance with K-IFRS 1017 will continue to apply to those leases entered or modified before January 1, 2019.

The change in definition of a lease mainly relates to the concept of control. K-IFRS 1116 distinguishes between leases and service contracts on the basis of whether the use of an identified asset is controlled by the customer. Control is considered to exist if the customer has:

- the right to obtain substantially all of the economic benefits from the use of an identified asset; and
- the right to direct the use of that asset.

The project has shown that the new definition in K-IFRS 1116 will not change significantly the scope of contracts that meet the definition of a lease for the Group.

(c) Impact on lessee accounting

Operating leases

K-IFRS 1116 will change how the Group accounts for leases previously classified as operating leases under K-IFRS 1017, which were off-balance sheet. On initial application of K-IFRS 1116, for all leases (except as noted below), the Group will:

- recognize right-of-use assets and lease liabilities in the statement of financial position, initially measured at the present value of the future lease payments;
- recognize depreciation of right-of-use assets and interest on lease liabilities in the statement of profit or loss;
- separate the total amount of cash paid into a principal portion (presented within financing activities) and interest (presented within operating activities) in the cash flow statement.

Under K-IFRS 1116, right-of-use assets will be tested for impairment in accordance with K-IFRS 1036 Impairment of Assets. This will replace the previous requirement to recognize a provision for onerous lease contracts.

For short-term leases (lease term of 12 months or less) and leases of low-value assets (such as personal computers and office furniture), the Group will opt to recognize a lease expense on a straight-line basis as permitted by K-IFRS 1116.

As of December 31, 2018, the Group is under several operating lease agreements on certain fixed assets and made lease payments amounting to ₩32,598 million and ₩30,013 million for the years ended December 31, 2018 and 2017, respectively. The requirement of this standard to recognize right-of-use assets and related lease liabilities is expected to have a significant impact on the Group's consolidated financial statements and the Group is currently assessing its potential impact.

Finance leases

The main differences between K-IFRS 1116 and K-IFRS 1017 with respect to assets formerly held under a finance lease is the measurement of the residual value guarantees provided by the lessee to the lessor. K-IFRS 1116 requires that the Group recognizes as part of its lease liability only the amount expected to be payable under a residual value guarantee, rather than the maximum amount guaranteed as required by K-IFRS 1017. On initial application, the Group will present equipment previously included in property, plant and equipment within the line item for right-of-use assets and the lease liability, previously presented within borrowing, will be presented in a separate line for lease liabilities.

As of December 31, 2018, the Group does not anticipate that this change will have a significant impact on the amounts recognized in the Group's financial statements.

(d) Impact on Lessor Accounting

Under K-IFRS 1116, a lessor continues to classify leases as either finance leases or operating leases and account for those two types of leases differently. However, K-IFRS 1116 has changed and expanded the disclosures required, in particular regarding how a lessor manages the risks arising from its residual interest in leased assets.

Under K-IFRS 1116, an intermediate lessor accounts for the head lease and the sublease as two separate contracts. The intermediate lessor is required to classify the sublease as a finance or operating lease by reference to the right-of-use asset arising from the head lease (and not by reference to the underlying asset as was the case under K-IFRS 1017).

As of December 31, 2018, the Group does not anticipate that this change will have a significant impact on the amounts recognized in the Group's financial statements.

- K-IFRS 1109 *Prepayment Features with Negative Compensation (Amendment)*

The amendments to K-IFRS 1109 clarify that for the purpose of assessing whether a prepayment feature meets the SPPI condition, the party exercising the option may pay or receive reasonable compensation for the prepayment irrespective of the reason for prepayment. In other words, prepayment features with negative compensation do not automatically fail SPPI. The amendment applies to annual periods beginning on or after January 1, 2019, with earlier application permitted.

- K-IFRS 1028 *Long-term Interests in Associates and Joint Ventures (Amendment)*

The amendment clarifies that K-IFRS 1109, including its impairment requirements, applies to long-term interests. Furthermore, in applying K-IFRS 1109 to long-term interests, an entity does not take into account adjustments to their carrying amount required by K-IFRS 1028 (i.e., adjustments to the carrying amount of long-term interests arising from the allocation of losses of the investee or assessment of impairment in accordance with K-IFRS 1028). The amendments apply retrospectively to annual reporting periods beginning on or after January 1, 2019. Earlier application is permitted.

- Annual Improvements to K-IFRS Standards *2015–2017 Cycle*

The Annual Improvements include amendments to four Standards such as K-IFRS 1012 *Income Taxes*, K-IFRS 1023 *Borrowing Costs*, K-IFRS 1103 *Business Combinations*, and K-IFRS 1111 *Joint Arrangements*.

(a) K-IFRS 1012 *Income Taxes*

The amendments clarify that an entity should recognize the income tax consequences of dividends in profit or loss, other comprehensive income or equity according to where the entity originally recognized the transactions that generated the distributable profits. This is the case irrespective of whether different tax rates apply to distributed and undistributed profits.

(b) K-IFRS 1023 *Borrowing Costs*

The amendments clarify that if any specific borrowing remains outstanding after the related asset is ready for its intended use or sale, that borrowing becomes part of the funds that an entity borrows generally when calculating the capitalization rate on general borrowings.

All the amendments are effective for annual periods beginning on or after January 1, 2019 and generally require prospective application. Earlier application is permitted.

- K-IFRS 1019 *Employee Benefits Plan Amendment, Curtailment or Settlement (Amendment)*

The amendments clarify that the past service cost (or of the gain or loss on settlement) is calculated by measuring the defined benefit liability (asset) using updated assumptions and comparing benefits offered and plan assets before and after the plan amendment (or curtailment or settlement) but ignoring the effect of the asset ceiling (that may arise when the defined benefit plan is in a surplus position). K-IFRS 1019 is now clear that the change in the effect of the asset ceiling that may result from the plan amendment (or curtailment or settlement) is determined in a second step and is recognized in the normal manner in other comprehensive income.

The paragraphs that relate to measuring the current service cost and the net interest on the net defined benefit liability (asset) have also been amended. An entity will now be required to use the updated assumptions from this remeasurement to determine current service cost and net interest for the remainder of the reporting period after the change to the plan. In the case of the net interest, the amendments make it clear that for the period post plan amendment, the net interest is calculated by multiplying the net defined benefit liability (asset) as remeasured under paragraph 99 with the discount rate used in the remeasurement (also taking into account the effect of contributions and benefit payments on the net defined benefit liability (asset)).

The amendments are applied prospectively. They apply only to plan amendments, curtailments or settlements that occur on or after the beginning of the annual period in which the amendments to K-IFRS 1019 are first applied. The amendments to K-IFRS 1019 must be applied to annual periods beginning on or after January 1, 2019, but they can be applied earlier if an entity elects to do so.

- K-IFRS 2123 *Uncertainty over Income Tax Treatments*

K-IFRS 2123 sets out how to determine the accounting tax position when there is uncertainty over income tax treatments. The Interpretation requires an entity to:

- determine whether uncertain tax positions are assessed separately or as a group; and
- assess whether it is probable that a tax authority will accept an uncertain tax treatment used, or proposed to be used, by an entity in its income tax filings:
  - If yes, the entity should determine its accounting tax position consistently with the tax treatment used or planned to be used in its income tax filings.
  - If no, the entity should reflect the effect of uncertainty in determining its accounting tax position.

The Interpretation is effective for annual periods beginning on or after January 1, 2019. Entities can apply the Interpretation with either full retrospective application or modified retrospective application without restatement of comparatives retrospectively or prospectively.

The Group is in the process of evaluating the impact on the financial statements upon the adoption of new and revised K-IFRSs issued but not yet effective.

b. Basis of Consolidation

The consolidated financial statements incorporate the financial statements of the Group and entities (including structured entities) controlled by the Group and/or its subsidiaries. Control is achieved where the Group 1) has the power over the investee, 2) is exposed, or has rights, to variable returns from its involvement with the investee, and 3) has the ability to use its power to affect its returns. The Company reassesses whether or not it controls an investee if facts and circumstances indicate that there are changes to one or more of the three elements of control listed above.

When the Group has less than a majority of the voting rights of an investee, it has power over the investee when the voting rights are sufficient to give it the practical ability to direct the relevant activities of the investee unilaterally. The Company considers all relevant facts and circumstances in assessing whether or not the Group's voting rights in an investee are sufficient to give it power, including:

- the size of the Group's holding of voting rights relative to the size and dispersion of holdings of the other vote holders;
- potential voting rights held by the Group, other vote holders or other parties;
- rights arising from other contractual arrangements; and
- any additional facts and circumstances that indicate that the Group has, or does not have, the current ability to direct the relevant activities at the time that decisions need to be made, including voting patterns at previous stockholders' meetings.

Income and expenses of subsidiaries acquired or disposed of during the year are included in the consolidated statement of comprehensive income from the date the Group gains control until the date when the Group ceases to control the subsidiary. Profit or loss and each component of other comprehensive income are attributed to the owners of the Group and to the non-controlling interests. Total comprehensive income of subsidiaries is attributed to the owners of the Group and to the non-controlling interests even if this results in the non-controlling interests having a deficit balance.

When necessary, adjustments are made to the financial statements of subsidiaries to bring their accounting policies in line with the Group's accounting policies.
All intragroup transactions and related assets and liabilities, income and expenses are eliminated in full on consolidation.

Changes in the Group's ownership interests in subsidiaries that do not result in the Group losing control over the subsidiaries are accounted for as equity transactions. The carrying amounts of the Group's interests and the non-controlling interests are adjusted to reflect the changes in their relative interests in the subsidiaries. Any difference between the amount by which the non-controlling interests are adjusted and the fair value of the consideration paid or received is recognized directly in equity and attributed to the owners of the Group.

When the Group loses control of a subsidiary, a gain or loss on disposal is calculated as the difference between (i) the aggregate of the fair value of the consideration received and the fair value of any retained interest and (ii) the previous carrying amount of the assets (including goodwill) and liabilities of the subsidiary and any non-controlling interests. When assets of the subsidiary are carried at revalued amounts or fair values and the related cumulative gain or loss has been recognized in other comprehensive income and accumulated in equity, the amounts previously recognized in other comprehensive income and accumulated in equity are accounted for as if the Group had directly disposed of the relevant assets (i.e., reclassified to profit or loss or transferred directly to retained earnings).

c. Business Combination

Acquisitions of businesses are accounted for using the acquisition method. The consideration transferred in a business combination is measured at fair value, which is calculated as the sum of the fair values of the assets transferred by the Group, liabilities incurred by the Group to the former owners of the acquiree and the equity interests issued by the Group in exchange for control of the acquiree. Acquisition-related costs are generally recognized in profit or loss as incurred.

Goodwill is measured as the excess of the sum of a) the consideration transferred, b) the amount of any non-controlling interests in the acquiree, and c) the fair value of the acquirer's previously held equity interest in the acquiree (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 a) the consideration transferred, b) the amount of any non-controlling interests in the acquiree and c) the fair value of the acquirer's previously held interest in the acquiree (if any); the excess is recognized immediately in profit or loss as a bargain purchase gain.

When a business combination is achieved in stages, the Group's previously held equity interest in the acquiree is remeasured to fair value at the acquisition date and the resulting gain or loss, if any, is recognized in profit or loss. Amounts arising from interests in the acquiree 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 interest were disposed of.

If the initial accounting for a business combination is incomplete by 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, or additional assets or liabilities are recognized, to reflect new information obtained about facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognized at that date.

d. Foreign Currencies translation

The individual financial statements of each consolidated entity are presented in the currency of the primary economic environment in which the entity operates (its functional currency). For the purpose of the consolidated financial statements, the results and financial position of each consolidated entity are expressed in Korean won, which is the functional currency of the Company and the presentation currency for the consolidated financial statements.

In preparing the financial statements of the individual entities, transactions in currencies other than the entity's functional currency (foreign currencies) are recognized at the rates of exchange prevailing at the dates of the transactions. At the end of each reporting period, monetary items denominated in foreign currencies are retranslated at the rates prevailing at that date. Non-monetary items carried at fair value that are denominated in foreign currencies are retranslated at the rates prevailing at the date when the fair value was determined. Non-monetary items that are measured in terms of historical cost in a foreign currency are not retranslated.

Exchange differences are recognized in profit or loss in the period in which they arise, except for:

- exchange differences on foreign currency borrowings relating to assets under construction for future productive use, which are included in the cost of those assets when they are regarded as an adjustment to interest costs on those foreign currency borrowings
- exchange differences on transactions entered into in order to hedge certain foreign currency risks

e. Cash and Cash Equivalents

Cash and cash equivalents include cash, bank deposits and financial instruments, which can be easily converted into cash and whose value changes are not material, with maturities of three months or less from acquisition.

f. Financial instruments

Financial assets and financial liabilities are recognized in the Group's statement of financial position when the Group becomes a party to the contractual provisions of the instrument.

Financial assets and financial liabilities are initially measured at fair value. Transaction costs that are directly attributable to the acquisition or issue of financial assets and financial liabilities (other than financial assets and financial liabilities at fair value through profit or loss) are added to or deducted from the fair value of the financial assets or financial liabilities, as appropriate, on initial recognition. Transaction costs directly attributable to the acquisition of financial assets or financial liabilities at fair value through profit or loss are recognized immediately in profit or loss.

g. Financial Assets

All regular way purchases or sales of financial assets are recognized and derecognized on a trade date basis. Regular way purchases or sales are purchases or sales of financial assets that require delivery of assets within the time frame established by regulation or convention in the marketplace.

All recognized financial assets are measured subsequently in their entirety at either amortized cost or fair value, depending on the classification of the financial assets.

(1) Classification of financial assets

Debt instruments that meet the following conditions are measured subsequently at amortized cost:

- the financial asset is held within a business model whose objective is to hold financial assets in order to collect contractual cash flows; and
- the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

Debt instruments that meet the following conditions are measured subsequently at fair value through other comprehensive income (FVTOCI):

- the financial asset is held within a business model whose objective is achieved by both collecting contractual cash flows and selling the financial assets; and
- the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

By default, all other financial assets are measured subsequently at fair value through profit or loss (FVTPL).

Despite the foregoing, the Group may make the following irrevocable election / designation at initial recognition of a financial asset:

- the Group may irrevocably elect to present subsequent changes in fair value of an equity investment in other comprehensive income if certain criteria are met (see (c) below); and
- the Group may irrevocably designate a debt investment that meets the amortized cost or FVTOCI criteria as measured at FVTPL if doing so eliminates or significantly reduces an accounting mismatch (see (d) below).

(a) Amortized cost and effective interest method

The effective interest method is a method of calculating the amortized cost of a debt instrument and of allocating interest income over the relevant period. For financial assets other than purchased or originated credit-impaired financial assets (i.e. assets that are credit-impaired on initial recognition), the effective interest rate is the rate that exactly discounts estimated future cash receipts (including all fees and points paid or received that form an integral part of the effective interest rate, transaction costs and other premiums or discounts) excluding expected credit losses, through the expected life of the debt instrument, or, where appropriate, a shorter period, to the gross carrying amount of the debt instrument on initial recognition. For purchased or originated credit-impaired financial assets, a credit-adjusted effective interest rate is calculated by discounting the estimated future cash flows, including expected credit losses, to the amortized cost of the debt instrument on initial recognition.

The amortized cost of a financial asset is the amount at which the financial asset is measured at initial recognition minus the principal repayments, plus the cumulative amortization using the effective interest method of any difference between that initial amount and the maturity amount, adjusted for any loss allowance. The gross carrying amount of a financial asset is the amortized cost of a financial asset before adjusting for any loss allowance.

Interest income is recognized using the effective interest method for debt instruments measured subsequently at amortized cost and at FVTOCI. For financial assets other than purchased or originated credit-impaired financial assets, interest income is calculated by applying the effective interest rate to the gross carrying amount of a financial asset, except for financial assets that have subsequently become credit-impaired (see below). For financial assets that have subsequently become credit-impaired, interest income is recognized by applying the effective interest rate to the amortized cost of the financial asset. If, in subsequent reporting periods, the credit risk on the credit-impaired financial instrument improves so that the financial asset is no longer credit-impaired, interest income is recognized by applying the effective interest rate to the gross carrying amount of the financial asset.

For purchased or originated credit-impaired financial assets, the Group recognizes interest income by applying the credit-adjusted effective interest rate to the amortized cost of the financial asset from initial recognition. The calculation does not revert to the gross basis even if the credit risk of the financial asset subsequently improves so that the financial asset is no longer credit-impaired.

Interest income is recognized in profit or loss and is included in the 'finance income - interest income using the effective interest rate method' or 'finance income – other' line item (see note 20).

(b) Debt instruments classified as at FVTOCI

The corporate bonds held by the Group are classified as at FVTOCI. Fair value is determined in the manner described in note 2 - z. The corporate bonds are initially measured at fair value plus transaction costs. Subsequently, changes in the carrying amount of these corporate bonds as a result of foreign exchange gains and losses, impairment gains or losses, and interest income calculated using the effective interest method are recognized in profit or loss. The amounts that are recognized in profit or loss are the same as the amounts that would have been recognized in profit or loss if these corporate bonds had been measured at amortized cost. All other changes in the carrying amount of these corporate bonds are recognized in other comprehensive income and accumulated under the heading of investments revaluation reserve. When these corporate bonds are derecognized, the cumulative gains or losses previously recognized in other comprehensive income are reclassified to profit or loss.

(c) Equity instruments designated as at FVTOCI

On initial recognition, the Group may make an irrevocable election (on an instrument-by-instrument basis) to designate investments in equity instruments as at FVTOCI. Designation at FVTOCI is not permitted if the equity investment is held for trading or if it is contingent consideration recognized by an acquirer in a business combination. A financial asset is held for trading if:

- it has been acquired principally for the purpose of selling it in the near term; or
- on initial recognition it is part of a portfolio of identified financial instruments that the Group manages together and has evidence of a recent actual pattern of short-term profit-taking; or
- it is a derivative (except for a derivative that is a financial guarantee contract or a designated and effective hedging instrument).

Investments in equity instruments at FVTOCI are initially measured at fair value plus transaction costs. Subsequently, they are measured at fair value with gains and losses arising from changes in fair value recognized in other comprehensive income and accumulated in the investments revaluation reserve. The cumulative gain or loss is not be reclassified to profit or loss on disposal of the equity investments, instead, it is transferred to retained earnings.

Dividends on these investments in equity instruments are recognized in profit or loss in accordance with K-IFRS 1109, unless the dividends clearly represent a recovery of part of the cost of the investment. Dividends are included in the ‘finance income – other’ line item in the statement of comprehensive income.

(d) Financial assets at FVTPL

Financial assets that do not meet the criteria for being measured at amortized cost or FVTOCI are measured at FVTPL. Specifically:

- Investments in equity instruments are classified as at FVTPL, unless the Group designates an equity investment that is neither held for trading nor a contingent consideration arising from a business combination as at FVTOCI on initial recognition (see (c) above).
- Debt instruments that do not meet the amortized cost criteria or the FVTOCI criteria (see (a) and (b) above) are classified as at FVTPL. In addition, debt instruments that meet either the amortized cost criteria or the FVTOCI criteria may be designated as at FVTPL upon initial recognition if such designation eliminates or significantly reduces a measurement or recognition inconsistency (so called ‘accounting mismatch’) that would arise from measuring assets or liabilities or recognizing the gains and losses on them on different bases. The Group has not designated any debt instruments as at FVTPL.

(2) Foreign exchange gains and losses

The carrying amount of financial assets that are denominated in a foreign currency is determined in that foreign currency and translated at the spot rate at the end of each reporting period. Specifically;

- for financial assets measured at amortized cost that are not part of a designated hedging relationship, exchange differences are recognized in profit or loss in the ‘financial income (costs) – other’ line item (note 23);
- for debt instruments measured at FVTOCI that are not part of a designated hedging relationship, exchange differences on the amortized cost of the debt instrument are recognized in profit or loss in the ‘financial income (costs) - other’ line item. Other exchange differences are recognized in other comprehensive income in the investments revaluation reserve;
- for financial assets measured at FVTPL that are not part of a designated hedging relationship, exchange differences are recognized in profit or loss in the ‘financial income (costs) - other’ line item; and
- for equity instruments measured at FVTOCI, exchange differences are recognized in other comprehensive income in the investments revaluation reserve.

(3) Impairment of financial assets

The Group recognizes a loss allowance for expected credit losses on investments in debt instruments that are measured at amortized cost or at FVTOCI, lease receivables, trade receivables and contract assets, as well as on financial guarantee contracts. The amount of expected credit losses is updated at each reporting date to reflect changes in credit risk since initial recognition of the respective financial instrument.

The Group always recognizes lifetime ECL for trade receivables, contract assets and lease receivables. The expected credit losses on these financial assets are estimated using a provision matrix based on the Group’s historical credit loss experience, adjusted for factors that are specific to the debtors, general economic conditions and an assessment of both the current as well as the forecast direction of conditions at the reporting date, including time value of money where appropriate.

For all other financial instruments, the Group recognizes lifetime ECL when there has been a significant increase in credit risk since initial recognition. However, if the credit risk on the financial instrument has not increased significantly since initial recognition, the Group measures the loss allowance for that financial instrument at an amount equal to 12-month ECL.

Lifetime ECL represents the expected credit losses that will result from all possible default events over the expected life of a financial instrument. In contrast, 12-month ECL represents the portion of lifetime ECL that is expected to result from default events on a financial instrument that are possible within 12 months after the reporting date.

(a) Significant increase in credit risk

In assessing whether the credit risk on a financial instrument has increased significantly since initial recognition, the Group compares the risk of a default occurring on the financial instrument at the reporting date with the risk of a default occurring on the financial instrument at the date of initial recognition. In making this assessment, the Group considers both quantitative and qualitative information that is reasonable and supportable, including historical experience and forward-looking information that is available without undue cost or effort. Forward-looking information considered includes the future prospects of the industries in which the Group's debtors operate, obtained from economic expert reports, financial analysts, governmental bodies, relevant think-tanks and other similar organizations, as well as consideration of various external sources of actual and forecast economic information that relate to the Group's core operations.

In particular, the following information is taken into account when assessing whether credit risk has increased significantly since initial recognition:

- an actual or expected significant deterioration in the financial instrument's external (if available) or internal credit rating;
- significant deterioration in external market indicators of credit risk for a particular financial instrument, e.g. a significant increase in the credit spread, the credit default swap prices for the debtor, or the length of time or the extent to which the fair value of a financial asset has been less than its amortized cost;
- an actual or expected significant deterioration in the operating results of the debtor;
- significant increases in credit risk on other financial instruments of the same debtor;
- an actual or expected significant adverse change in the regulatory, economic, or technological environment of the debtor that results in a significant decrease in the debtor's ability to meet its debt obligations.

Irrespective of the outcome of the above assessment, the Group presumes that the credit risk on a financial asset has increased significantly since initial recognition when contractual payments are more than 30 days past due, unless the Group has reasonable and supportable information that demonstrates otherwise.
Despite the foregoing, the Group assumes that the credit risk on a financial instrument has not increased significantly since initial recognition if the financial instrument is determined to have low credit risk at the reporting date. A financial instrument is determined to have low credit risk if:

1) The financial instrument has a low risk of default,
2) The debtor has a strong capacity to meet its contractual cash flow obligations in the near term, and
3) Adverse changes in economic and business conditions in the longer term may, but will not necessarily, reduce the ability of the borrower to fulfil its contractual cash flow obligations.

The Group considers a financial asset to have low credit risk when the asset has external credit rating of 'investment grade' in accordance with the globally understood definition or if an external rating is not available, the asset has an internal rating of 'performing'. Performing means that the counterparty has a strong financial position and there is no past due amounts.

For financial guarantee contracts, the date that the Group becomes a party to the irrevocable commitment is considered to be the date of initial recognition for the purposes of assessing the financial instrument for impairment. In assessing whether there has been a significant increase in the credit risk since initial recognition of a financial guarantee contracts, the Group considers the changes in the risk that the specified debtor will default on the contract.

The Group regularly monitors the effectiveness of the criteria used to identify whether there has been a significant increase in credit risk and revises them as appropriate to ensure that the criteria are capable of identifying significant increase in credit risk before the amount becomes past due.

(b) Definition of default

The Group considers the following as constituting an event of default for internal credit risk management purposes as historical experience indicates that financial assets that meet either of the following criteria are generally not recoverable:

- when there is a breach of financial covenants by the debtor; or
- when the debtor does not make proper implementations in light of the provisions of the law, the purpose of the contract, the practices of the transaction, the principles of faithfulness and others

Irrespective of the above analysis, the Group considers that default has occurred when a financial asset is more than 90 days past due unless the Group has reasonable and supportable information to demonstrate that a more lagging default criterion is more appropriate.

(c) Credit-impaired financial assets

A financial asset is credit-impaired when one or more events that have a detrimental impact on the estimated future cash flows of that financial asset have occurred. Evidence that a financial asset is credit-impaired includes observable data about the following events:

- significant financial difficulty of the issuer or the borrower;
- a breach of contract, such as a default or past due event (see above);
- the lender(s) of the borrower, for economic or contractual reasons relating to the borrower's financial difficulty, having granted to the borrower a concession(s) that the lender(s) would not otherwise consider;
- it is becoming probable that the borrower will enter bankruptcy or other financial reorganization; or
- the disappearance of an active market for that financial asset because of financial difficulties.

(d) Write-off policy

The Group writes off a financial asset when there is information indicating that the debtor is in severe financial difficulty and there is no realistic prospect of recovery, e.g. when the debtor has been placed under liquidation or has entered into bankruptcy proceedings, or in the case of trade receivables, when the amounts are over five years past due, whichever occurs sooner. Financial assets written off may still be subject to enforcement activities under the Group's recovery procedures, taking into account legal advice where appropriate. Any recoveries made are recognized in profit or loss.

(e) Measurement and recognition of expected credit losses

The measurement of expected credit losses is a function of the probability of default, loss given default (i.e. the magnitude of the loss if there is a default) and the exposure at default. The assessment of the probability of default and loss given default is based on historical data adjusted by forward-looking information as described above. As for the exposure at default, for financial assets, this is represented by the assets' gross carrying amount at the reporting date; for financial guarantee contracts, the exposure includes the amount drawn down as at the reporting date, together with any additional amounts expected to be drawn down in the future by default date determined based on historical trend, the Group's understanding of the specific future financing needs of the debtors, and other relevant forward-looking information.

For financial assets, the expected credit loss is estimated as the difference between all contractual cash flows that are due to the Group in accordance with the contract and all the cash flows that the Group expects to receive, discounted at the original effective interest rate. For a lease receivable, the cash flows used for determining the expected credit losses is consistent with the cash flows used in measuring the lease receivable in accordance with K-IFRS 1017 *Leases*.

For a financial guarantee contract, as the Group is required to make payments only in the event of a default by the debtor in accordance with the terms of the instrument that is guaranteed, the expected loss allowance is the expected payments to reimburse the holder for a credit loss that it incurs less any amounts that the Group expects to receive from the holder, the debtor or any other party.

If the Group has measured the loss allowance for a financial instrument at an amount equal to lifetime ECL in the previous reporting period, but determines at the current reporting date that the conditions for lifetime ECL are no longer met, the Group measures the loss allowance at an amount equal to 12-month ECL at the current reporting date, except for assets for which simplified approach was used.

The Group recognizes an impairment gain or loss in profit or loss for all financial instruments with a corresponding adjustment to their carrying amount through a loss allowance account, except for investments in debt instruments that are measured at FVTOCI, for which the loss allowance is recognized in other comprehensive income and accumulated in the investment revaluation reserve, and does not reduce the carrying amount of the financial asset in the statement of financial position.

(4) Derecognition of financial assets

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.

On derecognition of a financial asset measured at amortized cost, the difference between the asset's carrying amount and the sum of the consideration received and receivable is recognized in profit or loss. In addition, on derecognition of an investment in a debt instrument classified as at FVTOCI, the cumulative gain or loss previously accumulated in the investments revaluation reserve is reclassified to profit or loss. In contrast, on derecognition of an investment in equity instrument which the Group has elected on initial recognition to measure at FVTOCI, the cumulative gain or loss previously accumulated in the investments revaluation reserve is not reclassified to profit or loss, but is transferred to retained earnings.

h. Financial liabilities and equity instruments

(1) Classification as debt or equity

Debt and equity instruments are classified as either financial liabilities or as equity in accordance with the substance of the contractual arrangement and the definitions of financial liability and an equity instrument.

(2) Equity instruments

An equity instrument is any contract that evidences a residual interest in the assets of an entity after deducting all of its liabilities. Equity instruments issued by the Group are recognized at the proceeds received, net of direct issue costs.

Repurchase of the Group's own equity instruments is recognized and deducted directly in equity. No gain or loss is recognized in profit or loss on the purchase, sale, issue or cancellation of the Group's own equity instruments.

(3) Financial liabilities

All financial liabilities are measured subsequently at amortized cost using the effective interest method or at FVTPL. However, financial liabilities that arise when a transfer of a financial asset does not qualify for derecognition or when the continuing involvement approach applies, and financial guarantee contracts issued by the Group, are measured in accordance with the specific accounting policies set out below.

(4) Financial liabilities at FVTPL

Financial liabilities are classified as at FVTPL when the financial liability is (i) contingent consideration of an acquirer in a business combination, (ii) held for trading or (iii) it is designated as at FVTPL.

A financial liability is classified as held for trading if:

- it has been acquired principally for the purpose of repurchasing it in the near term; or
- on initial recognition it is part of a portfolio of identified financial instruments that the Group manages together and has a recent actual pattern of short-term profit-taking; or
- it is a derivative that is not designated and effective as a hedging instrument.

A financial liability other than a financial liability held for trading or contingent consideration of an acquirer in a business combination may be designated as at FVTPL upon initial recognition if:

- such designation eliminates or significantly reduces a measurement or recognition inconsistency that would otherwise arise; or
- the financial liability forms part of a group of financial assets or financial liabilities or both, which is managed and its performance is evaluated on a fair value basis, in accordance with the Group's documented risk management or investment strategy, and information about the grouping is provided internally on that basis; or
- it forms part of a contract containing one or more embedded derivatives, and K-IFRS 1109 permits the entire combined contract to be designated as at FVTPL.

Financial liabilities at FVTPL are measured at fair value, with any gains or losses arising on changes in fair value recognized in profit or loss to the extent that they are not part of a designated hedging relationship (see Hedge accounting policy). The net gain or loss recognized in profit or loss incorporates any interest paid on the financial liability in profit or loss.

However, for financial liabilities that are designated as at FVTPL, the amount of change in the fair value of the financial liability that is attributable to changes in the credit risk of that liability is recognized in other comprehensive income, unless the recognition of the effects of changes in the liability's credit risk in other comprehensive income would create or enlarge an accounting mismatch in profit or loss. The remaining amount of change in the fair value of liability is recognized in profit or loss. Changes in fair value attributable to a financial liability's credit risk that are recognized in other comprehensive income are not subsequently reclassified to profit or loss; instead, they are transferred to retained earnings upon derecognition of the financial liability.

Gains or losses on financial guarantee contracts issued by the Group that are designated by the Group as at FVTPL are recognized in profit or loss.

Fair value is determined in the manner described in note 2 - z.

(5) Financial liabilities measured subsequently at amortized cost

Financial liabilities that are not (i) contingent consideration of an acquirer in a business combination, (ii) held-for-trading, or (iii) designated as at FVTPL, are measured subsequently 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 interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments (including all fees and points paid or received that form an integral part of the effective interest rate, transaction costs and other premiums or discounts) through the expected life of the financial liability, or (where appropriate) a shorter period, to the amortized cost of a financial liability.

(6) Financial guarantee contracts

A financial guarantee contract is a contract that requires the issuer to make specified payments to reimburse the holder for a loss it incurs because a specified debtor fails to make payments when due in accordance with the terms of a debt instruments.

Financial guarantee contract liabilities are measured initially at their fair values and, if not designated as at FVTPL and do not arise from a transfer of an asset, are measured subsequently at the higher of:

- the amount of the loss allowance determined in accordance with K-IFRS 1109 (see financial assets above); and
- the amount recognized initially less, where appropriate, cumulative amortisation recognized in accordance with the revenue recognition policies set out above.

(7) Foreign exchange gains and losses

For financial liabilities that are denominated in a foreign currency and are measured at amortized cost at the end of each reporting period, the foreign exchange gains and losses are determined based on the amortized cost of the instruments. These foreign exchange gains and losses are recognized in the 'gain (loss) on foreign currency translations' line item in profit or loss (see note 23) for financial liabilities that are not part of a designated hedging relationship. For those which are designated as a hedging instrument for a hedge of foreign currency risk foreign exchange gains and losses are recognized in other comprehensive income and accumulated in a separate component of equity.

The fair value of financial liabilities denominated in a foreign currency is determined in that foreign currency and translated at the spot rate at the end of the reporting period. For financial liabilities that are measured as at FVTPL, the foreign exchange component forms part of the fair value gains or losses and is recognized in profit or loss for financial liabilities that are not part of a designated hedging relationship.

(8) Derecognition of financial liabilities

The Group derecognizes financial liabilities when, and only when, the Group's obligations are discharged, cancelled or have expired. The difference between the carrying amount of the financial liability derecognized and the consideration paid and payable is recognized in profit or loss.

When the Group exchanges with the existing lender one debt instrument into another one with the substantially different terms, such exchange is accounted for as an extinguishment of the original financial liability and the recognition of a new financial liability. Similarly, the Group accounts for substantial modification of terms of an existing liability or part of it as an extinguishment of the original financial liability and the recognition of a new liability. It is assumed that the terms are substantially different if the discounted present value of the cash flows under the new terms, including any fees paid net of any fees received and discounted using the original effective rate is at least 10 percent different from the discounted present value of the remaining cash flows of the original financial liability. If the modification is not substantial, the difference between: (1) the carrying amount of the liability before the modification; and (2) the present value of the cash flows after modification should be recognized in profit or loss as the modification gain or loss within other gains and losses.

i. Inventories

Inventories are stated at the lower of cost and net realizable value, with cost being determined using the weighted-average method and the specific identification method for materials in-transit. The cost of finished goods and semifinished goods includes cost of raw materials, direct labor costs and other direct costs, manufacturing overheads. Net realizable value represents the estimated selling price for inventories less all estimated costs of completion and costs necessary to make the sale.

The Group recorded valuation allowance on a periodic basis and recognized loss from inventory valuation as cost of sales, when significant changes with an adverse effect (an oversupply, an obsolete or decline in the price of goods) on the entity have taken place during the period.

j. Investments in associates and joint ventures

An associate is an entity over which the Group has significant influence. Significant influence is the power to participate in the financial and operating policy decisions of the investee but is not in control or joint control over those policies.

A joint venture is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the net assets of the joint arrangement. Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions about the relevant activities require unanimous consent of the parties sharing control.

The results and assets and liabilities of associates or joint ventures 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 or a joint venture is initially recognized in the consolidated statement of financial position at cost and adjusted thereafter to recognize the Group's share of the profit or loss and other comprehensive income of the associate or joint venture. When the Group's share of losses of an associate or a joint venture exceeds the Group's interest in that associate or joint venture (which includes any long-term interests that, in substance, form part of the Group's net investment in the associate or joint venture), the Group discontinues recognizing its share of further losses. Additional losses are recognized only to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the associate or joint venture.

Any excess of the cost of acquisition over the Group's share of the net fair value of the identifiable assets, liabilities and contingent liabilities of an associate or a joint venture recognized at the date of acquisition is recognized as goodwill, which is included within the carrying amount of the investment. Any excess of the Group’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.

When a group entity transacts with an associate or a joint venture of the Group, profits and losses resulting from the transactions with the associate or joint venture are recognized in the Group's consolidated financial statements only to the extent of interests in the associate or joint venture that are not related to the Group.

k. Interests in joint operations

A joint operation is a joint arrangement whereby the parties that have joint control of the arrangement have rights to the assets, and obligations for the liabilities, relating to the arrangement. Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions about the relevant activities require unanimous consent of the parties sharing control.

When a group entity undertakes its activities under joint operations, the Group accounts for the assets, liabilities, revenues and expenses relating to its interest in a joint operation in accordance with the K-IFRSs applicable to the particular assets, liabilities, revenues and expenses.

When a group entity transacts with a joint operation in which a group entity is a joint operator (such as a sale or contribution of assets), the Group is considered to be conducting the transaction with the other parties to the joint operation, and gains and losses resulting from the transactions are recognized in the Group's consolidated financial statements only to the extent of other parties' interests in the joint operation.

When a group entity transacts with a joint operation in which a group entity is a joint operator (such as a purchase of assets), the Group does not recognize its share of the gains and losses until it resells those assets to a third party.

l. Property, plant and equipment

Property, plant and equipment are stated at cost, less subsequent accumulated depreciation and accumulated impairment losses. The cost of an item of property, plant and equipment is directly attributable to their purchase or construction, which includes any costs directly attributable to bringing the asset to the location and the condition necessary for it to be capable of operating in the manner intended by management. It also includes the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

Subsequent costs are recognized in carrying amount of an asset or as a separate asset if it is probable that future economic benefits associated with the assets will flow into the Group and the cost of an asset can be measured reliably. Routine maintenance and repairs are expensed as incurred.

The Group does not depreciate land. Depreciation expense is computed using the straight-line method based on the estimated useful lives of the assets as follows:

Description	Useful lives (years)	Description	Useful lives (years)
Buildings	25 – 50	Structures	20 – 40
Tanks	15 – 25	Machinery	5 – 40
Oil pipeline	10 – 25	Vehicles	5 – 20
Others	2 – 13		

The Group reviews the depreciation method, the estimated useful lives and residual values of property, plant and equipment at the end of each annual reporting period. If expectations differ from previous estimates, the changes are accounted for as a change in an accounting estimate.

An item of property, plant and equipment is derecognized upon disposal or when no future economic benefits are expected to arise from the continued use of the asset. Any gain or loss arising on derecognition of the property (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in profit or loss in the period in which the property is derecognized.

m. 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 the purpose of impairment testing, goodwill is allocated to each of the Group's cash-generating units (or groups of cash-generating units) that is expected to benefit from the synergies of the combination.

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. An impairment loss recognized for goodwill is not reversed in subsequent periods.

n. Intangible assets

Intangible assets are carried at cost, less any accumulated amortization and any accumulated impairment losses. Internally generated intangible assets, excluding capitalized development costs, are not capitalized and expenditure is reflected in the statement of comprehensive income in the year in which the expenditure is incurred.

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 an intangible asset with a finite useful life are reviewed at the end of each annual reporting period. If expectations differ from previous estimates, the changes are accounted for as a change in accounting estimate.

Intangible assets with indefinite useful lives, such as memberships are not amortized, but are tested for impairment annually.

Development costs are amortized using the straight-line method over the estimated useful lives of 4 years. Other intangible assets are amortized using the straight-line method over the estimated useful lives of 10 years.

Oil fields under exploration are in the process of proving oil reserves or proved to contain oil reserves but yet to commence commercial production. Oil-producing fields refer to those which have commenced commercial production. Oil-producing fields and oil fields under exploration to explore and produce overseas oil fields and to develop the Group's liquefied natural gas business are recorded at cost, including expenditures directly attributable to exploration activity. Oil-producing fields are amortized over the quantity of estimated proved reserves. Oil-producing fields and oil fields under exploration are stated at cost less accumulated amortization and impairment loss.

o. Impairment of tangible and intangible assets other than goodwill

At the end of each reporting period, the Group reviews the carrying amounts of its tangible and intangible assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any). When it is not possible to estimate the recoverable amount of an individual asset, the Group estimates the recoverable amount of the cash-generating unit ("CGU") to which the asset belongs. Where a reasonable and consistent basis of allocation can be identified, corporate assets are also allocated to individual CGUs, or otherwise they are allocated to the smallest group of CGUs for which a reasonable and consistent allocation basis can be identified.

Intangible assets with indefinite useful lives and intangible assets not yet available for use are tested for impairment at least annually, and whenever there is an indication that the asset may be impaired.

Recoverable amount is the higher of fair value less costs to sell and value in use. If the recoverable amount of an asset (or a CGU) is estimated to be less than its carrying amount, the carrying amount of the asset (or the CGU) is reduced to its recoverable amount and the reduced amount is recognized in profit or loss.

Where an impairment loss subsequently reverses, the carrying amount of the asset (or a CGU) is increased to the revised estimate of its recoverable amount, but so that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognized for the asset (or the CGU) in prior years. A reversal of an impairment loss is recognized immediately in profit or loss.

p. Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use or sale, are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale.

Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization. All other borrowing costs are recognized in profit or loss in the period in which they are incurred.

q. Government grants

Government grants are not recognized until there is reasonable assurance that the Group will comply with the conditions attaching to them and that the grants will be received.

Government grants related to assets are presented in the statement of financial position by deducting the grant from the carrying amount of the asset. The related grant is recognized in profit or loss over the life of a depreciable asset as a reduced depreciation expense.

Government grants related to income are recognized in profit or loss on a systematic basis over the periods in which the Group recognizes as expenses the related costs for which the grants are intended to compensate. 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.

r. Non-current assets held for sale and discontinued operations

Non-current assets and disposal groups are classified as held for sale if their carrying amount will be recovered principally through a sale transaction rather than through continuing use. Non-current assets held for sale are measured at the lower of carrying amount and fair value less costs to sell. In the consolidated statement of comprehensive income, the resulting profit or loss (after taxes) from discontinued operations are reported separately from income and expenses from continuing activities. Property, plant and equipment and intangible assets once classified as held for sale are not depreciated or amortized.

s. Discount (premium) on bonds

Discount (premium) on bonds is presented as a direct deduction from (addition to) the nominal value of the bonds and is amortized using the effective interest rate method over the life of the bonds.

t. Leases

Leases are classified as finance leases whenever the terms of the lease transfer substantially all the risks and rewards of ownership to the lessee. All other leases are classified as operating leases.

Operating lease payments are recognized on a straight-line basis over the term of the relevant lease. Leases where the Group does not transfer substantially all the risks and benefits of ownership of the asset are classified as operating leases. Initial direct costs incurred in negotiating an operating lease are added to the carrying amount of the leased asset. Leased assets are depreciated over the useful life of the asset.

u. Retirement and termination benefit costs

Contributions to defined contribution retirement benefit plans are recognized as an expense when employees have rendered service entitling them to the contributions.

For defined benefit retirement benefit plans, the cost of providing benefits is determined using the Projected Unit Credit Method, with actuarial valuations being carried out at the end of each annual reporting period. Remeasurements comprising actuarial gains and losses, the effect of the asset ceiling (if applicable) and the return on plan assets (excluding interest) are recognized immediately in the statement of financial position with a charge or credit to the statement of comprehensive income in the period in which they occur. Remeasurements recognized in the statement of comprehensive income are not reclassified. Past service cost is recognized in profit or loss when the plan amendment or curtailment occurs, or when the Group recognizes related restructuring costs or termination benefits, if earlier. Gains or losses on settlement of a defined benefit plan are recognized when the settlement occurs.

Net interest is calculated by applying a discount rate to the net defined benefit liability or asset. Defined benefit costs are split into three categories:

- service costs, which includes current service cost, past service cost and gains and losses on curtailments and settlements;
- net interest expense or income; and
- remeasurements.

The Group presents the service cost and net interest expense (income) components as cost of sales and selling and administrative expenses in profit or loss, and the remeasurement component in other comprehensive income. Curtailment gains and losses are accounted for as past service costs.

v. Provisions

Provisions are recognized when the Group has a present obligation (legal or constructive) as a result of a past event, it is probable that the group will be required to settle that obligation and a reliable estimate can be made of the amount of the obligation.

The amount recognized as a provision is the best estimate of the consideration required to settle the present obligation at the reporting date, taking into account the risks and uncertainties surrounding the obligation. Where a provision is measured using the cash flows estimated to settle the present obligation, its carrying amount is the present value of those cash flows (when the effect of the time value of money is material). The discount rate used is a pretax rate that reflects current market assessments of the time value of money and the risks specific to the liability. Where discounting is used, the increase in the provision due to the passage is recognized in profit or loss as financial costs.

w. Derivative financial instruments

The Group enters into a variety of derivative financial instruments to manage its exposure to crude oil and petroleum products price risks and foreign currency risks.

Derivatives are recognized initially at fair value at the date a derivative contract is entered into and are subsequently remeasured to their fair value at each reporting date. 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 event the timing of the recognition in profit or loss depends on the nature of the hedge relationship.

A derivative with a positive fair value is recognized as a financial asset whereas a derivative with a negative fair value is recognized as a financial liability. Derivatives are not offset in the financial statements unless the Group has both legal right and intention to offset. A derivative is presented as a non-current asset or a non-current liability if the remaining maturity of the instrument is more than 12 months and it is not expected to be realized or settled within 12 months. Other derivatives are presented as current assets or current liabilities.

(1) Embedded derivative

An embedded derivative is a component of a hybrid contract that also includes a non-derivative host – with the effect that some of the cash flows of the combined instrument vary in a way similar to a stand-alone derivative.

Derivatives embedded in hybrid contracts with a financial asset host within the scope of K-IFRS 1109 are not separated. The entire hybrid contract is classified and subsequently measured as either amortized cost or fair value as appropriate.

Derivatives embedded in hybrid contracts with hosts that are not financial assets within the scope of K-IFRS 1109 (e.g. financial liabilities) are treated as separate derivatives when they meet the definition of a derivative, their risks and characteristics are not closely related to those of the host contracts and the host contracts are not measured at FVTPL.

An embedded derivative is presented as a non-current asset or non-current liability if the remaining maturity of the hybrid instrument to which the embedded derivative relates is more than 12 months and is not expected to be realised or settled within 12 months.

(2) Hedge accounting

The Group designates certain derivatives as hedging instruments in respect of foreign currency risk and interest rate risk in fair value hedges, cash flow hedges, or hedges of net investments in foreign operations. Hedges of foreign exchange risk on firm commitments are accounted for as cash flow hedges.

At the inception of the hedge relationship, the Group documents the relationship between the hedging instrument and the hedged item, along with its risk management objectives and its strategy for undertaking various hedge transactions. Furthermore, at the inception of the hedge and on an ongoing basis, the Group documents whether the hedging instrument is effective in offsetting changes in fair values or cash flows of the hedged item attributable to the hedged risk, which is when the hedging relationships meet all of the following hedge effectiveness requirements:

- there is an economic relationship between the hedged item and the hedging instrument;
- the effect of credit risk does not dominate the value changes that result from that economic relationship; and
- the hedge ratio of the hedging relationship is the same as that resulting from the quantity of the hedged item that the Group actually hedges and the quantity of the hedging instrument that the Group actually uses to hedge that quantity of hedged item.

If a hedging relationship ceases to meet the hedge effectiveness requirement relating to the hedge ratio but the risk management objective for that designated hedging relationship remains the same, the Group adjusts the hedge ratio of the hedging relationship (i.e. rebalances the hedge) so that it meets the qualifying criteria again.

(3) Fair value hedges

The fair value change on qualifying hedging instruments is recognized in profit or loss except when the hedging instrument hedges an equity instrument designated at FVTOCI in which case it is recognized in other comprehensive income.

The carrying amount of a hedged item not already measured at fair value is adjusted for the fair value change attributable to the hedged risk with a corresponding entry in profit or loss. For debt instruments measured at FVTOCI, the carrying amount is not adjusted as it is already at fair value, but the hedging gain or loss is recognized in profit or loss instead of other comprehensive income. When the hedged item is an equity instrument designated at FVTOCI, the hedging gain or loss remains in other comprehensive income to match that of the hedging instrument.

Where hedging gains or losses are recognized in profit or loss, they are recognized in the same line as the hedged item.

The Group discontinues hedge accounting only when the hedging relationship (or a part thereof) ceases to meet the qualifying criteria (after rebalancing, if applicable). This includes instances when the hedging instrument expires or is sold, terminated or exercised. The discontinuation is accounted for prospectively. The fair value adjustment to the carrying amount of the hedged item arising from the hedged risk is amortized to profit or loss from that date.

(4) Cash flow hedges

The effective portion of changes in the fair value of derivatives and other qualifying hedging instruments that are designated and qualify as cash flow hedges is recognized in other comprehensive income and accumulated under the heading of cash flow hedging reserve, limited to the cumulative change in fair value of the hedged item from inception of the hedge. The gain or loss relating to the ineffective portion is recognized immediately in profit or loss.

The Group discontinues hedge accounting only when the hedging relationship (or a part thereof) ceases to meet the qualifying criteria (after rebalancing, if applicable). This includes instances when the hedging instrument expires or is sold, terminated or exercised. The discontinuation is accounted for prospectively. Any gain or loss recognized in other comprehensive income and accumulated in cash flow hedge reserve at that time remains in equity and is reclassified to profit or loss when the forecast transaction occurs. When a forecast transaction is no longer expected to occur, the gain or loss accumulated in cash flow hedge reserve is reclassified immediately to profit or loss.

x. Revenue Recognition

The group recognizes revenue from the following key sources:

- Development, production and sale of petroleum and natural gas
- Manufacture and sale of petroleum products
- Manufacture and sale of petrochemical products
- Manufacture and sale of base oil and lubricant products
- Medium and large battery and battery material business

Revenue is measured based on the consideration to which the Group expects to be entitled in a contract with a customer and excludes amounts collected on behalf of third parties. The Group recognizes revenue when it transfers control of a product or service to a customer

(1) Development, production and sale of petroleum and natural gas

The Group carries out crude oil and natural gas exploration and develop, produce and sell them. The Group operates petroleum production blocks in the United States and Peru and recognizes revenue and receivables as control is transferred to customers at the time of delivery of the goods via pipelines or other transportation.

(2) Manufacture and sale of petroleum products

The Group imports crude oil from oil-producing countries and produce and sell petroleum products. The distribution channels of the petroleum business are largely divided into wholesale and retail. Wholesale refers to sales to distributors, gas stations and intermediate sellers, while retail refers to sales to general consumers at gas stations (or charging stations).
In case of sales to wholesalers, the Group recognizes revenue when the goods are delivered to a specific location designated by a wholesaler and the control of the goods is transferred to the wholesaler.

For sales to retail customers, the Group recognizes revenue when the customers purchase the goods at the retail station and the control of the goods is transferred to the customers.

(3) Manufacture and sale of petrochemical products

Petrochemical product business is composed of basic chemicals business and petrochemicals business. Basic chemical business produce olefins products including ethylene and propylene using naphtha as main raw material. Petrochemical business produce chemicals such as synthetic resin and synthetic rubber using basic chemicals such as ethylene.

The Group recognizes revenue when the customers purchase the goods and the control of the goods is transferred to the customers.

(4) Manufacture base oil and lubricant products

The Group manufacture and sells base oil which are used for vehicle engines and transmissions, and lubricant products used for industries and vehicles.

The Group recognizes revenue when the customers purchase the goods and the control of the goods is transferred to the customers.

(5) Medium and large battery and battery material business

The Group manufactures and sells high capacity lithium-ion battery, which is used for electric vehicles and ESS, and LiBS, which is a critical component of high capacity lithium-ion battery and prevents physical contact between anode and cathode while facilitating ion transport in the cell. The Group recognizes revenue and related receivables when the products are delivered to the customers, which is the timing of transfer of control of the products to the customers. However, as warranties in connection with the sale of mid/large-sized battery provide the customer with assurance that the product complies with agreed-upon specifications, the warranties are accounted for in accordance with K-IFRS 1037 *provision, contingent liabilities and contingent assets* (see note 15).

y. Income tax

Income tax expense represents the sum of the tax currently payable and deferred tax. Current and deferred taxes are recognized in profit or loss, except when they relate to items that are recognized in other comprehensive income or directly in equity, in which case, the current and deferred taxes are also recognized in other comprehensive income or directly in equity.

(1) Current tax

The tax currently payable is based on taxable profit for the year. Taxable profit differs from profit as reported in the statements of profit or loss and comprehensive income because of items of income or expense that are taxable or deductible in other years and items that are never taxable or deductible. The Group’s current tax is calculated using tax rates that have been enacted or substantively enacted by the end of the reporting period.

(2) Deferred tax

Deferred tax is recognized on temporary differences between the carrying amounts of assets and liabilities in the financial statements and the corresponding tax bases used in the computation of taxable profit. Deferred tax assets are generally recognized for all deductible temporary differences to the extent that it is probable that taxable profits will be available against which those deductible temporary differences can be utilized. Deferred tax liabilities are generally recognized for all taxable temporary differences. Such deferred tax assets and liabilities are not recognized if the temporary difference arises from goodwill or from the initial recognition of other assets and liabilities in a transaction (other than in a business combination) that affects neither the taxable profit nor the accounting profit.
Deferred tax liabilities are recognized for taxable temporary differences associated with investments in subsidiaries and associates, and interests in joint ventures, except where the Group is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. Deferred tax assets arising from deductible temporary differences associated with such investments and interests are only recognized to the extent that it is probable that there will be sufficient taxable profits against which to utilize the benefits of the temporary differences and they are expected to reverse in the foreseeable future.

The carrying amount of deferred tax assets is reviewed at the end of each reporting period and reduced to the extent that it is no longer probable that sufficient taxable profits will be available to allow all or part of the asset to be recovered.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the period in which the liability is settled or the asset is realized, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period. The measurement of deferred tax assets and 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.

Deferred tax assets and liabilities are offset if, and only if the Group has a legally enforceable right to set off current tax assets against current tax liabilities, and the deferred tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities which intend either to settle current tax assets and liabilities on a net basis, or to realize the assets and settle the liabilities simultaneously, in each future period in which significant amounts of deferred tax assets or liabilities are expected to be settled or recovered.

(3) Current and deferred taxes for the year

Current and deferred taxes are recognized in profit or loss, except when they relate to items that are recognized in other comprehensive income or directly in equity, in which case, the current and deferred taxes are also recognized in other comprehensive income or directly in equity. Where current tax or deferred tax arises from the initial accounting for a business combination, the tax effect is included in the accounting for the business combination.

z. Fair value

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date, regardless of whether that price is directly observable or estimated using another valuation technique. In estimating the fair value of an asset or a liability, the Group considers the characteristics of the asset or liability if market participants would take those characteristics into account when pricing the asset or liability at the measurement date. Fair value for measurement and/or disclosure purposes in these financial statements is determined on such a basis, except for share-based payment transactions that are within the scope of K-IFRS 1102 *Share-based payment*, leasing transactions that are within the scope of K-IFRS 1017 *Leases* and measurements that have some similarities to fair value but are not fair valued, such as net realizable value in K-IFRS 1002 *Inventories* or value in use in K-IFRS 1036 *Impairment of Assets*.

In addition, for financial reporting purposes, fair value measurements are categorized into Levels 1, 2 or 3 based on the degree to which the inputs to the fair value measurements are observable and the significance of the inputs to the fair value measurement in its entirety, which are described as follows:

- Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that the entity can access at the measurement date.
- Level 2 inputs are inputs, other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.
- Level 3 inputs are unobservable inputs for the asset or liability

aa. Accounting treatment related to the emission rights cap and trade scheme

The Group classifies the emission rights as intangible assets. Emission rights allowances the government allocated free of charge are measured at nil, and emission rights allowances purchased are measured at cost, which the Group paid to purchase the allowances. If emission rights the government allocated free of charge are sufficient to settle the emission rights allowances allotted for vintage year, the emissions liabilities are measured at nil. However, for the emissions liabilities that exceed the allowances allocated free of charge, the shortfall is measured at best estimate at the end of the reporting period.

3. CRITICAL ACCOUNTING JUDGMENTS AND KEY SOURCES OF ESTIMATION UNCERTAINTY:

In the application of the Group’s accounting policies, management is required to make judgments, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimate is revised if the revision affects only that period or in the period of the revision and future periods if the revision affects both current and future periods.

The following are the key assumptions concerning the future, and other key sources of estimation uncertainty at the end of the reporting period, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year.

a. Valuation of financial instruments

Subsequent to initial recognition, certain financial instruments including long-term investment securities and derivative financial assets are stated at fair value with any gains or losses arising on remeasurement recognized in profit or loss or other comprehensive income. Where the fair value of financial assets and financial liabilities recorded in the consolidated statements of financial position cannot be derived from active markets, the Group uses valuation techniques that require the management's judgments on the expected future cash flows and discount rates.

b. Loss allowance for trade receivables, loans and other receivables

When measuring ECL, the Group uses reasonable and supportable forward looking information, which is based on assumptions for the future movement of different economic drivers and how these drivers will affect each other.

Loss given default is an estimate of the loss arising on default. It is based on the difference between the contractual cash flows due and those that the lender would expect to receive, taking into account cash flows from collateral and integral credit enhancements.

Probability of default constitutes a key input in measuring ECL. Probability of default is an estimate of the likelihood of default over a given time horizon, the calculation of which includes historical data, assumptions and expectations of future conditions.

c. Measurement of net realizable value of inventories

Inventories are stated at the lower of cost and net realizable value. It is necessary for measuring net realizable value of inventories to estimate selling price, additional costs of completion and selling expenses and the judgment of the management will play an important role in these estimates.

d. Impairment of tangible and intangible assets other than goodwill

If there is any indication that tangible and intangible assets other than goodwill have suffered an impairment loss, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss and recoverable amount is the higher of fair value less costs to sell and value in use. Where a fair value of such assets cannot be derived from active markets, the Group measures the fair value to estimate the price that would be received from a disposal of an asset in an orderly transaction between market participants at the measurement date. In estimating value in use, it is necessary to determine the expected future cash flows and discount rates and the judgment of the management will play an important role in these estimates.

e. Measurement and useful lives of tangible and intangible assets

If the Group acquires property and equipment or intangible assets from business combination, it is required to estimate the fair value of these assets at the acquisition date. For estimating the useful lives of tangible and intangible assets, significant management judgment is required.

f. Defined benefit plan

The Group's defined benefit obligation is determined based on the actuarial valuation carried out at the end of each annual reporting period. Actuarial assumptions are the Group's best estimates of the variables in determining the cost of providing postretirement benefits, such as discount rates, rates of expected future salary increases and mortality rates. Significant estimation uncertainty is likely to persist in making such assumptions due to the long-term nature of postretirement benefit plan.

g. Deferred tax

Recognition and measurement of deferred tax assets and liabilities requires significant management judgment. Especially, when determining if deferred tax assets will be realizable or not in the future, it involves significant management assumptions and judgment on the Group's future performance.

4. FINANCIAL INSTRUMENTS:

Details of financial assets as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018				
	Financial assets designated as FVTPL(*1)	Financial assets measured at AC (*2)	Financial assets designated as FVTOCI (*3)	Derivatives designated as hedging instruments	Total
Current assets:					
Cash and cash equivalents	₩ 809,783	₩ 1,046,138	₩ -	₩ -	₩ 1,855,921
Short-term financial instruments	2,486,732	185,231	-	-	2,671,963
Trade accounts receivable	-	4,459,724	-	-	4,459,724
Long-term investment securities - current	2,591	-	-	-	2,591
Short-term loans	-	43,557	-	-	43,557
Other accounts receivable	8,826	687,327	-	-	696,153
Accrued income	-	5,083	-	-	5,083
Guarantee deposits	-	171,808	-	-	171,808
Derivative financial assets	70,913	-	-	1,294	72,207
Subtotal	3,378,845	6,598,868	-	1,294	9,979,007
Non-current assets:					
Long-term financial instruments	-	4,720	-	-	4,720
Long-term trade accounts receivable	-	79	-	-	79
Long-term investment securities	71,133	-	262,051	-	333,184
Long-term other accounts receivable	8,097	4,760	-	-	12,857
Long-term loans	-	196,249	-	-	196,249
Long-term guarantee deposits	-	42,594	-	-	42,594
Derivative financial assets	8,503	-	-	-	8,503
Subtotal	87,733	248,402	262,051	-	598,186
Total	₩ 3,466,578	₩ 6,847,270	₩ 262,051	₩ 1,294	₩ 10,577,193

	December 31, 2017(*5)				
	Financial assets designated as FVTPL(*1)	Loans and receivables	AFS(*4) financial assets	Derivatives designated as hedging instruments	Total
Current assets:					
Cash and cash equivalents	₩ -	₩ 2,003,740	₩ -	₩ -	₩ 2,003,740
Short-term financial instruments	-	2,245,429	-	-	2,245,429
Trade accounts receivable	-	4,821,307	-	-	4,821,307
Short-term loans	-	59,855	-	-	59,855
Other accounts receivable	-	476,188	-	-	476,188
Accrued income	-	5,094	-	-	5,094
Guarantee deposits	-	164,740	-	-	164,740
Derivative financial assets	33,668	-	-	412	34,080
Subtotal	33,668	9,776,353	-	412	9,810,433
Non-current assets:					
Long-term financial instruments	-	4,501	-	-	4,501
Long-term trade accounts receivable	-	153	-	-	153
Long-term investment securities	-	-	276,338	-	276,338
Long-term other accounts receivable	15,964	868	-	-	16,832
Long-term loans	-	106,320	-	-	106,320
Long-term guarantee deposits	-	28,353	-	-	28,353
Derivative financial assets	1,975	-	-	-	1,975
Subtotal	17,939	140,195	276,338	-	434,472
Total	₩ 51,607	₩ 9,916,548	₩ 276,338	₩ 412	₩ 10,244,905

(*1) FVTPL: Fair value through profit or loss

(*2) AC: Amortized cost

(*3) FVTOCI: Fair value through other comprehensive income

(*4) AFS: Available for sale

(*5) This amounts include retrospective adjustments of the identifiable net assets due to the business combination that occurred in the prior period (see Note 35).

Details of financial liabilities as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018			
	Financial liabilities designated as FVTPL (*1)	Financial liabilities measured at AC (*2)	Derivatives designated as hedging instruments	Total
Current liabilities:				
Short-term borrowings	₩ -	₩ 153,742	₩ -	₩ 153,742
Trade accounts payable	-	4,650,029	-	4,650,029
Other accounts payable	2,700	462,892	-	465,592
Accrued expenses	-	1,344,051	-	1,344,051
Leasehold deposits received	-	12,358	-	12,358
Derivative financial liabilities	54,774	-	1,072	55,846
Current portion of long-term debt	-	1,221,524	-	1,221,524
Subtotal	57,474	7,844,596	1,072	7,903,142
Non-current liabilities:				
Bonds payable and long-term borrowings	-	6,648,068	-	6,648,068
Financial guarantee liabilities	-	721	-	721
Long-term Other accounts payable	3,884	8,706	-	12,590
Subtotal	3,884	6,657,495	-	6,661,379
Total	₩ 61,358	₩ 14,502,091	₩ 1,072	₩ 14,564,521

	December 31, 2017(*3)			
	Financial liabilities designated as FVTPL(*1)	Other financial liabilities	Derivatives designated as hedging instruments	Total
Current liabilities:				
Short-term borrowings	₩ -	₩ 242,879	₩ -	₩ 242,879
Trade accounts payable	-	5,265,306	-	5,265,306
Other accounts payable	-	446,758	-	446,758
Accrued expenses	-	1,163,596	-	1,163,596
Leasehold deposits received	-	13,412	-	13,412
Derivative financial liabilities	89,600	-	1,169	90,769
Current portion of long-term debt	-	1,272,428	-	1,272,428
Subtotal	89,600	8,404,379	1,169	8,495,148
Non-current liabilities:				
Bonds payable and long-term borrowings	-	4,062,637	-	4,062,637
Financial guarantee liabilities	-	1,131	-	1,131
Long-term Other accounts payable	6,536	4	-	6,540
Subtotal	6,536	4,063,772	-	4,070,308
Total	₩ 96,136	₩ 12,468,151	₩ 1,169	₩ 12,565,456

(*1) FVTPL: Fair value through profit or loss

(*2) AC: Amortized cost

(*3) This amounts include retrospective adjustments of the identifiable net assets due to the business combination that occurred in the prior period (see Note 35).

Details of income and costs by each category of financial instruments for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

Financial assets:	For the year ended December 31, 2018			
	Financial assets designated as FVTPL	Financial assets measured at AC	Financial assets designated as FVTOCI	Subtotal
Profit or loss:				
Interest income	₩ 48,109	₩ 39,622	₩ 604	₩ 88,335
Net gain on derivative instruments	1,962,700	-	-	1,962,700
Net gain from foreign currency	-	126,017	62	126,079
Others	5,167	(89)	4,642	9,720
Subtotal	2,015,976	165,550	5,308	2,186,834
Comprehensive income:				
Net loss on investment securities	-	-	(20,239)	(20,239)
Total	₩ 2,015,976	₩ 165,550	₩ (14,931)	₩ 2,166,595

Financial liabilities:	For the year ended December 31, 2018		
	Financial liabilities designated as FVTPL	Financial liabilities measured at AC	Subtotal
Profit or loss:			
Interest expense	₩ -	₩ (259,548)	₩ (259,548)
Net loss on derivative instruments	(1,468,182)	-	(1,468,182)
Net loss from foreign currency	(32,677)	(194,269)	(226,946)
Total	₩ (1,500,859)	₩ (453,817)	₩ (1,954,676)

Financial assets:

	For the year ended December 31, 2017				
	Financial assets designated as FVTPL	Loans and receivables	AFS financial assets	Derivatives designated as hedging instruments	Subtotal
Profit or loss:					
Interest income	₩ -	₩ 74,733	₩ 1,304	₩ -	₩ 76,037
Net gain on derivative instruments	492,195	-	-	(2,361)	489,834
Net gain from foreign currency	-	(436,996)	-	-	(436,996)
Others	-	(1,541)	4,197	-	2,656
Subtotal	492,195	(363,804)	5,501	(2,361)	131,531
Comprehensive income:					
Net gain on investment securities	-	-	33,914	-	33,914
Total	₩ 492,195	₩ (363,804)	₩ 39,415	₩ (2,361)	₩ 165,445

Financial liabilities:

	For the year ended December 31, 2017			
	Financial liabilities designated as FVTPL	Other financial liabilities	Derivatives designated as hedging instruments	Subtotal
Profit or loss:				
Interest expense	₩ -	₩ (206,347)	₩ -	₩ (206,347)
Net loss on derivative instruments	(632,105)	-	(427)	(632,532)
Net loss from foreign currency	-	539,042	-	539,042
Total	₩ (632,105)	₩ 332,695	₩ (427)	₩ (299,837)

(*) Bad debt expense (reversal of allowance for doubtful debts) is excluded from loans and receivables (see Note 5).

Fair values of financial instruments, which are measured subsequently at fair values by hierarchy level as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018			
Type	Fair value	Level 1	Level 2	Level 3
Financial assets:				
Financial assets measured at FVTPL	₩ 3,387,162	₩ 3,296,515	₩ -	₩ 90,647
Financial assets measured at FVTOCI	262,051	151,574	24,500	85,977
Derivative financial assets	80,710	6,762	73,948	-
Total	₩ 3,729,923	₩ 3,454,851	₩ 98,448	₩ 176,624
Financial liabilities:				
Financial assets measured at FVTPL	₩ 6,584	₩ -	₩ -	₩ 6,584
Derivative financial liabilities	55,846	-	55,846	-
Total	₩ 62,430	₩ -	₩ 55,846	₩ 6,584

	December 31, 2017			
Type	Fair value	Level 1	Level 2	Level 3
Financial assets:				
Financial assets measured at FVTPL	₩ 15,964	₩ -	₩ -	₩ 15,964
AFS financial assets	163,131	128,096	35,035	-
Derivative financial assets	36,055	706	35,349	-
Total	₩ 215,150	₩ 128,802	₩ 70,384	₩ 15,964
Financial liabilities:				
Financial assets measured at FVTPL	₩ 6,536	₩ -	₩ -	₩ 6,536
Derivative financial liabilities	90,769	2,124	88,645	-
Total	₩ 97,305	₩ 2,124	₩ 88,645	₩ 6,536

For the years ended December 31, 2018 and 2017, there were no transfers between different levels of fair value measurements.

Details of changes in level 3 financial instruments for the years ended December 31, 2018 are as follows (in millions of Korean won):

	Beginning balance(*1)	Acquisition	Disposals	Profit or loss	Other comprehensive income	Other	Ending balance
Financial assets:							
Financial assets measured at FVTPL	₩ 81,531	₩ 13,135	₩ (7,659)	₩ 388	₩ -	₩ 3,252	₩ 90,647
Financial assets measured at FVTOCI	81,850	2,240	-	-	1,876	11	85,977
Financial liabilities:							
Financial liabilities measured at FVTPL	₩ 6,536	₩ -	₩ -	₩ (233)	₩ -	₩ 281	₩ 6,584

(*1) In accordance with adoption of K-IFRS 1109, AFS financial assets that had been measured at cost were classified as financial assets measured at FVTPL or FVTOCI on January 1, 2018, the date of initial application.

Description of the inputs and the valuation techniques measuring the fair value of financial instruments classified as Level 2 and Level 3 is as follows:

a. Currency forward and currency swap

Fair value of currency forward and currency swap was measured, in principle, by the posted “forward rate” of the period corresponding to the remaining maturity of the evaluation subject as of December 31, 2018. If the posted “forward rate” of the period corresponding to the remaining maturity of the evaluation subject does not exist, the currency forward and currency swap were measured by the estimated “forward rate” of the period similar to the remaining maturity by the interpolation method. Discount rate used in fair value measurement was determined by the yield curve derived from the posted interest rate as of December 31, 2018.

b. Commodity swap

Fair value of commodity swap was measured, in principle, by the posted “future price” of the period corresponding to the remaining maturity of the evaluation subject as of December 31, 2018. In addition, the discount rate used to measure the fair value of the spot swap was determined using the yield curve derived from the interest rate announced on the market at the end of the reporting period.

c. Interest rate swap

Fair value of interest rate swap was measured, in principle, by the posted “interest rate of swap” of the period corresponding to the remaining maturity of the evaluation subject as of December 31, 2018. If the posted “interest rate of swap” of the period corresponding to the remaining maturity of the evaluation subject does not exist, the interest rate swap was measured by the estimated “interest rate of swap” of the period similar to the remaining maturity by the interpolation.

d. Debt securities

Fair value of debt securities was measured by future cash flows discounted at the market rate that reflects similar credit rating to debt issuer.

e. Investments in non-listed companies

The fair value of investments in non-listed companies was measured using the Discounted Cash Flow model and certain assumptions which were not based on observable market prices or rates, such as for sales growth, pre-tax profit margin, and weighted average cost of capital, were used for estimating the future cash flow. The weighted average cost of capital for discounting the future cash flows was calculated applying the Capital Asset Pricing Model ("CAPM"). As the Group determined that the effect of the above mentioned assumptions and estimates for measuring the fair value of investments in non-listed companies was significant, the fair value measurement of investments in non-listed companies was classified as Level 3 in the fair value hierarchy

f. Convertible bond securities

The fair value of the convertible debt securities was measured at the sum of the fair value of the elements of common bonds that did not include conversion rights and the conversion rights that were embedded derivative instruments (call option). The fair value of common bonds that did not include conversion rights was measured by discounting the future cash flows of the bonds by applying market interest rates applicable to companies with similar credit ratings to convertible bond issuers. The fair value of the conversion rights was measured using the option pricing model. Stock price volatility, a significant input variable used to measure the fair value of the conversion rights, was estimated based on historical stock price changes. As the Group determined that the fair value of the conversion rights was a significant portion for measuring the fair value of the convertible debt securities, the fair value measurement of the convertible debt securities was classified as Level 3 in the fair value hierarchy.

g. Contingent consideration

The fair value of contingent consideration was measured at present value of the probability-weighted average of consideration to be received from each scenario based on estimate of net income before interest and tax for each scenario.

For the year ended December 31, 2018, there was no change in valuation techniques used for measuring the fair value of financial instruments.

Details of restricted deposits as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

Account	Bank	December 31, 2018	December 31, 2017	Description
Short-term financial instruments	IBK Bank and others	₩ 22,000	₩ 29,500	Charitable trust funds
Short-term financial instruments	KDB Bank and others	12,200	12,000	Deposits related to funding for mutual growth and others
Long-term financial instruments	KEB Hana Bank and others	68	68	Guarantee deposits
Long-term financial instruments	Samsung Securities and others	4,634	4,433	Deposits related to carbon emission rights
Total		₩ 38,902	₩ 46,001	

5. 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		
	Cost	Allowance for doubtful accounts	Book value	Cost	Allowance for doubtful accounts	Book Value(*1)
Trade accounts receivable	₩ 4,742,553	₩ (282,829)	₩4,459,724	₩ 5,102,109	₩ (280,802)	₩4,821,307
Short-term loans	48,096	(4,539)	43,557	64,399	(4,544)	59,855
Other accounts receivable	718,496	(22,343)	696,153	498,530	(22,342)	476,188
Accrued income	5,083	-	5,083	7,099	(2,005)	5,094
Guarantee deposits	171,808	-	171,808	164,740	-	164,740
Long-term trade accounts receivable	169	(90)	79	244	(91)	153
Long-term other accounts receivable	12,857	-	12,857	16,832	-	16,832
Long-term loans	322,976	(126,727)	196,249	247,723	(141,403)	106,320
Long-term guarantee deposits	42,594	-	42,594	28,353	-	28,353
Total	₩ 6,064,632	₩ (436,528)	₩5,628,104	₩ 6,130,029	₩ (451,187)	₩5,678,842

(*1) This amounts include retrospective adjustments of the identifiable net assets due to the business combination that occurred in the prior period (see Note 35).

Details of aging analysis of trade and other receivables as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018					
		Overdue but not individually impaired				
	Accounts receivable not overdue	Less than three months	Three to six months	Six to twelve months	Individually impaired	Total
Trade accounts receivable	₩ 4,290,840	₩ 145,257	₩ 24,736	₩ 1,543	₩ 280,346	₩ 4,742,722
Other receivables	1,159,801	3,578	212	2,671	155,648	1,321,910
Allowance for doubtful accounts	(736)	(1,877)	(71)	(1)	(433,843)	(436,528)
Total	₩ 5,449,905	₩ 146,958	₩ 24,877	₩ 4,213	₩ 2,151	₩ 5,628,104

	December 31, 2017					
		Overdue but not individually impaired				
	Accounts receivable not overdue	Less than three months	Three to six months	Six to twelve months	Individually impaired	Total
Trade accounts receivable	₩ 4,655,997	₩ 164,465	₩ 1,721	₩ 1,720	₩ 278,450	₩ 5,102,353
Other receivables	826,656	15,759	1,803	10,683	172,775	1,027,676
Allowance for doubtful accounts	(378)	(2,036)	(66)	-	(448,707)	(451,187)
Total	₩ 5,482,275	₩ 178,188	₩ 3,458	₩ 12,403	₩ 2,518	₩ 5,678,842

Details of changes in allowance for doubtful accounts for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the years ended	
	December 31, 2018	December 31, 2017
Beginning balance	₩ 451,187	₩ 458,547
Bad debt (Reversal of allowance of doubtful accounts)	2,706	(6,742)
Write-off	(18,925)	(1,828)
Others	1,560	1,210
Ending balance	₩ 436,528	₩ 451,187

6. 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		
	Cost	Valuation allowance	Book value	Cost	Valuation allowance	Book Value(*1)
Merchandise	₩ 18,902	₩ -	₩ 18,902	₩ 3,651	₩ -	₩ 3,651
Finished goods	1,999,973	(148,321)	1,851,652	1,722,129	(17,259)	1,704,870
Semifinished goods	740,923	(97,283)	643,640	593,983	(22,422)	571,561
Raw materials	1,610,851	(71,271)	1,539,580	1,124,757	(4,167)	1,120,590
Materials in transit	1,992,625	-	1,992,625	2,450,731	-	2,450,731
Supplies	102,839	(902)	101,937	96,709	(659)	96,050
Others	31,470	-	31,470	32,181	-	32,181
Total	₩6,497,583	₩ (317,777)	₩6,179,806	₩6,024,141	₩ (44,507)	₩5,979,634

(*1) This amounts include retrospective adjustments of the identifiable net assets due to the business combination that occurred in the prior period (see Note 35).

Loss on valuation allowance for inventories amounted to ₩274,033 million and ₩7,238 million for the years ended December 31, 2018 and 2017, respectively.

7. LOANS:

Long-term loans as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

Details	Counterparty	December 31, 2018	December 31, 2017
Assistance in investments	Yemen LNG Company Ltd.	₩ 33,632	₩ 24,445
Assistance in operation	Petroleum products wholesalers and others	81,505	86,751
	Korea Kamchatka Consortium (*1)	9,669	9,669
	Korea Consortium Kazakh (“KCK”) B.V. (*1,2)	146,170	146,170
	HelioVolt Corporation (*3)	-	14,644
	EUE Co., Ltd	81,048	-
	Others	23,374	19,239
Subtotal		375,398	300,918
Less: Discount on long-term loans		(2,827)	(3,600)
Allowance for doubtful accounts (*2)		(126,727)	(141,403)
Development grants (*4)		(49,595)	(49,595)
Total		₩ 196,249	₩ 106,320

(*1) Loans are connected with the borrowings related to exploration of oil fields.

(*2) Long-term loans to KCK B.V. were impaired and fully provided through the Group’s allowance for doubtful accounts.

(*3) Loans to HelioVolt Corporation was written-off for the year ended December 31, 2018 due to the debtor’s liquidation

(*4) Refers to the reclassification of borrowings related to exploration of oil fields for which the Group has no obligation to repay, as they are determined to have no commercial productivity.

In addition, short-term loans were granted to gas stations for the purpose of assistance in operations as of December 31, 2018 and 2017.

8. LONG-TERM INVESTMENT SECURITIES:

Details of long-term investment securities by each category of financial instruments as of December 31, 2018 and December 31, 2017, are as follows (in millions of Korean won):

	December 31, 2018		December 31, 2017	
	Cost	Book value	Cost	Book value
Financial assets measured at FVTOCI:				
Debt securities	₩ 25,103	₩ 24,500	₩ -	₩ -
Equity securities (*1)	233,391	237,551	-	-
Subtotal	258,494	262,051	-	-
Financial assets measured at FVTPL:				
Debt securities	4,000	4,000	-	-
Other investments	73,874	69,724	-	-
Subtotal	77,874	73,724	-	-
AFS financial assets:				
Debt securities	-	-	35,582	35,035
Other investments	-	-	86,691	65,845
Equity securities	-	-	185,638	175,458
Subtotal	-	-	307,911	276,338
Total	₩ 336,368	₩ 335,775	₩ 307,911	₩ 276,338

(*1) The Group made irrevocable elections to present subsequent changes in fair value in other comprehensive income at initial recognition including initial application of K-IFRS 1109 for equity investments for strategic investment purpose rather than held for trading.

Details of long-term investment securities as of December 31, 2018 and December 31, 2017, are as follows (in millions of Korean won):

	December 31, 2018		December 31, 2017	
	Cost	Book value	Cost	Book value
Debt securities	₩ 29,103	₩ 28,500	₩ 35,582	₩ 35,035
Other investments	73,874	69,724	86,691	65,845
Investments in listed companies	164,566	151,574	119,061	128,096
Investments in non-listed companies	68,825	85,977	66,577	47,362
Subtotal	336,368	335,775	307,911	276,338
Less: Current portion due within one year	(2,591)	(2,591)	-	-
Total	₩ 333,777	₩ 333,184	₩ 307,911	₩ 276,338

Details of debt securities in listed companies as of December 31, 2018 and December 31, 2017, are as follows (in millions of Korean won):

	December 31, 2018		December 31, 2017	
	Cost	Book value	Cost	Book value
Debenture	₩ 25,103	₩ 24,500	₩ 31,582	₩ 31,035
Convertible debt securities issued by LTC Co., Ltd	4,000	4,000	4,000	4,000
Total	₩ 29,103	₩ 28,500	₩ 35,582	₩ 35,035

Details of other investments as of December 31, 2018 and December 31, 2017, are as follows (in millions of Korean won):

	December 31, 2018			December 31, 2017	
	Ownership percentage (%)	Cost	Book value	Cost	Book value
Harbinger China Dragon Fund(*1)	-	₩ -	₩ -	₩ 20,846	₩ -
Prostar Asia-Pacific Energy Infrastructure SK Fund L.P..(*2,*3)	24.8	23,880	23,366	23,198	23,198
Green Future Private Equity Fund	19.9	2,591	2,591	2,591	2,591
KoFC KDBC-SKS Shared Growth No.3. Private Equity Fund	7.5	144	144	2,139	2,139
First Reserve Fund XIII, L.P.(*3)	1.5	32,153	31,159	23,395	23,395
CFC-SK ElDorado Latam Fund, L.P.(*2,*3)	24.8	5,106	2,464	4,522	4,522
Kumho Busline	3.0	10,000	10,000	10,000	10,000
Total		₩ 73,874	₩ 69,724	₩ 86,691	₩ 65,845

(*1) The liquidation has been completed during the year ended December 31, 2018.

(*2) Although the Company holds more than 20% of the equity shares as a limited partner, the Group concluded that it does not have significant influence over the investees because general partner has the right to appoint the member of investee's Board of Directors to determine operating and financial policies and the Group does not have the right to replace general partner.

(*3) For the year ended December 31, 2018, additional capital contributions were carried out.

Details of investments in listed companies as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018			December 31, 2017	
	Ownership percentage (%)	Cost	Book value	Cost	Book value
JXTG Holdings, Inc.	0.5	₩ 98,095	₩ 89,320	₩ 98,095	₩ 105,710
Korea Environment Technology Co., Ltd.	2.5	2,377	9,386	2,377	6,524
Kumho Industrial Co., Ltd.	1.6	10,000	6,782	10,000	5,465
Hi-Tech Lubricants Limited(*1)	0.7	-	-	589	569
LTC Co., Ltd.	9.2	8,000	6,696	8,000	9,828
PV-Oil	5.2	46,094	39,390	-	-
Total		₩ 164,566	₩ 151,574	₩ 119,061	₩ 128,096

(*1) The investment securities have been reclassified as investments in associates as the Group has the authority to elect directors of the board to determine the financial policies and operating policies although the ownership percentage of the Group is less than 20%.

Details of investments in non-listed companies as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018			December 31, 2017	
	Ownership percentage (%)	Cost	Book value	Cost	Book value
Nongshim Development Co., Ltd.	1.1	₩ 12,647	₩ 348	₩ 12,647	₩ 348
Intellectual Discovery Co., Ltd.	3.5	2,000	545	2,000	545
Korea ePlatform Co., Ltd.	6.4	2,000	2,000	2,000	2,000
Machinery Financial Cooperative	0.4	800	800	800	800
Q-BioTech Corp.	3.6	24	9	24	9
Esco Co., Ltd.	13.2	500	250	500	250
K.K. Korea Kamchatka Co. Limited	10.0	1,323	-	1,323	-
Kyungsangilbo Co., Ltd.	10.0	1,760	381	1,760	381
Samhwa Oil Co., Ltd.	19.9	3,747	9,443	3,747	3,747
Euro Tank Terminal B.V.	5.0	35,865	37,744	35,868	35,868
Hanju Co., Ltd.	9.2	1,104	29,898	1,104	1,104
Tesla Nano Coatings, Inc.	10.0	2,404	-	2,404	-
Clean Technology Co., Ltd.	17.9	1,964	1,964	1,964	1,964
Joomma Co., Ltd	19.9	2,240	2,240	-	-
Others	-	447	355	436	346
Total		₩ 68,825	₩ 85,977	₩ 66,577	₩ 47,362

Details of changes in long-term investment securities for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the years ended	
	December 31, 2018	December 31, 2017
Beginning balance	₩ 276,338	₩ 242,550
Effect of change in accounting policies	30,210	-
Restated balance after adjustment	306,548	242,550
Acquisition	61,469	45,741
Disposal	(15,354)	(38,189)
Valuation	(20,111)	33,914
Impairment	-	(4,534)
Transfer	(569)	1,964
Other	3,792	(5,108)
Ending balance	₩ 335,775	₩ 276,338

9. INVESTMENTS IN ASSOCIATES AND JOINTLY CONTROLLED ENTITIES:

Details of investments in associates and jointly controlled entities as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

		December 31, 2018				December 31, 2017
	Location	Ownership percentage (%)	Acquisition cost	Proportionate book value	Book value	Book value
Daehan Oil Pipeline Corp. (*1)	Korea	41.0	₩ 146,183	₩ 320,964	₩ 339,664	₩ 334,331
Peru LNG Company, LLC	Peru	20.0	288,543	293,196	293,027	274,738
SK China Company, Ltd.	China	33.4	728,018	735,880	687,741	649,307
SK Investment Management Co., Limited (*2)	China	9.6	1,094	1,094	1,094	1,094
SK Technology Innovation Company	USA	29.5	52,548	25,586	25,586	25,611
Troika Resources Investment PEF (*2,4)	Korea	10.1	36,320	1,508	1,508	2,699
HelioVolt Corporation (*3)	USA	-	-	-	-	-
Gemini Partners Pte. Ltd(*4).	Singapore	20.0	6,109	2,539	2,539	2,434
Zhejiang Shenxin SK Packaging Co., Ltd.	China	50.0	5,729	13,345	13,345	13,581
Hana Alternative Investment Landchip Private REITs 33rd (*1,5,6)	Korea	48.3	161,500	195,451	195,451	106,531
SK MENA Investment B.V.	Netherland	34.6	15,579	15,292	15,292	14,679
SK Latin America Investment S.A.	Spain	34.6	15,360	14,080	14,080	14,549
Happynarae Co., Ltd. (*7)	Korea	-	-	-	-	21,894
Shanghai-Gaoqiao SK Solvent Co., Ltd. (*1,5)	China	50.0	5,327	5,325	5,325	6,856
Netruck Franz Co., Ltd. (*5)	China	50.0	5,541	6,505	6,505	6,045
SK BRASIL LTDA (*4)	Brazil	23.4	1,602	162	162	162
Oilhub Korea Yeosu Corporation (*1,2)	Korea	11.0	14,810	20,232	22,705	21,610
Korea Consortium Kazakh B.V. (*8)	Kazakhstan	25.0	172	-	-	-
SK International Investment Singapore Pte. Ltd. (*4,5,8)	Singapore	16.7	18,455	-	-	-
Yemen LNG Company, Ltd. (*2,4,8)	Yemen	6.9	1	-	-	-
Korea Ras Laffan LNG Limited (*1,2)	Bermuda	8.0	3,426	61,519	61,519	58,081
Korea LNG Limited (*1,2)	Bermuda	16.0	2	31,089	31,089	28,669
Jinwha SK Baoying Asphalt Co., Ltd.	China	25.0	1,233	1,600	1,600	1,558

		December 31, 2018				December 31, 2017
	Location	Ownership percentage (%)	Acquisition cost	Proportionate book value	Book value	Book value
Horizon Singapore Terminals Private Limited (*1,2)	Singapore	15.0	9,907	26,935	26,935	27,233
SK-SVW (Chongqing) Chemical Co., Ltd. (*4,5)	China	50.0	10,159	2,776	2,776	2,695
Rizhao SK Asphalt Co., Ltd. (*1)	China	25.0	1,739	1,547	1,547	1,587
Beijing BESK Technology Co., Ltd. (*9)	China	49.0	154,318	141,909	143,198	28,487
SK Hualun Specialty Chemical Co., Ltd.	China	50.0	4,263	1,708	1,708	2,686
Sinopec-SK (Wuhan) Petrochemical Co., Ltd. (*5)	China	35.0	381,127	742,213	775,577	681,901
Asia Bitumen Trading Pte. Ltd. (*5)	Singapore	50.0	4	1,495	1,495	1,306
SABIC SK Nexlene Company Pte. Ltd. (*5)	Singapore	50.0	167,780	134,350	88,680	91,907
Huizhou SK TCL Taidong Chemical (*5)	China	50.0	5,198	4,883	4,883	4,908
FSK L&S (Shanghai) Co., Ltd.	China	34.0	4,152	4,027	4,027	4,049
SK South East Investment Pte. Ltd. (*5,10)	Singapore	20.0	110,880	111,810	111,810	-
Tankang-SK energy Co., Ltd	Vietnam	50.0	283	283	283	-
Hi-Tech Lubricants Limited (*1,2,11)	China	0.7	589	217	652	-
Total			₩2,357,951	₩ 2,919,520	₩2,881,803	₩ 2,431,188

(*1) The Group received dividends from investments in associates and jointly controlled entities for the years ended December 31, 2018 and 2017, details of which are as follows (in millions of Korean won):

	For the years ended	
	December 31, 2018	December 31, 2017
Daehan Oil Pipeline Corp.	₩ 4,796	₩ 5,534
Hana Alternative Investment Landchip Private REITs 33rd	9,800	7,610
Shanghai-Gaoqiao SK Solvent Co., Ltd.	-	1,001
Oilhub Korea Yeosu Corporation	1,153	-
Korea Ras Laffan LNG Limited	8,396	8,248
Korea LNG Limited	8,432	5,151
Horizon Singapore Terminals Private Limited	5,840	4,995
Rizhao SK Asphalt Co., Ltd.	127	164
Hi-Tech Lubricants Limited	67	-
Total	₩ 38,611	₩ 32,703

(*2) The Group retains significant influence on the associate despite having less than 20% equity interests
(*3) The liquidation has been completed for the year ended December 31, 2018.
(*4) An impairment loss on investments in associates as a result of an incurred "loss event" was accounted for prior to 2018.
(*5) Joint arrangements that the Company has joint control over are structured by a separate entity. The parties that have joint control with respect to the joint agreement hold the rights to the net assets of the agreements, so that they are classified as joint ventures and accounted for using the equity method of accounting
(*6) The Group acquired additional 16.9% of the common shares of Hana Alternative Investment Landchip Private Real Estate Investment Trust No. 33 held by SK Planet Co., Ltd.
(*7) The Group disposed of all of the 45% shares of Happynarae Co., Ltd. to SK Hynix Inc.
(*8) As of December 31, 2018, the investment in associates exceeded the carrying amount and the application of the equity method was discontinued. Unappropriated accumulated losses of affiliated companies amounted to ₩ 337,742 million.
(*9) The Group acquired additional 9.0% of the shares for the year ended Decembre 31, 2018.
(*10) For the year ended December 31, 2018, the Company acquired 20.0% of the shares of SK South East Asia Investment Pte. Ltd and classified it to jointly controlled entities.
(*11) For the year ended December 31, 2018, the investments were reclassified from long-term investment securities to investments in associates.

Details of changes in the carrying amount of investments in associates and jointly controlled entities for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	Beginning balance	Acquisition	Disposal	Equity in earnings of investment in associates	Changes in equity adjustment	Transfer	Other	Ending balance
Daehan Oil Pipeline Corp.	₩ 334,331	₩ -	₩ -	₩ 10,662	₩ (533)	₩ -	₩ (4,796)	₩ 339,664
Peru LNG Company LLC	274,738	-	-	(26,526)	44,815	-	-	293,027
SK China Company, Ltd.	649,307	-	-	7,620	30,814	-	-	687,741
SK Investment Management Co., Limited	1,094	-	-	-	-	-	-	1,094
SK Technology Innovation Company	25,611	-	-	(1,132)	1,107	-	-	25,586
Troika Resources Investment PEF	2,699	-	-	(1,191)	-	-	-	1,508
Gemini Partners Pte. Ltd.	2,434	-	-	91	14	-	-	2,539
Zhejiang Shenxin SK Packaging Co., Ltd.	13,581	-	-	(164)	(92)	-	20	13,345
Hana Alternative Investment Landchip Private REITs 33rd	106,531	68,500	-	30,220	-	-	(9,800)	195,451
SK MENA Investment B.V.	14,679	-	-	(27)	640	-	-	15,292
SK Latin America Investment S.A.	14,549	-	-	(475)	6	-	-	14,080
Happynarae Co., Ltd.	21,894	-	(25,010)	3,127	(11)	-	-	-
Shanghai-Gaoqiao SK Solvent Co., Ltd.	6,856	-	-	(1,528)	(3)	-	-	5,325
Netruck Franz Co., Ltd.	6,045	-	-	205	-	-	255	6,505
SK BRASIL LTDA	162	-	-	-	-	-	-	162
Oilhub Korea Yeosu Corporation	21,610	-	-	2,311	(63)	-	(1,153)	22,705
KCK B.V.	-	-	-	-	-	-	-	-
SK International Investment Singapore Pte. Ltd.	-	-	-	-	-	-	-	-
Yemen LNG Company Ltd.	-	-	-	-	-	-	-	-
Korea Ras Laffan LNG Limited	58,081	-	-	8,377	3,457	-	(8,396)	61,519
Korea LNG Limited	28,669	-	-	8,436	2,416	-	(8,432)	31,089
Jinwha SK Baoying Asphalt Co., Ltd.	1,558	-	-	52	(74)	-	64	1,600
Horizon Singapore Terminals Private Limited	27,233	-	-	4,976	(597)	-	(4,677)	26,935
SK-SVW (Chongqing) Chemical Co., Ltd.	2,695	-	-	98	(134)	-	117	2,776
Rizhao SK Asphalt Co., Ltd.	1,587	-	-	92	(67)	-	(65)	1,547
Beijing BESK Technology Co., Ltd.	28,487	118,758	-	(2,728)	(1,319)	-	-	143,198
SK Hualun Specialty Chemical Co., Ltd.	2,686	-	-	(985)	-	-	7	1,708
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	681,901	-	-	105,805	(12,129)	-	-	775,577
Asia Bitumen Trading Pte. Ltd.	1,306	-	-	132	2	-	55	1,495
SABIC SK Nexlene Company Pte. Ltd.	91,907	-	-	2,531	(5,758)	-	-	88,680
Huizhou SK TCL Taidong Chemical	4,908	-	-	-	-	-	(25)	4,883
FSK L&S (Shanghai) Co., Ltd	4,049	-	-	-	-	-	(22)	4,027
SK South East Investment Pte. Ltd	-	110,881	-	-	929	-	-	111,810
Tankang-SK energy Co., Ltd	-	283	-	-	-	-	-	283
Hi-Tech Lubricants.	-	-	-	130	-	589	(67)	652
Total	₩ 2,431,188	₩ 298,422	₩ (25,010)	₩ 150,109	₩ 63,420	₩ 589	₩ (36,915)	₩ 2,881,803

	For the year ended December 31, 2017								
	Beginning balance	Acquisition	Disposal	Equity in earnings of investment in associates	Changes in equity adjustment	Transfer	Impairment	Other	Ending balance
Daehan Oil Pipeline Corp.	₩ 327,066	₩ -	₩ -	₩ 12,203	₩ 596	₩ -	₩ -	₩ (5,534)	₩ 334,331
Peru LNG Company LLC	314,425	-	-	(4,231)	(35,456)	-	-	-	274,738
SK China Company, Ltd.	47,185	685,865	-	(31,792)	(50,857)	(1,094)	-	-	649,307
SK Investment Management Co., Limited	-	1,094	-	-	-	-	-	-	1,094
SK Technology Innovation Company	28,609	-	-	261	(3,259)	-	-	-	25,611
Troika Resources Investment PEF	2,418	-	-	281	-	-	-	-	2,699
HelioVolt Corporation	-	-	-	-	-	-	-	-	-
Gemini Partners Pte. Ltd.	3,238	-	-	(681)	(123)	-	-	-	2,434
Zhejiang Shenxin SK Packaging Co., Ltd.	13,730	-	-	627	(513)	-	-	(263)	13,581
Hana Alternative Investment Landchip Private REITs 33rd	94,895	-	-	19,246	-	-	-	(7,610)	106,531
SK Industrial Development China Co., Ltd.	74,700	-	(81,248)	(926)	7,474	-	-	-	-
SK MENA Investment B.V.	16,406	-	-	142	(1,869)	-	-	-	14,679
SK Latin America Investment S.A.	16,289	-	-	609	(2,349)	-	-	-	14,549
SKY Property Management Ltd.	344,388	-	(341,842)	3,572	(6,118)	-	-	-	-
Happynarae Co., Ltd.	17,195	688	-	4,146	(135)	-	-	-	21,894
Shanghai-Gaoqiao SK Solvent Co., Ltd.	10,782	-	-	(2,437)	(488)	-	-	(1,001)	6,856
Netruck Franz Co., Ltd.	6,707	-	-	155	-	-	-	(817)	6,045
SK BRASIL LTDA	162	-	-	-	-	-	-	-	162
Oilhub Korea Yeosu Corporation	19,167	-	-	2,403	40	-	-	-	21,610
KCK B.V.	-	-	-	-	-	-	-	-	-
Tengzhou ShengYuanHongDa Chemical Co., Ltd.	-	-	-	-	-	-	-	-	-
Shanxi Huineng Cole Mine Co., Ltd.	-	-	-	-	-	-	-	-	-
SK International Investment Singapore Pte. Ltd.	-	-	-	-	-	-	-	-	-
Yemen LNG Company Ltd.	12,936	-	-	(4,857)	659	-	(8,738)	-	-
Korea Ras Laffan LNG Limited	77,284	-	-	6,526	(17,481)	-	-	(8,248)	58,081
Korea LNG Limited	45,390	-	-	5,189	(16,759)	-	-	(5,151)	28,669
Jinwha SK Baoying Asphalt Co., Ltd.	1,540	-	-	106	109	-	-	(197)	1,558
Horizon Singapore Terminals Private Limited	27,243	-	-	6,038	4,444	-	-	(10,492)	27,233
SK-SVW (Chongqing) Chemical Co., Ltd.	2,950	-	-	(94)	176	-	-	(337)	2,695
Rizhao SK Asphalt Co., Ltd.	1,791	-	-	65	108	-	-	(377)	1,587
Beijing BESK Technology Co., Ltd.	18,350	10,967	-	245	(1,075)	-	-	-	28,487
SK Hualun Specialty Chemical Co., Ltd.	3,137	-	-	(283)	-	-	-	(168)	2,686
Clean Technology Co., Ltd.	2,012	-	-	-	-	(2,012)	-	-	-
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	565,226	-	-	156,748	(40,073)	-	-	-	681,901
Asia Bitumen Trading Pte. Ltd.	1,091	-	-	357	9	-	-	(151)	1,306
SABIC SK Nexlene Company Pte. Ltd.	76,946	-	-	(2,969)	17,930	-	-	-	91,907
Huizhou SK TCL Taidong Chemical	5,198	-	-	-	-	-	-	(290)	4,908
FSK L&S (Shanghai) Co., Ltd.	-	-	-	-	-	4,152	-	(103)	4,049
Total	₩ 2,178,456	₩ 698,614	₩ (423,090)	₩ 170,649	₩ (145,010)	₩ 1,046	₩ (8,738)	₩ (40,739)	₩ 2,431,188

The condensed financial positions of major investments in associates and jointly controlled entities as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018				
	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Total equity
Daehan Oil Pipeline Corp.	₩ 142,352	₩ 911,217	₩ 34,054	₩ 236,708	₩ 782,807
Peru LNG Company LLC	348,860	2,526,235	244,329	1,164,784	1,465,982
SK China Company, Ltd.	677,686	1,712,751	71,414	117,077	2,201,946
Hana Alternative Investment Landchip Private REITs 33rd	8,737	711,400	1,083	314,483	404,571
Korea Ras Laffan LNG Limited	730	790,566	95	22,210	768,991
Korea LNG Limited	712	193,701	5	105	194,303
Beijing BESK Technology Co., Ltd.	269,107	24,441	3,938	-	289,610
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	447,617	2,052,807	379,704	112	2,120,608
SABIC SK Nexlene Company Pte. Ltd.	173,228	557,896	126,417	336,006	268,701

	December 31, 2017				
	Current assets	Non-current assets	Current liabilities	Non-current liabilities	Total equity
Daehan Oil Pipeline Corp.	₩ 109,180	₩ 908,551	₩ 28,013	₩ 225,388	₩ 764,330
Peru LNG Company LLC	338,513	2,854,123	206,389	1,612,557	1,373,690
SK China Company, Ltd.	729,872	1,514,915	81,161	64,717	2,098,909
Hana Alternative Investment Landchip Private REITs 33rd	11,038	645,900	3,387	314,483	339,068
Happynarae Co., Ltd.	165,583	6,235	141,123	670	30,025
Yemen LNG Company Ltd.	132,765	4,664,592	121,092	2,001,660	2,674,605
Korea Ras Laffan LNG Limited	667	745,725	86	20,299	726,007
Korea LNG Limited	670	178,598	3	83	179,182
Beijing BESK Technology Co., Ltd.	57,694	16,091	2,640	-	71,145
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	267,623	2,225,275	650,407	109	1,842,382
SABIC SK Nexlene Company Pte. Ltd.	153,974	583,727	135,578	321,865	280,258

The condensed financial performances of major investments in associates and jointly controlled entities for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the year ended December 31, 2018			
	Sales	Operating income (loss)	Net income (loss)	Comprehensive income (loss)
Daehan Oil Pipeline Corp.	₩ 161,460	₩ 44,712	₩ 31,631	₩ 30,300
Peru LNG Company LLC	1,041,065	3,345	(146,044)	(58,204)
SK China Company, Ltd.	67,651	18,446	17,179	17,179
Hana Alternative Investment Landchip Private REITs 33rd	101,046	90,083	90,083	90,083
Korea Ras Laffan LNG Limited	107,294	105,778	104,719	104,719
Korea LNG Limited	54,323	52,655	52,687	59,861
Beijing BESK Technology Co., Ltd	91	(6,308)	(6,080)	(6,080)
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	2,851,082	416,336	312,693	294,502
SABIC SK Nexlene Company Pte. Ltd.	347,876	19,361	1,729	24,998

	For the year ended December 31, 2017			
	Sales	Operating income (loss)	Net income (loss)	Comprehensive income (loss)
Daehan Oil Pipeline Corp.	₩ 157,997	₩ 46,749	₩ 35,538	₩ 35,725
Peru LNG Company LLC	731,882	51,429	(15,826)	(82,373)
SK China Company, Ltd.	69,420	12,020	11,492	38,681
Hana Alternative Investment Landchip Private REITs 33rd	123,261	61,258	61,258	61,258
Happynarae Co., Ltd.	1,050,641	18,570	9,468	9,514
Yemen LNG Company Ltd.	-	(179,449)	(240,452)	(240,452)
Korea Ras Laffan LNG Limited	83,560	81,269	81,570	(64,308)
Korea LNG Limited	34,633	32,398	32,439	(43,876)
Beijing BESK Technology Co., Ltd.	65	(8,277)	(6,208)	(6,208)
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	2,702,659	607,655	457,675	457,675
SABIC SK Nexlene Company Pte. Ltd.	310,000	5,300	(11,511)	(11,511)

Details of reconciliation from net assets of associates and jointly controlled entities to book value of investments in associates and jointly controlled entities as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018				
	Net assets	Ownership percentage (%)	The Group's interest in net asset	Goodwill and others	Book value
Daehan Oil Pipeline Corp.	₩ 782,807	41.0	₩ 320,964	₩ 18,700	₩ 339,664
Peru LNG Company LLC	1,465,982	20.0	293,196	(169)	293,027
SK China Company, Ltd.	2,201,947	33.4	735,880	(48,139)	687,741
Hana Alternative Investment Landchip Private REITs 33rd	404,571	48.3	195,451	-	195,451
Korea Ras Laffan LNG Limited	768,992	8.0	61,519	-	61,519
Korea LNG Limited	194,304	16.0	31,089	-	31,089
Beijing BESK Technology Co., Ltd	289,610	49.0	141,909	1,289	143,198
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	2,120,608	35.0	742,213	33,364	775,577
SABIC SK Nexlene Company Pte. Ltd.	268,701	50.0	134,350	(45,670)	88,680
Other			263,041	2,816	265,857
Total			₩ 2,919,612	₩ (37,809)	₩ 2,881,803

	December 31, 2017				
	Net assets	Ownership percentage (%)	The Group's interest in net asset	Goodwill and others	Book value
Daehan Oil Pipeline Corp.	₩ 764,330	41.0	₩ 313,375	₩ 20,956	₩ 334,331
Peru LNG Company LLC	1,373,690	20.0	274,738	-	274,738
SK China Company, Ltd.	2,092,062	33.4	698,749	(49,442)	649,307
Hana Alternative Investment Landchip Private REITs 33rd	339,065	31.4	106,531	-	106,531
Happynarae Co., Ltd.	30,024	45.0	13,511	8,383	21,894
Yemen LNG Company Ltd.	2,674,605	6.9	184,548	(184,548)	-
Korea Ras Laffan LNG Limited	726,007	8.0	58,081	-	58,081
Korea LNG Limited	179,182	16.0	28,669	-	28,669
Beijing BESK Technology Co., Ltd	71,145	40.0	28,457	30	28,487
Sinopec-SK (Wuhan) Petrochemical Co., Ltd.	1,842,382	35.0	644,834	37,067	681,901
SABIC SK Nexlene Company Pte. Ltd.	280,258	50.0	140,129	(48,222)	91,907
Other			152,900	2,442	155,342
Total			₩ 2,644,522	₩ (213,334)	₩ 2,431,188

10. PROPERTY, PLANT AND EQUIPMENT:

Details of property, plant and equipment as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018				December 31, 2017
	Acquisition cost	Depreciation	Impairment	Book value	Book value(*1)
Land	₩ 4,062,113	₩ -	₩ -	₩ 4,062,113	₩ 4,150,758
Buildings	1,476,461	(295,287)	(35,819)	1,145,355	1,002,917
Structures	1,136,899	(561,191)	(8,674)	567,034	563,006
Machinery and equipment	10,810,225	(4,277,236)	(94,080)	6,438,909	6,471,810
Other	2,102,516	(1,350,629)	(4,450)	747,437	656,621
Construction in progress	837,330	-	-	837,330	751,127
Total	₩ 20,425,544	₩ (6,484,343)	₩ (143,023)	₩ 13,798,178	₩ 13,596,239

(*1) This amounts include retrospective adjustments of the identifiable net assets due to the business combination that occurred in the prior period (see Note 35).

Details of changes in property, plant and equipment for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the year ended December 31, 2018							
	Beginning balance(*1)	Acquisition	Disposals(*2)	Transfers (*3)	Depreciation	Impairment (*4)	Classified as held for sale(*5)	Ending Balance
Land	₩ 4,150,758	₩ 8,978	₩ (27,768)	₩ 7,031	₩ -	₩ (13,628)	₩ (63,258)	₩ 4,062,113
Buildings	1,002,917	234	(21,465)	199,233	(33,322)	-	(2,242)	1,145,355
Structures	563,006	393	(7,622)	43,924	(32,667)	-	-	567,034
Machinery and equipment	6,471,810	16,463	(47,716)	641,515	(643,163)	-	-	6,438,909
Other	656,621	15,172	(8,667)	220,967	(136,656)	-	-	747,437
Construction in progress	751,127	1,245,047	-	(1,158,844)	-	-	-	837,330
Total	₩ 13,596,239	₩ 1,286,287	₩ (113,238)	₩ (46,174)	₩ (845,808)	₩ (13,628)	₩ (65,500)	₩13,798,178

	For the year ended December 31, 2017							
	Beginning balance	Acquisition	Disposals	Transfers (*3)	Depreciation	Impairment	Business combination	Ending Balance(*1)
Land	₩ 4,192,378	₩ -	₩ (54,439)	₩ 9,409	₩ -	₩ (386)	₩ 3,796	₩ 4,150,758
Buildings	1,003,782	34	(5,713)	62,987	(28,889)	(36,285)	7,001	1,002,917
Structures	577,453	267	(4,849)	27,517	(31,986)	(8,725)	3,329	563,006
Machinery and equipment	6,709,252	1,443	(20,048)	357,472	(603,319)	(51,285)	78,295	6,471,810
Other	677,441	3,732	(6,614)	106,070	(126,838)	(1,224)	4,054	656,621
Construction in progress	443,180	908,016	-	(601,245)	-	-	1,176	751,127
Total	₩ 13,603,486	₩ 913,492	₩ (91,663)	₩ (37,790)	₩ (791,032)	₩ (97,905)	₩ 97,651	₩13,596,239

(*1) This amounts include retrospective adjustments of the identifiable net assets due to the business combination that occurred in the prior period (see Note 35).

(*2) This amounts include disposals of property, plant and equipment related to Flexible Copper Clad Lamination (“FCCL”) business decided to discontinue for the year ended December 31, 2018.

(*3) Refers to transfers from construction in progress to each class of property, plant and equipment and intangible assets, net effect from change in foreign exchange rates.

(*4) The Group entered into a disposal agreement for land located in 119-4 on Seoknam-dong Seo-gu, Incheon on December 10, 2018. Impairment loss was recognized at the time of reclassification of the assets as the disposal amount is less than the book value of the related assets.

Borrowing costs capitalized as part of property, plant and equipment amounted to ₩ 10,739 million and ₩ 9,186 million for the years ended December 31, 2018 and 2017, respectively.

11. GOODWILL AND INTANGIBLE ASSETS:

Details of goodwill and intangible assets as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018				December 31, 2017
	Acquisition cost	Amortization	Impairment	Book value (*1)	Book value (*1,2)
Goodwill	₩ 113,247	₩ -	₩ -	₩ 113,247	₩ 109,797
Oil field under exploration (exploitation)	520,531	-	(313,863)	206,668	170,045
Oil field under exploration (production)	2,661,192	(916,786)	(437,920)	1,306,486	904,002
Memberships	61,653	-	(23,429)	38,224	36,943
Other	419,096	(75,276)	(1,470)	342,350	280,600
Total	₩ 3,775,719	₩ (992,062)	₩ (776,682)	₩ 2,006,975	₩ 1,501,387

(*1) The net book values of intangible assets as of December 31, 2018 and 2017, are presented net of government subsidies amounting to ₩124,058 million and ₩138,832 million, respectively, related to oil field under exploration.

(*2) Includes retrospective adjustments of identifiable net assets attributable to the business combination (see Note 35).

Details of changes in goodwill and intangible assets for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the year ended December 31, 2018							
	Beginning balance	Acquisition	Disposal	Transfer (*2)	Amortization	Impairment	Business combination	Ending balance
Goodwill	₩ 109,797	₩ -	₩ -	₩ 3,450	₩ -	₩ -	₩ -	₩ 113,247
Oil field under exploration (exploitation)	170,045	49,066	-	(2,221)	-	(10,222)	-	206,668
Oil field under exploration (production)	904,002	138,418	-	20,828	(72,364)	(180)	315,782	1,306,486
Memberships	36,943	5,077	(2,969)	35	-	(862)	-	38,224
Other	280,600	19,211	(39)	63,330	(20,752)	-	-	342,350
Total	₩1,501,387	₩ 211,772	₩ (3,008)	₩ 85,422	₩ (93,116)	₩ (11,264)	₩ 315,782	₩2,006,975

	For the year ended December 31, 2017							
	Beginning balance	Acquisition	Disposal	Transfer (*2)	Amortization	Impairment	Business combination	Ending balance(*1)
Goodwill	₩ 1,000	₩ -	₩ -	₩ (3,931)	₩ -	₩ -	₩ 112,728	₩ 109,797
Oil field under exploration (exploitation)	151,065	18,980	-	-	-	-	-	170,045
Oil field under exploration (production)	995,488	52,072	-	(17,664)	(98,548)	(27,346)	-	904,002
Memberships	39,005	541	(2,292)	(106)	-	(205)	-	36,943
Other	85,741	319	(5)	(8,513)	(10,481)	(1,511)	215,050	280,600
Total	₩1,272,299	₩ 71,912	₩ (2,297)	₩ (30,214)	₩ (109,029)	₩ (29,062)	₩ 327,778	₩1,501,387

(*1) Includes retrospective adjustments of identifiable net assets attributable to the business combination (see Note 35).

(*2) Refers to transfers from construction in progress to intangible assets, and effect from change in government grants related to oil field under exploration, effect from change in foreign exchange rates.

Before recognizing an impairment loss, the book value of goodwill allocated to the cash-generating unit is as follows (in millions of Korean won):

	December 31, 2018	December 31, 2017(*1)
EAA business	₩ 86,693	₩ 84,311
PVDC business	25,554	24,486
Other	1,000	1,000
Total	₩ 113,247	₩ 109,797

(*1) Includes retrospective adjustments of identifiable net assets attributable to the business combination (see Note 35).

Dow Chemical EAA business

Goodwill recognized by the Group amounting to ₩86,693 million arose from the acquisition of the Dow Chemical EAA business on September 1, 2017. The recoverable amount of cash-generating unit to which goodwill was allocated was measured at the value in use calculated by applying a discount rate of 13.2% for the U.S. and 11.9% for Europe per year to cash flow estimated based on the management's approved financial budget for the next five years. Cash flows exceeding five years were estimated assuming a growth rate of 2%. Management believes that the total book value of the cash-generating unit will not exceed the total recoverable amount due to the reasonably possible change in the major assumption used to estimate the recoverable amount.

Dow Chemical PVDC business

Goodwill recognized by the Group amounting to ₩25,554 million arose from the acquisition of the Dow Chemical PVDC business on December 15, 2017. The recoverable amount of cash-generating unit to which goodwill was allocated was measured at the value in use calculated by applying a discount rate of 11.6% per year to cash flow estimated based on the management's approved financial budget for the next five years. Cash flows exceeding five years were estimated assuming a growth rate of 2%. Management believes that the total book value of the cash-generating unit will not exceed the total recoverable amount due to the reasonably possible change in the major assumption used to estimate the recoverable amount.

12. BORROWINGS AND BONDS PAYABLE:

Details of borrowings and bonds payable as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018	December 31, 2017
Short-term borrowings	₩ 153,742	₩ 242,879
Long-term borrowings and bonds payable:		
Long-term borrowings denominated in Korean won	933,318	573,881
Long-term borrowings denominated in foreign currency	416,552	386,993
Bonds issued denominated in Korean won	5,980,000	4,010,000
Bonds issued denominated in foreign currency	559,050	374,990
Subtotal	7,888,920	5,345,864
Less:		
Discount on long-term borrowings	(1,048)	(3,006)
Discount on bonds payable (includes current portion of bonds payable)	(18,280)	(7,793)
Current portion due within one year	(1,221,524)	(1,272,428)
Total	₩ 6,648,068	₩ 4,062,637

Details of short-term borrowings as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

Description	Financial institution	December 31, 2018	December 31, 2017
Commercial paper	Korea Investment & Securities and others	₩ -	₩ 200,000
Usance	Bank of America	96,876	-
General borrowing and others	Shinhan Bank and others	56,866	42,879
Total		₩ 153,742	₩ 242,879

Details of long-term borrowings denominated in Korean won as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

Description	Financial institution	Interest rate (%)	December 31, 2018	December 31, 2017
Energy efficiency fund	Shinhan Bank and others	1.8	₩ 1,607	₩ 2,585
Facility borrowings	JX Nippon Oil & Energy Corporation and others	2.4-4.4	253,814	132,371
Facility borrowings (*1)	Korea Development Bank	CD+0.9	109,897	149,859
Mineral development fund	Korea Resources Corporation	0.8	-	5,066
Securitization loan (*2)	IPC 1st Special Purpose Co., Ltd.	3.0	268,000	284,000
General borrowing	The Export-Import Bank of Korea	2.9	300,000	-
Subtotal			933,318	573,881
Less: Discount on long-term borrowings			(584)	(1,044)
Current portion due within one year			(146,526)	(102,491)
Total			₩ 786,208	₩ 470,346

(*1) The borrowings of SK Global Chemical Co., Ltd., a subsidiary of the Group, from KDB amounting to ₩109,897 million are the facility borrowings of Ulsan Aromatics Co., Ltd., which is accounted for as a joint operation, and the amount that the Group has obligation of redemption according to cash deficiency support agreement was recorded as borrowings as of December 31, 2018.

(*2) Securitization loans of SK Incheon Petrochem Co., Ltd., a subsidiary of the Group, are associated with the trade accounts receivable for SK Energy Co., Ltd. and SK Global Chemical Co., Ltd., which are trusted through the securitization agreement.

(*3) Early repayment of the securitization loans may occur if the effective credit rating of the corporate bonds issued by SK Incheon Petrochem Co., Ltd. is lower than or equal to BBB or if the effective credit rating of corporate bonds issued by SK Energy Co., Ltd. and SK Global Chemical Co., Ltd. is lower than or equal to A-.

Details of long-term borrowings denominated in foreign currency as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

Description	Financial institution	Interest rate (%)	December 31, 2018	December 31, 2017
Oil exploration fund (*1)	Korea Energy Agency	0.0-7.0	₩ 88,278	₩ 51,019
Facility borrowings	ING BANK and others	3M EURIBOR + 0.9	31,979	57,566
Acquisition borrowings(*2)	Creditors (Citi, JPM, BOA,KDB, ANZ)	LIBOR(3M) + 1.0	212,439	203,566
General borrowings	Credit Agricole and others	LIBOR + 0.8 ~ 0.9	83,856	74,842
Subtotal			416,552	386,993
Less: Discount on long-term borrowings			(464)	(1,962)
Current portion due within one year			(25,583)	(25,814)
Total			₩ 390,505	₩ 359,217

(*1) The Group did not recognize accrued interest expenses and gain or loss on foreign currency translations on borrowings amounting to ₩53,544 million and ₩45,693 million as of December 31, 2018 and 2017, respectively, from the Korea Energy Agency, which are directly attributable to exploration and production until the related oil fields are proven to have commercial productivity, as the Group has no obligation to repay the borrowings for oil fields with no commercial productivity.

(*2) The borrowings of SK Global Chemical Americas, Inc., a subsidiary of the Company, are directly attributable to acquisition of all Dow Chemical Company's EAA businesses in U.S. and Spain and all the related tangible and intangible assets. In accordance with the loan guarantee agreement, SK Global Chemical Co., Ltd. has an obligation to repay the debts in case of default.

Details of bonds payable (unsecured bearer bonds) denominated in Korean won as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

Series	Issue date	Maturity	Interest rate (%)	December 31, 2018	December 31, 2017
SK Energy 33rd-2	2013.02.07	2018.02.07	3.1	₩ -	₩ 170,000
SK Incheon Petrochem 9th	2013.02.28	2018.03.21	3.0	-	200,000
SK Energy 41st-1	2015.06.25	2018.06.25	2.1	-	80,000
SK Incheon Petrochem 13th-1	2015.07.28	2018.07.28	2.5	-	80,000
SK Energy 37th-2	2013.10.25	2018.10.25	3.4	-	100,000
SK Lubricants 7th-1	2015.11.26	2018.11.26	2.3	-	60,000
SK Global Chemical 11th-2	2013.11.29	2018.11.29	3.8	-	80,000
SK Global Chemical 12th-2	2014.04.15	2019.04.15	3.4	100,000	100,000
SK Energy 38th-2	2014.06.10	2019.06.10	3.2	100,000	100,000
SK Incheon Petrochem 11th-2	2014.06.27	2019.06.27	3.2	150,000	150,000
SK Innovation 2nd-1	2014.07.16	2019.07.16	3.0	100,000	100,000
SK Global Chemical 13th-2	2014.07.21	2019.07.21	3.0	100,000	100,000
SK Incheon Petrochem 12th-3	2014.08.14	2019.08.14	3.2	50,000	50,000
SK Lubricants 6th	2014.09.04	2019.09.04	3.1	150,000	150,000
SK Incheon Petrochem 14th-1	2016.09.05	2019.09.05	2.0	70,000	70,000
SK Energy 31st-2	2012.09.21	2019.09.21	3.3	50,000	50,000
SK Global Chemical 9th-2	2012.10.25	2019.10.25	3.5	50,000	50,000
SK Energy 42nd-1	2015.11.04	2019.11.04	2.3	130,000	130,000
SK Energy 33rd-3	2013.02.07	2020.02.07	3.3	110,000	110,000
SK Incheon Petrochem 15th-1	2017.03.30	2020.03.30	2.2	90,000	90,000
SK Energy 35th-2	2013.05.06	2020.05.06	2.9	190,000	190,000
SK Incheon Petrochem 13th-2	2015.07.28	2020.07.28	3.0	120,000	120,000
SK Energy 37th-3	2013.10.25	2020.10.25	3.6	50,000	50,000
SK Lubricants 7th-2	2015.11.26	2020.11.26	2.6	90,000	90,000
SK Global Chemical 11th-3	2013.11.29	2020.11.29	4.0	60,000	60,000
SK Incheon Petrochem 16th-1	2018.04.05	2021.04.05	2.6	130,000	-
SK Energy 43rd-1	2018.04.26	2021.04.26	2.5	150,000	-
SK Energy 38th-3	2014.06.10	2021.06.10	3.4	80,000	80,000
SK Innovation 2nd-2	2014.07.16	2021.07.16	3.2	100,000	100,000
SK Global Chemical 13th-3	2014.07.22	2021.07.21	3.2	50,000	50,000
SK Incheon Petrochem 12th-1	2014.08.07	2021.08.07	3.6	20,000	20,000
SK Incheon Petrochem 14th-2	2016.09.05	2021.09.05	2.5	110,000	110,000
SK Innovation 3rd-1	2018.09.13	2021.09.13	2.1	150,000	-
SK Lubricants 8th-1	2018.09.20	2021.09.23	2.3	120,000	-

Series	Issue date	Maturity	Interest rate (%)	December 31, 2018	December 31, 2017
SK Energy 39th-2	2014.10.10	2021.10.10	2.9	110,000	110,000
SK Global Chemical 14th-1	2018.10.11	2021.10.11	2.2	110,000	-
SK Energy 44th-1	2018.10.30	2021.10.30	2.2	100,000	-
SK Incheon Petrochem 15th-2	2017.03.30	2022.03.30	2.8	180,000	180,000
SK Energy 41st-2	2015.06.25	2022.06.25	2.7	170,000	170,000
SK Energy 31st-3	2012.09.21	2022.09.21	3.4	50,000	50,000
SK Global Chemical 9th-3	2012.10.25	2022.10.25	3.8	50,000	50,000
SK Energy 42nd-2	2015.11.04	2022.11.04	2.6	70,000	70,000
SK Incheon Petrochem 16th-2	2018.04.05	2023.04.05	2.9	150,000	-
SK Energy 43rd-2	2018.04.26	2023.04.26	2.8	190,000	-
SK Incheon Petrochem 10th	2013.05.06	2023.05.06	3.1	100,000	100,000
SK Innovation 3rd-2	2018.09.13	2023.09.13	2.3	140,000	-
SK Lubricants 8th-2	2018.09.20	2023.09.20	2.5	120,000	-
SK Global Chemical 14th-2	2018.10.11	2023.10.11	2.5	230,000	-
SK Energy 44th-2	2018.10.30	2023.10.30	2.3	250,000	-
SK Incheon Petrochem 15th-3	2017.03.30	2024.03.30	3.3	30,000	30,000
SK Innovation 2nd-3	2014.07.16	2024.07.16	3.3	60,000	60,000
SK Incheon Petrochem 12th-2	2014.08.07	2024.08.07	4.1	30,000	30,000
SK Energy 39th-3	2014.10.10	2024.10.10	3.1	70,000	70,000
SK Incheon Petrochem 16th-3	2018.04.05	2025.04.05	3.4	120,000	-
SK Energy 41st-3	2015.06.25	2025.06.25	3.2	100,000	100,000
SK Energy 40th	2014.10.27	2026.10.27	3.3	100,000	100,000
SK Energy 43rd-3	2018.04.26	2028.04.26	3.2	160,000	-
SK Incheon Petrochem 17th	2018.06.18	2028.06.18	4.0	100,000	-
SK Innovation 3rd-3	2018.09.13	2028.09.13	2.6	210,000	-
SK Global Chemical 14th-3	2018.10.11	2028.10.11	2.9	160,000	-
SK Energy 44th-3	2018.10.30	2028.10.30	2.6	150,000	-
Subtotal				5,980,000	4,010,000
Less: Discount on bonds payable, net of premium				(14,401)	(7,303)
Current portion due within one year				(1,049,415)	(769.623)
Total				₩ 4,916,184	₩ 3,233,074

Details of bonds payable denominated in foreign currency as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

Series	Issue date	Maturity	Interest rate (%)	December 31, 2018	December 31, 2017
Singapore Exchange Ltd.	2013.08.14	2018.08.14	3.6	₩ -	₩ 374,990
	2018.07.13	2023.07.13	4.1	559,050	-
Less: Discount on bonds payable, net of premium				(3,879)	(490)
Current portion due within one year				-	(374,500)
Total				₩ 555,171	₩ -

13. RETIREMENT BENEFIT OBLIGATION:

Details of retirement benefit obligation 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	₩	454,270	₩	386,142
Fair value of plan assets		(388,142)		(323,830)
Other long-term benefit obligations		12,319		13,846
Total	₩	78,447	₩	76,158

Changes in retirement benefit obligation for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the year ended December 31, 2018					
	Present value of defined benefit obligation		Fair value of plan assets		Total	
Beginning balance	₩	386,142	₩	(323,830)	₩	62,312
Provision for retirement benefits:						
Current service cost		61,554		-		61,554
Net interest cost (income)		11,683		(9,415)		2,268
Remeasurements:						
Actuarial gain or loss on plan assets		-		3,382		3,382
Actuarial gain or loss from empirical adjustments		7,789		-		7,789
Actuarial gain or loss from changes in demographic assumptions		131		-		131
Actuarial gain or loss from changes in financial assumptions		15,482		-		15,482
Effects from change in foreign exchange rates		7		-		7
Contributions by employer directly to plan assets		-		(82,852)		(82,852)
Benefit payment		(36,214)		31,358		(4,856)
Others		7,696		(6,785)		911
Ending balance	₩	454,270	₩	(388,142)	₩	66,128

	For the year ended December 31, 2017					
	Present value of defined benefit obligation		Fair value of plan assets		Total	
Beginning balance	₩	347,660	₩	(307,330)	₩	40,330
Provision for retirement benefits:						
Current service cost		59,643		-		59,643
Net interest cost (income)		9,014		(7,975)		1,039
Remeasurements:						
Actuarial gain or loss on plan assets		-		1,441		1,441
Actuarial gain or loss from empirical adjustments		(4,475)		-		(4,475)
Actuarial gain or loss from changes in demographic assumptions		2,253		-		2,253
Actuarial gain or loss from changes in financial assumptions		(13,477)		-		(13,477)
Effects from change in foreign exchange rates		(172)		-		(172)
Contributions by employer directly to plan assets		-		(20,433)		(20,433)
Benefit payment		(36,005)		17,790		(18,215)
Others		21,701		(7,323)		14,378
Ending balance	₩	386,142	₩	(323,830)	₩	62,312

Fair values of plan assets as of December 31, 2018 and 2017, are composed as follows:

	December 31, 2018	December 31, 2017
Debt instruments	38.2%	41.5%
Deposit assets and others	61.8%	58.5%

Main actuarial assumptions as of December 31, 2018 and 2017, are as follows:

	December 31, 2018	December 31, 2017
Discount rate for defined benefit obligations	2.2% – 2.8%	2.5% – 3.3%
Expected rate of salary increase	3.3% – 4.3%	3.3% – 4.3%

The sensitivity analysis for the significant actuarial assumptions as of December 31, 2018 and 2017, is as follows (in millions of Korean won):

	December 31, 2018	
	Impact on the defined benefit obligation	
	Increase by 0.5%	Decrease by 0.5%
Discount rate for defined benefit obligations	₩ (14,879)	₩ 15,856
Expected rate of salary increase	15,533	(14,729)

	December 31, 2017	
	Impact on the defined benefit obligation	
	Increase by 0.5%	Decrease by 0.5%
Discount rate for defined benefit obligations	₩ (12,562)	₩ 13,366
Expected rate of salary increase	13,152	(12,487)

The sensitivity analysis above has been done under the assumption that all other variables remain unchanged; however, actual results may be changed through the interaction among other variables.

14. DERIVATIVE FINANCIAL INSTRUMENTS:

a. Derivative instruments designated as cash flow hedge accounting

The Group entered into derivative contracts to hedge the risk of fluctuations in sales price of petroleum products and fluctuations in interest on borrowings, and the financial positions of outstanding derivative financial instruments of the Group as of December 31, 2018 and 2017, are presented as follows (in millions of Korean won):

	December 31, 2018		December 31, 2017	
	Assets	Liabilities	Assets	Liabilities
Commodity futures contracts	₩ 1,294	₩ 927	₩ 412	₩ 1,055
Interest rate swap contracts	-	145	-	114
Total	₩ 1,294	₩ 1,072	₩ 412	₩ 1,169

b. Derivative instruments for which no hedge accounting is applied

The Group entered into derivative contracts to hedge the risk of fluctuations in exchange rates on liabilities denominated in foreign currencies and fluctuations in price of crude oil, petroleum product and chemical base. The financial positions of outstanding derivative financial instruments of the Group as of December 31, 2018 and 2017, to which no hedge accounting is applied, are presented as follows (in millions of Korean won):

	December 31, 2018		December 31, 2017	
	Assets	Liabilities	Assets	Liabilities
Petroleum products swap contracts	₩ 6,595	₩ 11,674	₩ 6,594	₩ 59,246
Interest rate swap contracts	3,452	-	-	-
Chemical raw material swap contracts	46,574	41,342	409	116
UCO swap contract	13,456	-	761	7,288
Currency swap contract	5,051	-	-	19,134
Currency forward contracts	4,288	1,758	27,879	3,816
Total	₩ 79,416	₩ 54,774	₩ 35,643	₩ 89,600

c. Gain and loss on derivative financial instruments

Details of gross gain and loss on valuation and settlement of derivative financial instruments (including other comprehensive income) for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the years ended December 31, 2018					
	Profit or loss				Other comprehensive income or loss (net of tax)	
	Gain on valuation	Loss on valuation	Gain on settlement	Loss on settlement	Gain on valuation	Loss on valuation
Derivative instruments designated as cash flow hedge accounting	₩ -	₩ -	₩ -	₩ -	₩ 91,635	₩ (83,465)
Derivative instruments for which no hedge accounting is applied	772,653	(754,158)	1,366,734	(890,711)	-	-
Total	₩ 772,653	₩ (754,158)	₩ 1,366,734	₩ (890,711)	₩ 91,635	₩ (83,465)

	For the years ended December 31, 2017					
	Profit or loss				Other comprehensive income or loss (net of tax)	
	Gain on valuation	Loss on valuation	Gain on settlement	Loss on settlement	Gain on valuation	Loss on valuation
Derivative instruments designated as fair value hedge accounting	₩ -	₩ -	₩ 15	₩ (2,517)	₩ -	₩ -
Derivative instruments designated as cash flow hedge accounting	-	-	-	(1,107)	8,040	(7,949)
Derivative instruments for which no hedge accounting is applied	90,286	(131,550)	496,224	(594,049)	-	-
Total	₩ 90,286	₩ (131,550)	₩ 496,239	₩ (597,673)	₩ 8,040	₩ (7,949)

15. COMMITMENTS AND CONTINGENCIES:

As of December 31, 2018, the Group has provided one promissory note amounting to ₩3,952 million, 45 blank promissory notes and 30 blank checks to various financial institutions as collateral in connection with its borrowings.

As of December 31, 2018, the financial commitments of the Group are presented as follows (in millions of Korean won, U.S. dollars, Euros and Japanese Yen):

		Commitment amounts		
Commitments	Financial institution	In Korean won	In foreign currency	
Trading	KEB Hana Bank and others	₩ 40,000	USD EUR	12,761 122
Factoring and general loans	Kookmin Bank and others	824,128	JPY EUR	2,000 20
Facility borrowings	ING Bank and others	-	EUR	25
Total		₩ 864,128		

Details of joint and several guarantees provided by the Group for any losses or liabilities suffered or incurred prior to the spin-off date are as follows:

Spin-off date	Details of spin-off	The counterparts of joint and several guarantees
July 1, 2007	Spin-off between SK Holdings Co., Ltd. and the Group	SK Holdings Co., Ltd. SK Innovation Co., Ltd. SK Energy Co., Ltd. SK Lubricants Co., Ltd. SK Global Chemical Co., Ltd. SK Incheon Petrochem Co., Ltd. SK Trading International, Co., Ltd.

The Company has pledged its full equity interests in Yemen LNG Company Ltd. to the project financing lenders of the Yemen LNG Project as collateral.

In addition, Netruck Co., Ltd., a subsidiary of the Group, has pledged its property, plant and equipment amounting to ₩4,500 million as collateral for borrowings amounting to ₩17,396 million from Shinhan Bank.

In addition, SK Global Chemical Co., Ltd. has provided Citibank and others with a payment guarantee amounting to USD 190 million(payment guarantee limit USD 220 million) in connection with long-term borrowings of SABIC SK Nexlene Company Pte. Ltd., a jointly controlled entity of the Group, and has also provided payment guarantee amounting to USD 10 million in connection with license contract of Ningbo SK Performance Rubber Co., Ltd., a subsidiary of the Group.

The other guarantees provided by the Group to related parties as of December 31, 2018, are as follows (in millions of Korean won):

Description	Company name	Guaranteed amount (*1)	Guarantees for
Other related party	SK Shipping Co., Ltd.	₩ -	Charterage

(*1) The fair value of the vessels owned by SK Shipping Co., Ltd. is deducted from the total guarantee amount of ₩53,782 million.

SK Incheon Petrochem Co., Ltd, a subsidiary of the Group, issued new preferred stocks by third-party allocation method to Shinhan-Stonebridge Petro Private Equity Fund (the “Investor”) on July 16, 2013. In relation to the capital increase of SK Incheon Petrochem Co., Ltd, the stockholders’ agreements between the Group as a major stockholder and the Investor include the following essential particulars:

- Drag-along right and tag-along right by the Investor
- Preemptive right of SK Innovation Co., Ltd. on the exercising of the drag-along right by the Investor
- Restriction of stock disposals by the terms of an agreement

In addition, SK Incheon Petrochem Co., Ltd, a subsidiary of the Group, has entered into the securitization agreement of ₩268,000 million, which SK Incheon Petrochem Co., Ltd. has to trust some of the trade accounts receivable due from its affiliated companies, SK Energy Co., Ltd. and SK Global Chemical Co., Ltd., to Industrial Bank of Korea (“IBK”) and IPC 1st Special Purpose Co., Ltd., who acquired the beneficiary right issued by IBK (the “trustee”), securitized by issuing asset-backed commercial paper. (see Note 12).

Details of provisions and financial guarantee liabilities as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018		December 31, 2017		Guarantees for
Provisions:					
Asset retirement obligation related to natural resource development and others	₩	43,542	₩	38,323	Field of Vietnam 15-1 and others
Provision for sales warrant and others		76,403		62,231	
Total	₩	119,945	₩	100,554	
Financial guarantee liabilities	₩	721	₩	1,131	SABIC SK Nexlene Company Pte. Ltd.

As of December 31, 2018, the Group is under several operating lease agreements on certain real estate and property, plant and equipment and made lease payments amounting to ₩96,728 million and ₩87,449 million for the years ended December 31, 2018 and 2017, respectively.

16. CAPITAL STOCK AND OTHER PAID-IN CAPITAL:

Details of capital stock as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018		December 31, 2017	
Common stock	₩	462,328	₩	462,328
Preferred stock		6,242		6,242
Total	₩	468,570	₩	468,570

In accordance with the Group's Articles of Incorporation, the Group is authorized to issue 350 million common stocks and 35 million non-voting preferred stocks, with par values at ₩5,000 per share. As of December 31, 2018, the Group has issued 92,465,564 common stocks amounting to ₩462,328 million, and 1,248,426 outstanding non-voting preferred stocks amounting to ₩6,242 million, with total issued capital amounting to ₩468,570 million.

Preferred stocks are participating and cumulative, and are entitled to receive 1% above (par value basis) the cash dividend rate on ordinary stocks. Where the Group elects not to declare dividend distributions attributable to preferred stocks for a certain period, the participating rights become effective and will have priority over common stocks to the accumulated dividend amounts in the subsequent period when dividends have been declared.

Details of other paid-in capital as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018		December 31, 2017	
Paid-in surplus	₩	5,683,247	₩	5,683,247
Treasury stock		(1,137,897)		(136,097)
Stock option		668		-
Other		82,522		82,522
Total	₩	4,628,540	₩	5,629,672

Paid-in capital in excess of par value is restricted in use, except when used to offset a deficit or transferred to capital in accordance with Korean Commercial Code. As of December 31, 2018, the Group holds 5,502,137 shares of ordinary shares and 296 shares of preferred shares as treasury shares, resulting from split-off and merger.

17. SHARE BASED PAYMENT:

a. Grant of stock options

The Company granted stock options to the Company's executives based on the resolution of stockholders' meeting dated March 20, 2018. The main items of stock options are as follows:

Descriptions	1-1st	1-2nd	1-3rd
Grant date		March 20, 2018	
Types of shares to be issued		70,551 shares of common stock	
Distribution on exercise		Distribution of treasury stock	
Number of shares granted	23,517 shares	23,517 shares	23,517 shares
Exercise price	₩ 205,760	₩ 222,230	₩ 240,000
Exercisable period	From March 21, 2020 to March 20, 2023	From March 21, 2021 to March 20, 2024	From March 21, 2022 to March 20, 2025
Vesting conditions	Work more than 2 years from grant date	Work more than 2 years from grant date	Work more than 3 years from grant date

b. The compensation cost recognized for the years ended December 31, 2018, and the compensation cost to be recognized after the end of the period for stock options granted are as follows. (in millions of Korean won):

		December 31, 2018
Total compensation cost	₩	1,895
Compensation cost recognized for the period		668
Compensation cost to be recognized subsequent to the period end		1,227

c. The Company calculated the compensation cost of stock options by applying the fair value approach using the binomial option pricing model. The assumptions and variables used to calculate compensation cost are as follows (in Korean won):

Descriptions		1-1st		1-2nd		1-3rd
Expected option life		5 years		6 years		7 years
Stock price of the day before grant date	₩	211,000	₩	211,000	₩	211,000
Expected volatility		17.90%		17.90%		17.90%
Dividend yield		3.03%		3.03%		3.03%
Risk-free interest rate		2.50%		2.61%		2.64%
Exercise price	₩	205,760	₩	222,230	₩	240,000
Fair value per option	₩	30,450	₩	26,725	₩	23,421

18. OTHER CAPITAL COMPONENTS:

Details of other capital components as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018	December 31, 2017
Accumulated net change in fair value of financial assets measured at FVTOCI	₩ 22,510	₩ -
Net change in fair value of AFS financial assets	-	10,228
Equity adjustments of investments in associates and jointly controlled entities	66,894	8,074
Gain (loss) on translation of foreign operations	19	(71,879)
Gain (loss) in valuation of derivative financial instruments	7,577	(594)
Total	₩ 97,000	₩ (54,171)

Accumulated net changes in FVTOCI financial instruments related to equity instruments are the cumulative gain or loss except for the amount transferred to retained earnings, and accumulated net changes in FVTOCI financial instruments related to the debt instruments are the amount after adding or deducting the amount reclassified as profit or loss due to loss allowance and disposal.

Also, equity instruments measured at FVTOCI do not require assessment for impairment and cumulative gain or loss for measuring equity instruments are not subsequently reclassified to profit or loss. There is no gain or loss on these equity instruments transferred to retained earnings for the year ended December 31, 2018.

Changes in fair value attributable to credit risk of financial liabilities measured at FVTPL are recognized in other comprehensive income, and cumulative gain or loss are not subsequently reclassified to profit or loss.

Changes in other capital components for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the years ended	
	December 31, 2018	December 31, 2017
Beginning balance	₩ (54,171)	₩ 215,651
Effect of change in accounting policies	34,489	-
Income tax effect of change in accounting policies	(9,485)	-
Restated balance after adjustment	(29,167)	215,651
Net change in fair value of financial assets measured at FVTOCI	(20,239)	-
Income tax effect of net change in financial assets measured at FVTOCI	7,517	-
Net change in fair value of AFS financial assets	-	33,914
Income tax effect of net change in AFS financial assets	-	(8,746)
Changes in equity adjustment of investments in associates and jointly controlled entities	63,420	(147,335)
Reclassification to gain or loss by disposal investments in associates	(4,600)	2,325
Net change on translation of foreign operations	71,898	(150,071)
Gain on valuation of derivative financial instruments	11,270	(2,383)
Reclassification to gain or loss by applying hedge accounting	-	1,106
Income tax effect of net change in derivative financial Instruments	(3,099)	1,368
Ending balance	₩ 97,000	₩ (54,171)

19. RETAINED EARNINGS:

a. Details of retained earnings

Details of retained earnings as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018	December 31, 2017
Legal reserve (*1)	₩ 234,285	₩ 234,285
Research and human resources development reserve (*2)	160,000	160,000
Unappropriated	12,536,053	11,647,423
Total	₩ 12,930,338	₩ 12,041,708

(*1) In accordance with the Korea Commercial Code, an amount equal to at least 10% of cash dividends is required to be appropriated as a legal reserve until the reserve equals 50% of capital. The legal reserve may not be utilized for cash dividends, but may only be used to offset a deficit, if any, or be transferred to issued capital.

(*2) Pursuant to the Tax Incentives Limitation Law ("TILL"), the reserve for research and human resources development is provided in order to obtain tax benefits with respect to the year for which the appropriations are proposed. These reserves may be utilized for cash dividends in accordance with the related TILL.

b. Dividends

Details of dividends proposed for approval at the annual stockholders' meeting for the years ended December 31, 2018 and 2017, are as follows:

	For the years ended			
	December 31, 2018		December 31, 2017	
	Preferred stocks	Common stocks	Preferred stocks	Common stocks
Number of shares (*1)	1,248,130	86,963,427	1,248,130	91,944,399
Dividends (in millions of Korean won)	₩ 8,050	₩ 556,566	₩ 8,050	₩ 588,445
Dividends per share (in Korean won)	₩ 6,450	₩ 6,400	₩ 6,450	₩ 6,400

(*1) Total issued shares, less the number of treasury shares.

In accordance with the resolution of the Board of Directors on July 31, 2018, the parent company decided to pay interim dividend on June 30, 2018, as dividend date. The calculation of interim dividend is as follows.

	Preferred stocks	Common stocks
Number of shares outstanding	1,248,130	88,581,025
Payments of dividend (in millions of Korean won)	₩ 1,997	₩ 141,729
Dividend per share (in Korean won)	1,600	1,600

20. SALES:

Details of sales for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

		For the year ended December 31, 2018
Revenue from contracts with customers;		
Sales of finished goods and merchandise	₩	53,536,074
Revenues from commercialization of resources		754,320
Service revenue		186,101
Subtotal		54,476,495
Revenue from other sources:		
Lease		34,403
Total	₩	54,510,898

		For the year ended December 31, 2017
Sales of finished goods and merchandise	₩	45,342,196
Revenues from commercialization of resources		653,392
Service revenue		143,023
Lease		42,045
Total	₩	46,162,656

Classification of revenue from contracts with customers for the years ended December 31, 2018 are as follows (in millions of Korean won):

		For the years ended December 31, 2018
Recognized at a point in time	₩	54,290,394
Recognized over time		186,101
Total	₩	54,476,495

21. SELLING AND ADMINISTRATIVE EXPENSES:

Details of selling and administrative expenses for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the years ended	
	December 31, 2018	December 31, 2017
Salaries	₩ 382,946	₩ 365,505
Provision for severance and retirement benefits	44,850	27,200
Employee welfare benefits	85,607	76,578
Travel	34,898	29,161
Communications	3,916	3,809
Utilities	7,808	6,548
Taxes and dues	33,467	19,164
Supplies	6,822	4,892
Rent	50,674	43,642
Consignment storage of oil	80,373	73,247
Depreciation	44,499	36,801
Repairs	10,319	8,569
Insurance	6,551	5,095
Advertising	78,345	103,832
Research and development	233,578	195,693
Administration and outsourcing of security services	29,318	112,353
Education and examination	70,868	65,712
Quality controls	12,162	57,448
Outsourcing technology services	134,359	126,536
Commissions	184,648	133,805
Amortization	17,058	8,901
Transport	279,763	501,011
Bad debt expenses(Reversal of loss provision)	2,706	(6,742)
Others	28,557	117,269
Total	₩ 1,864,092	₩ 2,116,029

22. FINANCIAL INCOME (COSTS):

Details of financial income and costs for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the years ended	
	December 31, 2018	December 31, 2017
Financial income:		
Interest income using the effective interest rate method	₩ 40,226	₩ -
Interest income - others	48,109	76,037
Dividends (*1)	9,199	8,640
Gain on foreign currency transactions	828,356	987,607
Gain on foreign currency translation	113,960	223,315
Gain on valuation of derivatives	772,653	90,286
Gain on transactions of derivatives	1,366,734	496,239
Gain on impairment of AFS financial instruments	-	237
Others	2,024	-
Total	₩ 3,181,261	₩ 1,882,361
Financial costs:		
Interest expenses	₩ 259,548	₩ 206,347
Loss on foreign currency transactions	955,550	961,391
Loss on foreign currency translation	87,633	147,485
Loss on valuation of derivatives	754,158	131,550
Loss on transactions of derivatives	890,711	597,673
Loss on disposals of AFS financial instruments	12	146
Loss on impairment of AFS financial instruments	-	4,534
Others	1,491	1,541
Total	₩ 2,949,103	₩ 2,050,667

(*1) There is no dividend related to equity instruments derecognized during the year ended December 31, 2018, and dividends are related to equity instruments held at the end of the year.

23. GAIN (LOSS) RELATED TO INVESTMENTS IN ASSOCIATES AND JOINTLY CONTROLLED ENTITIES:

Details of gain and loss related to investments in associates and jointly controlled entities for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the years ended			
	December 31, 2018		December 31, 2017	
Equity in earnings of investments in associates and jointly controlled entities	₩	195,009	₩	218,919
Gain on disposal of investments in associates and jointly controlled entities		5,055		149,455
Equity in losses of investments in associates and jointly controlled entities		(44,900)		(48,270)
Loss on disposal of investments in associates and jointly controlled entities		-		(49)
Loss on impairment of investments in associates and jointly controlled entities		-		(8,738)
Total	₩	155,164	₩	311,317

24. OTHER NON-OPERATING INCOME (EXPENSES):

Details of other non-operating income and non-operating expenses for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the years ended			
	December 31, 2018		December 31, 2017	
Other non-operating income:				
Gain on disposal of property, plant and equipment	₩	23,114	₩	10,924
Gain on disposal of intangible assets		230		338
Other		86,072		68,317
Total	₩	109,416	₩	79,579
Other non-operating expenses:				
Loss on disposal of property, plant and equipment	₩	36,777	₩	28,080
Loss on impairment of property, plant and equipment		13,628		97,905
Loss on disposal of intangible assets		242		408
Loss on impairment of intangible assets		11,264		29,062
Donations		35,093		26,049
Other		114,971		39,195
Total	₩	211,975	₩	220,699

25. CLASSIFICATION BASED ON NATURE OF EXPENSE:

Details of classification based on nature of cost of sales and selling and administrative expenses for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the years ended	
	December 31, 2018	December 31, 2017
Changes in finished goods and semifinished goods	₩ (218,861)	₩ (208,079)
Use of raw materials and purchase of finished goods and merchandise	46,687,514	37,562,456
Salaries	1,303,398	1,303,612
Depreciation and amortization	938,924	900,061
Transport	370,039	620,081
Advertising	82,196	111,058
Operating lease payments and rent	96,728	87,449
Others	3,194,594	2,648,703
Less: Reclassification to discontinued operating expense	(61,223)	(84,471)
Total	₩ 52,393,309	₩ 42,940,870

26. INCOME TAX EXPENSE:

Components of income tax expense for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the years ended	
	December 31, 2018	December 31, 2017
Current income tax	₩ 477,518	₩ 792,065
Deferred income tax:		
Changes in net deferred tax assets	229,445	245,770
Tax effect of temporary difference charged or credited directly to stockholders' equity	3,375	37,922
Subtotal	232,820	283,692
Others (change of consolidation scope and others)	52	(35)
Income tax expense	₩ 710,390	₩ 1,075,722
Income tax expense from continuing operation	₩ 705,434	₩ 1,076,412
Income tax expense (benefit) from discontinued operation	4,956	(690)

Details of tax effect on temporary difference charged or credited directly to stockholders' equity for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the years ended December 31, 2018	For the years ended December 31, 2017
Net change in fair value of financial assets measured at FVTOCI	₩ 7,517	₩ -
Net change in fair value of AFS financial assets	-	(8,746)
Gain (loss) on valuation of derivatives	(3,099)	1,368
Remeasurement of defined benefit plan	7,265	(1,548)
Effect of change in accounting policy	(8,308)	-
Others	-	46,848
Total	₩ 3,375	₩ 37,922

The difference between income taxes computed using the statutory corporate income tax rates and the recorded income taxes for the years ended December 31, 2018 and 2017, is attributable to the following (in millions of Korean won):

	For the years ended December 31, 2018	For the years ended December 31, 2017
Income (loss) before income tax expense:		
Income before income taxes from continuing operation	₩ 2,402,353	₩ 3,234,765
Loss before income taxes from discontinued operation	18,021	(13,941)
Subtotal	2,420,374	3,220,824
Income tax at statutory income tax rate (*1)	569,318	810,428
Adjustments:		
Non-taxable income	(29,192)	(1,059)
Non-deductible expenses	35,432	3,340
Tax credit and tax reduction	(9,860)	(19,230)
Effect of foreign taxes	111,125	75,712
Changes in tax effects of temporary differences not recognized in deferred tax	103,350	129,779
Additional income tax payment for prior periods	(43,704)	20,650
Others	(26,079)	56,103
Subtotal	141,072	265,295
Income tax expense (benefit):		
Income tax expense from continuing operation	705,434	1,076,413
Income tax benefit from discontinued operation	4,956	(690)
Subtotal	₩ 710,390	₩ 1,075,723
Effective tax rate	29.4%	33.4%

(*1) Statutory income tax rate was calculated taking into account the statutory tax rate to be applied differently for each tax authorities for the income of the consolidated entity.

Significant changes in deferred income tax assets (liabilities) for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the year ended December 31, 2018				
	Beginning balance	Recognized directly in profit or loss	Recognized directly in equity	Others	Ending balance
Trade accounts receivable and others	₩ 78,938	₩ (641)	₩ -	₩ -	₩ 78,297
Long-term investment securities	8,410	(5,342)	(791)	-	2,277
Property, plant and equipment	(124,308)	(121,627)	-	(111)	(246,046)
Inventories	23,668	(8,066)	-	7	15,609
Provisions	23,266	943	-	1	24,210
Employee benefit liability	7,038	1,174	7,265	(245)	15,232
Advance depreciation provision	(622,296)	(216,754)	-	-	(839,050)
Others	(88,173)	117,441	(3,099)	400	26,569
Total	₩ (693,457)	₩ (232,872)	₩ 3,375	₩ 52	₩ (922,902)

	For the year ended December 31, 2017				
	Beginning balance	Recognized directly in profit or loss	Recognized directly in equity	Others	Ending balance
Trade accounts receivable and others	₩ 72,301	₩ 6,641	₩ -	₩ (4)	₩ 78,938
Long-term investment securities	18,941	(1,785)	(8,746)	-	8,410
Property, plant and equipment	(117,137)	(7,277)	-	106	(124,308)
Inventories	19,476	4,366	-	(174)	23,668
Provisions	8,687	14,580	-	(1)	23,266
Employee benefit liability	9,077	(426)	(1,548)	(65)	7,038
Advance depreciation provision	(579,628)	(42,668)	-	-	(622,296)
Others	120,596	(257,088)	48,216	103	(88,173)
Total	₩ (447,687)	₩ (283,657)	₩ 37,922	₩ (35)	₩ (693,457)

27. EARNINGS PER SHARE:

The Group's basic earnings per share for the years ended December 31, 2018 and 2017, are computed as follows (in millions of Korean won, except per shares and weighted-average number of common stock outstanding):

	For the years ended	
	December 31, 2018	December 31, 2017
Net income attributable to owners of the Group	₩ 1,651,472	₩ 2,103,771
Preferred stock dividends and residual income (*1)	(22,862)	(28,237)
Net income attributable to common stock owners of the Group	1,628,610	2,075,534
Weighted-average number of common stock outstanding	89,154,172	91,944,399
Basic earnings per share (in Korean won)	₩ 18,267	₩ 22,574

(*1) Preferred stocks are entitled to receive 1% above (par value basis) the cash dividend rate for common stocks.

(2) The Group's basic earnings per share of preferred stock for the years ended December 31, 2018 and 2017, are computed as follows (in millions of Korean won, except per share and weighted-average number of ordinary shares outstanding):

	For the years ended	
	December 31, 2018	December 31, 2017
Preferred stock dividends and residual income	₩ 22,862	₩ 28,237
Weighted-average number of ordinary stock outstanding	1,248,130	1,248,130
Basic earnings from continuing operations per share of preferred stock (in Korean won) (*2)	₩ 18,317	₩ 22,624

(*2) Earnings per share were calculated with respect to the preferred shares that meet the definition of an ordinary stock as specified in the K-IFRS 1033 *Earnings per Share*, which has no such preferential rights for participating in dividends or undistributed earnings.

(3) The Group's basic income from continuing operations per share for the years ended December 31, 2018 and 2017, is computed as follows (in millions of Korean won, except per share and weighted-average number of ordinary shares outstanding):

	For the years ended			
	December 31, 2018		December 31, 2017	
Income from continuing operations attributable to common stock owners of the Group	₩	1,638,407	₩	2,105,934
Preferred stock dividends and residual income		(22,682)		(28,266)
Income from continuing operations attributable to common stock owners of the Group		1,615,725		2,077,668
Weighted-average number of ordinary stock outstanding		89,154,172		91,944,399
Basic earnings per share from continuing operations (in Korean won)	₩	18,123	₩	22,597

(4) The Group's basic earnings from continuous operations per share of preferred stock for the years ended December 31, 2018 and 2017, are computed as follows (in millions of Korean won, except per share and weighted-average number of ordinary shares outstanding):

	For the years ended			
	December 31, 2018		December 31, 2017	
Preferred stock dividends and residual income	₩	22,682	₩	28,266
Weighted-average number of ordinary stock outstanding		1,248,130		1,248,130
Basic earnings from continuing operations per share of preferred stock (in Korean won)	₩	18,173	₩	22,647

28. TRANSACTIONS WITH RELATED PARTIES:

Parent and subsidiaries of the Group as of December 31, 2018, are as follows:

Type	Company
Parent	SK Holdings Co., Ltd.
Investments in associates and jointly controlled entities	See Note 8-(1)
Affiliates designated by the Monopoly Regulation and Fair Trade Act of the Republic of Korea (the "Act") (*1)	SK Discovery Co., Ltd., SK Chemicals Co., Ltd., SK Gas Co., Ltd., SK Syntec Co., Ltd., Entis Co., Ltd., Initz Co., Ltd., SK Advanced Co., Ltd., Dangjin Eco Power Co., Ltd., SK D&D Co., Ltd., G.Hub co., Ltd., B&M Development Co., Ltd., SK Plasma Co., Ltd., and others.

(*1) These companies are not the related parties as defined in paragraph 9 of K-IFRS 1024. However, Large-Scale Business Group affiliates designated by the Korea Fair Trade Commission are classified as related parties in accordance with the decision of the Korean Securities and Futures Commission that those are related parties considering substance of the relationship as stipulated in paragraph 10 of K-IFRS 1024.

Significant related-party transactions for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

		Revenue		Purchase	
Relationship type	Company name	December 31, 2018	December 31, 2017	December 31, 2018	December 31, 2017
Parent	SK Holdings Co., Ltd.(*1)	₩ 5,775	₩ 6,128	₩ 266,890	₩ 276,229
Associates	Daehan Oil Pipeline Corp.	21,620	41,237	52,417	50,289
	SABIC SK Nexlene Company Pte. Ltd.	3,182	2,755	158,720	151,137
	Oilhub Korea Yeosu Corporation	-	-	13,899	12,810
	FSKL&S(Shanghai)Co.,Ltd.	118	-	19,996	10,806
	Hi-TechLubricantsLimited	27,052	31,942	-	-
Jointly controlled entities	Ulsan Aromatics Co., Ltd.	49,685	61,808	67,891	67,699
Others	SKC, Ltd.	378,690	322,808	165,071	146,026
	SK Engineering & Construction Co., Ltd.	-	900	162,724	100,094
	SK Networks Co., Ltd.	1,263,430	3,966,219	120,789	281,651
	Korea Nexlene Company	162,073	118,977	38	8,065
	Chungcheong Energy Service Co., Ltd.	-	-	10,681	9,272
	SK Planet Co., Ltd.	406	251	3,445	4,899
	SK Hynix Inc.	65,977	55,348	1,111	1,240
	SK Air gas., Ltd.	21	19	39,534	37,581
	SK Telecom Co., Ltd.	5,040	5,310	13,814	11,250
	SK Infosec Co., Ltd.	-	-	19,257	18,826
	SK E&S Co., Ltd.	24,463	4,604	1,302	134
	Ko-one energy service Co., Ltd.	-	-	43,835	36,802
	SK CHINA(Beijing) Co., Ltd.	-	-	9,254	5,736
	SKNetworks(Shanghai)Co.,Ltd.	3,463	-	29,291	-
	SK T&S Co., Ltd.	13,786	-	-	-
	Happynarae Co., Ltd.(*7)	12,401	8,211	147,513	102,592
	Hi-TechBlending(Private)Limited	21,620	21,884	-	-
Affiliates by the Act	SK Discovery Co., Ltd. (*3)	-	8,315	-	100,848
	SK Chemicals Co., Ltd.(*3, 4)	90,851	70,186	119,045	7,826
	SK Gas Co., Ltd.(*5)	321,972	261,695	302,762	312,094
	SK Advanced Co., Ltd.	99	416	7,911	14,940
	SK Shipping Co., Ltd.(*1, 2)	2,691	296	244,661	162,080
	SK B&T Pte. Ltd.(*2)	172,747	175,165	30	1
	SK Shipping (S pore) Pte. Ltd. (*2)	495	211	11,935	11,423
	SK Shipping Europe Plc. (*2)	-	-	44,485	39,657

(*1) On April 1, 2017, SK Shipping Co., Ltd. was split off as SK Maritime Co., Ltd., a surviving company, and SK Shipping Co., Ltd., the newly established company. SK Holdings Co., Ltd. merged with SK Maritime Co., Ltd. on March 1, 2018 and the transaction amount of SK Maritime Co., Ltd. was included in the transaction amount of SK Holdings Co., Ltd

(*2) SK Holdings, the parent company of the Group, requested the Korea Fair Trade Commission to exclude SK shipping Co., Ltd. from Large-Scale Business Group affiliates of SK on December 28, 2018, and it was approved on February 19, 2019.

(*3) On December 1, 2017, SK Chemicals Co., Ltd. was split off as a surviving company of SK Discovery Co., Ltd. and the newly established company of SK Chemicals Co., Ltd.

(*4) On May 1, 2018, SK Chemicals Co., Ltd. merged with SK Petrochemical Co., Ltd. and the transaction amount of SK Petrochemical Co., Ltd. was included in the transaction amount of SK Chemicals Co., Ltd.

(*5) SK Gas merged with G.Hub Co., Ltd. on December 24, 2018.
(*6) Dividends received from investments in associates and jointly controlled entities are disclosed in Note 9.
(*7) As the Group disposed of all of the shares held to SK Hynix Inc. during the year, it was reclassified from associates to other related parties.

The outstanding balances of the significant related parties as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

Relationship type	Company name	Receivables (*1) December 31, 2018	Receivables (*1) December 31, 2017	Payables (*2) December 31, 2018	Payables (*2) December 31, 2017
Parent	SK Holdings Co., Ltd.	₩ 6,462	₩ 6,099	₩ 20,567	₩ 21,330
Associates	Daehan Oil Pipeline Corporation	3,170	1	658	766
	SABIC SK Nexlene Company Pte. Ltd.	6,160	2,803	34,797	32,597
	Yemen LNG Company Ltd.	33,632	24,445	-	-
	Korea Consortium Kazakh B.V. (*3)	146,170	146,170	-	-
	Oilhub Korea Yeosu Corporation	-	-	1,928	1,149
	FSK L&S (Shanghai) Co., Ltd.	-	-	1,895	1
	Hi-Tech Lubricants Limited	860	3,776	753	1,556
Jointly controlled entities	Ulsan Aromatics Co., Ltd.	4,717	2,657	7,320	6,507
Others	SKC, Ltd.	27,187	31,548	5,845	6,032
	SK Engineering & Construction Co., Ltd.	1,214	386	3,328	7,273
	SK Networks Co., Ltd.	116,801	291,962	9,105	10,427
	Korea Nexlene Company	15,077	13,331	26	19
	Chungcheong Energy Service Co., Ltd.	330	330	1	1
	SK Planet Co., Ltd.	30	501	1,589	3,885
	SK Hynix Inc.	11,936	11,815	33	93
	SK Air gas., Ltd.	-	-	3,481	3,582
	SK Telecom Co., Ltd.	1,517	1,703	3,841	3,222
	SK Infosec Co., Ltd.	-	-	4,391	4,883
	SK E&S Co., Ltd.	284	230	1,400	764
	FSK L&S Co., Ltd.	4,882	-	213	-
	SK CHINA(Beijing) Co., Ltd.	-	-	9,060	5,610
	Happynarae Co., Ltd.	1,722	164	12,753	12,808
	Hi-Tech Blending (Private) Limited	1,786	1,391	-	-
Affiliates by the ACT	SK Discovery Co., Ltd.	-	-	-	1
	SK Chemicals Co., Ltd.	14,080	11,578	9,177	8,609
	SK Gas Co., Ltd.	31,021	54,488	61,397	71,102
	SK Advanced Co., Ltd.	7	58	1,274	1,294
	SK Shipping Co., Ltd.	510	93	17,613	7,805
	SK B&T Pte. Ltd.	10,773	8,883	-	-
	SK Shipping (S PORE) Pte, Ltd.	112	-	-	-
	SK Shipping Europe Plc.	-	-	8,256	3,155

(*1) Consists of trade accounts receivable, other accounts receivable, guarantee deposits and loans that were accounted before deduction of allowance for doubtful accounts.
(*2) Consists of trade accounts payable, other accounts payable and accrued expenses.

(*3) As of December 31, 2018 and 2017, loss related to investments in associates amounting to ₩13,843 million exceeding the carrying amount of the investment in the equity of the associate was recognized with allowance for doubtful accounts on the loans, and long-term loan to KCK B.V. was impaired and fully provided through the Group's allowance for doubtful accounts.

The Group defines registered directors who have substantial roles and responsibilities for planning, operating and controlling the business as key management, and the compensation for key management for the years ended December 31, 2018 and 2017, is as follows (in millions of Korean won):

	For the years ended			
	December 31, 2018		December 31, 2017	
Salaries and others	₩	4,668	₩	6,596
Provision for severance and retirement benefits		1,539		1,529
Total	₩	6,207	₩	8,125

For the year ended December 31, 2018, the Group acquired 16.9% of the shares of Hana Alternative Investment Landchip Private Real Estate Investment Trust No.33 held by SK Planet Co., Ltd, other related party, for ₩ 68,500 million.

For the year ended December 31, 2018, the Company disposed of all of the 45.0% shares of Happynarae Co., Ltd. to SK Hynix Inc., other related party, for ₩ 28,416 million.

In addition, the Company made additional capital contribution of ₩ 118,758 million to Beijing BESK Technology Co., Ltd. for the year ended December 31, 2018.

Outstanding balances with related parties are unsecured and interest free, except for specific transactions with agreed terms and conditions. There are no guarantees provided to or from related parties relating to the above outstanding balances. The Company also provides guarantees for some of the related parties as of December 31, 2018 (see Note 15).

29. SEGMENT INFORMATION:

The Group has four reportable business segments - Petroleum, Petrochemicals, Lubricants and Others - with each segment representing a strategic business unit that offers different products and serves different markets.

The financial information of the Group by business segments for the years ended December 31, 2018 and 2017, is as follows (in millions of Korean won):

	For the year ended December 31, 2018						
	Petroleum	Petro-chemicals	Lubricants	Battery	Others	Consolidation adjustments	Total
Sales	₩ 89,479,559	₩17,115,481	₩ 6,026,259	₩ 373,123	₩ 3,418,155	₩ (61,901,679)	₩ 54,510,898
Intersegment sales	(50,286,031)	(6,431,050)	(2,760,150)	(24,892)	(2,399,556)	61,901,679	-
Net sales	39,193,528	10,684,431	3,266,109	348,231	1,018,599	-	54,510,898
Operating income (loss)	709,253	1,117,587	460,676	(317,503)	147,577	-	2,117,590

	For the year ended December 31, 2017						
	Petroleum	Petro-chemicals	Lubricants	Battery	Others	Consolidation adjustments	Total
Sales	₩ 71,392,388	₩14,617,908	₩ 5,475,243	₩ 161,512	₩ 2,918,210	₩ (48,402,605)	₩ 46,162,656
Intersegment sales	(38,621,145)	(5,278,695)	(2,427,755)	(15,771)	(2,059,239)	48,402,605	-
Net sales	32,771,243	9,339,213	3,047,488	145,741	858,971	-	46,162,656
Operating income (loss)	1,502,048	1,377,223	504,931	(232,129)	69,713	-	3,221,786

There are no customers accounting for 10% or more of the consolidated sales of the Group for the year ended December 31, 2018, except for the transactions with related parties (see Note 28).

The assets and liabilities of the Group by business segments as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the year ended December 31, 2018						
	Petroleum	Petro-chemicals	Lubricants	Battery	Others	Consolidation adjustments	Total
Non-current assets (*1)	₩ 7,419,488	₩ 3,930,812	₩ 1,017,357	₩ 1,050,693	₩ 2,408,937	₩ 1,678	₩ 15,828,965

	For the year ended December 31, 2017						
	Petroleum	Petro-chemicals	Lubricants	Battery	Others	Consolidation adjustments	Total
Non-current assets (*1)	₩ 7,360,931	₩ 4,038,206	₩ 1,016,835	₩ 711,653	₩ 1,996,143	₩ 2,841	₩ 15,126,609

(*1) Including property, plant and equipment; intangible assets; and other non-current assets.

The financial information of the Group by regions for the years ended December 31, 2018 and 2017, is as follows (in millions of Korean won):

	For the year ended December 31, 2018					
	Domestic	Asia	Europe	Others	Consolidation adjustments	Total
Sales	₩ 75,734,667	₩31,744,131	₩ 7,084,018	₩ 1,849,761	₩ (61,901,679)	₩ 54,510,898
Intersegment sales	(48,560,776)	(7,958,261)	(4,377,017)	(1,005,625)	61,901,679	-
Net sales	27,173,891	23,785,870	2,707,001	844,136	-	54,510,898

	For the year ended December 31, 2017					
	Domestic	Asia	Europe	Others	Consolidation adjustments	Total
Sales	₩ 63,590,600	₩25,160,701	₩ 5,000,661	₩ 813,299	₩ (48,402,605)	₩ 46,162,656
Intersegment sales	(40,066,562)	(5,615,457)	(2,706,517)	(14,069)	48,402,605	-
Net sales	23,524,038	19,545,244	2,294,144	799,230	-	46,162,656

Non-current assets of the Group by geographic segments (based on country of domicile) as of December 31, 2018 and 2017, are as follows (in millions of Korean won):

	December 31, 2018					
	Domestic	Asia	Europe	Others	Consolidation adjustments	Total
Non-current assets (*1)	₩14,209,132	₩ 255,894	₩ 502,470	₩ 859,791	₩ 1,678	₩15,828,965

	December 31, 2017					
	Domestic	Asia	Europe	Others	Consolidation adjustments	Total
Non-current assets (*1)	₩14,063,113	₩ 269,717	₩ 355,079	₩ 435,859	₩ 2,841	₩15,126,609

(*1) Including property, plant and equipment; intangible assets; and other non-current assets.

30. DISCONTINUED OPERATIONS:

For the year ended December 31, 2018, the Group decided to discontinue the operation of the Flexible Copper Clad Lamination ("FCCL") business. As of December 31, 2018, the Group completed the disposals of assets related to FCCL business, and classified income or loss from FCCL business to discontinued operations. The disposal of the FCCL business is due to Company's long-term policy of liquidating non-core business and focusing on core businesses.

In addition, the Group recognized the gain or loss on discontinued operations as a result of the disposal of a portion of the assets of the Tri-Acetyl Cellulose ("TAC") business that were classified as discontinued operations prior to 2018.

Income (loss) from discontinued operations for the years ended December 31, 2018 and 2017, is as follows (in millions of Korean won):

	For the years ended			
	December 31, 2018		December 31, 2017	
Sales	₩	63,773	₩	98,283
Cost of sales		(55,070)		(80,378)
Selling and administrative expenses		(6,153)		(4,093)
Other non-operating income and expenses		15,471		(16,665)
Income before income tax expense		18,021		(2,853)
Income tax expense		(4,956)		690
Gain from discontinued operations	₩	13,065	₩	(2,163)

Cash flows related to discontinued operations for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the years ended			
	December 31, 2018		December 31, 2017	
Cash flows from operating activities	₩	49,408	₩	11,152
Cash flows from investing activities(*1)		89,506		(2,053)

(*1) This amount includes cash flows related to the sale of discontinued businesses.

31. CASH FLOW INFORMATION:

Details of non-cash adjustments for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the years ended December 31, 2018	For the years ended December 31, 2017
Income tax expense	₩ 710,390	₩ 1,075,722
Provision for severance and retirement benefits	63,822	60,682
Depreciation	845,808	791,032
Amortization	93,116	109,029
Bad debt expenses (Reversal of allowances for doubtful accounts)	2,706	(6,742)
Loss on valuation of inventories	274,033	7,238
Interest expenses	259,548	206,347
Loss on foreign currency translation	87,633	147,881
Loss on valuation of derivative financial instruments	754,158	131,550
Loss on disposals of long-term investment securities	12	146
Loss on impairment of long-term investment securities	-	4,534
Loss on valuation using equity method	44,900	48,270
Loss on disposals of investments in associates	-	49
Loss on impairment of investments in associates	-	8,738
Loss on disposals of property, plant and equipment	36,777	28,080
Loss on impairment of property, plant and equipment	13,628	113,264
Loss on disposals of intangible assets	242	408
Loss on impairment of intangible assets	11,264	29,062
Interest income	(88,335)	(76,037)
Dividend income	(9,199)	(8,640)
Gain on foreign currency translation	(113,960)	(223,337)
Gain on valuation of derivative financial instruments	(772,653)	(90,286)
Gain on disposals of long-term investment securities	-	(237)
Gain on valuation using equity method	(195,009)	(218,919)
Gain on disposal of investments in associates	(5,055)	(149,455)
Gain on disposal of property, plant and equipment	(23,114)	(10,924)
Gain on disposal of intangible assets	(230)	(338)
Others	22,956	15,099
Total	₩ 2,013,438	₩ 1,992,216

Details of working capital adjustments for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the years ended	
	December 31, 2018	December 31, 2017
Trade accounts receivable	₩ 403,392	₩ (815,431)
Other accounts receivable	(196,741)	(141,621)
Accrued income	(686)	(64)
Advance payments	(149,516)	(65,353)
Guarantee deposits	(9,836)	(39,373)
Prepaid expenses	1,327	(396)
Derivative financial assets	(51,850)	(8,513)
Firm commitment assets	-	65
Inventories	(480,932)	(1,500,975)
Trade accounts payable	(688,137)	1,168,040
Other accounts payable	59,517	104,732
Accrued expenses	159,910	92,583
Advance received	28,242	10,302
Withholdings	(152,508)	14,852
Derivative financial liabilities	-	(12,650)
Firm commitment liabilities	-	(4,970)
Retirement benefit payment	(36,214)	(36,005)
Plan assets	(51,494)	(2,643)
Others	11,321	23,179
Total	₩ (1,154,205)	₩ (1,214,241)

Significant non-cash transactions for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the years ended	
	December 31, 2018	December 31, 2017
Transfer from construction in progress to property, plant and equipment and intangible assets	₩ 1,153,827	₩ 616,742
Decrease in other accounts payable due to acquisition of property, plant and equipment	(3,386)	(34,101)
Donation due to disposal of property, plant and equipment	309	-
Other account receivables and others due to disposal of intangible assets	360	-
Transfer from assets held for sale to property, plant and equipment	-	22,639
Other account receivables and others due to disposal of assets classified as held for sale transferred from property, plant and equipment	28,062	-
Transfer from property, plant and equipment to assets held for sale	65,500	-
Transfer of long-term debt to current portion of long-term debt	1,026,638	1,273,282
Contribution of investments in associates	-	423,090

Details of changes in total liabilities from financing activities for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	For the year ended December 31, 2018					
			Non-cash transactions			
	Beginning balance	Cash flows from financing activities	Effects of exchange rate changes	Transfer	Others	Ending balance
Short-term borrowings	₩ 242,879	₩ (89,818)	₩ 681	₩ -	₩ -	₩ 153,742
Long-term borrowings and bonds payable	5,335,066	2,498,735	30,998	(2,221)	7,014	7,869,592
Leasehold deposits received	20,971	1,142	-	-	-	22,113
Dividends payable	237	(822,180)	-	822,212	-	269
Total liabilities from financing activities	₩ 5,599,153	₩ 1,587,879	₩ 31,679	₩ 819,991	₩ 7,014	₩ 8,045,716

	For the year ended December 31, 2017					
			Non-cash transactions			
	Beginning balance	Cash flows from financing activities	Effects of exchange rate changes	Transfer	Others	Ending balance
Short-term borrowings	₩ 21,893	₩ 223,447	₩ (2,461)	₩ -	₩ -	₩ 242,879
Long-term borrowings and bonds payable	6,547,822	(1,134,062)	(82,106)	-	3,412	5,335,066
Leasehold deposits received	23,065	(4,157)	-	-	2,063	20,971
Dividends payable	-	(756,650)	-	756,887	-	237
Total liabilities from financing activities	₩ 6,592,780	₩ (1,671,422)	₩ (84,567)	₩ 756,887	₩ 5,475	₩ 5,599,153

32. FINANCIAL RISK MANAGEMENT:

The principal financial liabilities of the Group comprise borrowings, bonds payable, trade and other accounts payable. The main purpose of these financial liabilities is to finance the operations of the Group. Further, the Group has various financial assets, including trade and other accounts receivable that are directly related to its operations.

The Group is exposed to market risk, credit risk and liquidity risk. Key management of the Group is responsible for the financial risk-taking activities of the Group, and such activities are governed by appropriate policies and procedures.

a. Market risk

Market risk is the risk that the fair value of future cash flows of a financial instrument will fluctuate because of changes in market prices. Market prices comprise four types of risk: interest rate risk, foreign currency risk, crude oil and petroleum product price risk and other price risk.

(1) Interest rate risk

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The exposure to the risk of changes in market interest rates relates primarily to the long-term debt obligations of the Group with floating interest rates. The Group entered into currency forward contracts and interest rate swaps to hedge the risks from changes in future cash flows of a financial instrument. Except for these changes, key management of the Group determined that the effect of the changes in market interest rates is not significant.

(2) Foreign currency risk

Foreign currency risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. The exposure to the risk of changes in foreign exchange rates relates primarily to the operating activities of the Group and the net investments in foreign subsidiaries. The Group manages its foreign currency risk periodically. Specifically, the Group entered into currency forward contracts and currency interest rate swaps to hedge the risks from changes in foreign exchange rates.

Significant monetary assets and liabilities denominated in foreign currencies as of December 31, 2018 and 2017, are as follows (in thousands of U.S. dollars, Chinese yuan, Japanese yen and Indonesian rupiah, and in millions of Korean won):

		For the years ended			
		December 31, 2018		December 31, 2017	
	Currency	Foreign currencies	Korean won equivalent	Foreign currencies	Korean won equivalent
Assets	USD	4,391,539	₩ 4,909,262	4,113,149	₩ 4,406,828
	JPY	13,082,751	132,544	15,231,301	144,545
	CNY	71,452	11,630	1,049,432	171,740
	IDR	788,960,345	63,117	633,298,251	50,664
Liabilities	USD	5,420,263	6,060,396	5,252,019	5,627,014
	JPY	135,629	1,374	518,976	4,925
	CNY	344	56	736	121
	IDR	660,435,090	52,835	695,277,356	55,622

Should the exchange rate of aforementioned currencies fluctuate by 5%, the effects on income before income taxes would be as follows (in millions of Korean won):

	December 31, 2018		December 31, 2017	
	Increase by 5%	Decrease by 5%	Increase by 5%	Decrease by 5%
Increase (decrease) in income before income taxes	₩ (28,609)	₩ 28,609	₩ (32,846)	₩ 32,846

(3) Crude oil and petroleum product price risk

Crude oil and petroleum product price risk is the risk that profit or cash flow will fluctuate because of changes in international market prices of crude oil and petroleum products. The Group manages these risks to maintain stable margins through the use of fixed-price contracts with customers and derivative contracts of fluctuations in fair values according to changes in international market prices. Key management of the Group determined that the risk from changes in the price of crude oil and petroleum products and the risk to fluctuations in fair values are approximately managed.

(4) 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 from interest rate risk and foreign currency risk. The marketable AFS financial assets of the Group are susceptible to market price risks arising from fluctuations in the price of securities. However, key management of the Group determined that the effect of fluctuation in the price of securities is not significant.

b. Credit risk

Credit risk is the risk that counterparty will not meet its obligations under a financial instrument or customer contract, leading to a financial loss of the Group.

(1) Trade and other receivables

Customer credit risk is managed by each business unit subject to the Group's established policies, procedures and control related to customer credit risk management. Credit quality of the customer is assessed based on an extensive credit rating scorecard and individual credit limits are defined in accordance with this assessment. Outstanding customer receivables are regularly monitored and any shipments to major customers are generally covered by letters of credit or other forms of credit insurance.

As of December 31, 2018, trade accounts and notes receivable from top five major customers accounted for 10.3% or ₩ 488,041 million of total trade accounts receivable. Maximum exposure to credit risk at the reporting date is the book value of each class of financial assets. The requirement for impairment is analyzed at each reporting date on an individual basis for major clients. Additionally, a large number of minor receivables are grouped into homogenous groups and for impairment collectively. The calculation is based on actually incurred historical data.

Of the trade receivables balance at the end of the year, ₩ 116,801 million (December 31, 2017: ₩ 291,962 million) is due from SK Networks Co., Ltd., the Group's largest customer. Apart from this, the Group does not have significant credit risk exposure to any single counterparty or any group of counterparties having similar characteristics. The Group defines counterparties as having similar characteristics if they are related entities. Concentration of credit risk related to SK Networks Co., Ltd. did not exceed 10% of total current assets at any time during the year. Concentration of credit risk to any other counterparty did not exceed 5% of total current assets at any time during the year. The concentration of credit risk is limited due to the fact that the customer base is large and unrelated.

(2) Other financial assets

Credit risks associated with the other financial assets of the Group that consist of short-term and long-term financial assets arise from the default by the counterparties. Maximum exposure to credit risks at the reporting date is the book value of the other financial assets. The Group deposits its surplus funds in the financial institutions whose credit ratings are high; therefore, credit risk related to financial institutions is considered limited.

(3) Exposure to credit risk

The maximum exposure to credit risk as of December 31, 2018 and 2017, is the carrying value of each class of financial assets as follows (in millions of Korean won):

	For the year ended December 31, 2018		
	Book value before deduction	Accumulated impairment	Book value (maximum exposure amount)
Cash and cash equivalents	₩ 1,855,921	₩ -	₩ 1,855,921
Financial instruments	2,676,683	-	2,676,683
Loans and receivables	6,067,601	(436,528)	5,631,073
Long-term investment securities	28,500	-	28,500
Derivative financial instruments	80,710	-	80,710
Financial guarantee contracts	211,880	-	211,880
Total	₩ 10,921,295	₩ (436,528)	₩ 10,484,767

	December 31, 2017		
	Book value before deduction	Accumulated loss allowance	Book value (maximum exposure amount)
Cash and cash equivalents	₩ 2,003,740	₩ -	₩ 2,003,740
Financial instruments	2,249,930	-	2,249,930
Loans and receivables	6,134,059	(451,187)	5,682,872
Long-term investment securities	35,035	-	35,035
Derivative financial instruments	36,055	-	36,055
Financial guarantee contracts	212,780	-	212,780
Total	₩ 10,671,599	₩ (451,187)	₩ 10,220,412

c. Liquidity risk

Liquidity risk refers to the risk that the Group may default on the contractual obligations that become due. The Group manages its risk to a shortage of funds using a recurring liquidity planning tool. The objective of the Group is to maintain a balance between continuity of funding and flexibility through the use of bank overdrafts, bank borrowings and bonds. The maturity profile of the Group's bonds, borrowings and financial guarantee contracts among financial liabilities based on contractual nominal amount as of December 31, 2018, is as follows (in millions of Korean won):

	Under three months	Three months to one year	One year to five years	More than five years	Total
Borrowings and bonds payable	₩ 135,120	₩ 1,240,732	₩ 5,271,472	₩ 1,395,338	₩ 8,042,662
Financial guarantee contracts	-	-	211,880	-	211,880
Total	₩ 135,120	₩ 1,240,732	₩ 5,483,352	₩ 1,395,338	₩ 8,254,542

Based on the carrying value of bonds and borrowings reflected in the consolidated financial statements, 17.1% of the debt will mature in less than one year from December 31, 2018. The Group determined that the risk of a shortage of fund was properly managed considering cash and cash equivalents that the Group retains.

d. Capital management

The primary objective of capital management is to ensure that it maintains a strong credit rating and healthy capital ratios in order to support its business and maximize stockholders' value. The Company manages its capital structure and makes adjustments to it in light of changes in economic conditions. No changes were made in the objectives, policies or processes for the year ended December 31, 2018.

The debt-to-equity ratio as of December 31, 2018 and 2017, is as follows (in millions of Korean won):

		December 31, 2018		December 31, 2017
Liabilities	₩	16,757,401	₩	14,940,814
Equity		19,327,983		19,309,333
Debt-to-equity ratio		86.7%		77.4%

33. ASSETS (LIABILITIES) CLASSIFIED AS HELD FOR SALE:

The Group has classified certain land and building as assets held for sale as the Group entered into the agreement to sell the land in Seoknam-dong Seo-gu, Incheon City. According to the agreement, the sale will be completed within March 31, 2019, and control of the assets will be transferred to the buyer. The Group recognized an impairment loss on the related assets as the consideration to be received is less than the carrying amount of the assets.

Details of assets (liabilities) held for sale as of December 31, 2018, are as follows (in millions of Korean won):

		December 31, 2018
Assets classified as held for sale:		
Land	₩	63,258
Building		2,242
Total	₩	65,500

34. EMISSION RIGHTS AND LIABILITIES:

The quantity of emission allowances the government allocated free of charge for the three years from 2018 to 2020 by vintage year as of December 31, 2018, is as follows (in tCO2-eq):

	2018	2019	2020
Emission allowances allocated free of charge	9,093,970	9,092,552	9,092,034

The estimated quantity of emission allowances made for the year ended December 31, 2018, is 9,274,668 tCO2-eq.

Changes in the quantity of the emission allowances the years ended December 31, 2018 and 2017, are as follows (in tCO2-eq):

	2018(*1)	2017(*1)
Beginning balance	(8,035)	(6,355)
Carried forward from prior year	1,193,977	1,902,734
Free allocation	9,184,974	9,829,489
Cancelled free allocation	(91,004)	(527,522)
Emission	(9,274,668)	(9,113,448)
Carried forward to subsequent year	(1,128,558)	(1,194,396)
Acquisition (Disposal)	21,939	(898,537)
Ending balance(*2)	(101,375)	(8,035)

(*1) Change in the quantity of the emission allowances of current year is an estimate that may differ from the confirmed emission allowances, and changes in the quantity of the emission allowances of prior year are reflected as the confirmed emission allowances.

(*2) The ending balance is the quantity which is not permitted to carry forward and will be sold during the next period. The Group assessed the quantity at fair value at the end of the year and recorded as current assets.

Changes in the emission liabilities for the years ended December 31, 2018 and 2017, are as follows (in millions of Korean won):

	2018		2017	
Beginning balance	₩	84	₩	53
Increase (Decrease)		2,794		31
Ending balance	₩	2,878	₩	84

35. BUSINESS COMBINATIONS:

(1) Dow Chemical EAA Business

The Group acquired all of the Dow Chemical Company's EAA businesses in the U.S. and Spain and the related tangible and intangible assets and completed the acquisition for the year ended December 31, 2017, for diversifying its business portfolio into a higher value-added packaging field pursuant to the resolution of the board of directors dated February 1, 2017.

On the acquisition date, the fair value of tangible and intangible assets was determined provisionally because the independent valuation was not completed. During 2018, the Group subsequently adjusted the amount of its identifiable net assets recognized at the date of acquisition by obtaining new information on the pertinent facts and circumstances that existed on the acquisition date. Details of retrospective adjustments for the year ended December 31, 2018 are described below.

Details of consideration transferred for the acquisition are as follows (in millions of Korean won):

	Amount before adjustment on the acquisition date	Retrospective adjustment	Amount after adjustment on the acquisition date
Cash	₩ 394,463	₩ (1,792)	₩ 392,671

Details of fair value of asset acquired and liabilities recognized at the date of acquisition are as follows (in millions of Korean won):

	Amount before adjustment on the acquisition date	Retrospective adjustment	Amount after adjustment on the acquisition date
Fair value of identifiable assets:			
Current assets:			
Trade and other receivables	₩ 12,742	₩ -	₩ 12,742
Inventories	31,120	252	31,372
Subtotal	43,862	252	44,114
Non-current assets:			
Property, plant and equipment	56,683	(364)	56,319
Goodwill and intangible assets	193,638	10,358	203,996
Subtotal	250,321	9,994	260,315
Total	294,183	10,246	304,429
Fair value of identifiable liabilities:	-	-	-
Fair value of identifiable net assets	₩ 294,183	₩ 10,246	₩ 304,429

Details of goodwill arising on the acquisition are as follows (in millions of Korean won):

	Amount before adjustment on the acquisition date	Retrospective adjustment	Amount after adjustment on the acquisition date
Consideration transferred	₩ 394,463	₩ (1,792)	₩ 392,671
Less : fair value of identifiable net assets acquired	(294,183)	(10,246)	(304,429)
Goodwill arising on acquisition	₩ 100,280	₩ (12,038)	₩ 88,242

Goodwill arose in the business combination as the consideration transferred for acquiring the Dow Chemical EAA business includes control premium. In addition, the consideration transferred for the acquisition also includes the anticipated synergies, revenue growth, future market growth, and the amount associated with skilled labor in the Dow Chemical EAA business. These benefits are not recognized separately from goodwill because they do not meet recognition conditions for identifiable assets. The Group also recognized the Dow Chemical EAA business customer relationships, trade name / trademarks and developed technology as part of the acquisition separately from goodwill since they met recognition conditions for identifiable assets.

Details of net cash outflow on business combination are as follows (in millions of Korean won):

	Amount before adjustment on the acquisition date	Retrospective adjustment	Amount after adjustment on the acquisition date
Consideration paid in cash	₩ 394,463	₩ (1,792)	₩ 392,671
Less : cash and cash equivalent balances acquired	-	-	-
Net cash outflow	₩ 394,463	₩ (1,792)	₩ 392,671

(2) Dow Chemical PVDC Business

In 2017, the Group acquired PVDC business located in the U.S. and all of its tangible and intangible assets held by Dow Chemical Company for the purpose of diversifying its packaging business portfolio. On the acquisition date, the fair value of tangible and intangible assets was determined provisionally because the independent valuation was not completed. During 2018, the Group subsequently adjusted the amount of its identifiable net assets recognized on the acquisition date by obtaining new information on the pertinent facts and circumstances that existed on the date of acquisition. Details of retrospective adjustments for the year ended December 31, 2018 are described below.

Details of consideration transferred for the acquisition are as follows (in millions of Korean won):

	Amount before adjustment on the acquisition date	Retrospective adjustment	Amount after adjustment on the acquisition date
Cash	₩ 82,193	₩ -	₩ 82,193
Contingent consideration	-	(15,964)	(15,964)
Total	₩ 82,193	₩ (15,964)	₩ 66,229

Details of fair value of asset acquired and liabilities recognized at the date of acquisition, are as follows (in millions of Korean won):

	Amount before adjustment on the acquisition date	Retrospective adjustment	Amount after adjustment on the acquisition date
Fair value of identifiable assets:			
Current assets			
Trade and other receivables	₩ 3,365	₩ (917)	₩ 2,448
Inventories	8,516	1,002	9,518
Subtotal	11,881	85	11,966
Non-current assets			
Property, plant and equipment	14,190	11,091	25,281
Goodwill and intangible assets	-	11,040	11,040
Subtotal	14,190	22,131	36,321
Total	26,071	22,216	48,287
Fair value of identifiable liabilities:			
Accounts payable	-	(8)	(8)
Long-term accounts payable	-	(6,536)	(6,536)
Total	-	(6,544)	(6,544)
Fair value of identifiable net assets	₩ 26,071	₩ 15,672	₩ 41,743

Details of goodwill arising on the acquisition are as follows (in millions of Korean won):

	Amount before adjustment on the acquisition date	Retrospective adjustment	Amount after adjustment on the acquisition date
Consideration transferred	₩ 82,193	₩ (15,964)	₩ 66,229
Less : fair value of identifiable net assets acquired	(26,071)	(15,672)	(41,743)
Goodwill arising on acquisition	₩ 56,122	₩ (31,636)	₩ 24,486

Goodwill arose in the business combination as the consideration transferred for acquiring the Dow Chemical PVDC business includes control premium. In addition, the consideration transferred for the acquisition also includes the anticipated synergies, revenue growth, future market growth, and the amount associated with skilled labor in the Dow Chemical PVDC business. These benefits are not recognized separately from goodwill because they do not meet recognition conditions for identifiable assets. The Group also recognized the Dow Chemical PVDC business trade name / trademarks and developed technology as part of the acquisition separately from goodwill since they met recognition conditions for identifiable assets.

Details of net cash outflow on business combination are as follows (in millions of Korean won):

	Amount before adjustment on the acquisition date		Retrospective adjustment		Amount after adjustment on the acquisition date	
Consideration paid in cash	₩	82,193	₩	-	₩	82,193
Less : cash and cash equivalent balances acquired		-		-		-
Net cash outflow	₩	82,193	₩	-	₩	82,193

(3) SK Networks Co., Ltd. Oil wholesale business

In accordance with the resolution of the board of directors on August 10, 2017 and the approval of the shareholder meeting on September 26, 2017, the Group acquired SK Networks Co., Ltd.'s petroleum wholesale and service station business to strengthen competitiveness in the domestic market. This business combination was carried out under common control and accordingly, the Group recorded acquired assets and liabilities at their existing carrying values, the difference from consideration transferred was recorded as other paid-in capital

Details of consideration transferred for the acquisition are as follows (in millions of Korean won):

	Amount before adjustment on the acquisition date		Retrospective adjustment		Amount after adjustment on the acquisition date	
Cash	₩	288,016	₩	-	₩	288,016

Details of fair value of asset acquired and liabilities recognized at the date of acquisition, are as follows (in millions of Korean won):

	Amount before adjustment on the acquisition date	Retrospective adjustment	Amount after adjustment on the acquisition date
Fair value of identifiable assets:			
Current assets			
Trade and other receivables	₩ 191,653	₩ -	₩ 191,653
Others	1,311	-	1,311
Subtotal	192,964	-	192,964
Non-current assets			
Property, plant and equipment	16,051	-	16,051
Goodwill and intangible assets	14	-	14
Others	7,270	-	7,270
Subtotal	23,335	-	23,335
Total	216,299	-	216,299
Fair value of identifiable liabilities:			
Current liabilities			
Trade accounts payable	69,099	-	69,099
Others	16,114	-	16,114
Subtotal	85,213	-	85,213
Non-current liabilities			
Long-term borrowings	2,168	-	2,168
Others	2,210	-	2,210
Subtotal	4,378	-	4,378
Total	89,591	-	89,591
Fair value of identifiable net assets	₩ 126,708	₩ -	₩ 126,708

Details of goodwill arising on the acquisition are as follows (in millions of Korean won):

	Amount before adjustment on the acquisition date	Retrospective adjustment	Amount after adjustment on the acquisition date
Consideration transferred	₩ 288,016	₩ -	₩ 288,016
Less : fair value of identifiable net assets acquired	(126,708)	-	(126,708)
Goodwill arising on acquisition	₩ -	₩ -	₩ -

The Group recorded the difference between ₩288,016 million of consideration paid and acquired net assets as other paid-in capital

Details of net cash outflow on business combination are as follows (in millions of Korean won):

	Amount before adjustment on the acquisition date	Amount retroactive adjustment	Amount after adjustment
Consideration paid in cash	₩ 288,016	₩ -	₩ 288,016
Less : cash and cash equivalent balances acquired	-	-	-
Net cash outflow	₩ 288,016	₩ -	₩ 288,016

(4) Acquisition of production in North America

SK E&P America, Inc., a subsidiary of the Group, acquired all of the shares of Longfellow Nemaha, LLC for the year ended December 31, 2018, and changed its name to SK Nemaha, LLC after the acquisition. The shares acquired are 50% of the shares of production oil field which is located in Oklahoma. The Group completed the acquisition on June 5, 2018 and total acquisition cost of ₩310,550 million (USD 290 million) was paid by cash. Further, goodwill did not occur in the business combination and the initial accounting was provisionally determined as of December 31, 2018.

Details of consideration transferred for the acquisition are as follows (in millions of Korean won):

	Amount before adjustment based on acquisition date	Amount retroactive adjustment based on acquisition date	Amount after adjustment on acquisition date
Cash	₩ 310,550	₩ 132	₩ 310,682

Details of fair value of asset acquired and liabilities recognized at the date of acquisition, are as follows (in millions of Korean won):

	Amount before adjustment based on acquisition date	Amount retroactive adjustment based on acquisition date	Amount after adjustment on acquisition date
Fair value of identifiable assets:			
Non-current assets			
Goodwill and intangible assets	₩ 312,515	₩ 3,267	₩ 315,782
Others	-	54	54
Total	312,515	3,321	315,836
Fair value of identifiable liabilities:			
Current liabilities	-	551	551
Non-current liabilities			
Restoration liability	1,965	2,638	4,603
Total	1,965	3,189	5,154
Fair value of identifiable net assets	₩ 310,550	₩ 132	₩ 310,682

Details of goodwill arising on the acquisition are as follows (in millions of Korean won):

	Amount before adjustment on the acquisition date	Retrospective adjustment	Amount after adjustment on the acquisition date
Consideration transferred	₩ 310,550	₩ 132	₩ 310,682
Less : fair value of identifiable net assets acquired	310,550	132	310,682
Goodwill arising on acquisition	₩ -	₩ -	₩ -

Details of net cash outflow on business combination are as follows (in millions of Korean won):

	Amount before adjustment on the acquisition date	Retrospective adjustment	Amount after adjustment on the acquisition date
Consideration paid in cash	₩ 310,550	₩ 132	₩ 310,682
Less : cash and cash equivalent balances acquired	-	-	-
Net cash outflow	₩ 310,550	₩ 132	₩ 310,682

The details of property, plant and equipment and intangible assets as of December 31, 2017, are as follows. (in millions of Korean won):

	Amount before adjustment on the acquisition date	Retrospective adjustment	Amount after adjustment on the acquisition date
Tangible assets:			
Land	₩ 4,150,758	₩ -	₩ 4,150,758
Building	1,003,223	(306)	1,002,917
Construct	560,876	2,130	563,006
Machinery	6,463,459	8,351	6,471,810
Others	657,761	(1,140)	656,621
Asset under construction	751,128	(1)	751,127
Total	₩ 13,587,205	₩ 9,034	₩ 13,596,239
Intangible assets:			
Goodwill	₩ 151,496	₩ (41,699)	₩ 109,797
Oil field under exploration (exploitation)	170,045	-	170,045
Oil field under exploration (production)	904,002	-	904,002
Membership	36,943	-	36,943
Others	258,358	22,242	280,600
Total	₩ 1,520,844	₩ (19,457)	₩ 1,501,387

36. SUBSEQUENT EVENTS:

In order to enhance its expertise and substantial competitiveness in the materials business, the Group decided to spin off the materials business in accordance with the resolution of the board of directors on February 27, 2019. The spin off date will be April 1, 2019, and the split plan will be approved at the shareholders' meeting scheduled for March 21, 2019.

THE ISSUER

SK Battery America, Inc.
201 17th Street NW
Suite 1700
Atlanta, GA 30363-1099
United States of America

THE GUARANTOR

SK Innovation Co., Ltd.
26, Jong-ro
Jongno-gu
Seoul 03188, Korea

FISCAL AGENT AND PRINCIPAL PAYING AGENT

The Bank of New York Mellon, London Branch

One Canada Square
London, E14 5AL
United Kingdom

REGISTRAR AND TRANSFER AGENT

The Bank of New York Mellon SA/NV, Luxembourg Branch
Vertigo Building – Polaris
2-4 rue Eugene Ruppert
L-2453 Luxembourg

LEGAL ADVISORS TO THE ISSUER AND THE GUARANTOR

As to U.S. law

Cleary Gottlieb Steen & Hamilton LLP
19F, Ferrum Tower
19, Eulji-ro 5-gil, Jung-gu
Seoul 04539, Korea

As to Korean law

Lee & Ko
18F, Hanjin Main Building
63 Namdaemun-ro, Jung-gu
Seoul 04532, Korea

LEGAL ADVISOR TO THE INITIAL PURCHASERS

As to U.S. law

Linklaters LLP
22F East Tower
Mirae Asset Center 1
26, Eulji-ro 5-gil, Jung-gu
Seoul 04539, Korea

INDEPENDENT ACCOUNTANTS

Deloitte Anjin LLC
4th-12th Fl., One IFC Building
10, Gukjegeumyung-ro, Yeongdeungpo-gu
Seoul 07326, Korea

Ernst & Young Han Young
Taeyoung Building
111, Yeouigongwon-ro, Yeongdeungpo-gu
Seoul 07241, Korea

SINGAPORE LISTING AGENT

Shook Lin & Bok LLP
1 Robinson Road
#18-00 AIA Tower
Singapore 048542

SK battery America