IMPORTANT NOTICE

THIS DOCUMENT IS AVAILABLE ONLY TO INVESTORS WHO ARE EITHER (1) QIBs (AS DEFINED BELOW) UNDER RULE 144A OR (2) NON-U.S. PERSONS WITH ADDRESSEES OUTSIDE OF THE U.S.

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. OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, U.S. PERSONS (AS DEFINED IN REGULATION S UNDER THE SECURITIES ACT), 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 following offering circular or make an investment decision with respect to the securities, investors must be either (I) qualified institutional buyers ("QIBs") (within the meaning of Rule 144A under the Securities Act) or (II) non-U.S. persons (within the meaning of Regulation S under the Securities Act) outside the United States. By accepting the e-mail and accessing the following offering circular, you shall be deemed to have represented to the dealers named in the Offering Circular (the "Dealers"), being senders of the attached, that (1) you and any customers you represent are either (a) QIBs or (b) non-U.S. persons and that the electronic mail address that you gave us and to which this e-mail has been delivered is not located in the United States, its territories or possessions and (2) you consent to the delivery of such offering circular 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 Dealers or any affiliate of the Dealers is a licensed broker or dealer in that jurisdiction, the offering shall be deemed to be made by the Dealers 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 the Dealers 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 Dealers.

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

Korea National Oil Corporation

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

U.S.$14,000,000,000
Global Medium Term Note Program

This Offering Circular replaces and supersedes the offering circular dated March 19, 2024 describing the Program (as defined below). Any Notes (as defined below) issued under this Program on or after the date of this Offering Circular are issued subject to the provisions described herein. This does not affect any Notes issued prior to the date of this Offering Circular.

Under this U.S.$14,000,000,000 Global Medium Term Note Program (the "Program"), Korea National Oil Corporation (the "Issuer" or the "Company") may from time to time issue notes (the "Notes") denominated in any currency agreed between the Issuer and the relevant Dealer(s) (as defined below).

The Notes may be issued in bearer or registered form (respectively, "Bearer Notes" and "Registered Notes"). The maximum aggregate nominal amount of all Notes from time to time outstanding under the Program will not exceed U.S.$14,000,000,000 (or its equivalent in other currencies calculated as described herein), subject to increase as described herein.

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

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

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

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

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

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

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

Arranger

Citigroup

Dealers

BofA Securities	**Citigroup**
Crédit Agricole CIB	**HSBC**
ING	**J.P. Morgan**
The Korea Development Bank	**Mizuho**
MUFG	**NOMURA**
Société Générale Corporate & Investment Banking	**Standard Chartered Bank**
UBS	

The date of this Offering Circular is March 17, 2025.

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

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

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

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

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

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

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

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

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

EEA INFORMATION

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

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

IMPORTANT — EEA RETAIL INVESTORS — If the final terms (or Pricing Supplement, as the case may be) in respect of any Series of Notes includes a legend entitled "PRIIPS Regulation/ Prohibition of Sales to EEA Retail Investors," the Notes of any such Series are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the EEA. For these purposes: (a) the expression "retail investor" means a person who is one (or more) of the following: (i) a retail client as defined in point (11) of Article 4(1) of MiFID II; (ii) a customer within the meaning of Directive (EU) 2016/97 (as amended, the "Insurance Distribution Directive"), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (iii) not a qualified investor as defined in Regulation (EU) 2017/1129 (as amended, the "Prospectus Regulation"); and (b) the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes. Consequently, no key information document required by Regulation (EU) No 1286/2014 (as amended, the "PRIIPs Regulation") for offering or selling the Notes or otherwise making them available to retail investors in the EEA will be prepared and therefore, offering or selling the Notes or otherwise making them available to any retail investor in the EEA may be unlawful under the PRIIPs Regulation.

UK INFORMATION

UK MiFIR product governance — The final terms (or Pricing Supplement, as the case may be) in respect of any Series (as defined under "Terms and Conditions of the Notes") of Notes may include a legend entitled "UK MiFIR Product Governance" which will outline the target market assessment in respect of the Notes of any such Series and which channels for distribution of the Notes are appropriate. If such information is included, any person subsequently offering, selling or recommending the Notes (a "UK MiFIR distributor") should take into consideration the target market assessment; however, a UK MiFIR distributor subject to the FCA Handbook Product Intervention and Product Governance Sourcebook (the "UK MiFIR Product Governance Rules") will be responsible for undertaking its own target market assessment in respect of the Notes (by either adopting or refining the target market assessment) and determining the appropriate distribution channels.

A determination will be made in relation to each issue of Notes about whether, for the purpose of the UK MiFIR Product Governance Rules, each of the Arranger and Dealers subscribing for any Notes is a UK MiFIR manufacturer in respect of such Notes, but otherwise neither the Arranger nor the Dealers nor any of their respective affiliates will be a UK MiFIR manufacturer for the purpose of the UK MiFIR Product Governance Rules.

IMPORTANT — UK RETAIL INVESTORS — If the final terms (or Pricing Supplement, as the case may be) in respect of any Series of Notes includes a legend entitled "UK PRIIPS Regulation/ Prohibition of Sales to UK Retail Investors," the Notes of any such Series are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the UK. For these purposes: (a) the expression "retail investor" means a person who is one (or more) of the following: (i) a retail client as defined in point (8) of Article 2 of Regulation (EU) No 2017/565 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018 ("EUWA"); (ii) a customer within the meaning of the provisions of the Financial Services and Markets Act ("FSMA") and any rules or regulations made under the FSMA to implement Directive (EU) 2016/97, where that customer would not qualify as a professional client, as defined in point (8) of Article 2(1) of Regulation (EU) No 600/2014 as it forms part of domestic law by virtue of the EUWA; or (iii) not a qualified investor as defined in Article 2 of the Prospectus Regulation as it forms part of domestic law by virtue of the EUWA; and (b) the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes. Consequently, no key information document required by the PRIIPs Regulation as it forms part of domestic law by virtue of the EUWA (the "UK PRIIPs Regulation") for offering or selling the Notes or otherwise making them available to retail investors in the UK has been prepared and therefore, offering or selling the Notes or otherwise making them available to any retail investor in the UK may be unlawful under the UK PRIIPs Regulation.

This Offering Circular is only being distributed to and is only directed at (i) persons who are outside the UK; (ii) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended, the "Order"); or (iii) high net worth entities, and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as "relevant persons"). The Notes will only be available to, and any invitation, offer or agreement to subscribe, purchase or otherwise acquire such Notes will be engaged in only with, relevant persons. Any person who is not a relevant person should not act or rely on this Offering Circular or any of its contents.

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

U.S. INFORMATION

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

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

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

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

SINGAPORE INFORMATION

Notification under Section 309B(1)(c) of the Securities and Futures Act 2001 of Singapore (the "SFA") — Unless otherwise stated in the Pricing Supplement in respect of any Notes, the Issuer has determined, and hereby notifies all relevant persons (as defined in Section 309A(1) of the SFA), that the Notes to be issued under the Program shall be prescribed capital markets products (as defined in the Securities and Futures (Capital Markets Products) Regulations 2018 of Singapore) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

AVAILABLE INFORMATION

To permit compliance with Rule 144A in connection with any resales or other transfers of Notes that are "restricted securities" within the meaning of the Securities Act, the Issuer has undertaken in a deed poll dated April 1, 2016 (the "Deed Poll") to furnish, upon the request of a holder of such Notes or any beneficial interest therein, free of charge at the specified offices of the Paying Agents, to such holder or to a prospective purchaser designated by him, the information required to be delivered under Rule 144A(d)(4) under the Securities Act if, at the time of the request, the Issuer is neither a reporting company under Section 13 or 15(d) of the U.S. Securities Exchange Act of 1934, as amended (the "Exchange Act"), nor exempt from reporting pursuant to Rule 12g3-2(b) thereunder.

PRESENTATION OF FINANCIAL INFORMATION

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

The audited consolidated financial statements of the Issuer as of and for the years ended December 31, 2024 and 2023 and as of and for the years ended December 31, 2023 and 2022 contained in this Offering Circular have been prepared in accordance with the Government Accounting Standards or K-IFRS, as the case may be.

In accordance with a Purchase and Sales Agreement entered into in 2015 in connection with the sale of North Atlantic Refining Limited ("NARL"), a downstream division of Harvest, the Company was obligated to bear the costs of repairs at NARL's facilities. As of December 31, 2022, such obligations have been extinguished and the related liabilities have been reversed and recognized as profit from discontinued operations.

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

PRESENTATION OF RESERVES DATA

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

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

The crude oil and natural gas reserve estimates of Harvest Operations presented herein are based on the guidelines contained in the Canadian Oil and Gas Evaluation Handbook (the "COGE Handbook") and the reserve definitions contained in both National Instrument 51-101 — *Standards of Disclosure for Oil and Gas Activities* ("NI 51-101") and the COGE Handbook. The crude oil and natural gas reserves estimates presented herein in respect of Harvest Operations are based on reports prepared by GLJ Petroleum Consultants Ltd. (the "Independent Reserves Evaluators") for the years ended December 31, 2024 and 2023.

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

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

CERTAIN DEFINED TERMS AND CONVENTIONS

All references to "Korea" and the "Republic" contained in this Offering Circular shall mean The Republic of Korea. All references to the "Government" shall mean the government of Korea. All references to the "Issuer," "Company" or "KNOC" shall mean Korea National Oil Corporation, a statutory juridical entity established under the Korea National Oil Corporation Act of 1978, as amended (the "KNOC Act"), or Korea National Oil Corporation and its consolidated subsidiaries collectively, as required or as indicated by context. All references to "U.S." or the "United States" shall mean the United States of America. In this Offering Circular, all references to "Won" or "₩" are to the lawful currency of Korea, all references to "dollars," "$," "U.S.$" or "US$" are to the lawful currency of the United States, all references to "S$" are to the lawful currency of Singapore, all references to "Japanese Yen" are to the lawful currency of Japan, all references to "Chinese Renminbi" are to the lawful currency of the People's Republic of China, all references to "euro" or "€" are to the lawful currency of the European Union, all references to "British Pounds," "£" or "GBP" are to the lawful currency of the UK, all references to "Swiss Franc" or "CHF" are to the lawful currency of Swiss Confederation, all references to "Hong Kong dollars" or "HKD" are to the lawful currency of Hong Kong Special Administrative Region of the People's Republic of China ("Hong Kong"), all references to "Canadian dollars," "C$" or "CAD" are to the lawful currency of Canada and all references to "Norwegian Krone" or "NOK" are to the lawful currency of Norway. For the reader's convenience, certain Won amounts in this Offering Circular have been translated into dollars at the market average exchange rate, announced by Seoul Money Brokerage Services, Ltd. in Seoul, between Won and dollars, rounded to the nearest tenth of one Won (the "Market Average Exchange Rate"). Unless otherwise stated, the translations of Won into dollars have been made at the Market Average Exchange Rate in effect on December 31, 2024, which was Won 1,470.0 to US$1.00. For a discussion of historical information regarding the rate of exchange between the Won and the dollar, see "Exchange Rates." No representation is made that the Won or dollar amounts referred to in this Offering Circular could have been or could be converted into dollars or Won, as the case may be, at any particular rate or at all.

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

SERVICE OF PROCESS AND ENFORCEMENT OF CIVIL LIABILITIES

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

FORWARD-LOOKING STATEMENTS

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

TABLE OF CONTENTS

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

DOCUMENTS INCORPORATED BY REFERENCE

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

(a) the most recently published audited consolidated annual financial statements and, if published later, the most recently published unaudited interim consolidated financial statements of the Issuer from time to time (see "General Information" for a description of the financial statements currently published by the Issuer); and

(b) all supplements or amendments to this Offering Circular circulated by the Issuer from time to time,

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

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

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

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

GENERAL DESCRIPTION OF THE PROGRAM

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

This Offering Circular and any supplement will only be valid for the offering of Notes in an aggregate nominal amount of the Notes which, when added to the aggregate nominal amount then outstanding of all Notes previously or simultaneously issued under the Program, does not exceed U.S.$14,000,000,000 or its equivalent in other currencies. For the purpose of calculating the U.S. dollar equivalent of the aggregate nominal amount of Notes issued under the Program from time to time:

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

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

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

SUMMARY OF THE PROGRAM

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

Issuer	Korea National Oil Corporation
Legal Entity Identifier . . .	988400ZTQ08W926ONT36
Description.	Global Medium Term Note Program
Arranger	Citigroup Global Markets Inc.
Dealers	Citigroup Global Markets Inc., Crédit Agricole Corporate and Investment Bank, The Hongkong and Shanghai Banking Corporation Limited, ING Bank N.V. Singapore Branch, J.P. Morgan Securities plc, The Korea Development Bank, Merrill Lynch International, Mizuho Securities Asia Limited, MUFG Securities EMEA plc, Nomura Singapore Limited, Société Générale, Standard Chartered Bank, UBS AG, Hong Kong Branch and any other Dealers appointed in accordance with the Program Agreement.
Certain Restrictions	Each issue of Notes denominated in a currency in respect of which particular laws, guidelines, regulations, restrictions or reporting requirements apply will only be issued in circumstances which comply with such laws, guidelines, regulations, restrictions or reporting requirements from time to time (see "Subscription and Sale and Transfer and Selling Restrictions") including the following restrictions applicable at the date of this Offering Circular. **Notes with a maturity of less than one year:** Notes having a maturity of less than one year from the date of issue will, if the proceeds of the issue are accepted in the UK, constitute deposits for the purposes of the prohibition on accepting deposits contained in section 19 of the Financial Services and Markets Act 2000 unless they are issued to a limited class of professional investors and have a denomination of at least £100,000 or its equivalent. See "Subscription and Sale and Transfer and Selling Restrictions."
Issuing and Principal Paying Agent.	Citibank, N.A., London Branch
Registrar	Citibank, N.A., London Branch
Program Size	Up to U.S.$14,000,000,000 (or its equivalent in other currencies calculated as described under "General Description of the Program") outstanding at any time. The Issuer may increase the amount of the Program in accordance with the terms of the Program Agreement.
Distribution	Notes may be distributed by way of private or public placement and in each case on a syndicated or non-syndicated basis.

Currencies	Subject to any applicable legal or regulatory restrictions, any currency agreed between the Issuer and the relevant Dealer.
Redenomination	The applicable Pricing Supplement may provide that certain Notes may be redenominated in euros. The relevant provisions applicable to any such redenomination are contained in Condition 5.
Maturities.	Such maturities as may be agreed between the Issuer and the relevant Dealer, subject to such minimum or maximum maturities as may be allowed or required from time to time by the relevant central bank (or equivalent body) or any laws or regulations applicable to the Issuer or the relevant Specified Currency.
Issue Price	Notes may be issued on a fully paid or a partly paid basis and at an issue price which is at par or at a discount to, or premium over, par.
Form of Notes	The Notes will be issued in registered form or in bearer form as described in "Form of the Notes." Registered Notes will not be exchangeable for Bearer Notes and vice versa.
Fixed Rate Notes.	Fixed interest will be payable on such date or dates as may be agreed between the Issuer and the relevant Dealer and on redemption, and will be calculated on the basis of such Day Count Fraction (as defined in "Terms and Conditions of the Notes") as may be agreed between the Issuer and the relevant Dealer.
Floating Rate Notes	Floating Rate Notes will bear interest at a rate determined: (i) on the same basis as the floating rate under a notional interest rate swap transaction in the relevant Specified Currency governed by an agreement incorporating the 2006 ISDA Definitions (as published by the International Swaps and Derivatives Association, Inc., and as amended and updated as at the Issue Date of the first Tranche of Notes of the relevant Series); or (ii) on the basis of a reference rate appearing on the agreed screen page of a commercial quotation service; or (iii) on such other basis as may be agreed between the Issuer and the relevant Dealer, all as indicated in the applicable Pricing Supplement. The margin (if any) relating to such floating rate will be agreed between the Issuer and the relevant Dealer for each Series (as defined under "Terms and Conditions of the Notes") of Floating Rate Notes. In the event of the discontinuation of a reference rate applicable to a Series of Floating Rate Notes specified in the applicable Pricing Supplement, then (a) Condition 6(b)(v) of the "Terms and Conditions of the Notes" shall apply if Benchmark Transition Event is specified in the applicable Pricing Supplement; (b) Condition 6(b)(vi) of the "Terms and Conditions of the Notes" shall apply if Benchmark Discontinuation (SOFR) is specified in the applicable Pricing Supplement; or (c) as otherwise provided in the applicable Pricing Supplement.

Index Linked Notes	Payments of interest in respect of Index Linked Interest Notes will be calculated by reference to such index and/or formula or to changes in the prices of securities or commodities or to such other factors as the Issuer and the relevant Dealer may agree.
Other provisions in relation to Floating Rate Notes and Index Linked Interest Notes	Floating Rate Notes and Index Linked Interest Notes may also have a maximum interest rate, a minimum interest rate or both. Interest on Floating Rate Notes and Index Linked Interest Notes in respect of each Interest Period, as agreed prior to issue by the Issuer and the relevant Dealer, will be payable on such Interest Payment Dates, and will be calculated on the basis of such Day Count Fraction, as may be agreed between the Issuer and the relevant Dealer.
Dual Currency Notes	Payments (whether in respect of principal or interest and whether at maturity or otherwise) in respect of Dual Currency Notes will be made in such currencies, and based on such rates of exchange, as the Issuer and the relevant Dealer may agree.
Zero Coupon Notes	Zero Coupon Notes will be offered and sold at a discount to their nominal amount and will not bear interest other than in the case of late payment.
Change of Control	Upon the occurrence of a Change of Control, each holder of Notes will have the right to require the Issuer to redeem all or any part of such holder's Notes at a redemption price equal to 100% of the principal amount thereof plus accrued but unpaid interest, if any, to the date of redemption, as further described in Condition 8(d)(i).
Redemption	The applicable Pricing Supplement will indicate either that the relevant Notes cannot be redeemed prior to their stated maturity (other than in specified installments, if applicable, or for taxation reasons or following an Event of Default (as defined in "Terms and Conditions of the Notes"), or that such Notes will be redeemable at the option of the Issuer and/or the Noteholders (as defined in "Terms and Conditions of the Notes") upon giving notice to the Issuer or the Noteholders, as the case may be, on a date or dates specified prior to such stated maturity and at a price or prices and on such other terms as may be agreed between the Issuer and the relevant Dealer. The applicable Pricing Supplement may provide that the Notes may be redeemable in two or more installments of such amounts and on such dates as are indicated in the applicable Pricing Supplement.
Denomination of Notes . .	The Notes will be issued in such denominations as may be agreed between the Issuer and the relevant Dealer save that the minimum denomination of each Note will be such as may be allowed or required from time to time by the relevant central bank (or equivalent body) or any laws or regulations applicable to the relevant Specified Currency. Unless otherwise stated in the applicable Pricing Supplement, the minimum denomination of each Definitive IAI Registered Note will be U.S.$500,000 or its approximate equivalent in other Specified Currencies.

Taxation.	All payments in respect of the Notes will be made without deduction for or on account of withholding taxes imposed by any Tax Jurisdiction (as defined in "Terms and Conditions of the Notes"), subject as provided in Condition 9. In the event that any such deduction is made, the Issuer will, save in certain limited circumstances provided in Condition 9, be required to pay additional amounts to cover the amounts so deducted.
Certain Covenants	The terms of the Notes will contain a negative pledge provision and certain other covenants, as further described in Condition 4.
Cross Default	The terms of the Notes will contain a cross default provision as further described in Condition 11.
Status of the Notes	The Notes and any related Receipts (as defined in "Terms and Conditions of the Notes") and Coupons (as defined in "Terms and Conditions of the Notes") will constitute direct, unconditional, unsubordinated and, subject to the provisions of Condition 4, unsecured obligations of the Issuer and will rank *pari passu* among themselves (save for certain obligations preferred by law) and equally with all other unsecured and unsubordinated obligations of the Issuer, from time to time outstanding.
Listing	Approval in-principle has been received from the Singapore Stock Exchange in connection with the Program and application will be made for the listing and quotation of Notes that may be issued pursuant to the Program and which are agreed, at or prior to the time of issue thereof, to be so listed on the Singapore Stock Exchange. Such permission will be granted when such Notes have been admitted for listing and quotation on the Singapore Stock Exchange. For so long as any Notes are listed on the Singapore Stock Exchange and the rules of the Singapore Stock Exchange so require, such Notes, if traded on the Singapore Stock Exchange, will be traded in a minimum board lot size of S$200,000 (or its equivalent in foreign currencies). The Notes may also be listed on such other or further stock exchange(s) as may be agreed between the Issuer and the relevant Dealer in relation to each Series. Unlisted Notes may also be issued. The applicable Pricing Supplement will state whether or not the relevant Notes are to be listed or admitted to trading and, if so, on which stock exchange(s).
Governing Law	The Notes and any non-contractual obligations arising out of or in connection with the Notes will be governed by, and construed in accordance with, English law.
Selling Restrictions	There are restrictions on the offer, sale and transfer of the Notes in the United States of America, the EEA, the UK, Japan, Hong Kong, Singapore, Korea and Switzerland and such other restrictions as may be required in connection with the offering and sale of a particular Tranche of Notes. See "Subscription and Sale and Transfer and Selling Restrictions."

RISK FACTORS

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

Risks Relating to the Company

The Company has experienced complete equity erosion since 2020 due primarily to significant declines in the prices of crude oil in 2020 and fluctuations in the average value of foreign currencies against the U.S. dollar since then.

As of December 31, 2022, 2023 and 2024, the liabilities of the Company exceeded the assets of the Company by Won 1,496 billion, Won 1,349 billion and Won 1,322 billion, respectively. While the Company incurred a profit of Won 313 billion in 2022, Won 179 billion in 2023 and Won 192 billion in 2024, the Company had foreign currency translation differences for foreign operations of Won (818) billion as of December 31, 2022, Won (865) billion as of December 31, 2023 and Won (1,098) billion as of December 31, 2024. The foreign currency translation differences for foreign operations as of December 31, 2022, 2023 and 2024 were due primarily to the fluctuations in the average value of the equity of the Company's subsidiaries due to fluctuations in exchange rates between the functional currencies of the Company's foreign subsidiaries against the U.S. dollar, the functional currency of the Company, during 2022, 2023 and 2024. While stronger oil prices since 2020 contributed to a profit in each of 2022, 2023 and 2024 compared to a significant loss in 2020 primarily due to significant declines in the prices of crude oil resulting from, among others, COVID-19, such volatility has had and will continue to have a significant effect on the Company's business, results of operations and financial condition. See "— The Company's operations are affected by the volatility of prices for crude oil, natural gas and petroleum products and price differentials between heavy and light oil, and a substantial or extended decline or fluctuations in such prices or differentials would have a material adverse effect on the Company's business, financial condition and results of operations" and "— If future oil and gas prices are forecasted to decline substantially, the Company may be required to write down the book value of its assets, which may have a material adverse effect on the Company's business, financial condition and results of operations."

Unless the Company generates significant income in the future, without significant capital contributions and other support from the Government permitted under the KNOC Act, the Company's equity will remain completely eroded. Under the KNOC Act, the Company's authorized capital is Won 13.0 trillion, and as of December 31, 2024, the amount of the Company's share capital was Won 10.9 trillion. Without increasing the Company's authorized capital through an amendment to the KNOC Act, the Government would be capped at Won 2.1 trillion in terms of the amount of additional capital contributions it can make to the Company.

In July 2020, in response to the continued depression of global oil prices as well as investments in the global energy sector, among others due to COVID-19, and the adverse impact of such depression on the financial conditions of the three Government-controlled enterprises in the natural resources sector, including the Company, an independent task force was appointed by the Ministry of Trade, Industry and Energy (the "Task Force"). The Task Force's main tasks included (1) objectively reviewing the main overseas natural resources development projects and the financial conditions of these Government-controlled enterprises; (2) examining and supplementing the restructuring plans so that such plans may be effectively implemented; and (3) in-depth discussions regarding the natural resources development plan based on cooperation between the public and private sectors. In April 2021, the Task Force announced its recommendations to (1) strengthen strategic asset management; (2) secure sustainability of the Government-controlled enterprises through financial and governance reorganizations; and (3) rejuvenate industry ecosystems including through restoring the roles of the Government-controlled enterprises, encouraging investments from the private sector and increasing cooperation between the public and private sectors. The Company has no control over any recommendations that may be made by the Task Force or measures that may ultimately be adopted by the Government. Depending on the nature of any such measures, they may be subject to approval, among others, by the National Assembly. In July 2022, the Ministry of Economy and Finance of Korea (the "MOEF") announced the "New Government Public Institution Innovation Guidelines" (the "Guidelines"). The main contents of the Guidelines include (1) streamlining non-core functions (including functions with declining demand or that compete with the private sector) and focusing on core functions, (2) downsizing organizations and personnel, (3) reducing personnel and operating expenses and reforming the compensation system, (4) disposing of unnecessary assets and restructuring underperforming equity investments, and (5) reducing excessive employee benefits and welfare. In accordance with the Guidelines, public institutions, including the Company, have created their own innovation plans and submitted them to the MOEF. In December 2022, the MOEF confirmed the "Public Institution Innovation Plan," which is a detailed plan for each institution based on the Guidelines and each public institution's own innovation plan. As a result, public institutions, including the Company, are taking follow-up measures to implement the Public Institution Innovation Plan and the Company monitors its progress periodically through internal discussions as well as reports to the Government. There is no assurance that any such measures will be adopted on a timely basis (if at all), or that they will be sufficient to address the Company's complete equity erosion and liquidity problems. The failure to address the Company's complete equity erosion and liquidity problems, or to implement an acceptable plan, may have a material adverse effect on the Company's business and financial condition and the Holders.

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

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

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

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

International crude oil, natural gas and petroleum product prices are subject to global supply and demand, and fluctuate due to many factors beyond the Company's control. These factors include competition within the oil and natural gas industry and with other industries in supplying consumers with competing commodities, international economic trends, exchange rate and interest rate fluctuations, expectations of inflation, domestic and foreign governmental regulations, concerns regarding the security of energy supply, political and other events in major oil and gas producing and consuming nations and actions taken by members of the Organization of the Petroleum Exporting Countries ("OPEC") and other oil exporting countries. In particular, the global COVID-19 pandemic materially and adversely affected the global economy and financial markets in 2020, which in turn also decreased the global demand for crude oil in 2020. See "— Earthquakes, tsunamis, floods, severe health epidemics (including the global COVID-19 pandemic and any possible occurrence of other types of widespread infectious diseases) and other natural calamities could materially and adversely affect the Company's business, results of operations or financial condition." Such developments were exacerbated by a conflict between OPEC led by Saudi Arabia and Russia relating to crude oil production cuts, and the market price of crude oil fell to a historical low in April 2020. While the market price of crude oil has since generally recovered, as the oil producing nations were able to reach a consensus on reduced production levels and the overall level of global economic activities showed signs of improvement through 2021 and the first half of 2022, the level of fluctuation in the market price of crude oil has increased in more recent periods. Although the market price of crude oil significantly increased in the first half of 2022, primarily as a result of Russia's ongoing invasion of Ukraine since February 2022 and the ensuing sanctions imposed against Russia, it generally declined from the second half of 2022 through 2024 in light of weakness and uncertainty in the global economy and financial markets, among others, due to rising interest rates globally to combat inflationary pressures, the effect of which was partially offset by the decisions by the member countries of OPEC and Russia to reduce their crude oil supply volume since October 2022, which reductions have most recently been extended to 2025. Future prospects for crude oil prices and supply levels remain highly uncertain and volatile. Although the full impact of such events cannot be reasonably estimated at this time, the cumulative nature of these events could have a material adverse effect on the Company's business, financial condition and results of operations.

The prices of oil and natural gas have fluctuated greatly during the recent period of volatility in the global credit and financial markets. For example, the Company's average sales prices for crude oil decreased from US$54.86 per barrel in 2019 to US$37.33 per barrel in 2020, increased to US$54.67 per barrel in 2021, US$68.15 per barrel in 2022 and US$70.48 per barrel in 2023 but decreased to US$69.58 per barrel in 2024, reflecting such volatility.

Furthermore, the financial condition and results of operations of Harvest Operations Corp. ("Harvest Operations"), the Company's wholly owned subsidiary, are also affected by the price differentials between light oil and heavy oil. In 2024, Harvest Operations' production was approximately 4% light and medium gravity crude oil, 15% heavy oil, 36% bitumen, 14% natural gas liquids and 31% natural gas. Processing and refining heavy oil and bitumen is more expensive than processing and refining light oil and accordingly, producers of heavy oil and bitumen receive lower prices than light oil for their production. The price differential among light oil, heavy oil and bitumen has fluctuated widely during recent years, and has resulted in substantial increase in the volatility of heavy oil and bitumen prices. Increases in the heavy oil and bitumen price differentials, normally caused by seasonal supply and demand, pipeline constraints and heavy oil and bitumen processing capacities of refineries, all of which are beyond the control of Harvest Operations, usually results in Harvest Operations receiving lower prices for its heavy oil and bitumen.

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

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

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

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

The Company recognized impairment losses on its oil and gas properties, net of reversals, of Won 26 billion in 2022 and Won 46 billion in 2024 and impairment losses on intangible assets, net of reversals, of Won 67 billion in 2022, Won 60 billion in 2023 and Won 148 billion in 2024 due to decreases in forecasted oil prices and probable reserves and the return of mining rights. In 2023, the Company recognized a reversal of impairment loss of Won 49 billion on its oil and gas properties due to increases in reserves and decreases in discount rates. See Notes 17, 18 and 19 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2024 and 2023 and as of and for the years ended December 31, 2023 and 2022 included elsewhere in this Offering Circular. In addition, in 2022, the Company recognized a reversal of impairment loss of Won 2 billion from Kernhem B.V. and Won 1 billion from ADA Oil LLP. In 2023 and 2024, the Company did not recognize any reversal of impairment losses or impairment losses relating to its investments in associates and joint ventures. Such recognition of impairment losses and reversal of impairment loss contributed to profit of Won 313 billion in 2022, Won 179 billion in 2023 and Won 192 billion in 2024.

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

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

Pursuant to the June 2016 Government Plan, the Company has developed and is implementing a plan for the sale of its interests in overseas exploration, development and production operations (taking into consideration strategic value and profitability) to third parties with an aim to maximize the returns on such sales. In addition, the Task Force's recommendations of April 2021 included the disposal of all of the Company's projects that are not both profitable as well as strategically important. In furtherance of such plans and recommendations, the Company disposed of its interests in (1) Harvest Operations' Caroline Shallow field in Canada in 2018, (2) Harvest Operations' Blueberry, Consort Viking, Crooked Creek, Killarney and Worsley fields and Loon Oil sands in Canada in 2019, (3) Harvest Operations' Chamber fields in Canada in 2020, (4) Offshore International Group, Inc. ("OIG") in 2021, (5) certain additional assets of Harvest Operations, including West Central, Loon Lake and Royce, in 2021, (6) the River Bend field in 2021, (7) ADA Block in Kazakhstan in 2022, (8) ANKOR Offshore Project's SS230, SM27 and SM73 fields in 2022, (9) the Parallel Projects in 2023, (10) the Besbolek, Karataikyz and Alimbai blocks in Kazakhstan in 2024, (11) Block 11-2 in Vietnam in 2024 and (12) Harvest Operations' Wilson Creek field in Canada in 2025 pursuant to the June 2016 Government Plan. The Company is exploring potential avenues to dispose of certain additional assets, including those of Harvest Operations. However, any potential transaction would be dependent upon a number of factors that may be beyond the Company's control, including, among other factors, market conditions, industry trends, the interest of third-parties and the availability of financing to potential buyers on reasonable terms. Furthermore, any such disposals may require the consent of third parties outside of the Company's control, such as consents of holders of its (or its subsidiaries') bonds, lenders under its (or its subsidiaries') loans or borrowings or general partners. There can be no assurance that the Company will be able to obtain the necessary consents where needed or consummate any such transaction on acceptable terms or at all. See "— The Company has experienced complete equity erosion since 2020 due primarily to significant declines in the prices of crude oil in 2020 and fluctuations in the average value of foreign currencies against the U.S. dollar since then," "— The Company's operations are affected by the volatility of prices for crude oil, natural gas and petroleum products and price differentials between heavy and light oil, and a substantial or extended decline or fluctuations in such prices or differentials would have a material adverse effect on the Company's business, financial condition and results of operations" and "— If future oil and gas prices are forecasted to decline substantially, the Company may be required to write down the book value of its assets, which may have a material adverse effect on the Company's business, financial condition and results of operations."

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

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

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

Under the KNOC Act, the outstanding aggregate principal amount of the bonds issued by the Company (excluding its subsidiaries) cannot exceed twice the sum of the Company's issued capital and reserves. As of December 31, 2024, on a separate basis, the outstanding aggregate principal amount of bonds payable by the Company was Won 15.7 trillion and the Company's share capital was Won 10.9 trillion (the Company did not have any reserves), representing a bond payables to share capital ratio of 1.4:1. The majority of the Company's outstanding indebtedness was incurred through bond issuances.

See "Capitalization of the Company." The Company may be restricted in the amount of new bonds it can issue to finance its business and refinance its debt obligations as they become due as a result of the bond to issued capital and reserves ratio.

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

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

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

If the Company fails to conduct successful exploration activities or to acquire or retain assets holding proved reserves, its proved reserves will decline as it extracts crude oil and natural gas from the reservoirs. In addition, the volume of production from crude oil and natural gas properties generally decline as reserves are depleted. For example, in 2022, the Company discontinued its exploration activities in Kazakhstan's Block 10 due to its determination that the project was not feasible upon evaluation. In 2023, the Company discontinued its exploration activities in Uzbekistan's Dekhkanabad and Tashkurgan blocks due to lack of viability. In 2024, the Company discontinued its exploration activities in the Republic of Senegal's UDO block due to economic feasibility and in Block 70 of Yemen due to internal military conflicts within Yemen. The Company is currently evaluating other potential exploratory projects. The Company's future production depends significantly upon its success in finding or acquiring additional reserves and retaining and developing such reserves. If the Company is unsuccessful, it may not meet its production or growth targets, and its total proved reserves and production will decline, which would adversely affect the Company's results of operations and financial condition.

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

Exploring, developing and producing crude oil and natural gas fields are capital-intensive activities with high risks. The Company incurred capital expenditures (consisting of cash used for acquisitions of (1) property, plant and equipment, (2) intangible assets other than goodwill and (3) investments in associates and joint ventures) of Won 588 billion for 2022, Won 712 billion for 2023 and Won 905 billion for 2024. The Company's capital expenditure budget for 2025 for its exploration, development and production activities (including amounts expended to date in 2025) is approximately Won 919 billion on a consolidated basis.

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

- the Company's ability to generate sufficient cash flows from operations to finance its expenditures, investments and other requirements, which are affected by changes in crude oil and natural gas prices and other factors;
- the availability and terms of external financing;
- the Company's mix of exploration and development activities conducted on an independent basis and those conducted jointly with other partners;
- the extent to which the Company's ability to influence or adjust plans for exploration- and development-related expenditures is limited under joint operating agreements for those projects in which the Company has partners;
- government approvals required for exploration- and development-related expenditures and investments in jurisdictions in which the Company conducts its business; and
- economic, political and other conditions in jurisdictions in which the Company conducts its business.

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

The Company was established under the KNOC Act to, among other policy objectives, secure Korea's supply of crude oil in times of large oil price fluctuations or shortages. From time to time, the Company is required to take action in furtherance of public policy considerations and the Government's broader objectives for the crude oil and natural gas industry, which may not necessarily be in the Company's best commercial interests or the interests of the Noteholders. As of the date of this Offering Circular, the Government holds 100.0% of the Company's issued share capital. Accordingly, the Government is able to elect the Company's board of directors including the president of the board of directors (the "President"), as well as control its management. Although the Company's management runs the day-to-day operations, the Government may determine material policies relating to the direction of the Company's business. For example, public policy considerations relating to the level of the Company's exploration and production activities or stockpiling activities may affect the Company's results of operations. The Government has historically influenced, and is likely to continue to influence, the Company's strategy and operations. For instance, in June 2016, the Ministry of Economy and Finance and the Ministry of Trade, Industry and Energy announced broad-based measures (the "June 2016 Government Plan") to rationalize the overseas natural resource exploration, development and production activities of government-controlled enterprises, including the Company. Pursuant to such improvement measures, the Company has developed and is implementing a plan for the sale of its interests in overseas exploration, development and production operations (taking into consideration strategic value and profitability) to third parties with preference given to institutional investors in Korea if possible and with an aim to maximize the returns on such sales, and the Company has disposed of a number of its assets as part of such measures. See "— If the Company is unable to dispose of its assets or reinvest the proceeds of any such disposal, each on acceptable terms, the Company's financial condition and results of operations may be adversely affected." The timing of any such sales will be subject to market conditions and the Company will be limited from entering into any new overseas investments other than any such investments that are in furtherance of important policy objectives. In addition, pursuant to the June 2016 Government Plan, the responsibility for administrative tasks related to the day-to-day operation of the SAER funds and the administration of SAER loans for oil-related projects, other than the administration of taxes and dues, were transferred from the Company to the Korea Energy Agency in July 2017. See "Business — Relationship with the Government."

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

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

If earthquakes, tsunamis, floods, severe health epidemics or any other natural calamities were to occur in any area where any of the Company's assets, exploration, production or development projects or customers are located, the Company's business, results of operations or financial condition could be adversely affected. As of December 31, 2024, the Company had interests in 29 exploration, production and development projects located across 15 countries, including Canada, the United Arab Emirates, the UK, the United States, Vietnam and Yemen. Any occurrence of such natural calamities in countries where the Company's exploration, production or development projects are located may lead to reduced production or delays in the production of crude oil or natural gas. In addition, natural calamities in areas where the Company's customers are located, including Canada, Europe and Korea, may cause disruptions in their businesses, which in turn could adversely impact their demand for the Company's crude oil and natural gas, which may also lead to lower prices for such crude oil and natural gas.

In particular, COVID-19, an infectious disease caused by severe acute respiratory syndrome coronavirus 2, was declared a pandemic by the World Health Organization in March 2020. While the Company believes that COVID-19 did not cause material disruption to its business operations, the global outbreak of COVID-19 had let to global economic and financial disruptions, particularly in 2022. See "— The Company's operations are affected by the volatility of prices for crude oil, natural gas and petroleum products and price differentials among heavy oil, bitumen and light oil, and a substantial or extended decline or fluctuations in such prices or differentials would have a material adverse effect on the Company's business, financial condition and results of operations."

Risks associated with COVID-19 or other types of widespread infectious diseases include:

- disruption in the normal operations of the businesses of the Company's customers, which in turn may decrease demand for the Company's crude oil and natural gas and adversely affect their prices;

- disruption in the normal operations of the Company's business resulting from contraction of infectious diseases by the Company's employees or those of the Company's exploration, production and development projects, which may necessitate such employees to be quarantined and/or the Company's exploration, production and development projects or offices to be temporarily shut down, which in turn may adversely impact the Company's production capacity;

- disruption in the distribution of the Company's crude oil and natural gas to its customers;

- disruption resulting from the necessity for social distancing, including implementation of temporary adjustment of work arrangements requiring employees to work remotely, which may lead to a reduction in labor productivity;
- unstable global and Korean financial markets, which may adversely affect the Company's ability to meet its funding needs on a timely and cost-effective basis; and
- impairments in the fair value of the Company's investments in companies that may be adversely affected by the pandemic, which in turn may adversely affect the sale of the Company's overseas assets pursuant to the June 2016 Government Plan.

In the event that a future recurrence of COVID-19 or an occurrence of other types of widespread infectious diseases cannot be effectively and timely contained, the Company's business, financial condition and results of operations may be materially and adversely affected.

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

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

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

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

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

Success of the Company's business depends largely on acquiring rights to or discovering additional crude oil and natural gas reserves that can be developed for commercially viable production. If the acquisition and exploration activities in which the Company participated or which it conducts are not successful, the Company's total proved reserves and future production will decline. In addition, approximately 39% of the Company's proved reserves were undeveloped as of December 31, 2024. The Company's future success will also depend on its ability to develop these reserves in a timely and cost-effective manner. If the Company is unable to generate profitable production from such reserves, its business, financial condition and results of operations could be adversely affected.

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

- the Company may be unable to negotiate commercially reasonable terms for such acquisition, exploration, development or production activities;

- the Company may be unable to limit development and production costs because of, for example, adverse weather, natural disasters, global health epidemics, environmental considerations, equipment shortages, procurement delays or difficulties arranging transportation for production, all of which may make it uneconomical to proceed with developing such reserves;

- the Company may face difficulties arising from political, environmental and other conditions in the areas where the reserves are located or through which its products are transported or where its products are stored; or

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

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

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

In addition, the Company's consortium partners may:

- have economic or business interests or goals that are inconsistent with the Company;

- take actions contrary to the Company's instructions, requests, policies or objectives;
- be unable or unwilling to fulfill their obligations;
- have financial difficulties; or
- have disputes with the Company as to their rights, responsibilities and obligations.

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

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

A major element of the Company's business strategy is to achieve growth through exploration activities. The Company produced 136,003 barrels of oil equivalent of crude oil and natural gas per day as of December 31, 2024, and is targeting to maintain its production at approximately 136,000 barrels per day for 2025. Both the process of drilling new productive wells and acquisition of other companies are affected by many factors beyond the Company's control, and it may not be able to achieve the desired objectives. Where the Company enters into joint ventures with partners in exploration and production projects, the Company may not act as an operator and will need to depend on its partners for their financial commitment and technical expertise. The Company cannot guarantee that its partners will successfully execute the business plans and strategies formulated for the joint ventures.

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

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

Success of an acquisition or other similar transactions depends, in part, on the Company's ability to realize adequate return on the prices paid for properties, the anticipated synergies, cost savings and growth opportunities from integrating the business of the acquired company or the asset with its business. The prices paid by the Company for acquisitions are based, in part, on engineering and economic assessments made by the Company's engineers. These assessments include a number of material assumptions regarding such factors as recoverability and marketability of crude oil, natural gas and natural gas liquids, future prices of oil, natural gas and natural gas liquids and operating costs, future capital expenditures and royalties and other taxes which will be imposed over the producing life of the reserves. Many of these factors are subject to change and are beyond the Company's control. In particular, the prices of and markets for petroleum and natural gas may change from those anticipated at the time of making acquisitions. In addition, all engineering assessments involve a measure of geological and engineering uncertainty, which could result in lower production and reserves than those attributed to the properties when they were acquired. For example, for the reasons described above: (i) in 2020, the Company recognized impairment losses on oil and gas properties of Dana Petroleum Limited ("Dana Petroleum") of Won 739 billion, KNOC Eagle Ford Corporation of Won 377 billion, Harvest Operations of Won 342 billion and ANKOR E&P Holdings Corporation of Won 160 billion, (ii) in 2021, the Company recognized impairment losses on oil and gas properties of Block 8 in Peru of

Won 30 billion; (iii) in 2022, the Company recognized impairment losses on oil and gas properties of Dana of Won 71 billion; (iv) in 2023, the Company recognized impairment losses on oil and gas properties of Dana Petroleum of Won 122 billion; and (v) in 2024, the Company recognized impairment losses on oil and gas properties of Dana Petroleum of Won 360 billion.

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

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

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

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

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

- exploration and production risks: risks related to fluctuations in production that may be affected by reserve levels, accidents, mechanical difficulties, work stoppages, adverse natural conditions, global health epidemics, as well as the inability to manage unforeseen production costs;
- equipment risks: risks related to adequacy and condition of the production facilities, including situations where equipment, especially the equipment for stockpiling, becomes obsolete;

- transportation risks: risks related to the condition of pipelines and vulnerability and costs of other modes of transportation, such as oil tankers; and

- stockpiling risks: risks related to the condition of storage tanks and other stockpiling facilities and their compliance with safety and environmental standards.

In particular, the Company's business is subject to significant risk of pipeline explosions, oil spills and leaks, unexpected geological formations or pressures, sudden blowouts, violent explosions of oil, natural gas or water from drilling wells followed by uncontrolled flow, fires and mechanical failures and collapsed holes, particularly in horizontal wellbores. For example, in September 2020, approximately 20,000 liters of oil leaked from a transportation pipe operated by the Company off the cost of Ulsan. There can be no assurances that such accidents will not occur again in the future.

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

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

The Company currently has operations and assets in various foreign countries and regions, including Canada, Denmark, Egypt, Kazakhstan, Libya, Nigeria, Peru, the United Arab Emirates, the UK, the United States, Venezuela, Vietnam and Yemen. The Company is subject to political, legal and regulatory environments in these countries, some of which are known to be unstable, and differ in certain significant respects from those prevailing in developed countries. For example, in 2022, the Company discontinued its exploration activities in Yemen's Block 70 due to internal military conflict within Yemen. The Company is also currently involved in disputes in certain countries in which it operates. See "Business — Legal Matters."

The Company's activities, including activities through Harvest Operations and Dana Petroleum, are subject to a wide variety of national and local laws and regulations and permit requirements relating to the safety and protection of human health and the environment, in Korea, Canada and the UK and other jurisdictions in which it has operations.

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

- changes in international and domestic political and economic conditions, as well as social conditions;

- challenges caused by distance, language, local business customs and cultural differences;

- difficulty in obtaining licenses, permits or other regulatory approvals from local authorities and in enforcing the Company's rights under contracts;

- with respect to those countries that are members of OPEC, the lowering of petroleum production volume pursuant to OPEC policy;

- changes and developments in laws, regulations, policies, technology and markets, including societal and investor sentiment, related to the issue of climate change, such as the Glasgow Climate Pact agreed upon at the 2021 United Nations Climate Change Conference ("COP26") which includes commitments to phase down the use of unabated coal power and inefficient fossil fuel subsidies and COP28 in Dubai which resulted in an agreement to transition away from fossil fuels to achieve net-zero emissions by 2050 as well as to triple renewable energy capacity globally by 2030;

- changes in laws, regulations or government policies, or in the interpretation or enforcement of laws, regulations and government policies, including changes driven by resource nationalism, or uncertainties thereof;

- measures which may be introduced to control inflation;

- changes in the rate or method of taxation;

- imposition of additional restrictions on currency conversion and remittances abroad;

- military hostilities, war, political unrest or acts of terrorism targeted at the Company's fields or facilities;

- reduction in tariff protection and other import restrictions;

- natural disasters and epidemics or outbreaks, such as the COVID-19 pandemic;

- international economic sanctions;

- anti-corruption laws compliance; and

- changes in the usage and costs of state-controlled transportation services.

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

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

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

Furthermore, heightened global awareness and international and national commitments to reduce greenhouse gas emissions and counteract climate change (including increased activism by non-governmental and political organizations campaigning against fossil fuel extractions) may lead to increased costs for the Company. For example, the Glasgow Climate Pact which was agreed to at COP26 in November 2021 includes commitments to phase down the use of unabated coal power and inefficient fossil fuel subsidies. The Government also announced its commitment to reduce greenhouse gas emissions by 40% by 2030 at COP26 and such commitments were reconfirmed at COP27 in Egypt in November 2022. In addition, COP28 in Dubai in December 2023 resulted in an agreement to transition away from fossil fuels to achieve net-zero emissions by 2050 as well as to triple renewable energy capacity globally by 2030. Carbon tax proposals in various jurisdictions as well as consumer preference changes in response to growing concerns of climate change could stimulate the emergence of alternative technologies and renewable energy availability, which may impact demand for oil and gas while increasing corporate expenses. The Company's oil sands activities in Canada could be particularly affected by international and national carbon emissions reduction targets, taxes, and other carbon emissions related regulations. Investor preferences and sentiments are also influenced by environmental, social and corporate governance considerations including climate change and the transition to a lower carbon economy. Changes in such preferences and sentiment, including increased scrutiny from market participants, environmental organizations or the press in the course of Company's debt issuances under this Program, could affect the Company's access to capital markets and its attractiveness to potential investors, potentially resulting in reduced access to financing, increased financing costs, potential volatility in the price(s) of any Notes issued hereunder and impacts upon the Company's business plans and financial performance.

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

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

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

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

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

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

Risks Relating to Korea

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

The Company is wholly owned by the Government and serves as an execution arm for Government policies and businesses relating to oil, supported by significant capital contributions and other support from the Government. The Company's headquarters and significant parts of its operations, customers and assets are also located in Korea. Accordingly, the Company's performance and successful fulfillment of its operational strategies are necessarily dependent on the overall Korean economy and the resulting impact on the need for energy, including crude oil and natural gas. The economic indicators in Korea in recent years have shown mixed signs of growth and uncertainty, and future growth of the Korean economy is subject to many factors beyond our control, including developments in the global economy.

In recent years, adverse conditions and volatility in the global financial markets, fluctuations in oil and commodity prices, supply chain disruptions and the increasing weakness of the global economy, in particular due to the COVID-19 pandemic and Russia's invasion of Ukraine and ensuing sanctions against Russia among others, have contributed to the uncertainty of global economic prospects in general and have adversely affected, and may continue to adversely affect, the Korean economy, which has been characterized by high levels of uncertainty resulting from high inflation rates, a rise in interest rates and a depreciation of the Won against the U.S. dollar. As a result, future growth of the Korean economy is subject to many factors beyond the Company's control, including developments in the global economy.

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

- declines in consumer confidence and a slowdown in consumer spending in the Korean or global economy;

- political uncertainty or increasing strife among or within political parties in Korea and the ensuing societal unrest (including political uncertainty following declaration of martial law by President Yoon on December 3, 2024, which was swiftly rescinded by the National Assembly; on December 14, 2024, the National Assembly voted to impeach President Yoon, which remains subject to confirmation by the Constitutional Court; if the Constitutional Court upholds the impeachment, President Yoon would be removed from office immediately and a presidential election would be required to be held within 60 days of such judgment);

- hostilities, political or social tensions involving Russia (including the invasion of Ukraine by Russia and ensuing actions that the United States and other countries have taken or may take in the future) and the resulting adverse effects on the global supply of oil and other natural resources and the global financial markets;

- adverse conditions or developments in the economies of countries and regions that are important export markets for Korea, such as China, the United States, Europe and Japan, or in emerging market economies in Asia or elsewhere, including as a result of deteriorating economic and trade relations between the United States and China and increased uncertainties in the global financial markets and industry;

- adverse changes or volatility in foreign currency reserve levels, inflation rates, interest rates, commodity prices (including oil prices), exchange rates (including fluctuation of the Won against the U.S. dollar, Euro or Japanese Yen exchange rates or revaluation of the Chinese Yuan) or stock markets;

- the occurrence of additional severe health epidemics in Korea and other parts of the world (in addition to the COVID-19 pandemic);

- increased sovereign default risks in select countries and the resulting adverse effects on the global financial markets;

- 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;

- 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 changes 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 which 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;

- hostilities or political or social tensions involving oil producing countries in the Middle East (including the recent Israel-Hamas war and 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, ballistic missile and satellite 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 has 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. North Korea has increased the frequency of such activities since the beginning of 2022, firing numerous ballistic missiles, including intercontinental ballistic missiles, and in November 2023, successfully launched its first spy satellite. 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 Gaeseong 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. 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 100 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 between Korea and North Korea were held in April, May and September 2018 and between North Korea and the United States 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 further increase in tensions, which may occur, for example, if North Korea experiences a leadership crisis, high-level contacts between Korea and North Korea or between the United States and North Korea break down or military hostilities occur, could have a material adverse effect on the Korean economy and on the Company's business, financial condition and results of operations and the price of the Notes, including a downgrade in the credit rating of the Company or the Notes.

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

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

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

In addition, the Company's consolidated financial statements as of and for the years ended December 31, 2024 and 2023 and as of and for the years ended 2023 and 2022 included elsewhere in this Offering Circular have been prepared in accordance with the Government Accounting Standards or K-IFRS, as the case may be, and the Company expects to prepare its financial statements in accordance with the Government Accounting Standards or K-IFRS, as the case may be, for future periods, which differ in certain respects from accounting principles applicable to companies in certain other countries, including the United States. In addition, the Company is not a listed company but makes public disclosures regarding aspects of its business pursuant to the Act on the Management of Public Institutions and other laws applicable to the Company. These disclosure rules differ in many material respects from those applicable to companies in certain other countries, including the United States. In making an investment decision, investors must rely upon their own examination of the Company, the terms of the offering and the financial information contained in this Offering Circular.

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

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

Risks Relating to the Notes

The Notes are not guaranteed by the Republic of Korea.

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

The Notes are unsecured obligations.

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

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

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

The Notes are subject to transfer restrictions.

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

The Notes may have limited liquidity.

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

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

- the financial condition and stability of the Korean oil industry and the Korean and Singaporean financial markets.

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

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

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

Risks Relating to Forward-Looking Statements

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

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

- general economic, business, political and social conditions and the impact of global epidemics such as the COVID-19 pandemic;

- adverse trends in regulatory, legislative and judicial developments, including litigation and environmental regulatory restrictions and liabilities;

- changes in interest rates and foreign exchange rates;

- adverse developments in the global financial markets and industry;

- development projects and exploration prospects and the speculative nature of oil and gas exploration and development, including the risk of obtaining necessary licenses and permits;

- uncertainties inherent in estimating proved or potential oil and gas reserves;

- development and drilling potential and development of undeveloped reserves, including the risks and hazards associated with oil and gas development and operating or technical difficulties in connection with oil and gas development activities;

- expansion and other development trends of the oil and gas industry, and regulatory, administrative or economic conditions affecting the oil and gas industry, including changes to applicable oil and gas and other laws regulating the oil and gas industry;

- risks related to gathering and processing facilities and pipeline systems;
- business strategy, including expansion and growth of operations;
- oil and gas prices and demand;
- future earnings and cash flow;
- factors affecting future profitability;
- seasonality;
- long-term reliance on third parties;
- claims made in respect of the Company's operations, property or assets, and contests over such claims, particularly title to undeveloped properties;
- competition for, among other things, capital, the acquisition of reserves, equipment, export pipeline capacity and skilled personnel;
- environmental risks and hazards and the costs of compliance with increasingly stronger environmental regulations;
- the Company's estimated financial information; and
- conditions in the Korean and the global financial markets.

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

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

FORM OF THE NOTES

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

Bearer Notes

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

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

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

The applicable Pricing Supplement will specify that a Permanent Bearer Global Note will be exchangeable (free of charge), in whole but not in part, for definitive Bearer Notes with, where applicable, receipts, interest coupons and talons attached upon either (i) not less than 60 days’ written notice from Euroclear and/or Clearstream (acting on the instructions of any holder of an interest in such Permanent Bearer Global Note) to the Principal Paying Agent as described therein or (ii) only upon the occurrence of an Exchange Event. In the case of definitive Bearer Notes that are issued in exchange for any Permanent Bearer Global Notes, such exchange shall only be permitted if the issuance of definitive Bearer Notes are issued in integral multiples of the Specified Denomination. For these purposes, an “Exchange Event” means that (i) an Event of Default (as defined in Condition 11) has occurred and is continuing, (ii) the Issuer has been notified that both Euroclear and Clearstream have been closed for business for a continuous period of 14 days (other than by reason of holiday, statutory or otherwise) or have announced an intention permanently to cease business or have in fact done so and no alternative clearing system is available or (iii) the Issuer has or will become subject to adverse tax consequences which would not be suffered were the Notes represented by the Permanent Bearer Global Note in definitive form (provided that, in certain circumstances where the Notes are held through Euroclear and Clearstream, such adverse tax consequences are the result of a change in, or amendment to, the laws and regulations (taxation or otherwise) of a Tax Jurisdiction). For so long as the Notes are listed on the Singapore Stock Exchange and the rules of the Singapore Stock Exchange so require, in the event that a Bearer Global Note is exchanged for definitive Bearer Notes, the Issuer will appoint and maintain a paying agent in Singapore (the "Singapore Paying Agent") (unless the Issuer obtains an exemption from the Singapore Stock Exchange), where the definitive Bearer Notes may be presented or surrendered for payment or redemption. In addition, in the event that a Bearer Global Note is exchanged for definitive Bearer Notes, an announcement of such exchange shall be made by the Issuer or on the Issuer's behalf through the Singapore Stock Exchange and such announcement will include all material information with respect to the delivery of the definitive Bearer Notes, including details of the Singapore Paying Agent. In the event of the occurrence of an Exchange Event, Euroclear and/or Clearstream (acting on the instructions of any holder of an interest in such Permanent Bearer Global Note) may give notice to the Principal Paying Agent requesting exchange and, in the event of the occurrence of an Exchange Event as described in (iii) above, the Issuer may also give notice to the Principal Paying Agent requesting exchange. Any such exchange shall occur not later than 45 days after the date of receipt of the first relevant notice by the Principal Paying Agent.

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

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

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

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

Registered Notes

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

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

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

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

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

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

For so long as any Notes are listed on the Singapore Stock Exchange and the rules of the Singapore Stock Exchange so require, in the event that a Registered Global Note is exchanged for definitive Registered Notes, the Issuer will appoint and maintain a Singapore Paying Agent (unless the

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

Transfer of Interests

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

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

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

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

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

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

Form of Pricing Supplement

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

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

[UK MIFIR PRODUCT GOVERNANCE — Solely for the purposes of the manufacturer's product approval process, the target market assessment in respect of the Notes has led to the conclusion that: (i) the target market for the Notes is eligible counterparties, as defined in the FCA Handbook Conduct of Business Sourcebook, and professional clients, as defined in Regulation (EU) No 600/2014 as it forms part of UK domestic law by virtue of the European Union (Withdrawal) Act 2018 as amended ("UK MiFIR") only; and (ii) all channels for distribution of the Notes to eligible counterparties and professional clients are appropriate. Any person subsequently offering, selling or recommending the Notes (a "distributor") should take into consideration the manufacturer's target market assessment; however a distributor subject to the FCA Handbook Product Intervention and Product Governance Sourcebook, as may be applicable, is responsible for undertaking its own target market assessment in respect of the Notes (by either adopting or refining the manufacturer's target market assessment) and determining the appropriate distribution channels.]

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

selling the securities or otherwise making them available to retail investors in the EEA has been prepared and therefore, offering or selling the securities or otherwise making them available to any retail investor in the EEA may be unlawful under the PRIIPs Regulation.

This Offering Circular has been prepared on the basis that any offer of the Notes in any member state of the EEA will be made pursuant to an exemption under the Prospectus Regulation from the requirement to publish a prospectus for offers of the Notes. This Offering Circular is not a prospectus for the purposes of the Prospectus Regulation.]

[UK PRIIPS REGULATION/PROHIBITION OF SALES TO UK RETAIL INVESTORS — The Notes are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the United Kingdom ("UK"). For these purposes: (a) the expression "retail investor" means a person who is one (or more) of the following: (i) a retail client as defined in point (8) of Article 2 of Regulation (EU) No 2017/565 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018 ("EUWA"); (ii) a customer within the meaning of the provisions of the Financial Services and Markets Act 2000 (as amended, the "FSMA") and any rules or regulations made under the FSMA to implement Directive (EU) 2016/97, where that customer would not qualify as a professional client, as defined in point (8) of Article 2(1) of Regulation (EU) No 600/2014 as it forms part of domestic law by virtue of the EUWA; or (iii) not a qualified investor as defined in Article 2 of Regulation (EU) 2017/1129 as it forms part of domestic law by virtue of the EUWA (the "UK Prospectus Regulation"). Consequently, no key information document required by Regulation (EU) No 1286/2014 as it forms part of domestic law by virtue of the EUWA (the "UK PRIIPs Regulation") for offering or selling the Notes or otherwise making them available to retail investors in the UK has been prepared and therefore offering or selling the Notes or otherwise making them available to any retail investor in the UK may be unlawful under the UK PRIIPs Regulation.

This Offering Circular has been prepared on the basis that any offer of the Notes in the UK will be made pursuant to an exemption under the UK Prospectus Regulation from the requirement to publish a prospectus for offers of the Notes. This Offering Circular is not a prospectus for the purposes of the UK Prospectus Regulation.]

[Date]

Korea National Oil Corporation

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

under the U.S.$14,000,000,000

Global Medium Term Note Program

This document constitutes the Pricing Supplement relating to the issue of Notes described herein. Terms used herein shall be deemed to be defined as such for the purposes of the Conditions set forth in the Offering Circular dated March 17, 2025 [and the supplemental Offering Circular dated [•]]. This Pricing Supplement contains the final terms of the Notes and must be read in conjunction with such Offering Circular as so supplemented.

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

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

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

1.	Issuer:		Korea National Oil Corporation
2.	(i)	Series Number:	[•]
	(ii)	Tranche Number:	[•] (*If fungible with an existing Series, details of that Series, including the date on which the Notes become fungible*)
3.	Specified Currency or Currencies:		[•]
4.	Aggregate Nominal Amount:		
	(i)	Series:	[•]
	(ii)	Tranche:	[•]
5.	(i)	Issue Price:	[•] per cent. of the Aggregate Nominal Amount [plus accrued interest from [Issue Date] *(in the case of fungible issues only, if applicable)*]
	(ii)	[Net proceeds (after deducting underwriting discounts but not estimated expenses): (required only for listed issues)]:	[•]
	(iii)	[Use of proceeds]:	[•] (*if different from the use of proceeds specified in the Offering Circular*)
6.	Specified Denominations: (*in the case of Registered Notes, this means the minimum integral amount* in which transfers can be made)		[•] *(N.B. Pursuant to the Prospectus Regulation, Notes to be admitted to trading on a regulated market within the EEA must have a minimum denomination of €100,000 (or equivalent) in order to benefit from Transparency Directive exemptions in respect of wholesale securities and the wholesale exemption set out in Article 1(4) of the Prospectus Regulation. If an issue of Notes is (i) not admitted to trading on an EEA exchange and (ii) only offered in the EEA in circumstances where a prospectus is not required to be published under the Prospectus Regulation, the €100,000 minimum denomination is not required.)*

			(N.B. Pursuant to the UK Prospectus Regulation, Notes to be admitted to trading on a regulated market within the UK must have a minimum denomination of €100,000 (or equivalent) in order to benefit from Transparency Directive exemptions in respect of wholesale securities and the wholesale exemption set out in Article 1(4) of the UK Prospectus Regulation. If an issue of Notes is (i) not admitted to trading on a UK exchange and (ii) only offered in the UK in circumstances where a prospectus is not required to be published under the UK Prospectus Regulation, the €100,000 minimum denomination is not required.) *(N.B. Where Bearer Notes with multiple denominations above U.S.$200,000 or equivalent are being used, the following sample wording should be followed:* *"U.S.$200,000 and integral multiples of U.S.$1,000 in excess thereof up to and including U.S.$399,000. No Notes in definitive form will be issued with a denomination above U.S.$399,000.")*
7.	(i)	Issue Date:	[•]
	(ii)	Interest Commencement Date:	[•]
8.	Maturity Date:		**[Fixed rate — *specify date*]** Floating rate — Interest Payment Date falling in [***specify months and year***]
9.	Interest Basis:		**[[•] per cent. Fixed Rate] [[EURIBOR/SOFR/Other reference rate] +/- [•] per cent. Floating Rate] [Zero Coupon] [Index Linked Interest] [Dual Currency Interest] [*specify other*]** (further particulars specified below)
10.	Redemption/Payment Basis:		**[Redemption at par] [Dual Currency Redemption] [Partly Paid] [Installment] [*specify other*]**
11.	Change of Interest Basis or Redemption/ Payment Basis:		**[Specify details of any provision for change of Notes into another Interest Basis or Redemption/Payment Basis]**
12.	Put (other than Condition 8(d)(i))/Call Options:		**[Investor Put] [Issuer Call] [(further particulars specified below)]**
13.	(i)	Status of the Notes:	[Senior]/[Subordinated]
	(ii)	Date Board approval for issuance of Notes obtained:	[•] *(N.B. Only relevant where Board (or similar) authorization is required for the particular tranche of Notes)*

14.	Listing:	[**Singapore Exchange Securities Trading Limited**[1]**/ specify other/None**] (*N.B. Notes under this Program cannot be admitted to trading on an EU regulated market without the preparation of a prospectus compliant with the disclosure requirements under the EU Prospectus Directive*)
15.	Method of distribution:	**[Syndicated/Non-syndicated]**

PROVISIONS RELATING TO INTEREST (IF ANY) PAYABLE

16.	Fixed Rate Note Provisions:	**[Applicable/Not Applicable]** ***(If not applicable, delete the remaining sub-paragraphs of this paragraph)***
	(i) Rate[(s)] of Interest:	[•] per cent. per annum **[payable [annually/semi-annually/quarterly] in arrear]** ***(If payable other than annually, consider amending Condition 6)***
	(ii) Interest Payment Date(s):	**[[•] in each year up to and including the Maturity Date]/[specify other] [*N.B.: This will need to be amended in the case of long or short coupons*]**
	(iii) Fixed Coupon Amount(s):	[•] per [•] in nominal amount
	(iv) Broken Amount(s):	**[*Insert particulars of any initial or final broken interest amounts which do not correspond with the Fixed Coupon Amount*]**
	(v) Day Count Fraction:	**[30/360 or Actual/Actual (ICMA) or [*specify other*]]**
	(vi) Determination Date(s):	[•] in each year **[*Insert regular interest payment dates, ignoring issue date or maturity date in the case of a long or short first or last coupon NB: This will need to be amended in the case of regular interest payment dates which are not of equal duration. NB: Only relevant where Day Count Fraction is Actual/Actual (ICMA)*]**
	(vii) Business Day Convention:	[***Following Business Day Convention***]
	(viii) Other terms relating to the method of calculating interest for Fixed Rate Notes:	**[None/*Give details*]**
17.	Floating Rate Note Provisions:	**[Applicable/Not Applicable]** ***(If not applicable, delete the remaining sub-paragraphs of this paragraph)***
	(i) Specified Period(s)/Specified Interest Payment Dates:	[•]

[1] For Singapore Stock Exchange listing: For drawdowns based on the offering circular dated March 17, 2025, please note that if the issuer's audited financials as of and for the year ended December 31, 2025 have since become available, this should be appended in full to the pricing supplement.

(ii)	Business Day Convention:	**[Floating Rate Convention/Following Business Day Convention/Modified Following Business Day Convention/Preceding Business Day Convention/ [*specify other*]]**
(iii)	Additional Business Centre(s):	[•]
(iv)	Manner in which the Rate of Interest and Interest Amount is to be determined:	**[Screen Rate Determination/ISDA Determination/ *specify other*]**
(v)	Party responsible for calculating the Rate of Interest and Interest Amount (if not the Principal Paying Agent):	[•]
(vi)	Screen Rate Determination:	
	— Reference Rate:	[•] *(Either EURIBOR, SOFR or other, although additional information is required if other — including fallback provisions in the Agency Agreement)*
	— Interest Determination Date(s):	[•] *(Second day on which the TARGET 2 system is open prior to the start of each Interest Period if EURIBOR)*
	— Relevant Screen Page:	[•] *(In the case of EURIBOR, if not Telerate Page 248 ensure it is a page which shows a composite rate or amend the fallback provisions appropriately)*
	— SOFR Benchmark:	**[Not Applicable/Compounded Daily SOFR/SOFR Index]** (Only applicable where the Reference Rate is SOFR)
	— Compounded Daily SOFR:	**[Not Applicable/SOFR Lag/SOFR Observation Shift]** (Only applicable in the case of Compounded Daily SOFR)
	— Lookback Days:	**[Not Applicable/[•] U.S. Government Securities Business Day(s)]** (Only applicable in the case of SOFR Lag)
	— SOFR Observation Shift Days:	**[Not Applicable/[•] U.S. Government Securities Business Day(s)]** (Only applicable in the case of SOFR Observation Shift or SOFR Index)
	— SOFR $\text{Index}_{\text{Start}}$:	**[Not Applicable/[•] U.S. Government Securities Business Day(s)]** (Only applicable in the case of SOFR Index)
	— SOFR $\text{Index}_{\text{End}}$:	**[Not Applicable/[•] U.S. Government Securities Business Day(s)]** (Only applicable in the case of SOFR Index)

	(vii) ISDA Determination:	
	— Floating Rate Option:	[•]
	— Designated Maturity:	[•]
	— Reset Date:	[•]
	(viii) Margin(s):	[+/-][•] per cent. per annum
	(ix) Minimum Rate of Interest:	[•] per cent. per annum
	(x) Maximum Rate of Interest:	[•] per cent. per annum
	(xi) Day Count Fraction:	**[Actual/365 Actual/365 (Fixed) Actual/365 (Sterling) Actual/360 30/360 30E/360 Other]** ***(See Condition 6 for alternatives)***
	(xii) Fall back provisions, rounding provisions and any other terms relating to the method of calculating interest on Floating Rate Notes, if different from those set out in the Conditions:	**[Benchmark Transition Event]/[Benchmark Discontinuation (SOFR)]/[specify other if different from those set out in the Conditions]**
18.	Zero Coupon Note Provisions:	**[Applicable/Not Applicable]** ***(If not applicable, delete the remaining sub-paragraphs of this paragraph)***
	(i) Accrual Yield:	[•] per cent. per annum
	(ii) Reference Price:	[•]
	(iii) Any other formula/basis of determining amount payable:	[•] *(Consider applicable day count fraction if euro denominated)*
	(iv) Day Count Fraction in relation to Early Redemption Amount and Late Payment on Zero Coupon Notes:	**[Condition 8(e)(iii) and Condition 8(j) apply/*specify other*]** ***(Consider applicable day count fraction if not U.S. dollar denominated)***
19.	Index Linked Interest Note Provisions:	**[Applicable/Not Applicable]** ***(If not applicable, delete the remaining sub-paragraphs of this paragraph)***
	(i) Index/Formula:	[***give or annex details***]
	(ii) Calculation Agent responsible for calculating the interest due:	[•]
	(iii) Provisions for determining Coupon where calculation by reference to Index and/or Formula is impossible or impracticable:	[•]
	(iv) Specified Period(s)/Specified Interest Payment Dates:	[•]

	(v) Business Day Convention:	**[Floating Rate Convention/Following Business Day Convention/Modified Following Business Day Convention/Preceding Business Day Convention/ *specify other*]**
	(vi) Additional Business Centre(s):	[•]
	(vii) Minimum Rate of Interest:	[•] per cent. per annum
	(viii) Maximum Rate of Interest:	[•] per cent. per annum
	(ix) Day Count Fraction:	[•]
20.	Dual Currency Note Provisions:	**[Applicable/Not Applicable]** ***(If not applicable, delete the remaining sub-paragraphs of this paragraph)***
	(i) Rate of Exchange/method of calculating Rate of Exchange:	**[*give details*]**
	(ii) Calculation Agent, if any, responsible for calculating the principal and/or interest payable:	[•]
	(iii) Provisions applicable where calculation by reference to Rate of Exchange impossible or impracticable:	[•]
	(iv) Person at whose option Specified Currency(ies) is/are payable:	[•]

PROVISIONS RELATING TO REDEMPTION

21.	Issuer Call:	**[Applicable/Not Applicable]** ***(If not applicable, delete the remaining sub-paragraphs of this paragraph)***
	(i) Optional Redemption Date(s):	[•]
	(ii) Optional Redemption Amount of each Note and method, if any, of calculation of such amount(s):	[•] per Note of [•] Specified Denomination
	(iii) If redeemable in part:	
	(a) Minimum Redemption Amount:	[•]
	(b) Higher Redemption Amount:	[•]

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

GENERAL PROVISIONS APPLICABLE TO THE NOTES

25.	Form of Notes:	**[Bearer Notes:** **[Temporary Bearer Global Note exchangeable for a Permanent Bearer Global Note which is exchangeable for Definitive Notes [on 60 days' notice given at any time/only upon an Exchange Event]]** **[Temporary Bearer Global Note exchangeable for Definitive Notes on and after the Exchange Date]** **[Permanent Bearer Global Note exchangeable for Definitive Notes [on 60 days' notice given at any time/only upon an Exchange Event]]**

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

33.	If non-syndicated, name of relevant Dealer:	[•]
34.	U.S. Selling Restrictions:	**[Reg. S Category 1/Reg. S Category 2]** **[TEFRA D/TEFRA C/TEFRA not applicable]**
35.	Prohibition of sales to EEA retail investors:	**[Applicable/Not Applicable]**
36.	Prohibition of sales to UK retail investors:	**[Applicable/Not Applicable]**
37.	[Singapore Sales to Institutional Investors and Accredited Investors only: (If Singapore Sales is not applicable, delete this paragraph)	**[Applicable/Not Applicable]** **(If the Notes are offered in Singapore to Institutional Investors and Accredited Investors (as defined under the Securities and Futures Act 2001 of Singapore) only, "Applicable" should be specified. If the Notes are also offered in Singapore to investors other than Institutional Investors and Accredited Investors (as defined under the Securities and Futures Act 2001 of Singapore), "Not Applicable" should be specified.)]**
38.	Additional selling restrictions:	**[Not Applicable/*give details*]** ***(If Item 34 confirms that either TEFRA C or TEFRA D applies, then specify each of the selling restrictions and representations that should be complied with to ensure that the issuance of Notes is U.S. Treas. Reg. § 1.163-5(c)(2)(i)(C) (i.e., TEFRA C) or U.S. Treas. Reg. § 1.163-5(c)(2)(i)(D) (i.e., TEFRA D) compliant, as applicable)***

OPERATIONAL INFORMATION

39.	Any clearing system(s) other than Euroclear and Clearstream and the relevant identification number(s):	**[Not Applicable/*give name(s) and number(s)*]**
40.	Delivery:	Delivery **[against/free of]** payment
41.	In the case of Registered Notes, specify the Registrar:	**[Not Applicable/Citibank, N.A., London Branch]**
42.	Specify the Principal Paying Agent:	**[Citibank, N.A., London Branch]**
43.	In the case of Registered Notes, specify the location of the office of the Registrar if other than New York:	**[Not Applicable/give location]**

44. Additional Paying Agent(s) (if any): [•]

ISIN: [•]

Common Code: [•]

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

[NOTIFICATION UNDER SECTION 309B(1)(C) OF THE SECURITIES AND FUTURES ACT 2001 OF SINGAPORE (THE "SFA")

The Issuer has determined, and hereby notifies all relevant persons (as defined in Section 309A(1) of the SFA), that the Notes are [prescribed capital markets products [OR] capital markets products other than prescribed capital markets products]* (as defined in the Securities and Futures (Capital Markets Products) Regulations 2018 of Singapore) and [Excluded Investment Products [OR] Specified Investment Products]* (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).] [2]

[LISTING APPLICATION

This Pricing Supplement comprises the final terms required to list the issue of Notes described herein pursuant to the U.S.$14,000,000,000 Global Medium Term Note Program of Korea National Oil Corporation.]

[Application will be made for the Notes to be recognized under the SGX Sustainable Fixed Income initiative on the Singapore Stock Exchange. There is no guarantee that such application for recognition under the SGX Sustainable Fixed Income initiative will be approved. Recognition under the SGX Sustainable Fixed Income initiative does not guarantee that the Notes will satisfy any investor's expectations or requirements on its sustainability-related performance or impact. If approved, the Singapore Stock Exchange may remove the recognition from the Notes at its discretion. The latest list of fixed income securities that have been granted recognition under the SGX Sustainable Fixed Income initiative is available at the Singapore Stock Exchange's website.] [*For listings on the Singapore Stock Exchange: To include this paragraph if the Notes are green/ social/sustainability Notes and the Issuer intends to apply for recognition under SGX's Sustainable Fixed Income initiative.*]

RESPONSIBILITY

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

Signed on behalf of the Issuer:

By:

Duly authorized

---

2 To be inserted if the Notes will be offered to investors in Singapore.

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

TERMS AND CONDITIONS OF THE NOTES

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

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

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

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

(b) any Global Note;

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

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

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

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

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

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

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

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

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

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

1. FORM, DENOMINATION AND TITLE

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

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

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

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

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

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

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

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

2. TRANSFERS OF REGISTERED NOTES

(a) Transfers of interests in Registered Global Notes

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

(b) Transfers of Registered Notes in definitive form

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

(c) Registration of transfer upon partial redemption

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

(d) Costs of registration

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

(e) Transfers of interests in Regulation S Global Notes

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

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

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

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

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

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

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

(f) Transfers of interests in Legended Notes

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

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

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

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

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

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

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

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

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

(g) Exchanges and transfers of Registered Notes generally

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

(h) Definitions

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

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

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

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

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

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

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

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

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

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

3. STATUS OF THE NOTES

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

4. CERTAIN COVENANTS

(a) Negative Pledge

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

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

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

(b) Consolidation, Merger and Sale of Assets

The Issuer, without the consent of the holders of the Notes, may consolidate with, or merge into, or sell, transfer, lease or convey its assets as an entirety or substantially as an entirety to any corporation; provided that (i) any successor corporation expressly assumes the Issuer's obligations under these Terms and Conditions and the Agency Agreement, (ii) after giving effect to the transaction, with respect to the Issuer or any such successor corporation, no Event of Default and no event which, after notice or lapse of time or both, would become an Event of Default, shall have occurred and be continuing and (iii) the Issuer has delivered to the Principal Paying Agent a certificate executed by a duly authorized officer of the Issuer and an opinion of counsel as to matters of law stating that such consolidation, merger, sale, transfer, lease or conveyance and, if a supplemental agency agreement is required in connection with such transaction, such supplemental agency agreement comply with the Agency Agreement and the Notes and that all conditions precedent herein provided for relating to such transaction have been complied with.

(c) Certain Definitions

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

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

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

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

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

"*Principal Subsidiary*" means:

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

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

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

provided that:

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

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

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

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

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

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

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

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

5. REDENOMINATION

(a) Redenomination

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

The election will have effect as follows:

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

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

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

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

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

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

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

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

(b) Definitions

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

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

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

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

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

6. INTEREST

(a) Interest on Fixed Rate Notes

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

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

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

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

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

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

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

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

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

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

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

In this Condition 6(a):

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

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

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

(i) Interest Payment Dates

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

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

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

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

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

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

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

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

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

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

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

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

(ii) Rate of Interest

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

(A) ISDA Determination for Floating Rate Notes

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

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

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

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

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

(B) Screen Rate Determination for Floating Rate Notes

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

(1) the offered quotation; or

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

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

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

(C) Screen Rate Determination for Floating Rate Notes where the Reference Rate is specified as being SOFR Benchmark

Where Screen Rate Determination is specified in the applicable Pricing Supplement as the manner in which the Rate of Interest is to be determined and the Reference Rate is specified as SOFR Benchmark in the applicable Pricing Supplement, the Rate of Interest for each Interest Period will, subject as provided below, be equal to the relevant SOFR Benchmark plus or minus the Margin (if any), all as determined by the Calculation Agent on the relevant Interest Determination Date.

The "SOFR Benchmark" will be determined based on Compounded Daily SOFR or SOFR Index, as follows (subject in each case to Condition 6(b)(vi) as further specified hereon)

(1) If Compounded Daily SOFR is specified in the applicable Pricing Supplement as the manner in which the SOFR Benchmark will be determined, the SOFR Benchmark for each Interest Period shall be equal to the compounded average of daily SOFR reference rates for each day during the relevant Interest Period (where SOFR Lag is specified in the applicable Pricing Supplement to determine Compounded Daily SOFR) or the SOFR Observation Period (where SOFR Observation Shift is specified in the applicable Pricing Supplement to determine Compounded Daily SOFR).

Compounded Daily SOFR shall be calculated by the Calculation Agent in accordance with one of the formulas referenced below depending upon which is specified in the applicable Pricing Supplement:

(I) SOFR Lag:

$$\left(\prod_{i=1}^{d_o}\left(1+\frac{SOFR_{i-xUSBD}\times n_i}{360}\right)-1\right)\times\frac{360}{d}$$

with the resulting percentage being rounded, if necessary, to the nearest one hundred-thousandth of a percentage point, with 0.000005 per cent. being rounded upwards (e.g., 9.876541 per cent. (or 0.09876541) being rounded down to 9.87654 per cent. (or 0.0987654) and 9.876545 per cent. (or 0.09876545) being rounded up to 9.87655 per cent. (or 0.0987655)) and where:

"*SOFRi-xUSBD*" for any U.S. Government Securities Business Day "i" in the relevant Interest Period is equal to the SOFR reference rate for the U.S. Government Securities Business Day falling the number of Lookback Days prior to that U.S. Government Securities Business Day "i";

"*Lookback Days*" means such number of U.S. Government Securities Business Days as specified in the applicable Pricing Supplement, which shall not be less than five U.S. Government Securities Business Days;

"*d*" means the number of calendar days in the relevant Interest Period;

"*do*" for any Interest Period means the number of U.S. Government Securities Business Days in the relevant Interest Period;

"*i*" means a series of whole numbers ascending from one to do, representing each relevant U.S. Government Securities Business Day from (and including) the first U.S. Government Securities Business Day in the relevant Interest Period; and

"*ni*" for any U.S. Government Securities Business Day "i" in the relevant Interest Period means the number of calendar days from (and including) such U.S. Government Securities Business Day "i" up to (but excluding) the following U.S. Government Securities Business Day for which $SOFR_{i\text{-}xUSBD}$ applies.

(II) SOFR Observation Shift:

$$\left(\prod_{i=1}^{d_o}\left(1+\frac{SOFR_i \times n_i}{360}\right)-1\right)\times\frac{360}{d}$$

with the resulting percentage being rounded, if necessary, to the nearest one hundred-thousandth of a percentage point, with 0.000005 per cent. being rounded upwards (e.g., 9.876541 per cent. (or 0.09876541) being rounded down to 9.87654 per cent. (or 0.0987654) and 9.876545 per cent. (or 0.09876545) being rounded up to 9.87655 per cent. (or 0.0987655)) and where:

"*SOFRi*" for any U.S. Government Securities Business Day "i" in the relevant SOFR Observation Period is equal to the SOFR reference rate for that U.S. Government Securities Business Day "i";

"*SOFR Observation Period*" means, in respect of an Interest Period, the period from (and including) the date falling the number of SOFR Observation Shift Days prior to the first day of such Interest Period to (but excluding) the date falling the number of SOFR Observation Shift Days prior to the Interest Payment Date for such Interest Period;

"*SOFR Observation Shift Days*" means the number of U.S. Government Securities Business Days as specified in the applicable Pricing Supplement, which shall not be less than five U.S. Government Securities Business Days;

"*d*" means the number of calendar days in the relevant SOFR Observation Period;

"*do*" for any SOFR Observation Period means the number of U.S. Government Securities Business Days in the relevant SOFR Observation Period;

"*i*" means a series of whole numbers ascending from one to do, representing each U.S. Government Securities Business Day from (and including) the first U.S. Government Securities Business Day in the relevant SOFR Observation Period; and "*ni*" for any U.S. Government Securities Business Day "i" in the relevant SOFR Observation Period means the number of calendar days from (and including) such U.S. Government Securities Business Day "i" up to (but excluding) the following U.S. Government Securities Business Day for which $SOFR_i$ applies.

The following defined terms shall have the meanings set out below for purpose of this Condition 6(b)(ii)(C)(1):

"*Bloomberg Screen SOFRRATE Page*" means the Bloomberg screen designated "SOFRRATE" or any successor page or service;

"*Reuters Page USDSOFR=*" means the Reuters page designated "USDSOFR=" or any successor page or service;

"*SOFR*" means, in respect of a U.S. Government Securities Business Day, the reference rate determined by the Calculation Agent in accordance with the following provision:

(a) the Secured Overnight Financing Rate published at the SOFR Determination Time as such reference rate is reported on the Bloomberg Screen SOFRRATE Page; the Secured Overnight Financing Rate published at the SOFR Determination Time as such reference rate is reported on the Reuters Page USDSOFR=; or the Secured Overnight Financing Rate published at the SOFR Determination Time on the SOFR Administrator's Website;

(b) if the reference rate specified in (a) above does not appear and a SOFR Benchmark Transition Event and its related SOFR Benchmark Replacement Date have not occurred, the SOFR reference rate shall be the reference rate published on the SOFR Administrator's Website for the first preceding U.S. Government Securities Business Day for which SOFR was published on the SOFR Administrator's Website; or

(c) if the reference rate specified in (a) above does not appear and a SOFR Benchmark Transition Event and its related SOFR Benchmark Replacement Date have occurred, the provisions set forth in Condition 6(b)(vi) shall apply as specified in the applicable Pricing Supplement;

"*SOFR Determination Time*" means approximately 3:00 p.m. (New York City time) on the immediately following U.S. Government Securities Business Day.

(2) If SOFR Index is specified in the applicable Pricing Supplement, the SOFR Benchmark for each Interest Period shall be equal to the compounded average of daily SOFR reference rates for each day during the relevant SOFR Observation Period as calculated by the Calculation Agent as follows:

$$\left(\frac{SOFR\ Index_{End}}{SOFR\ Index_{Start}} - 1\right) \times \left(\frac{360}{d_c}\right)$$

with the resulting percentage being rounded, if necessary, to the nearest one hundred-thousandth of a percentage point, with 0.000005 per cent. being rounded upwards (e.g., 9.876541 per cent. (or 0.09876541) being rounded down to 9.87654 per cent. (or 0.0987654) and 9.876545 per cent. (or 0.09876545) being rounded up to 9.87655 per cent. (or 0.0987655)) and where:

"*SOFR Index*" means, in respect of a U.S. Government Securities Business Day, the SOFR Index value as published on the SOFR Administrator's Website at the SOFR Index Determination Time on such U.S. Government Securities Business Day, *provided that*:

(i) if the value specified above does not appear and a SOFR Benchmark Transition Event and its related SOFR Benchmark Replacement Date have not occurred, the "SOFR Index" shall be calculated on any Interest Determination Date with respect to an Interest Period, in accordance with the Compounded Daily SOFR formula described above in Condition 6(b)(ii)(C)(1)(II) "SOFR Observation Shift", and the term "SOFR Observation Shift Days" shall mean five U.S. Government Securities Business Days; or

(ii) if the value specified above does not appear and a SOFR Benchmark Transition Event and its related SOFR Benchmark Replacement Date have occurred, the provisions set forth in Condition 6(b)(vi) shall apply as specified in the applicable Pricing Supplement;

"*SOFR Index$_{End}$*" means, in respect of an Interest Period, the SOFR Index value on the date that is the number of U.S. Government Securities Business Days specified in the applicable Pricing Supplement prior to the Interest Payment Date for such Interest Period (or in the final Interest Period, the Maturity Date), which shall not be less than five U.S. Government Securities Business Days;

"*SOFR Index$_{Start}$*" means, in respect of an Interest Period, the SOFR Index value on the date that is the number of U.S. Government Securities Business Days specified hereon prior to the first day of such Interest Period;

"*SOFR Index Determination Time*" means, in respect of a U.S. Government Securities Business Day, approximately 3:00 p.m. (New York City time) on such U.S. Government Securities Business Day;

"*SOFR Observation Period*" means, in respect of an Interest Period, the period from (and including) the date falling the number of SOFR Observation Shift Days prior to the first day of such Interest Period to (but excluding) the date falling the number of SOFR Observation Shift Days prior to the Interest Payment Date for such Interest Period;

"*SOFR Observation Shift Days*" means the number of U.S. Government Securities Business Days as specified in the applicable Pricing Supplement; and

"***dc***" means the number of calendar days in the applicable SOFR Observation Period.

The following defined terms shall have the meanings set out below for purpose of this Condition 6(b)(ii)(C):

"*Interest Determination Date*" means, with respect to a Rate of Interest and Interest Period, the date specified as such in the applicable Pricing Supplement or, if none is so specified, the fifth U.S. Government Securities Business Day prior to the last day of each Interest Period unless otherwise agreed with the Calculation Agent;

"*SOFR Administrator's Website*" means the website of the Federal Reserve Bank of New York, or any successor source;

"*SOFR Benchmark Replacement Date*" means the date of occurrence of a Benchmark Event with respect to the then-current SOFR Benchmark;

"*SOFR Benchmark Transition Event*" means the occurrence of a Benchmark Event with respect to the then-current SOFR Benchmark; and

"*U.S. Government Securities Business Day*" means any day except for a Saturday, a Sunday or a day on which the Securities Industry and Financial Markets Association recommends that the fixed income departments of its members be closed for the entire day for purposes of trading in U.S. government securities.

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

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

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

(iv) Determination of Rate of Interest and Calculation of Interest Amounts

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

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

(v) Effect of Benchmark Transition Event

The following provisions shall apply if Benchmark Transition Event is specified in the applicable Pricing Supplement:

(A) Benchmark Replacement

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

(B) Benchmark Replacement Conforming Changes

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

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

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

(C) Decisions and Determinations

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

(D) Notices, etc.

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

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

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

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

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

If, following the occurrence of a Benchmark Transition Event and its related Benchmark Replacement Date, any Benchmark Replacement is notified to the Agent or any other party specified in the applicable Pricing Supplement as being responsible for determining the Rate of Interest pursuant to this Condition 6(b)(v), and the Agent or such other responsible party (as applicable) is in any way uncertain as to the application of such Benchmark Replacement in the calculation or determination of any Rate of Interest, it shall promptly notify the Issuer thereof and the Issuer or its designee shall direct the Agent or such other party (as applicable) in writing as to which course of action to adopt in the application of such Benchmark Replacement in the determination of such Rate of Interest.

(E) Survival of Original Reference Rate

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

(F) Certain Defined Terms

As used in this Condition 6(b)(v):

"*Benchmark*" means, initially, the relevant SOFR Benchmark specified in the applicable Pricing Supplement; *provided that* if the Issuer or its designee determines on or prior to the Reference Time that a Benchmark Event and its related Benchmark Replacement Date have occurred with respect to the relevant SOFR Benchmark (including any daily published component used in the calculation thereof) or the then-current Benchmark, then "Benchmark" means the applicable Benchmark Replacement.

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

(1) the sum of: (I) Term SOFR and (II) the Benchmark Replacement Adjustment;

(2) the sum of: (I) Compounded SOFR and (II) the Benchmark Replacement Adjustment;

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

(4) the sum of: (I) the ISDA Fallback Rate and (II) the Benchmark Replacement Adjustment;

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

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

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

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

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

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

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

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

(2) in the case of clause (3) of the definition of "Benchmark Transition Event," the date of the public statement or publication of information referenced therein.

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

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

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

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

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

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

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

(2) if, and to the extent that, the Issuer or its designee determines that Compounded SOFR cannot be determined in accordance with clause (1) above, then the rate, or methodology for this rate, and conventions for this

rate that have been selected by the Issuer or its designee giving due consideration to any industry-accepted market practice for U.S. dollar-denominated floating rate notes at such time.

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

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

"*designee*" means a designee as selected and separately appointed by the Issuer in writing.

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

"*Interpolated Benchmark*" with respect to the Benchmark means the rate determined for the Corresponding Tenor by interpolating on a linear basis between: (1) the Benchmark for the longest period (for which the Benchmark is available) that is shorter than the Corresponding Tenor and (2) the Benchmark for the shortest period (for which the Benchmark is available) that is longer than the Corresponding Tenor.

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

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

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

"*Reference Time*" with respect to any determination of the Benchmark means (1) if the Benchmark is the SOFR Benchmark, the SOFR Determination Time (where Simple SOFR Average or Compounded Daily SOFR is specified as applicable hereon) or SOFR Index Determination Time (where SOFR Index is specified as applicable hereon), or (2) if the Benchmark is not the SOFR Benchmark, the time determined by the Issuer or its designee after giving effect to the Benchmark Replacement Conforming Changes.

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

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

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

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

(vi) Benchmark Discontinuation (SOFR)

The following provisions shall apply if Benchmark Discontinuation (SOFR) is specified in the applicable Pricing Supplement:

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

(B) Benchmark Replacement Conforming Changes: In connection with the implementation of a Benchmark Replacement, the Issuer or its designee will have the right to make Benchmark Replacement Conforming Changes from time to time. For the avoidance of doubt, any of the Agents shall, at the direction and expense of the Issuer, effect such consequential amendments to the Agency Agreement and these Conditions as may be required to give effect to this Condition 6(b)(vi). Noteholders' consent shall not be required in connection with effecting any such changes, including the execution of any documents or any steps to be taken by the Agents (if required). Further, none of the Calculation Agent, the Paying Agents, the Registrars or the Transfer Agents shall be responsible or liable for any determinations, decisions or elections made by the Issuer or its designee with respect to any Benchmark Replacement or any other changes and shall be entitled to rely conclusively on any certifications provided to each of them in this regard.

(C) Decisions and Determinations: Any determination, decision or election that may be made by the Issuer or its designee pursuant to this Condition 6(b)(vi), including any determination with respect to a tenor, rate or adjustment or of the occurrence or non-occurrence of an event, circumstance or date and any decision to take or refrain from taking any action or any selection (1) will be conclusive and binding absent manifest error, (2) will be made in the sole discretion of the Issuer or its designee, as applicable, and (3) notwithstanding anything to the contrary in the documentation relating to the Notes, shall become effective without consent from the holders of the Notes or any other party.

(D) Certain Defined Terms: As used in this Condition 6(b)(vi):

"*Benchmark*" means, initially, the relevant SOFR Benchmark specified in the applicable Pricing Supplement; provided that if the Issuer or its designee determines on or prior to the Reference Time that a Benchmark Event and its related Benchmark

Replacement Date have occurred with respect to the relevant SOFR Benchmark (including any daily published component used in the calculation thereof) or the then-current Benchmark, then "Benchmark" means the applicable Benchmark Replacement;

"*Benchmark Event*" means the occurrence of one or more of the following events with respect to the then-current Benchmark (including any daily published component used in the calculation thereof):

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

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

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

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

(1) the sum of:

(I) the alternate reference rate that has been selected or recommended by the Relevant Governmental Body as the replacement for the then-current Benchmark (including any daily published component used in the calculation thereof); and

(II) the Benchmark Replacement Adjustment;

(2) the sum of:

(I) the ISDA Fallback Rate; and

(II) the Benchmark Replacement Adjustment; or

(3) the sum of:

(I) the alternate reference rate that has been selected by the Issuer or its designee as the replacement for the then-current Benchmark (including any daily published component used in the calculation thereof) giving due consideration to any industry-accepted reference rate as a replacement for the then-current Benchmark (including any daily published component used in the calculation thereof) for U.S. dollar-denominated Floating Rate Notes at such time; and

(II) the Benchmark Replacement Adjustment;

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

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

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

(3) the spread adjustment (which may be a positive or negative value or zero) that has been selected by the Issuer or its designee giving due consideration to any industry-accepted spread adjustment, or method for calculating or determining such spread adjustment, for the replacement of the then- current Benchmark (including any daily published component used in the calculation thereof) with the applicable Unadjusted Benchmark Replacement for U.S. dollar-denominated Floating Rate Notes at such time;

"*Benchmark Replacement Conforming Changes*" means, with respect to any Benchmark Replacement, any technical, administrative or operational changes (including changes to the timing and frequency of determining rates and making payments of interest, rounding of amounts or tenors, and other administrative matters) the Issuer or its designee decides may be appropriate to reflect the adoption of such Benchmark Replacement in a manner substantially consistent with market practice (or, if the Issuer or its designee decides that adoption of any portion of such market practice is not administratively feasible or if the Issuer or its designee determines that no market practice for use of the Benchmark Replacement exists, in such other manner as the Issuer or its designee determines is reasonably necessary);

"*Benchmark Replacement Date*" means the earliest to occur of the following events with respect to the then-current Benchmark (including any daily published component used in the calculation thereof):

(1) in the case of sub-paragraph (1) or (2) of the definition of "Benchmark Event", the later of:

(I) the date of the public statement or publication of information referenced therein; and

(II) the date on which the administrator of the Benchmark permanently or indefinitely ceases to provide the Benchmark (or such component); or

(2) in the case of sub-paragraph (3) of the definition of "Benchmark Event", the date of the public statement or publication of information referenced therein.

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

"*designee*" means a designee as selected and separately appointed by the Issuer in writing;

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

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

"*ISDA Fallback Rate*" means the rate that would apply for derivatives transactions referencing the ISDA Definitions to be effective upon the occurrence of an index cessation date with respect to the Benchmark (including any daily published component used in the calculation thereof) for the applicable tenor excluding the applicable ISDA Fallback Adjustment;

"*Reference Time*" with respect to any determination of the Benchmark means (1) if the Benchmark is the SOFR Benchmark, the SOFR Determination Time (where Simple SOFR Average or Compounded Daily SOFR is specified as applicable hereon) or SOFR Index Determination Time (where SOFR Index is specified as applicable hereon), or (2) if the Benchmark is not the SOFR Benchmark, the time determined by the Issuer or its designee after giving effect to the Benchmark Replacement Conforming Changes;

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

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

In these Terms and Conditions,

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

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

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

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

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

(5) if "**30/360**", "**360/360**" or "**Bond Basis**" is specified in the applicable Pricing Supplement, the number of days in the Interest Period divided by 360, calculated on a formula basis as follows:

$$\text{Day Count Fraction} = \frac{[360 \text{ x } (Y_2 - Y_1)] + [30 \text{ x } (M_2 - M_1)] + (D_2 - D_1)}{360}$$

where:

Y_1 is the year, expressed as a number, in which the first day of the Interest Period falls;

Y_2 is the year, expressed as a number, in which the day immediately following the last day of the Interest Period falls;

M_1 is the calendar month, expressed as a number, in which the first day of the Interest Period falls;

M_2 is the calendar month, expressed as a number, in which the day immediately following the last day of the Interest Period falls;

D_1 is the first calendar day, expressed as a number, of the Interest Period, unless such number is 31, in which case D_1 will be 30; and

D_2 is the calendar day, expressed as a number, immediately following the last day included in the Interest Period, unless such number would be 31 and D1 is greater than 29, in which case D_2 will be 30;

(6) if "**30E/360**" or "**Eurobond Basis**" is specified in the applicable Pricing Supplement, the number of days in the Interest Period divided by 360, calculated on a formula basis as follows:

$$\text{Day Count Fraction} = \frac{[360 \text{ x } (Y_2 - Y_1)] + [30 \text{ x } (M_2 - M_1)] + (D_2 - D_1)}{360}$$

where:

Y_1 is the year, expressed as a number, in which the first day of the Interest Period falls;

Y_2 is the year, expressed as a number, in which the day immediately following the last day of the Interest Period falls;

M_1 is the calendar month, expressed as a number, in which the first day of the Interest Period falls;

M_2 is the calendar month, expressed as a number, in which the day immediately following the last day of the Interest Period falls;

D_1 is the first calendar day, expressed as a number, of the Interest Period, unless such number is 31, in which case D_1 will be 30; and

D_2 is the calendar day, expressed as a number, immediately following the last day included in the Interest Period, unless such number would be 31, in which case D_2 will be 30;

(7) if "**30E/360 (ISDA)**" is specified in the applicable Pricing Supplement, the number of days in the Interest Period divided by 360, calculated on a formula basis as follows:

$$\text{Day Count Fraction} = \frac{[360 \text{ x } (Y_2 - Y_1)] + [30 \text{ x } (M_2 - M_1)] + (D_2 - D_1)}{360}$$

where:

Y_1 is the year, expressed as a number, in which the first day of the Interest Period falls;

Y_2 is the year, expressed as a number, in which the day immediately following the last day of the Interest Period falls;

M_1 is the calendar month, expressed as a number, in which the first day of the Interest Period falls;

M_2 is the calendar month, expressed as a number, in which the day immediately following the last day of the Interest Period falls;

D_1 is the first calendar day, expressed as a number, of the Interest Period, unless (i) that day is the last day of February or (ii) such number would be 31, in which case D_1 will be 30; and

D_2 is the calendar day, expressed as a number, immediately following the last day included in the Interest Period, unless (i) that day is the last day of February but not the Maturity Date or (ii) such number would be 31 and D_2 will be 30.

(vii) Notification of Rate of Interest and Interest Amounts

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

(viii) Certificates to be Final

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

(c) Interest on Dual Currency Notes

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

(d) Interest on Partly Paid Notes

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

(e) Accrual of interest

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

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

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

7. PAYMENTS

(a) Method of payment

Subject as provided below:

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

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

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

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

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

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

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

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

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

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

(c) Payments in respect of Bearer Global Notes

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

(d) Payments in respect of Registered Notes

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

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

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

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

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

(e) General provisions applicable to payments

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

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

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

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

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

(f) Payment Day

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

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

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

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

(B) London and any Additional Financial Centre specified in the applicable Pricing Supplement, provided that the named financial center of the country of the relevant Specified Currency and the international central securities depositaries shall not be authorized or required by law or regulation to be closed.

(g) Interpretation of principal and interest

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

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

(ii) the Final Redemption Amount of the Notes;

(iii) the Early Redemption Amount of the Notes;

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

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

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

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

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

8. REDEMPTION AND PURCHASE

(a) Redemption at maturity

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

(b) Redemption for tax reasons

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

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

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

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

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

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

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

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

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

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

(i) Change of Control

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

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

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

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

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

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

(e) Early Redemption Amounts

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

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

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

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

Early Redemption Amount = RP × (1+AY)y

where:

"RP" means the Reference Price;

"AY" means the Accrual Yield expressed as a decimal; and

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

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

(f) Installments

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

(g) Partly Paid Notes

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

(h) Purchases

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

(i) Cancellation

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

(j) Late payment on Zero Coupon Notes

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

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

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

9. TAXATION

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

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

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

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

(a) the due date for payment thereof; or

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

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

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

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

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

10. PRESCRIPTION

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

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

11. EVENTS OF DEFAULT

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

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

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

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

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

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

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

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

In this Condition 11, "*Debt*" means, with respect to any person as of any date of determination, without duplication, (i) all obligations, contingent or otherwise, of such person for borrowed money, (ii) all obligations of such person evidenced by bonds, notes or other similar instruments, (iii) all obligations of such person in respect of letters of credit or other similar instruments, (iv) all obligations of such person to pay the unpaid purchase price of any property or service, (v) all obligations secured by any mortgage, charge, pledge, encumbrance or other security interest (a "Lien") on any property or asset of such person, whether or not such obligations are assumed by such person and (vi) all obligations of others guaranteed by such person to the extent of such guarantees and, for clauses (i) through (vi), which are denominated in a currency other than the currency of Korea and which has a final maturity of one year or more. The amount of Debt of any person as of any date of determination shall be the outstanding balance at such date of all unconditional obligations as described above, the maximum liability of such person for any such contingent obligations at such date and, in the case of clause (v), the lesser of the fair market value (as determined in good faith by the board of directors of such person) at such date of the property or asset of such person subject to a Lien securing the obligations of others and the amount of such obligations secured.

12. REPLACEMENT OF NOTES, RECEIPTS, COUPONS AND TALONS

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

13. PAYING AGENTS

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

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

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

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

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

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

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

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

14. EXCHANGE OF TALONS

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

15. NOTICES

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

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

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

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

16. MEETINGS OF NOTEHOLDERS, MODIFICATION AND WAIVER

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

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

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

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

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

17. FURTHER ISSUES

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

18. CONTRACTS (RIGHTS OF THIRD PARTIES) ACT 1999

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

19. GOVERNING LAW AND SUBMISSION TO JURISDICTION

(a) Governing law

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

(b) Submission to jurisdiction

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

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

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

(c) Appointment of Process Agent

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

(d) Waiver of immunity

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

(e) Other documents

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

(f) Currency Indemnity

If, under any applicable law and whether pursuant to a judgment being made or registered against the Issuer or in the liquidation, insolvency or analogous process of the Issuer or for any other reason, any payment under or in connection with the Agency Agreement, the Notes, the Receipts or the Coupons, as the case may be, is made or fails to be satisfied in a currency (the "other currency") other than that in which the relevant payment is expressed to be due thereunder (the "required currency"), then, to the extent that the payment (when converted into the required currency at the rate of exchange (as defined below) on the date of payment or, if it is not practicable for any Noteholder, Receiptholder or Couponholder, as the case may be, to purchase the required currency with the other currency on the date of payment, at the rate of exchange as soon thereafter as it is practicable for it to do so or, in the case of a liquidation, insolvency or analogous process of the Issuer, at the rate of exchange on the latest date permitted by applicable law for the determination of liabilities in such liquidation, insolvency or analogous process) actually received by any Noteholder, Receiptholder or Couponholder, as the case may be, falls short of the amount due under the terms of the Agency Agreement, the Notes, the Receipts or the Coupons, as the case may be, the Issuer shall, as a separate and independent obligation, indemnify and hold harmless such Noteholder, Receiptholder or Couponholder against the amount of such shortfall.

"Rate of exchange" means the rate at which the relevant Noteholder, Receiptholder or Couponholder, as the case may be, is able on the relevant date in London to purchase the required currency with the other currency and shall take into account any premium and other costs of exchange.

USE OF PROCEEDS

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

EXCHANGE RATES

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

Period	At End of Period	Average Rate(1)	High	Low
		(Won per US$1.00)		
2020	1,088.0	1,180.5	1,280.1	1,082.7
2021	1,185.5	1,144.4	1,199.1	1,083.1
2022	1,267.3	1,292.0	1,436.6	1,185.5
2023	1,289.4	1,305.4	1,360.6	1,219.3
2024	1,470.0	1,364.0	1,474.1	1,289.4
September	1,319.6	1,334.8	1,344.3	1,319.6
October	1,383.3	1,361.0	1,387.0	1,306.9
November	1,394.7	1,393.4	1,407.3	1,371.3
December	1,470.0	1,434.4	1,474.1	1,395.1
2025 (through March 17)	1,454.8	1,451.0	1,471.3	1,429.2
January	1,433.3	1,455.8	1,471.3	1,433.3
February	1,439.6	1,445.6	1,469.2	1,429.2
March (through March 17)	1,454.8	1,453.0	1,459.6	1,441.6

Source: Seoul Money Brokerage Services, Ltd.

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

CAPITALIZATION

The following table sets forth the Company's total capitalization (defined as the sum of consolidated long-term debt and total equity) as of December 31, 2024, which is derived from the Company's audited consolidated financial statements as of and for the years ended December 31, 2024 and 2023. This table should be read in conjunction with the Company's audited consolidated financial statements as of and for the years ended December 31, 2024 and 2023 included elsewhere in this Offering Circular.

	As of December 31, 2024(1)			
	(In billions of Won and in millions of dollars)			
Long-term debt:				
Long-term borrowings, net of discounts	₩	799	$	544
Bonds payable, net of discounts and including premiums		12,668		8,618
Total long-term debt	₩	13,468	$	9,162
Owner's equity:				
Share capital	₩	10,909	$	7,421
Accumulated deficit		(12,094)		(8,227)
Other components of equity		(420)		(286)
Non-controlling interests		284		193
Total equity		(1,322)		(899)
Total capitalization(2)		12,146		8,263

(1) Translated Won and dollar amounts at the Market Average Exchange Rate of Won 1,470.0 to US$1.00 on December 31, 2024.

(2) Except as set forth herein, there has been no material change in the Company's capitalization since December 31, 2024.

SELECTED FINANCIAL AND OTHER DATA

Selected Financial Data

The following tables present selected consolidated financial and other data of the Company. This data should be read in conjunction with the consolidated financial statements of the Company and the notes thereto, "Management's Discussion and Analysis of Financial Condition and Results of Operations" and other historical financial information included elsewhere in, or incorporated by reference into, this Offering Circular. The selected audited consolidated financial data as of and for the years ended December 31, 2024 and 2023 and as of and for the years ended December 31, 2023 and 2022 have been derived from the audited consolidated financial statements of the Company included elsewhere in this Offering Circular, which have been prepared in accordance with the Government Accounting Standards or K-IFRS, as the case may be. All financial data and other data in this Offering Circular regarding the Company's activities, financial condition and results of operations are presented on a consolidated basis unless stated otherwise.

Discontinued Operations

In accordance with a Purchase and Sales Agreement entered into in 2015 in connection with the sale of North Atlantic Refining Limited ("NARL"), a downstream division of Harvest, the Company was obligated to bear the costs of repairs at NARL's facilities. As of December 31, 2022, such obligations have been extinguished and the related liabilities have been reversed and recognized as profit from discontinued operations.

	As of December 31,		
	2022	2023	2024
	(In billions of Won)		
Consolidated Statement of Financial Position Data:			
Total assets	₩ 18,299	₩ 18,229	₩ 20,492
Total liabilities	19,795	19,578	21,813
Total equity	(1,496)	(1,349)	(1,322)
Share capital	10,700	10,788	10,909
Total liabilities and equity	18,299	18,229	20,492

	For the Year Ended December 31,		
	2022	2023	2024
	(In billions of Won)		
Consolidated Statement of Comprehensive Income (Loss) Data:			
Continuing Operations			
Revenue	₩ 3,933	₩ 3,267	₩ 3,524
Cost of sales	(1,678)	(2,078)	(1,879)
Gross profit	2,255	1,189	1,645
Selling and administrative expenses	(265)	(343)	(372)
Operating profit	1,990	846	1,273
Other income	120	69	98
Other expenses	(166)	(143)	(109)
Other gains, net	216	310	47
Finance income	183	238	235
Finance costs	(902)	(701)	(891)
Gain on investments in associates and joint ventures, net	50	15	213
Profit before income tax	1,492	635	867
Income tax expense	(1,191)	(457)	(676)
Profit from continuing operations	301	179	192
Discontinued Operations			
Profit from discontinued operations	12	—	—
Profit for the year	313	179	192
Profit for the year attributable to:			
Owner of the Company	221	126	144
Non-controlling interests	92	53	47

	For the Year Ended December 31,		
	2022	2023	2024
	(In billions of Won)		
Other comprehensive income (loss) for the year, net of tax:			
Items that will not be reclassified subsequently to profit or loss:			
Gains (losses) on revaluation of property, plant and equipment, net of tax	(30)	1	—
Actuarial gains (losses) on defined benefit plans, net of tax	5	(24)	10
Net change in fair value of financial assets measured at fair value through other comprehensive income, net of tax	(4)	18	(28)
Items that are or may be reclassified subsequently to profit or loss:			
Equity adjustments arising from investments in equity-method investees, net of tax	(10)	(7)	(22)
Net change in the unrealized fair value of derivative using cash flow hedge accounting, net of tax	317	35	(20)
Foreign currency translation differences for foreign operations, net of tax	(319)	(42)	(198)
Other comprehensive loss for the year, net of tax	(41)	(19)	(257)
Total comprehensive income (loss) for the year	₩ 272	₩ 160	₩ (66)
Total comprehensive income (loss) attributable to:			
Owner of the Company	373	102	(148)
Non-controlling interests	(101)	57	82
Consolidated Cash Flow Data:			
Net cash flows provided by operating activities	902	823	864
Net cash flows used in investing activities	(159)	(362)	(1,272)
Net cash flows provided by (used in) financing activities	(910)	(594)	51

Selected Reserve, Production and Operating Data

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

	As of or for the Year Ended December 31,		
	2022	2023	2024
Proved reserves[(1)]:			
Crude oil (million barrels) [(2)]	309.5	289.4	289.9
Natural gas (billions of cubic feet)	653.6	627.3	622.6
Total (million barrels of oil equivalent)	420.2	395.7	395.3
Oil and gas production[(3)]:			
Crude oil (million barrels)	37.0	36.5	34.3
Natural gas (billions of cubic feet)	79.8	75.1	94.8
Total (million barrels of oil equivalent)	50.6	49.4	49.8
Average daily oil and gas production[(4)]:			
Crude oil (thousands of barrels)	101.2	100.1	93.8
Natural gas (millions of cubic feet)	218.6	205.8	259.1
Total (thousands of barrels of oil equivalent)	138.7	135.3	136.0
Average sales prices[(5)]:			
Crude oil (US$/barrel)	68.15	70.48	69.58
Natural gas (US$/thousands of cubic feet)	12.83	7.24	7.09
Reserves to **production ratio**	8.3	8.0	7.9

(1) The reserve data include reserve data of Harvest Operations as estimated under Canadian oil and gas reporting standards, COGEH and NI 51-101, as evaluated by the Independent Reserves Evaluators. If the reserve data of Harvest Operations as estimated under the Securities Act oil and gas reporting standards were included, the proved crude oil reserves, natural gas reserves and combined reserves as of December 31, 2022, 2023 and 2024 may differ from the corresponding amounts shown in the table above.

(2) Includes natural gas liquids.

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

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

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

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

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

Overview

The Company is the national oil and gas company of Korea and is wholly owned by the Government. The Company's revenues are derived principally from the sales of crude oil and natural gas produced from 17 production projects located abroad. As of December 31, 2024, the Company had daily crude oil and natural gas production of 136,003 barrels of oil equivalent. In addition, the Company conducts oil and gas exploration activities and had interests in 11 exploratory projects across four countries.

As of December 31, 2024, the Company derived its sales from the following four business segments:

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

Petroleum Distribution Segment. Included in this segment are revenues from the wholesale gasoline and gas oil distribution business, and from the operation of economical gas stations located throughout Korea together with the Korea Expressway Corporation and the National Agricultural Cooperative Federation, which totaled 1,279 as of December 31, 2024.

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

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

Discontinued Operations

In accordance with a Purchase and Sales Agreement entered into in 2015 in connection with the sale of North Atlantic Refining Limited ("NARL"), a downstream division of Harvest, the Company was obligated to bear the costs of repairs at NARL's facilities. As of December 31, 2022, such obligations have been extinguished and the related liabilities have been reversed and recognized as profit from discontinued operations.

Complete Equity Erosion

As of December 31, 2022, 2023 and 2024, the liabilities of the Company exceeded the assets of the Company by Won 1,496 billion, Won 1,349 billion and Won 1,322 billion, respectively. While the Company incurred a profit of Won 313 billion in 2022, Won 179 billion in 2023 and Won 192 billion in 2024, the Company had foreign currency translation differences for foreign operations of Won (818) billion as of December 31, 2022, Won (865) billion as of December 31, 2023 and Won (1,098) billion as of December 31, 2024. The foreign currency translation differences for foreign operations as of December 31, 2022, 2023 and 2024 were due primarily to the fluctuations in the average value of the equity of the Company's subsidiaries due to fluctuations in exchange rates between the functional currencies of the Company's foreign subsidiaries against the U.S. dollar, the functional currency of the Company, during 2022, 2023 and 2024. While stronger oil prices since 2020 contributed to a profit in each of 2022, 2023 and 2024 compared to a significant loss in 2020 primarily due to significant declines in the prices of crude oil resulting from, among others, COVID-19, such volatility has had and will continue to have a significant effect on the Company's business, results of operations and financial condition. See "Risk Factors — Risks Relating to the Company — The Company's operations are affected by the volatility of prices for crude oil, natural gas and petroleum products and price differentials between heavy and light oil, and a substantial or extended decline or fluctuations in such prices or differentials would have a material adverse effect on the Company's business, financial condition and results of operations," "Risk Factors — Risks Relating to the Company — If future oil and gas prices are forecasted to decline substantially, the Company may be required to write down the book value of its assets, which may have a material adverse effect on the Company's business, financial condition and results of operations" and "Risk Factors — Risks Relating to the Company — The Company has experienced complete equity erosion since 2020 due primarily to significant declines in the prices of crude oil in 2020 and fluctuations in the average value of foreign currencies against the U.S. dollar since then."

Major Factors Affecting the Company's Results of Operations and Financial Condition

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

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

Crude Oil and Natural Gas Prices

The prices at which the Company's crude oil is sold fluctuate generally in line with fluctuations in international crude oil prices, and natural gas sales prices generally move in line with crude oil prices. Historically, international crude oil prices have demonstrated significant volatility, driven largely by global and regional supply and demand conditions, and expectations regarding future supply and demand for crude oil, natural gas and petroleum products. The Company's average sales prices for crude oil decreased from US$54.86 per barrel in 2019 to US$37.33 per barrel in 2020, increased to US$54.67 per barrel in 2021, US$68.15 per barrel in 2022 and US$70.48 per barrel in 2023 but decreased to US$69.58 per barrel in 2024, and its average sales prices for natural gas increased from US$0.89 per thousand cubic feet in 2021 to US$12.83 per thousand cubic feet in 2022 but decreased to US$7.24 per thousand cubic feet in 2023 and US$7.09 per thousand cubic feet in 2024. The Company believes that international oil and gas prices, which are particularly exposed to political, economic and military developments in oil producing regions in the Middle East and elsewhere, are likely to remain volatile. For example, due to a conflict between OPEC led by Saudi Arabia and Russia relating to crude oil production cuts, as well as the decrease in global demand for crude oil due to COVID-19, the market price of crude oil fell to a historical low in April 2020. While the market price of crude oil has since generally recovered, as the oil producing nations were able to reach a consensus on reduced production levels and the overall level of global economic activities showed signs of improvement through 2021 and the first half of 2022, the level of fluctuation in the market price of crude oil has increased in more recent periods. Although the market price of crude oil significantly increased in the first half of 2022, primarily as a result of Russia's ongoing invasion of Ukraine since February 2022 and the ensuing sanctions imposed against Russia, it generally declined from the second half of 2022 through 2024 in light of weakness and uncertainty in the global economy and financial markets, among others, due to rising interest rates globally to combat inflationary pressures, the effect of which was partially offset by the decisions by the member countries of OPEC and Russia to reduce their crude oil supply volume since October 2022, which reductions have most recently been extended to 2025. Future prospects for crude oil prices and supply levels remain highly uncertain and volatile.

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

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

The Company recognized impairment losses on its oil and gas properties, net of reversals, of Won 26 billion in 2022 and Won 46 billion in 2024 and impairment losses on intangible assets, net of reversals, of Won 67 billion in 2022, Won 60 billion in 2023 and Won 148 billion in 2024 due to decreases in forecasted oil prices and probable reserves and the return of mining rights. In 2023, the Company recognized a reversal of impairment loss of Won 49 billion on its oil and gas properties due to increases in reserves and decreases in discount rates. See Notes 17, 18 and 19 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2024 and 2023 and as of and for the years ended December 31, 2023 and 2022 included elsewhere in this Offering Circular. In addition, in 2022, the Company recognized a reversal of impairment loss of Won 2 billion from Kernhem B.V. and Won 1 billion from ADA Oil LLP. In 2023 and 2024, the Company did not recognize any reversal of impairment losses or impairment losses relating to its investments in associates and joint ventures. Such recognition of impairment losses and reversal of impairment loss contributed to profit of Won 313 billion in 2022, Won 179 billion in 2023 and Won 192 billion in 2024.

Crude Oil and Natural Gas Production Volumes

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

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

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

Plan to Dispose of Assets

In June 2016, the Ministry of Economy and Finance and the Ministry of Trade, Industry and Energy announced the June 2016 Government Plan, which included broad-based measures to rationalize the overseas natural resource exploration, development and production activities of Government-controlled enterprises, including the Company. The Company will be limited from entering into any new overseas investments other than investments that are in furtherance of important policy objectives of the Government. Pursuant to the June 2016 Government Plan, the Company has developed and is implementing a plan for the sale of its interests in overseas exploration, development and production operations (taking into consideration strategic value and profitability) to third parties with preference given to institutional investors in Korea if possible and with an aim to maximize the returns on such sales. The Company has disposed of a number of its assets to date as discussed in "Risk Factors — Risks Relating to the Company — If the Company is unable to dispose of its assets or reinvest the proceeds of any such disposal, each on acceptable terms, the Company's financial condition and results of operations may be adversely affected." See "Business Exploration, Development and Production — Overview" for a discussion of the Company's overseas exploration, development and production operations. The timing of any additional discontinuation and divestitures will be subject to market conditions.

Government Support and Regulation

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

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

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

Critical Accounting Policies

The preparation of the Company's financial statements requires the Company's management to select and apply significant accounting policies and to make estimates and judgments that affect the Company's reported financial condition and results of operations. See Note 2 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2024 and 2023 and as of and for the years ended December 31, 2023 and 2022 included elsewhere in this Offering Circular for a summary of the Company's significant accounting policies that are critical to the portrayal of the Company's financial condition and results of operations.

Recent Accounting Changes and Pronouncements

The preparation of the Company's financial statements is affected by accounting changes and pronouncements made by the Korea Accounting Standards Board from time to time. See Note 2 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2024 and 2023 and as of and for the years ended December 31, 2023 and 2022 included elsewhere in this Offering Circular for a summary of recent accounting changes and pronouncements, as well as a summary of accounting standards issued but not yet effective.

Results of Operations — *2024 Compared to 2023*

The following table presents the Company's consolidated statements of comprehensive income information and changes therein for 2023 and 2024.

	For the Year Ended December 31,		Changes	
	2023	2024	Amount	%
	(In billions of Won, except percentages)			
Continuing Operations				
Revenue	₩ 3,267	₩ 3,524	₩ 257	7.9%
Cost of sales	(2,078)	(1,879)	198	(9.5)
Gross profit	1,189	1,645	456	38.3
Selling and administrative expenses	(343)	(372)	(29)	8.4
Operating profit	846	1,273	427	50.4
Other income	69	98	29	42.6
Other expenses	(143)	(109)	34	(24.0)
Other gains, net	310	47	(263)	(84.8)
Finance income	238	235	(3)	(1.4)
Finance costs	(701)	(891)	(190)	27.1
Gain on investments in associates and joint ventures, net	15	213	198	1,281.1
Profit before income tax	635	867	232	36.5
Income tax expense	(457)	(676)	(219)	48.0
Profit for the year	₩ 179	₩ 192	13	7.1

Revenue

The following table presents a breakdown of the Company's revenue and changes therein for 2023 and 2024.

	For the Year Ended December 31,		Changes	
	2023	2024	Amount	%
	(In billions of Won, except percentages)			
Oil and gas sales	₩ 2,951	₩ 3,141	₩ 190	6.4%
Petroleum distribution	50	34	(16)	(31.8)
Oil stockpiling	262	343	82	31.3
Others	4	6	2	35.6
Revenue	₩ 3,267	₩ 3,524	257	7.9

The Company's total revenue increased by 7.9%, or Won 257 billion, from Won 3,267 billion in 2023 to Won 3,524 billion in 2024 principally due to increases in revenues from the Oil and Gas Sales Segment, the Oil Stockpiling Segment and, to a much lesser extent, the Others Segment, which were offset in small part by a decrease in revenue from the Petroleum Distribution Segment. Specifically:

Oil and Gas Sales. Revenue from the Oil and Gas Sales Segment increased by 6.4%, or Won 190 billion, from Won 2,951 billion in 2023 to Won 3,141 billion in 2024 primarily due to increases in the volume of oil and gas sold in 2024 compared to 2023, which were offset in part by decreases in the Company's oil and gas sales prices in 2024 compared to 2023 reflecting decreases in global crude oil and gas prices over such periods. The volume of oil and gas sold increased by 3.8% from 37.7 million barrels of oil equivalent in 2023 to 39.1 million barrels of oil equivalent in 2024 primarily due to increased productions from Dana Petroleum and Harvest Operations. The Company's average oil sales price per barrel decreased by 1.3% from US$70.48 per barrel in 2023 to US$69.58 per barrel in 2024 and the average gas sales price per thousand cubic feet decreased by 2.1%, from US$7.24 in 2023 to US$7.09 in 2023 reflecting continued weakness in global economic growth.

Oil Stockpiling. Revenue from the Oil Stockpiling Segment increased by 31.3%, or Won 82 billion, from Won 262 billion in 2023 to Won 343 billion in 2024 primarily due to an increase in income from lending the Company's stockpiled crude oil to other companies reflecting increased trading activities in light of backwardation, where the futures price is lower than the spot price, in 2024. This increase was partially offset by a decrease in income from lending the Company's stockpiling facilities to other companies primarily due to decreased stockpiling activities due to backwardation in 2024.

Petroleum Distribution. Revenue from the Petroleum Distribution Segment decreased by 31.8%, or Won 16 billion, from Won 50 billion in the 2023 to Won 34 billion in 2024 primarily due to the periodic maintenance of the Company's Pyeongtaek stockpile facility, which led to a decrease in the average volume of gasoline and gas stored at such facility, which in turn led to a decrease in sales volumes of such products.

Others. Revenue from the Others Segment increased by 35.6%, or Won 2 billion, from Won 4 billion in 2023 to Won 6 billion in 2024 primarily due to increases in revenue from lending pipeline and storage facilities of Dana Petroleum and Harvest Operations.

Cost of Sales

The following table presents a breakdown of the Company's cost of sales and changes therein for 2023 and 2024.

	For the Year Ended December 31,		Changes	
	2023	2024	Amount	%
	(In billions of Won, except percentages)			
Changes in inventories – merchandises	₩ 2	₩ 5	₩ 4	225.0%
Changes in inventories – finished goods	(16)	3	20	N.A.[1]
Changes in inventories – other inventories	5	26	20	405.7
Purchase of inventories	60	16	(44)	(73.6)
Salaries	184	183	(1)	(0.6)
Depreciation	1,043	694	(349)	(33.5)
Amortization	63	66	3	5.0
Commissions and fees	91	86	(5)	(5.1)
Rent	29	28	(1)	(4.3)
Taxes and dues	47	71	24	50.0
Transport	99	94	(5)	(4.9)
Utilities	70	67	(3)	(4.2)
Repairs	176	184	8	4.5
Others[2]	225	356	131	58.4
Cost of sales	₩ 2,078	₩ 1,879	(198)	(9.5)

(1) Not Applicable.

(2) Includes severance and retirement benefits, other employee benefits, insurance, advertising, education and training, vehicle maintenance, books and printing, business development, communications, supplies, research and development, travel, clothing expenses, association fee, sales commission and others.

The Company's cost of sales decreased by 9.5%, or Won 198 billion, from Won 2,078 billion in 2023 to Won 1,879 billion in 2024 primarily due to a decrease in costs relating to depreciation, which was offset in part by an increase in costs relating to others. Specifically:

- Depreciation costs, which relate primarily to depreciation of oil and gas properties and, to a lesser extent, structures and machinery, decreased by 33.5%, or Won 349 billion, from Won 1,043 billion in 2023 to Won 694 billion in 2024 primarily due to the termination of production of Dana Petroleum's Western Isles Project during the first half 2024 as well as an increase in reserves of the Tolmount Project.

- Others increased by 58.4%, or Won 131 billion, from Won 225 billion in 2023 to Won 356 billion in 2024 primarily due to increases in cost of sales relating to Dana Petroleum following increases in its production and sales.

Gross Profit (Loss)

The following table presents a breakdown of the Company's gross profit (loss) and changes therein for 2023 and 2024.

	For the Year Ended December 31,		Changes	
	2023	2024	Amount	%
	(In billions of Won, except percentages)			
Oil and gas sales	₩ 1,145	₩ 1,526	₩ 380	33.2%
Petroleum distribution	(4)	(1)	3	(84.9)
Oil stockpiling	46	117	71	153.4
Others	2	3	1	56.5
Gross profit	₩ 1,189	₩ 1,645	456	38.3

The Company's gross profit increased by 38.3%, or Won 456 billion, from Won 1,189 billion in 2023 to Won 1,645 billion in 2024 primarily due to increases in gross profit of the Oil and Gas Sales Segment, and to a lesser extent, the Oil Stockpiling Segment, which were enhanced in small part by a decrease in gross loss of the Petroleum Distribution Segment. The Company's gross profit margin, which represents the ratio of gross profit to revenue, increased from 36.4% in 2023 to 46.7% in 2024. Specifically:

- Gross profit of the Oil and Gas Sales Segment increased by 33.2%, or Won 380 billion, from Won 1,145 billion in 2023 to Won 1,526 billion in 2024 as the 6.4% increase in revenue of such segment was enhanced by a 10.6% decrease in segment cost of sales. The Oil and Gas Sales Segment's gross profit margin increased from 38.8% in 2023 to 48.6% in 2024.

- Gross profit of the Oil Stockpiling Segment increased by 153.4%, or Won 71 billion, from Won 46 billion in 2023 to Won 117 billion in 2024 as the 31.3% increase in revenue of such segment outpaced a 5.1% increase in segment cost of sales. The Oil Stockpiling Segment's gross profit margin increased from 17.7% in 2023 to 34.1% in 2024.

- Gross loss of the Petroleum Distribution Segment decreased by 84.9%, or Won 3 billion, from Won 4 billion in 2023 to Won 1 billion in 2024 as the 31.8% decrease in revenue of such segment was outpaced by a 35.8% decrease in segment cost of sales. The Petroleum Distribution Segment's gross loss margin decreased from 8.2% in 2023 to 1.8% in 2024.

Selling and Administrative Expenses

The following table presents a breakdown of the Company's selling and administrative expenses and changes therein for 2023 and 2024.

	For the Year Ended December 31,		Changes	
	2023	2024	Amount	%
	(In billions of Won, except percentages)			
Salaries	₩ 106	₩ 109	₩ 3	2.6%
Employee benefits	12	11	(1)	(9.8)
Depreciation	16	18	1	9.1
Bad debt expense	—	20	20	N.A.[1]
Commission expense	22	24	3	12.4
Taxes and dues	23	13	(9)	(40.6)
Sales commissions	122	128	6	5.3
Others[2]	43	49	6	14.3
Selling and administrative expenses	₩ 343	₩ 372	29	8.4

(1) Not Applicable.

(2) Includes post-employment benefits, insurance, amortization, advertising expenses, training, vehicle, publication, promotional expense, rental expense, communication, supplies expense, utilities expense, repairs, ordinary research and development expense, clothing expenses, travel expense, association expense, sales promotional expense and others.

Selling and administrative expenses increased by 8.4%, or Won 29 billion, from Won 343 billion in 2023 to Won 372 billion in 2024 primarily due to increases in bad debt expenses and sales commissions. The Company recognized bad debt expenses of Won 20 billion in 2024 primarily relating to Dana Petroleum's trade receivables in connection with its projects in Egypt compared to no such recognition in 2023. Sales commissions, which primarily consist of commissions related to sales of oil and gas by the Company, increased by 5.3%, or Won 6 billion, from Won 122 billion in 2023 to Won 128 billion in 2024 primarily due to increases in the volume of oil and gas sold as described above.

Operating Profit (Loss)

The following table presents a breakdown of the Company's operating profit (loss) and changes therein for 2023 and 2024.

	For the Year Ended December 31,		Changes	
	2023	2024	Amount	%
	(In billions of Won, except percentages)			
Oil and gas sales	₩ 877	₩ 1,231	₩ 354	40.4%
Petroleum distribution	(5)	(1)	4	(87.2)
Oil stockpiling	46	117	71	153.4
Others	2	2	0	7.8
Reconciling items[(1)]	(74)	(76)	(2)	3.3
Operating profit	₩ 846	₩ 1,273	427	50.4

(1) Consists primarily of operating profit (loss), including depreciation and amortization of intangible assets other than goodwill, that is not allocated to the segments.

The Company's operating profit increased by 50.4%, or Won 427 billion, from Won 846 billion in 2023 to Won 1,273 billion in 2024 primarily due to increases in operating profit of the Oil and Gas Sales Segment and, to a lesser extent, the Oil Stockpiling Segment, which were enhanced in small part by a decrease in operating loss of the Petroleum Distribution Segment. The Company's operating profit margin, which represents the ratio of operating profit to revenue, increased from 25.9% in 2023 to 36.1% in 2024. Specifically:

- Operating profit of the Oil and Gas Sales Segment increased by 40.4%, or Won 354 billion, from Won 877 billion in 2023 to Won 1,231 billion in 2024 primarily due to the reasons described above. The Oil and Gas Sales Segment's operating profit margin increased from 29.7% in 2023 to 39.2% in 2024.

- Operating profit of the Oil Stockpiling Segment increased by 153.4%, or Won 71 billion, from Won 46 billion in 2023 to Won 117 billion in 2024 primarily due to the reasons described above. The Oil Stockpiling Segment's operating profit margin increased from 17.7% in 2023 to 34.1% in 2024.

- Operating loss of the Petroleum Distribution Segment decreased by 87.2%, or Won 4 billion, from Won 5 billion in 2023 to Won 1 billion in 2024 primarily due to the reasons described above. The Petroleum Distribution Segment's operating loss margin decreased from 9.7% in 2023 to 1.8% in 2024.

Other Income

Other income increased by 42.6%, or Won 29 billion, from Won 69 billion in 2023 to Won 98 billion in 2024 primarily due to an increase in reversal of other provisions, which was partially offset by decreases in reversal of other allowance for doubtful accounts and compensation and indemnity. Reversal of other provisions increased by 146.9%, or Won 42 billion, from Won 28 billion in 2023 to Won 70 billion in 2024 primarily due to the extension of the mining rights period for the Donghae project. Reversal of other allowance for doubtful accounts decreased by 70.7%, or Won 9 billion, from Won 13 billion in 2023 to Won 4 billion in 2024. In 2023, the Company recognized reversal of other allowance for doubtful accounts relating to settlements of long-term receivables in connection with the termination of ANKOR E&P Holdings Corporation, whereas in 2024, the Company recognized reversal of other allowance for doubtful accounts of Won 4 billion relating to distribution of the surplus assets of K.K. Korea Kamchatka Co., Ltd., which is currently in the process of liquidation. Compensation and indemnity decreased by 99.0%, or Won 2 billion, from Won 2 billion in 2023 to Won 0.02 billion in 2024 primarily due to compensations received from litigation relating to the relocation of buoys in Ulsan.

Other Expenses

Other expenses decreased by 24.0%, or Won 34 billion, from Won 143 billion in 2023 to Won 109 billion in 2024 primarily due to a decrease in transfer to other provision. Transfer to other provision decreased by 29.7%, or Won 33 billion, from Won 110 billion in 2023 to Won 78 billion in 2024 primarily due to a decrease in expenses relating to production terminations of Dana Petroleum.

Other Gains, net

The following table presents a breakdown of the Company's other net gains and losses for 2023 and 2024.

	For the Year Ended December 31,		Changes	
	2023	**2024**	**Amount**	**%**
	(In billions of Won, except percentages)			
Gains on disposal of non-current non-financial assets	₩ 307	₩ 230	₩ (77)	(24.9)%
Reversal of impairment losses on property, plant and equipment	87	17	(70)	(80.0)
Reversal of impairment losses on intangible assets other than goodwill	48	—	(48)	(100.0)
Gains on foreign currency translation (other than finance income)	18	28	11	62.1
Gains on foreign currency transactions (other than finance income)	66	55	(12)	(17.7)
Other gains(1)	33	28	(5)	(15.9)
Impairment losses on property, plant and equipment	(38)	(63)	(26)	68.1
Impairment losses on intangible assets other than goodwill	(99)	(6)	93	(93.9)
Impairment losses on goodwill	(9)	(142)	(132)	1,404.1
Losses on foreign currency translation (other than finance cost)	(21)	(45)	(24)	116.4
Losses on foreign currency transactions (other than finance cost)	(70)	(48)	22	(31.6)
Other losses(2)	(12)	(7)	4	(36.7)
Other gains, net	₩ 310	₩ 47	(263)	(84.8)

(1) Includes gains on disposal of property, plant and equipment, gains on disposal of intangible assets other than goodwill, gains on insurance and other gains.

(2) Includes losses on disposal of property, plant and equipment, losses on disposal of intangible assets other than goodwill and other losses.

Net other gain decreased by 84.8%, or Won 263 billion, from Won 310 billion in 2023 to Won 47 billion in 2024 primarily due to an increase in impairment losses on goodwill, a decrease in gains on disposal of non-current non-financial assets and a decrease in reversal of impairment losses on property, plant and equipment, which were partially offset by a decrease in impairment losses on intangible assets other than goodwill. Specifically:

- Impairment losses on goodwill increased by 1,404.1%, or Won 132 billion, from Won 9 billion in 2023 to Won 142 billion in 2024 primarily due to impairment losses of goodwill acquired in relation to Harvest Operation Corp's acquisition of control over Deep Basin Partnership.

- Gains on disposal of non-current non-financial assets decreased by 24.9%, or Won 77 billion, from Won 307 billion in 2023 to Won 230 billion in 2024 primarily due to decreased disposals of stockpile oil in connection with changes in the Company's stockpile oil composition in 2024 compared to 2023.

- Reversal of impairment losses on property, plant and equipment decreased by 80.0%, or Won 70 billion, from Won 87 billion in 2023 to Won 17 billion in 2024 primarily due to smaller discount rates applied in 2023 compared to 2024.

- Impairment losses on intangible assets other than goodwill, which consist of losses recognized in connection with unsuccessful oil or gas exploration projects, decreased by 93.9%, or Won 93 billion, from Won 99 billion in 2023 to Won 6 billion in 2024 primarily due to terminations of certain of Dana Petroleum's projects in Denmark in 2023 compared to no such terminations in 2024.

Finance Income and Finance Costs

The following table presents a breakdown of the Company's finance income and costs and changes therein for 2023 and 2024.

	For the Year Ended December 31,		Changes	
	2023	**2024**	**Amount**	**%**
	(In billions of Won, except percentages)			
Interest income	₩ 45	₩ 42	₩ (3)	(6.5)%
Gains on valuation of financial assets measured at fair value through profit or loss	68	—	(68)	(100.0)
Gains on transaction of financial liabilities measured at fair value through profit or loss	—	57	57	N.A.[1]
Gains on valuation of financial liabilities measured at fair value through profit or loss	15	2	(13)	(83.8)
Gains on transactions of derivative financial instruments	11	2	(9)	(81.7)
Gains on foreign currency translation	83	115	32	38.5
Gains on foreign currency transactions	15	16	1	5.4
Other finance income[2]	1	0	(1)	(98.9)
Finance income	₩ 238	₩ 235	(3)	(1.4)

	For the Year Ended December 31,		Changes	
	2023	**2024**	**Amount**	**%**
	(In billions of Won, except percentages)			
Interest expenses	₩ 490	₩ 566	₩ 76	15.6%
Losses on valuation of financial assets measured at fair value through profit or loss	73	11	(62)	(84.9)
Losses on valuation of financial liabilities measured at fair value through profit or loss	11	—	(11)	(100.0)
Losses on transactions of derivative financial instruments	11	7	(4)	(34.5)
Losses on foreign currency translation	19	157	138	720.2
Losses on foreign currency transactions	13	56	44	339.3
Other financial costs	84	93	9	10.3
Finance costs	₩ 701	₩ 891	190	27.1

(1) Not Applicable.

(2) Includes dividend income and gains on valuation of derivative financial instruments.

The Company recognized net gain on foreign currency translations of Won 64 billion in 2023 compared to net loss on foreign currency translations of Won 42 billion in 2024, and the Company recognized net gain on foreign currency transactions of Won 2 billion in 2023 compared to net loss on foreign currency transactions of Won 41 billion in 2024, due to fluctuations in the average value of the British Pound, Canadian dollar and Kazakhstani Tenge against the U.S. dollar during 2023 compared to 2024 primarily in connection with U.S. dollar-denominated indebtedness of our foreign subsidiaries. The Company, in preparing its consolidated financial statements, aggregates the foreign currency gains and losses of itself and its subsidiaries, and as such, the Company's consolidated foreign currency gains and losses are affected by changes in the exchange rates of the U.S. dollar, the functional currency of the Company, as well as the functional currencies of its subsidiaries. Against such fluctuations, the Company's net loss on transactions of derivative financial instruments increased by Won 4 billion, from Won 1 billion in 2023 to Won 5 billion in 2024.

The Company's net loss on valuation of financial assets measured at fair value through profit or loss increased by 133.3%, or Won 6 billion, from Won 5 billion in 2023 to Won 11 billion in 2024 primarily due to losses on valuations of receivables relating to the capacity-building support project in Iraq in 2024.

The Company's interest income decreased by Won 3 billion, from Won 45 billion in 2023 to Won 42 billion in 2024 primarily due to a decrease in the Company's interest bearing loans and receivables.

The Company's interest expenses increased by 15.6%, or Won 76 billion, from Won 490 billion in 2023 to Won 566 billion in 2024 primarily due to increases in the interest rates of interest-bearing borrowings.

Gain on Investments in Associates and Joint Ventures, Net

Net gain on investments in associates and joint ventures increased by 1,281.1%, or Won 198 billion, from Won 15 billion in 2023 to Won 213 billion in 2024. In each of 2023 and 2024, the Company recognized such net gain primarily due to its share of profits from Korea GS E&P Pte. Ltd. and HKMS Partnership, which were partially offset by its share of loss from Deep Basin Partnership. See Note 16 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2024 and 2023 included elsewhere in this Offering Circular.

Profit Before Income Tax

As a result of the foregoing, the Company's profit before income tax increased by 36.5%, or Won 232 billion, from Won 635 billion in 2023 to Won 867 billion in 2024.

Income Tax Expense

Income tax expense increased by 48.0%, or Won 219 billion, from Won 457 billion in 2023 to Won 676 billion in 2024 primarily due to the increase in profit before income tax in 2024 and the increase in differences in tax rates in overseas entities from Won 132 billion in 2023 to Won 349 billion in 2024 primarily due to an increase in profit before income tax from Dana Petroleum as well as the energy profits levy which has affected Dana Petroleum since 2022. The introduction in May 2022 of the energy profits levy in the UK, which taxes extraordinary profits of oil and gas companies operating in the UK and on the UK Continental Shelf, significantly increased the effective tax rate in each of these periods. The levy is due to expire in March 2029, while no assurance can be provided that such levy will not be extended. See Note 39 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2024 and 2023 included elsewhere in this Offering Circular.

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

Profit for the Year

As a result of the foregoing, the Company's profit for the year increased by 7.1%, or Won 13 billion, from Won 179 billion in 2023 to Won 192 billion in 2024. The Company's net profit margin, which represents the ratio of profit for the period to revenue, decreased from 5.5% in 2023 to 5.4% in 2024.

Results of Operations — *2023 Compared to 2022*

The following table presents the Company's consolidated statements of comprehensive income information and changes therein for 2022 and 2023.

	For the Year Ended December 31,		Changes	
	2022	2023	Amount	%
	(In billions of Won, except percentages)			
Continuing Operations				
Revenue	₩ 3,933	₩ 3,267	₩ (666)	(16.9)%
Cost of sales	(1,678)	(2,078)	(400)	23.8
Gross profit	2,255	1,189	(1,065)	(47.3)
Selling and administrative expenses	(265)	(343)	(78)	29.5
Operating profit	1,990	846	(1,143)	(57.5)
Other income	120	69	(52)	(42.8)
Other expenses	(166)	(143)	23	(13.8)
Other gains, net	216	310	94	43.4
Finance income	183	238	55	30.0
Finance costs	(902)	(701)	201	(22.3)
Gain on investments in associates and joint ventures, net	50	15	(35)	(69.4)
Profit before income tax	1,492	635	(857)	(57.4)
Income tax expense	(1,191)	(457)	734	(61.7)
Profit from continuing operations	301	179	(122)	(40.7)
Discontinued Operations				
Profit from discontinued operations	12	—	(12)	(100.0)
Profit for the year	₩ 313	₩ 179	(134)	(42.9)

Revenue

The following table presents a breakdown of the Company's revenue and changes therein for 2022 and 2023.

	For the Year Ended December 31,		Changes	
	2022	2023	Amount	%
	(In billions of Won, except percentages)			
Oil and gas sales	₩ 3,582	₩ 2,951	₩ (631)	(17.6)%
Petroleum distribution	55	50	(5)	(9.9)
Oil stockpiling	289	262	(27)	(9.5)
Others	6	4	(2)	(30.3)
Revenue	₩ 3,933	₩ 3,267	(666)	(16.9)

The Company's total revenue decreased by 16.9%, or Won 666 billion, from Won 3,933 billion in 2022 to Won 3,267 billion in 2023 principally due to decreases in revenues from the Oil and Gas Sales Segment and, to a much lesser extent, the Oil Stockpiling Segment, the Petroleum Distribution Segment and the Others Segment. Specifically:

Oil and Gas Sales. Revenue from the Oil and Gas Sales Segment decreased by 17.6%, or Won 631 billion, from Won 3,582 billion in 2022 to Won 2,951 billion in 2023 primarily due to decreases in the volume of oil and gas sold and decreases in the Company's natural gas sales prices in 2023 compared to 2022, which were offset in part by general increases in the Company's oil sales prices in 2023 compared to 2022. The volume of oil and gas sold decreased by 6.9% from 40.5 million barrels of oil equivalent in 2022 to 37.7 million barrels of oil equivalent in 2023 primarily due to temporary suspensions in production of Harvest Operations resulting from the Canadian wildfires in 2023 as well as temporary suspensions in production of the Eagle Ford Projects due to maintenance and repair of its facilities in 2023. The average gas sales price per thousand cubic feet decreased by 43.6%, from US$12.83 in 2022 to US$7.24 in 2023 reflecting decreases in global natural gas prices during such time. Partially offsetting such decreases, the Company's average oil sales price per barrel increased by 3.4% from US$68.15 per barrel in 2022 to US$70.48 per barrel in 2023. While global crude oil prices decreased in 2023 compared to 2022, the Company's average oil sales prices per barrel increased during such period primarily due to the Company's efforts in hedging against crude oil price fluctuations.

Oil Stockpiling. Revenue from the Oil Stockpiling Segment decreased by 9.5%, or Won 27 billion, from Won 289 billion in 2022 to Won 262 billion in 2023 primarily due to a decrease in income from lending the Company's stockpiled crude oil to other companies which was partially offset by an increase in income from lending the Company's stockpiling facilities to other companies primarily due to increased usage of the Company's oil tanker pier facilities.

Petroleum Distribution. Revenue from the Petroleum Distribution Segment decreased by 9.9%, or Won 5 billion, from Won 55 billion in the 2022 to Won 50 billion in 2023 primarily due to temporary suspensions in the arrival and shipment of gas oil in connection with construction at the Company's Pyeongtaek wharf.

Others. Revenue from the Others Segment decreased by 30.3%, or Won 2 billion, from Won 6 billion in 2022 to Won 4 billion in 2023 primarily due to a decrease in national subsidies relating to national research projects.

Cost of Sales

The following table presents a breakdown of the Company's cost of sales and changes therein for 2022 and 2023.

	For the Year Ended December 31,		Changes	
	2022	2023	Amount	%
	(In billions of Won, except percentages)			
Changes in inventories – merchandises	₩ (8)	₩ 2	₩ 10	N.A.[1]
Changes in inventories – finished goods	5	(16)	(21)	N.A.[1]
Changes in inventories – other inventories	18	5	(13)	(72.5)
Purchase of inventories	56	60	4	6.7
Salaries	185	184	(1)	(0.6)
Depreciation	591	1,043	453	76.6
Amortization	60	63	4	5.9
Commissions and fees	51	91	40	78.4
Rent	26	29	3	12.5
Transport	128	99	(29)	(22.8)
Utilities	88	70	(18)	(20.3)
Repairs	154	176	22	14.3
Others[2]	325	272	(53)	(16.3)
Cost of sales	₩ 1,678	₩ 2,078	400	23.8

(1) Not Applicable.

(2) Includes severance and retirement benefits, other employee benefits, insurance, advertising, education and training, vehicle maintenance, books and printing, business development, communications, taxes and dues, supplies, research and development, travel, clothing expenses, association fee, sales promotion, sales commission and others.

The Company's cost of sales increased by 23.8%, or Won 400 billion, from Won 1,678 billion in 2022 to Won 2,078 billion in 2023 primarily due to increases in costs relating to depreciation and, to a much lesser extent, commission and fees. Specifically:

- Depreciation costs, which relate primarily to depreciation of oil and gas properties and, to a lesser extent, structures and machinery, increased by 76.6%, or Won 453 billion, from Won 591 billion in 2022 to Won 1,043 billion in 2023 primarily due to the commencement of production of Dana Petroleum's Tolmount Project in April 2022 as well as deprecation relating to Dana Petroleum's Western Isles floating, production, storage and offloading vessel.

- Commission and fees increased by 78.4%, or Won 40 billion, from Won 51 billion in 2022 to Won 91 billion in 2023 primarily due to an increase in commission and fees relating to crude oil refining in connection with the Company's sales in Kazakhstan relating to a change in Kazakhstani regulation in January 2023.

Gross Profit (Loss)

The following table presents a breakdown of the Company's gross profit (loss) and changes therein for 2022 and 2023.

	For the Year Ended December 31,		Changes	
	2022	2023	Amount	%
	(In billions of Won, except percentages)			
Oil and gas sales	₩ 2,177	₩ 1,145	₩ (1,031)	(47.4)%
Petroleum distribution	(9)	(4)	5	(54.6)
Oil stockpiling	84	46	(38)	(45.3)
Others	3	2	(1)	(35.8)
Gross profit	₩ 2,255	₩ 1,189	(1,065)	(47.3)

The Company's gross profit decreased by 47.3%, or Won 1,065 billion, from Won 2,255 billion in 2022 to Won 1,189 billion in 2023 primarily due to decreases in gross profit of the Oil and Gas Sales Segment, and to a much lesser extent, the Oil Stockpiling Segment, which were offset in small part by a decrease in gross loss of the Petroleum Distribution Segment. The Company's gross profit margin, which represents the ratio of gross profit to revenue, decreased from 57.3% in 2022 to 36.4% in 2023. Specifically:

- Gross profit of the Oil and Gas Sales Segment decreased by 47.4%, or Won 1,031 billion, from Won 2,177 billion in 2022 to Won 1,145 billion in 2023 as the 17.6% decrease in revenue of such segment was enhanced by a 28.5% increase in segment cost of sales due to the reasons discussed above. The Oil and Gas Sales Segment's gross profit margin decreased from 60.8% in 2022 to 38.8% in 2023.

- Gross profit of the Oil Stockpiling Segment decreased by 45.3%, or Won 38 billion, from Won 84 billion in 2022 to Won 46 billion in 2023 as the 9.5% decrease in revenue of such segment was enhanced by a 5.2% increase in segment cost of sales. The Oil Stockpiling Segment's gross profit margin decreased from 29.2% in 2022 to 17.7% in 2023.

- Gross loss of the Petroleum Distribution Segment decreased by 54.6%, or Won 5 billion, from Won 9 billion in 2022 to Won 4 billion in 2023 as the 9.9% decrease in revenue of such segment was outpaced by a 16.2% decrease in segment cost of sales. The Petroleum Distribution Segment's gross loss margin decreased from 16.3% in 2022 to 8.2% in 2023.

Selling and Administrative Expenses

The following table presents a breakdown of the Company's selling and administrative expenses and changes therein for 2022 and 2023.

	For the Year Ended December 31,		Changes	
	2022	2023	Amount	%
	(In billions of Won, except percentages)			
Salaries	₩ 101	₩ 106	₩ 5	5.1%
Employee benefits	13	12	(1)	(9.2)
Depreciation	19	16	(3)	(13.6)
Commission expense	19	22	3	16.6
Taxes and dues	2	23	21	1,402.8
Sales commissions	70	122	51	73.4
Others[1]	42	43	1	2.1
Selling and administrative expenses	₩ 265	₩ 343	78	29.5

(1) Includes post-employment benefits, insurance, amortization, bad debt expenses, advertising, education and training, vehicle maintenance, books and printing, business development, rent, communications, supplies, utilities, repairs, ordinary research and development expense, clothing expenses, travel, association fee, sales promotion and others.

Selling and administrative expenses increased by 29.5%, or Won 78 billion, from Won 265 billion in 2022 to Won 343 billion in 2023 primarily due to increases in sales commissions and taxes and dues. Sales commissions, which primarily consist of commissions related to sales of oil and gas by the Company, increased by 73.4%, or Won 51 billion, from Won 70 billion in 2022 to Won 122 billion in 2023 primarily due to the resumption of sales in Kazakhstan in February 2023 which had been suspended following the invasion of Ukraine by Russia. Taxes and dues increased significantly by Won 21 billion, from Won 2 billion in 2022 to Won 23 billion in 2023 primarily due to the imposition of excise tax relating to a change in Kazakhstani regulation in January 2023.

Operating Profit (Loss)

The following table presents a breakdown of the Company's operating profit (loss) and changes therein for 2022 and 2023.

	For the Year Ended December 31,		Changes	
	2022	2023	Amount	%
	(In billions of Won, except percentages)			
Oil and gas sales	₩ 1,984	₩ 877	₩ (1,107)	(55.8)%
Petroleum distribution	(10)	(5)	5	(50.0)
Oil stockpiling	84	46	(38)	(45.3)
Others	3	2	(1)	(35.8)
Reconciling items[1]	(72)	(74)	(2)	3.1
Operating profit	₩ 1,990	₩ 846	(1,143)	(57.5)

(1) Consists primarily of operating profit (loss), including depreciation and amortization of intangible assets other than goodwill, that is not allocated to the segments.

The Company's operating profit decreased by 57.5%, or Won 1,143 billion, from Won 1,990 billion in 2022 to Won 846 billion in 2023 primarily due to decreases in operating profit of the Oil and Gas Sales Segment and, to a much lesser extent, the Oil Stockpiling Segment, which were offset in small part by a decrease in operating loss of the Petroleum Distribution Segment. The Company's operating profit margin, which represents the ratio of operating profit to revenue, decreased from 50.6% in 2022 to 25.9% in 2023. Specifically:

- Operating profit of the Oil and Gas Sales Segment decreased by 55.8%, or Won 1,107 billion, from Won 1,984 billion in 2022 to Won 877 billion in 2023 primarily due to the reasons described above. The Oil and Gas Sales Segment's operating profit margin decreased from 55.4% in 2022 to 29.7% in 2023.

- Operating profit of the Oil Stockpiling Segment decreased by 45.3%, or Won 38 billion, from Won 84 billion in 2022 to Won 46 billion in 2023 primarily due to the reasons described above. The Oil Stockpiling Segment's operating profit margin decreased from 29.2% in 2022 to 17.7% in 2023.

- Operating loss of the Petroleum Distribution Segment decreased by 50.0%, or Won 5 billion, from Won 10 billion in 2022 to Won 5 billion in 2023 primarily due to the reasons described above. The Petroleum Distribution Segment's operating loss margin decreased from 17.5% in 2022 to 9.7% in 2023.

Other Income

Other income decreased by 42.8%, or Won 52 billion, from Won 120 billion in 2022 to Won 69 billion in 2023 primarily due to decreases in reversal of other provisions, reversal of other bad debt allowance and other non-operating income. Reversal of other provisions decreased by 51.7%, or Won 31 billion, from Won 59 billion in 2022 to Won 28 billion in 2023 primarily due to a reversal of other provisions relating to Block 11-2 in Vietnam in 2022 compared to no such reversals in 2023. In addition, reversal of other bad debt allowance decreased by 51.0%, or Won 13 billion, from Won 26 billion in 2022 to Won 13 billion in 2023 primarily due to reversals of allowance on loans relating to ADA Oil LLP in 2022 compared to no such reversals in 2023. Other non-operating income, which is categorized as "others" within other income, decreased by 17.6%, or Won 5 billion, from Won 30 billion in 2022 to Won 25 billion in 2023 primarily due to exemptions from decommissioning obligations and the disposal of related liabilities in connection with Dana Petroleum's projects in Egypt in 2022 compared to no such disposals in 2023.

Other Expenses

Other expenses decreased by 13.8%, or Won 23 billion, from Won 166 billion in 2022 to Won 143 billion in 2023 primarily due to the recognition of other bad debt expenses in 2022 compared to no such expenses in 2023 and a decrease in other non-operating expenses, which were in significant part offset by an increase in transfer to other provision. The Company recognized other bad debt expenses of Won 40 billion in 2022 compared to no such expenses in 2023 primarily due to losses in 2022 relating to loans of Parallel Petroleum LLC which the Company has guaranteed, which were not repeated in 2023. Other non-operating expenses, which is categorized as "others" within other expense, decreased by 51.9%, or Won 34 billion, from Won 65 billion in 2022 to Won 31 billion in 2023 primarily due to a decrease in decommissioning expenses relating to the Company's Donghae project. Transfer to other provision increased by 85.6%, or Won 51 billion, from Won 59 billion in 2022 to Won 110 billion in 2023 primarily due to an increase in expenses relating to production terminations of Dana Petroleum and ANKOR E&P Holdings Corporation.

Other Gains, Net

The following table presents a breakdown of the Company's other net gains and losses for 2022 and 2023.

	For the Year Ended December 31,		Changes	
	2022	2023	Amount	%
	(In billions of Won, except percentages)			
Gains on disposal of non-current non-financial assets	₩ 302	₩ 307	₩ 5	1.7%
Reversal of impairment losses on property, plant and equipment	54	87	33	61.5
Reversal of impairment losses on intangible assets other than goodwill	—	48	48	N.A.[1]
Gains on foreign currency translation (other than finance income)	15	18	2	15.5
Gains on foreign currency transactions (other than finance income)	81	66	(15)	(18.1)
Other gains[2]	49	33	(16)	(32.3)
Losses on disposal of property, plant and equipment	(29)	(2)	27	(94.6)
Impairment losses on property, plant and equipment	(80)	(38)	42	(52.6)
Impairment losses on intangible assets other than goodwill	(61)	(99)	(38)	63.2
Losses on foreign currency translation (other than finance cost)	(26)	(21)	5	(18.6)
Losses on foreign currency transactions (other than finance cost)	(77)	(70)	7	(8.6)
Other losses[3]	(13)	(19)	(6)	49.3
Other gains, net	₩ 216	₩ 310	94	43.4

(1) Not applicable.

(2) Includes gains on disposal of property, plant and equipment, gains on disposal of intangible assets other than goodwill, gains on transactions of derivatives (other than finance income) and other gains.

(3) Includes losses on disposal of intangible assets other than goodwill, losses on valuation of property, plant and equipment, impairment losses on goodwill and other losses.

Net other gain increased by 43.4%, or Won 94 billion, from Won 216 billion in 2022 to Won 310 billion in 2023 primarily due to the recognition of reversal of impairment losses on intangible assets other than goodwill in 2023 compared to no such reversals in 2022, a decrease in impairment losses on property, plant and equipment, an increase in reversal of impairment losses on property, plant and equipment and a decrease in losses on disposal of property, plant and equipment, such effects were partially offset by an increase in impairment losses on intangible assets other than goodwill. Specifically:

- The Company recognized reversal of impairment losses on intangible assets other than goodwill of Won 48 billion in 2023 compared to no such reversals in 2022 primarily due to resumption of production at the Eagle Ford Projects which were temporarily suspended due to maintenance and repair of its facilities in 2023.

- Impairment losses on property, plant and equipment decreased by 52.6%, or Won 42 billion, from Won 80 billion in 2022 to Won 38 billion in 2023 primarily due to a decrease in reserves at Dana Petroleum's Western Isles fields in 2022 compared to no such significant decreases in 2023.

- Reversal of impairment losses on property, plant and equipment increased by 61.5%, or Won 33 billion, from Won 54 billion in 2022 to Won 87 billion in 2023 primarily due to the resumption of production at the Eagle Ford Projects as described above and a decrease in discount rates.

- Losses on disposal of property, plant and equipment decreased by 94.6%, or Won 27 billion, from Won 29 billion in 2022 to Won 2 billion in 2023 primarily due to the Company's disposal of ANKOR Offshore Project's SS230, SM27 and SM73 fields in 2022 compared to no such principal disposals in 2023.

- Impairment losses on intangible assets other than good will, which comprise of losses recognized in connection with unsuccessful oil or gas exploration projects, increased by 63.2%, or Won 38 billion, from Won 61 billion in 2022 to Won 99 billion in 2023 primarily due to impairment losses relating to Dana Petroleum's exploration and evaluation assets.

Finance Income and Finance Costs

The following table presents a breakdown of the Company's finance income and costs and changes therein for 2022 and 2023.

	For the Year Ended December 31,		Changes	
	2022	2023	Amount	%
	(In billions of Won, except percentages)			
Interest income	₩ 19	₩ 45	₩ 26	132.6%
Gains on valuation of financial assets measured at fair value through profit or loss	5	68	64	1,381.1
Gains on valuation of financial liabilities measured at fair value through profit or loss	12	15	4	32.3
Gains on transactions of derivative financial instruments	2	11	8	385.1
Gains on foreign currency translation	84	83	(1)	(0.7)
Gains on foreign currency transactions	20	15	(5)	(24.1)
Other finance income[1]	42	1	(41)	(98.7)
Finance income	₩ 183	₩ 238	55	30.0

	For the Year Ended December 31,		Changes	
	2022	2023	Amount	%
	(In billions of Won, except percentages)			
Interest expenses	₩ 455	₩ 490	₩ 35	7.7%
Losses on valuation of financial assets measured at fair value through profit or loss	178	73	(105)	(59.0)
Losses on transactions of derivative financial instruments	32	11	(21)	(65.3)
Losses on foreign currency translation	135	19	(116)	(85.9)
Losses on foreign currency transactions	44	13	(31)	(70.5)
Other financial costs[2]	58	95	37	62.9
Finance costs	902	701	(201)	(22.3)

(1) Includes dividend income, gains on valuation of derivative financial instruments and other finance income.

(2) Includes losses on valuation of financial liabilities measured at fair value through profit or loss, losses on valuation of derivative financial instruments and other financial costs.

The Company recognized net loss on foreign currency translation of Won 52 billion in 2022 compared to net gain on foreign currency translation of Won 64 billion in 2023, and the Company recognized net loss on foreign currency transactions of Won 24 billion in 2022 compared to net gain on foreign currency transactions of Won 2 billion in 2023, due to fluctuations in the average value of the British Pound, Canadian dollar and Kazakhstani Tenge against the U.S. dollar during 2022 compared to 2023 primarily in connection with U.S. dollar-denominated indebtedness of our foreign subsidiaries. The Company, in preparing its consolidated financial statements, aggregates the foreign currency gains and losses of itself and its subsidiaries, and as such, the Company's consolidated foreign currency gains and losses are affected by changes in the exchange rates of the U.S. dollar, the functional currency of the

Company, as well as the functional currencies of its subsidiaries. Against such fluctuations, the Company's net loss on transactions of derivative financial instruments decreased by Won 30 billion, from Won 30 billion in 2022 to Won 1 billion in 2023.

The Company's net loss on valuation of financial assets measured at fair value through profit or loss decreased by Won 168 billion, from Won 173 billion in 2022 to Won 5 billion in 2023 primarily due to losses on valuations of receivables relating to the capacity-building support project in Iraq in 2022, which were not repeated in 2023.

The Company's interest income increased by Won 26 billion, from Won 19 billion in 2022 to Won 45 billion in 2023 primarily due to an increase in short-term financial assets of Dana Petroleum.

The Company's interest expenses increased by 7.7%, or Won 35 billion, from Won 455 billion in 2022 to Won 490 billion in 2023 primarily due to increases in interest rates of borrowings.

Gain on Investments in Associates and Joint Ventures, Net

Net gain on investments in associates and joint ventures decreased by 69.4%, or Won 35 billion, from Won 50 billion in 2022 to Won 15 billion in 2023. In 2022, the Company recognized such net gain primarily due to its shares of profit from Korea GS E&P Pte. Ltd. and HKMS Partnership. In 2023, the Company recognized such net gain primarily due to its shares of profit from Korea GS E&P Pte. Ltd. and HKMS Partnership, which was partially offset by its share of loss from Deep Basin Partnership. See Note 16 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2023 and 2022 included elsewhere in this Offering Circular.

Profit Before Income Tax

As a result of the foregoing, the Company's profit before income tax decreased by 57.4%, or Won 857 billion, from Won 1,492 billion in 2022 to Won 635 billion in 2023.

Income Tax Expense

Income tax expense decreased by 61.7%, or Won 734 billion, from Won 1,191 billion in 2022 to Won 457 billion in 2023 primarily due to the decrease in profit before income tax in 2023 and the decrease in differences in tax rates in overseas entities from Won 543 billion in 2022 to Won 132 billion in 2023 primarily due to the decrease in profit from Dana Petroleum. See Note 39 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2023 and 2022 included elsewhere in this Offering Circular.

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

Profit from Continuing Operations

As a result of the foregoing, the Company's profit from continuing operations decreased by 40.7%, or Won 122 billion, from Won 301 billion in 2022 to Won 179 billion in 2023.

Profit from Discontinued Operations

In accordance with a Purchase and Sales Agreement entered into in 2015 in connection with the sale of NARL, a downstream division of Harvest, the Company was obligated to bear the costs of repairs at NARL's facilities. As of December 31, 2022, such obligations have been extinguished and the related liabilities have been reversed and recognized as profit from discontinued operations.

As a result of the foregoing, the Company recognized profit from discontinued operations of Won 12 billion in 2022 compared to no such recognition in 2023. See Note 40 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2023 and 2022 included elsewhere in this Offering Circular.

Profit for the Year

As a result of the foregoing, the Company's profit for the year decreased by 42.9%, or Won 134 billion, from Won 313 billion in 2022 to Won 179 billion in 2023. The Company's net profit margin, which represents the ratio of profit for the period to revenue, decreased from 8.0% in 2022 to 5.5% in 2023.

Financial Condition, Liquidity and Capital Resources

Cash Flows

The following table sets forth a summary of the Company's consolidated cash flows for the periods indicated.

	For the Year Ended December 31,		
	2022	2023	2024
	(In billions of Won)		
Net cash flows provided by operating activities	₩ 902	₩ 823	₩ 864
Net cash flows used in investing activities	(159)	(362)	(1,272)
Net cash flows provided by (used in) financing activities	(910)	(594)	51
Net decrease in cash and cash equivalents before net effect of foreign exchange differences	(167)	(133)	(357)
Net effect of foreign exchange differences	53	66	82
Net decrease in cash and cash equivalents	(114)	(68)	(275)
Cash and cash equivalents as of January 1 before deduction of government grants	794	680	612
Government grants	(0)	(1)	(0)
Cash and cash equivalents at the end of the period after deduction of government grants	680	612	337

Capital Requirements

Historically, uses of cash have consisted principally of purchases of property, plant and equipment (including investing in oil and gas properties and construction and maintenance of stockpile facilities and other structures), provision of loans to related parties, repayments of outstanding debt, investments in associate and joint ventures engaged in exploration, development and production activities and payments of dividends. The Company anticipates that such expenditures will represent the most significant uses of funds for the next several years.

Net cash flows used in investing activities was Won 159 billion in 2022, Won 362 billion in 2023 and Won 1,272 billion in 2024. These amounts included cash used for acquisitions of property, plant and equipment of Won 463 billion in 2022, Won 507 billion in 2023 and Won 656 billion in 2024. The Company plans to spend approximately Won 1,496 billion in capital expenditures in 2025 (including amounts expended to date in 2025) primarily for the development of natural resources, stockpiling activities and development of new and renewable energy sources. However, the Company may adjust such capital expenditure plans on an on-going basis subject to market demand for oil and gas, the production outlook of the global oil and gas industry and global economic conditions in general. The Company may delay or not implement some or all of its current capital expenditure plans based on its assessment of such market conditions. Net cash used for investments in associates and joint ventures was Won 13 billion in 2022, Won 5 billion in 2023 and Won 58 billion in 2024. The Company used cash for acquisition of intangible assets other than goodwill of Won 104 billion in 2022, Won 199 billion in 2023 and Won 191 billion in 2024 primarily relating to the exploration and evaluation assets of Dana Petroleum and KADOC Ltd. Company used cash for acquisition of other non-current non-financial assets of Won 66 billion in 2022, Won 373 billion in 2023 and Won 575 billion in 2024, and also recorded cash provided by disposal of other non-current non-financial assets of Won 414 billion in 2022, Won 710 billion in 2023 and Won 309 billion in 2024 primarily due to changes in the Company's stockpile oil composition.

In the Company's financing activities, the Company used cash of Won 2,374 billion in 2022, Won 2,545 billion in 2023 and Won 3,322 billion in 2024 for repayments of current portion of bond payables, cash of Won 948 billion in 2022, Won 2,229 billion in 2023 and Won 3,588 billion in 2024 for repayments of short-term borrowings, and cash of Won 337 billion in 2022, Won 855 billion in 2023 and Won 388 billion in 2024 for repayments of long-term borrowings (including current portion). The Company also paid dividends of Won 119 billion in 2022, Won 33 billion in 2023 and Won 28 billion in 2024.

Payments of contractual obligations and commitments will also require considerable resources. In the Company's ordinary course of business, it routinely enters into commercial commitments for various aspects of its operations, as well as issue guarantees for indebtedness of its related parties and others. For the Company's contingent liabilities, see Note 47 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2024 and 2023 included elsewhere in this Offering Circular.

The following table sets forth contractual maturities of the Company's financial liabilities (excluding financial guarantee liabilities), significant contractual obligations and estimated commitments as of December 31, 2024.

	Payments Due by Period				
Financial Liabilities	**Contractual Cash Flows(1)**	**Less than 1 Year**	**1 to 2 Year**	**2 to 5 Years**	**After 5 Years**
	(In billions of Won)				
Bonds payable	₩ 17,049	₩ 3,449	₩ 4,664	₩ 6,954	₩ 1,982
Borrowings	1,543	723	429	149	241
Trade and other payables	877	808	23	–	46
Derivative liabilities	32	29	3	–	–
Total	₩ 19,501	₩ 5,009	₩ 5,119	₩ 7,103	₩ 2,269
Contractual Obligations and Estimated Commitments					
Purchase commitments(2)	₩ 6	₩ 6	₩ –	₩ –	₩ –
Decommissioning and environmental liabilities	2,385	249	136	506	1,495
Others	96	26	17	20	33
Total	₩ 2,487	₩ 281	₩ 153	₩ 526	₩ 1,528

(1) Includes interest payments, but excludes the effect of offsetting contracts.

(2) Includes drilling commitments and others.

Liquidity and Capital Resources

The Company has traditionally met its working capital and other capital requirements principally from cash provided by operations and capital contributions from the Government, while raising the remainder of its requirements primarily through long-term debt and short-term borrowings. The Company plans to fund a portion of its investments in exploration, development and production projects with loans from the SAER. For SAER loans, in the event the exploration project does not result in successful production of oil or gas, the Company may apply to have such loans forgiven after satisfying certain criteria set by the Ministry of Trade, Industry and Energy. The Company expects that these sources will continue to be its principal sources of cash in the future.

The Company recognized net cash flows provided by operating activities of Won 864 billion in 2024. The Company's other receivables from operating activities as well as trade and other receivables decreased and other payables from operating activities increased, which in turn enhanced the Company's net cash provided by operating activities. On the other hand, the Company's trade and other payables decreased, which in turn negatively impacted the Company's net cash provided by operating activities.

The Company recognized net cash flows provided by operating activities of Won 823 billion in 2023. The Company's other receivables from operating activities increased, which in turn negatively impacted the Company's net cash provided by operating activities. The Company's trade and other receivables decreased, which in turn enhanced the Company's net cash provided by operating activities. The Company's trade and other payables as well as other payables from operating activities decreased in 2023, which in turn negatively impacted the Company's net cash provided by operating activities.

The Company had net repayments of long-term borrowings (including current portion), after adjusting for proceeds from long-term borrowings, of Won 283 billion in 2022, Won 385 billion in 2023 and Won 388 billion in 2024. The Company had net repayments of current portion of bond payables, after adjusting for proceeds from issuance of bond payables, of Won 310 billion in 2022 and Won 210 billion in 2023 and net proceeds from issuance of bond payables, after adjusting for repayments of current portion of bond payables, of Won 200 billion in 2024. In addition, the Company had net proceeds from short-term borrowings, after adjusting for repayment of short-term borrowings, of Won 11 billion in 2022, Won 125 billion in 2023 and Won 173 billion in 2024. For borrowings and bond payables, the Company recorded current liabilities of Won 3,495 billion as of December 31, 2022, Won 4,038 billion as of December 31, 2023 and Won 3,634 billion as of December 31, 2024, and total non-current liabilities of Won 11,700 billion as of December 31, 2022, Won 11,053 billion as of December 31, 2023 and Won 13,468 billion as of December 31, 2024.

The Company also had proceeds from increase in share capital of Won 76 billion in 2022, Won 88 billion in 2023 and Won 121 billion in 2024. The Company's share capital is allowed to be invested solely by the Government in accordance with the KNOC Act. The Company's total equity was Won (1,496) billion as of December 31, 2022, Won (1,349) billion as of December 31, 2023 and Won (1,322) billion as of December 31, 2024. Net borrowings and debt securities-to-total invested capital ratio, which is calculated by (i) deducting cash and cash equivalents from total borrowings and debt securities and (ii) dividing the net amount with the Company's total invested capital (consisting of net borrowings and debt securities plus total equity), was 111.49% as of December 31, 2022, 110.27% as of December 31, 2023 and 108.56% as of December 31, 2024. See Note 43 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2024 and 2023 and Note 44 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2023 and 2022 included elsewhere in this Offering Circular.

The Company currently anticipates that the cash flow that the Company generates from its operation, the incurrence of borrowings and issuance of bonds, and periodic future capital contributions from the Government, together with its existing cash and cash equivalents and credit sources (including its credit facilities), will be sufficient to meet its currently anticipated needs for working capital, capital expenditures and investments in the near future. The Company has established a contingency plan to minimize the impact of changes in global oil and gas prices on the Company's liquidity, and to maintain a stable cash flow. The Company plans to undertake selective exploration activities based on projected cash flows from the project, as part of its efforts to reduce capital expenditures. The Company is also continually evaluating overall lifting costs from each of its producing fields, to achieve an optimal level of production and to reduce its operating expenses. However, the Company may need to raise additional capital sooner than it expects among others in order to respond to changes in Government policies and respond to changes in the global crude oil and natural gas market conditions. The Company's ability to rely on additional financing could be affected by factors such as the liquidity of the Korean and the global financial markets, prevailing interest rates, its credit rating and the Government's policies regarding Won currency and foreign currency borrowings.

The Company had a working capital (current assets minus current liabilities) deficit of Won 2,982 billion as of December 31, 2022, Won 3,512 billion as of December 31, 2023 and Won 3,730 billion as of December 31, 2024. The Company's holdings of cash and cash equivalents were Won 680 billion as of December 31, 2022, Won 612 billion as of December 31, 2023 and Won 337 billion as of December 31, 2024. The Company's holdings of current financial assets were Won 225 billion as of December 31, 2022, Won 228 billion as of December 31, 2023 and Won 156 billion as of December 31, 2024. The Company had total available credit lines of Won 3,326 billion as of December 31, 2024, Won 1,018 billion of which was used as of such date.

In addition to such current assets, the Company believes that it has a variety of alternatives available to it to satisfy its liquidity requirements to the extent that they are not met by funds generated by operations, including the incurrence of borrowings and issuance of bonds denominated in Won and various foreign currencies as well as additional capital contributions from the Government.

Market Risks

In the ordinary course of business, the Company is exposed to certain financial and market risks, including primarily risks arising from fluctuations in oil and gas prices and the exchange rate between the dollar and the Won. See Note 43 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2024 and 2023 and Note 44 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2023 and 2022 included elsewhere in this Offering Circular.

Commodity Price Risk

The Company is exposed to fluctuations in prices of crude oil and natural gas, which are commodities whose prices are determined by reference to international market prices. International oil and gas prices are volatile and are influenced by global as well as regional supply and demand conditions. This volatility has a significant effect on the Company's sales and profit.

Historically, prices for oil have fluctuated widely for many reasons, including:

- global and regional supply and demand, and expectations regarding future supply and demand for crude oil and petroleum products;
- political, economic and military developments in oil producing regions, particularly the Middle East;
- access to pipelines, railways and other means of transporting crude oil, gas and petroleum products;
- prices and availability of alternative fuels and energy technologies;
- the ability of the members of OPEC and other crude oil producing nations, to set and maintain specified levels of production and prices;
- domestic and foreign governmental regulations and actions, including export restrictions and taxes; and

- global and regional economic conditions, weather, natural disasters, major oil spills and epidemics and pandemics.

International gas prices typically follow changes in international oil prices, although movements in sale prices of natural gas are not always directly proportional to those of crude oil prices. The Company and its subsidiaries use forward commodity contracts to hedge market risks resulting from fluctuations in oil and gas prices for its oil and gas productions, and the effective portion of gains or losses arising from changes in fair value in cashflow on such derivatives are recognized directly in other comprehensive income, as the Company classifies such hedging activities as a cash flow hedge. A 10.0% increase in crude oil prices as of December 31, 2022, 2023 and 2024, with all other variables held constant, would have increased the Company's profit before tax by Won 93 billion in 2022, Won 243 billion in 2023 and Won 270 billion in 2024, with a 10.0% decrease in crude oil prices having the opposite effect.

Foreign Currency Risk

The Company's foreign exchange exposure gives rise to market risk associated with exchange rate movements, which primarily relate to the Company's operating activities and its investments in foreign subsidiaries. Foreign exchange gain/loss resulting from sales of crude oil and natural gas is determined by the exchange rates as of the dates on which the sales are recorded during the period. The Company enters into currency forward contracts and cross currency swaps to hedge the risks from changes in foreign currency exchange rates.

The Company and its subsidiaries use various functional currencies depending on their primary economic environment in which the entities operate. As of December 31, 2022, 2023 and 2024, the impact of a 5.0% increase or decrease in exchange rates in each functional currency exchange rate on the Company's profit before tax, assuming all other variables held are constant, is as follows:

	For the Year Ended December 31,					
	2022		2023		2024	
	Increase by 5%	Decrease by 5%	Increase by 5%	Decrease by 5%	Increase by 5%	Decrease by 5%
	(In billions of Won, except percentages)					
Korean Won	₩ (48)	₩ 48	₩ (34)	₩ 34	₩ (23)	₩ 23
Hong Kong Dollar	(5)	5	(1)	1	(1)	1
Swiss Franc	(91)	91	(62)	62	(30)	30
Euro	(19)	19	(25)	25	(19)	19
Singapore Dollar	(19)	19	(20)	20	—	—
British Pound	(62)	62	(141)	141	(66)	66
Others	(0)	0	(0)	0	0	(0)

Interest Rate Risk

The Company is exposed to interest rate risks arising from its borrowings. Upward fluctuations in interest rates increase the cost of new borrowings and the interest cost of outstanding floating rate borrowings. The Company uses interest rate swaps to hedge against its interest rate exposure. A 100 basis point increase in interest rates as of December 31, 2022, 2023 and 2024, with all other variables held constant, would have decreased the Company's profit before tax by Won 7 billion in 2022, Won 4 billion in 2023 and Won 17 billion in 2024, with a 100 basis point decrease in interest rates having the opposite effect.

BUSINESS

Overview

The Company is the national oil and gas company of Korea and is wholly owned by the Government. The Company was incorporated in 1979 under the KNOC Act to serve as the executing body for oil-related policies of the Government. The Company engages in a wide range of oil and gas activities, including:

- exploration, development and production of crude oil and natural gas in Korea and abroad;

- stockpiling of oil in furtherance of the Government's energy policies, as well as engaging in wholesale gasoline, gas oil and kerosene distribution and economical gas station businesses and construction of related stockpile facilities; and

- performance of other activities related to its business purpose, such as the collection and publication of oil-related information, and conducting research and development related to oil and natural gas.

The Company carries out the Government's oil policy objectives by engaging in exploration and production activities and managing the nation's oil stockpile pursuant to master plans announced by the Government. The Company receives substantial financial support from the Government in the form of capital contributions and SAER loans to undertake these activities. The Ministry of Trade, Industry and Energy directs and supervises the Company's business activities, as well as appointing its standing directors and the President pursuant to the KNOC Act and other laws applicable to the Company. The Company is audited from time to time by the Board of Audit and Inspection and is required to regularly report its business activities and plans to the Government.

As of December 31, 2024, the Company had a daily crude oil and natural gas production of 136,003 barrels of oil equivalent. As of December 31, 2024, the Company had interests in 17 production projects, one development project and 11 exploratory projects, located across 15 countries. The Company is seeking to maintain its production level at approximately 136,600 barrels of oil equivalent per day until the end of 2025, and hopes to increase the Company's production level further in the near future through continued exploration activities and production optimization, which would provide the basis for the Company to compete with larger global oil companies engaged in oil and gas exploration, development and production. For example, the Company acquired a 0.9% interest in the ADNOC Onshore project in February 2020. In addition, the Company also strives to develop new and renewable energy sources through domestic continental shelf exploration. For instance, pursuant to such plan, the Company is planning to acquire a 29% equity interest in Donghae Floating Offshore Windpower Co., Ltd. in order to mobilize its floating offshore wind farm business.

In June 2016, the Ministry of Economy and Finance and the Ministry of Trade, Industry and Energy announced the June 2016 Government Plan, which included broad-based measures to rationalize the overseas natural resource exploration, development and production activities of government-controlled enterprises, including the Company. Pursuant to the June 2016 Government Plan, the Company has developed and is implementing a plan for the sale of its interests in overseas exploration, development and production operations (taking into consideration strategic value and profitability) to third parties with preference given to institutional investors in Korea if possible and with an aim to maximize the returns on such sales. For example, the Company disposed of its interests in (1) Harvest Operations' Caroline Shallow field in Canada in 2018, (2) Harvest Operations' Blueberry, Consort Viking, Crooked Creek, Killarney and Worsley fields and Loon Oil sands in Canada in 2019, (3) Harvest Operations' Chamber fields in Canada in 2020, (4) OIG in 2021, (5) certain additional assets of Harvest Operations, including West Central, Loon Lake and Royce, in 2021, (6) the River Bend field in 2021, (7) ADA Block in Kazakhstan in 2022, (8) ANKOR Offshore Project's SS230, SM27 and SM73 fields in 2022, (9) the Parallel Projects in 2023, (10) the Besbolek, Karataikyz and Alimbai blocks in

Kazakhstan in 2024, (11) Block 11-2 in Vietnam in 2024 and (12) Harvest Operations' Wilson Creek field in Canada in 2025 pursuant to the June 2016 Government Plan. The timing of any such sales will be subject to market conditions and the Company will be limited from entering into any new overseas investments other than any such investments that are in furtherance of important policy objectives.

Since 1980, the Company has also been operating and managing Korea's national oil stockpile facilities and reserves in response to the global oil shocks during the 1970s. Aiming to further strengthen Korea's ability to cope with market disruptions caused by short-term oil shortages, the Government announced the Fourth Stockpiling Master Plan in December 2014, which was amended in November 2018 and November 2021. Pursuant to such Fourth Stockpiling Master Plan, the Company is required to maintain its stockpiling capacity at 146 million barrels until the end of 2025. The Company had reserve levels of approximately 99 million barrels as of December 31, 2024, and the Company is seeking to reach a stockpile reserve level of 100 million barrels by 2025 pursuant to the Fourth Stockpiling Master Plan. The Company also generates income from the stockpiling program by leasing a part of its storage facilities to foreign oil producing companies and domestic refineries, as well as by engaging in lending activities with respect to part of its stockpile reserves. In furtherance of the Government's policy to control increases in gasoline prices, the Company engages in a wholesale gasoline, gas oil and kerosene distribution business, and also operates 1,279 economical gas stations or "Altteul Gas Stations" located throughout Korea together with Korea Expressway Corporation and the National Agricultural Cooperative Federation, as of December 31, 2024. To support the Company's stockpiling projects, the Company also constructs stockpiling facilities.

To ensure a stable supply of energy and natural resources for the Korean economy and to promote the development of new energy resources, the Government established the SAER in 1995 which combines six energy-related funds that the Government had been operating previously. Pursuant to the SAER Act, the Minister of Trade, Industry and Energy oversees the management and operation of the SAER, and had delegated to the Company the administrative tasks related to the day-to-day operation of SAER and the administration of the SAER loans for oil-related projects. However, pursuant to the June 2016 Government Plan, the responsibilities relating to SAER, other than the administration of taxes and dues, were transferred from the Company to the Korea Energy Agency in July 2017. The Company also borrows a portion of the SAER funds to further expand its exploration and other oil-related activities. The Company also performs various other functions related to its status as Korea's largest oil and gas developer and the Government's policy-executing arm for matters related to oil. The Company collects, compiles and publishes both domestic and international oil-related statistics, in addition to conducting research related to the exploration, development and production of oil and natural gas.

In addition, the Company focuses on establishing and enforcing policies and strategies relating to the environment, social responsibility and corporate governance in order to promote sustainable growth. For example, in July 2019, the Company, in consortium with Korea East-West Power Co., Ltd. and Equinor ASA, agreed to develop a 200MW floating offshore wind farm near its Donghae project, and the project has currently received approval from relevant Government authorities, including an electricity business license, which was granted in 2021. The Company also participates in Carbon Capture and Storage ("CCS") projects in furtherance of the Government's Nationally Determined Contribution targets, including the conversion of certain facilities of its Donghae project, which has ceased operations, for projects related to CCS. Furthermore, the amendment to the Korea National Oil Corporation Act which was implemented in July 2024 expands the scope of the Company's business to include clean hydrogen and ammonia projects, including overseas production projects and domestic infrastructure projects for securing stable supply chains and for the efficient distribution of clean hydrogen and ammonia, and carbon reduction projects, including carbon capture, transport and storage projects, for the proactive reduction of greenhouse gas. With support from the Government, the Company endeavors to establish global value chains with overseas and domestic companies for the production, transportation, distribution and storage of low-carbon hydrogen and ammonia.

For the year ended December 31, 2022, the Company had revenue of Won 3,933 billion, operating profit of Won 1,990 billion and profit of Won 313 billion. The Company had total assets of Won 18,299 billion and total equity of Won (1,496) billion as of December 31, 2022. For the year ended December 31, 2023, the Company had revenue of Won 3,267 billion, operating profit of Won 846 billion and profit of Won 179 billion. The Company had total assets of Won 18,229 billion and total equity of Won (1,349) billion as of December 31, 2023. For the year ended December 31, 2024, the Company had revenue of Won 3,524 billion, operating profit of Won 1,273 billion and profit of Won 192 billion. The Company had total assets of Won 20,492 billion and total equity of Won (1,322) billion as of December 31, 2024.

Relationship with the Government

The Company was established as a statutory juridical entity in 1979 under the KNOC Act to ensure a stable supply of oil and to support the development of the Korean economy by developing oil fields in Korea and abroad, stockpiling petroleum reserves and engaging in other oil-related activities.

The Company is wholly owned by the Government and the Government is required under the KNOC Act to contribute all of the Company's authorized capital of up to Won 13 trillion. The Company may only be privatized through an amendment of Article 4 of the KNOC Act by the National Assembly, which states that the Government shall fund the Company's authorized capital. Pursuant to the KNOC Act, the Government may also guarantee the repayment of the Company's bonds and its other loans, and provide financial subsidies for the Company's business activities, although it is not obligated to do so.

The Government, through the Ministry of Trade, Industry and Energy, directs and supervises the Company's activities relating to the exploration, development and production of oil resources in Korea and abroad, the purchase and stockpiling of oil reserves, the construction and management of stockpile facilities, the collection, processing and publication of oil trading information and the enhancement of oil distribution channels. Pursuant to the KNOC Act and the Act on the Management of Public Institutions, the President of Korea appoints, and has the authority to remove, the Company's President and the standing member of the Audit Committee, while the Minister of Economy and Finance appoints the Company's non-standing directors. Furthermore, the Company is required to publicly disclose certain information relating to its operation and management, including, among other matters, its management objectives, budget and business plan, financial statements, personnel data, articles of incorporation, bond register and the minutes of the board of directors (other than certain confidential information) and the audit reports of its Audit Committee.

The Board of Audit and Inspection, which is an independent Government agency that audits all Governmental agencies and Government-controlled entities, audits the Company from time to time. The audit includes a review of the Company's financial statements and an inspection of the Company's business operations and performance. The Board of Audit and Inspection reports its audit results to the President of Korea. The Company must report any issues identified by the Board of Audit and Inspection during the audit, as well as plans to remedy such issues, to the relevant standing committee of the National Assembly of Korea. The Company must also present mid- to long-term management objectives covering five fiscal years to the Minister of Trade, Industry and Energy and the Minister of Economy and Finance on an annual basis. The Company is further subject to unscheduled inspections and investigations from time to time by the National Assembly under the Act on Inspection and Investigation of Government Administration of 1988, as amended.

Energy Master Plan and Framework Plan for Carbon Neutrality and Green Growth

The First Energy Master Plan under the Low Carbon Green Growth Act, issued in 2008, sought to improve Korea's energy security, use efficiency and the environment. The Third Energy Master Plan under the Low Carbon Green Growth Act was announced in June 2019 and its objectives include the following:

- to transform the energy policy paradigm by innovating its consumption structure;

- to innovate buildings and industries with improved energy efficiency at the systematic and community levels;
- to improve energy efficiency in the transportation sector by promoting eco-friendly transportation and intelligent traffic systems;
- to create new businesses and markets and advance the electricity, gas and heat market systems;
- to develop a sustainable energy mix by increasing the share of renewable energy and through energy transition;
- to strengthen energy security through global cooperation;
- to strengthen safety features of energy facilities by prioritizing public safety;
- to enhance regional energy independence through distributed generation and smart grids; and
- to develop the energy industry as a new growth engine including as a source for quality jobs.

To further develop Korea's energy industry, the Third Energy Master Plan seeks to enhance the competitiveness of the conventional energy industry through innovation. In furtherance of the Third Energy Master Plan, the Company plans to develop processes and new business models using fourth industrial revolution technologies, such as artificial intelligence, the internet of things and blockchain.

The Third Energy Master Plan also recommends the diversification of import routes of crude oil and natural gas in order to prepare for possible geopolitical risks and to help decrease Korea's reliance on specific regions. Specifically, the Third Energy Master Plan suggests an increase in imports from non-Middle Eastern countries while continually securing new suppliers. The Third Energy Master Plan also discusses the laying of a foundation for public and private enterprises to jointly take part in overseas resource development projects.

On March 25, 2022, the Low Carbon Green Growth Act, which served as the basis for the Energy Master Plan, was repealed and the Framework Act on Carbon Neutrality and Green Growth for Coping with Climate Crisis became effective. However, the Energy Act, which is scheduled to serve as the new base law for the Energy Master Plan, has not yet been amended, and the New Government's Energy Policy Directions were announced on July 5, 2022 with the following objectives:

- to redefine a viable and affordable energy mix;
- to build robust resource and energy security;
- to establish a market structure with efficient energy demand based on market principles;
- to facilitate export-industrialization and improve growth of new energy industries; and
- to strengthen energy welfare and receptivity of such energy policies.

While the New Government's Energy Policy Directions specify that it replaces the Third Energy Master Plan, this is not an official "Energy Master Plan" under the relevant law and amendment of the Energy Act is still pending, and the Company is monitoring the progress of the establishment of the Fourth Energy Master Plan and the amendment of the Energy Act in relation to the Energy Master Plan.

Under the Framework Act on Carbon Neutrality and Green Growth for Coping with Climate Crisis, the Government is required to establish national framework plans for carbon neutrality and green growth every five years with a planning period of 20 years, in order to achieve national visions with respect to the transition to a carbon neutral society, promotion of a harmonious development of the economy and environment, and national medium- and long-term greenhouse gas emission reduction targets. The first National Carbon Neutrality Green Growth Basic Plan was published on April 11, 2023 and its strategies include the following:

- Responsible carbon neutrality through specific and efficient reduction of greenhouse gas;
- Innovative and private sector-led net-zero green growth;
- Carbon neutrality through comprehensive cooperation from all members of society; and
- To lead the international community on climate change adaptation and proactive carbon neutrality.

Resources Development Base Plan

Under the Overseas Resources Development Business Act of 1983, as last amended on April 20, 2021 and effective as of October 21, 2021 (the "Overseas Resources Development Act"), the Government must establish 10-year master plans, revised every five years, for the development of overseas natural resources. Under the Overseas Resources Development Act, if a Korean national plans to develop overseas natural resources, such person must report his or her plans to the Minister of Trade, Industry and Energy.

Pursuant to the Overseas Resources Development Act, the Government is authorized to provide funds to a Korean resident to conduct necessary research and analysis for an overseas resources development business and to acquire the rights to develop such resources. The Government may also provide funds for the installation and operation of facilities required for the development, and funds for leasing or buying the necessary land for the development.

To ensure the proper use of Government funds, the Ministry of Trade, Industry and Energy delegated to the Company the authority to inspect the books, documents and materials of oil-related businesses to which the Government has provided financial support and to evaluate the feasibility of the Government's financial support for the costs being incurred by such businesses.

In May 2020, the Ministry of Trade, Industry and Energy issued the Resources Development Base Plan, which integrated the Sixth Overseas Resources Development Master Plan and the Third Seabed Mineral Development Master Plan, covering the period from 2020 to 2029 pursuant to the Overseas Resources Development Act. Objectives of the Resources Development Base Plan include the following:

- to recover the Company's function and role as a national corporation by focusing its business in high risk regions with market entrance barriers, such as the Middle East and Eurasia;
- to attract participation from domestic companies, including private capital, by creating platforms that provide access to business information and personnel networks, while cooperating with the government;
- to activate multilateral cooperation channels and selectively develop oil and gas businesses in four strategic regions (North America, the Middle East, Eurasia and ASEAN);
- to expand investments in exploration activities in the East Sea continental shelf, specifically, the Company's Block 8 and 6-1, to reduce exploration risks in foreign fields;

- to build a resource security infrastructure by balancing the development of problem solving technology and future strategic technology; and

- to encourage research and development, big data sharing, domestic products and services when promoting resource development businesses.

Stockpiling Master Plan

The Company operates and manages Korea's national oil stockpile facilities and reserves, which began in 1980 in response to the global oil shocks of the 1970s. Pursuant to the Petroleum and Petroleum Substitute Fuel Business Act (the "Petroleum Business Act"), the Ministry of Trade, Industry and Energy sets goals for the national oil stockpile program and announces a master plan to implement these goals. The stockpiling master plan must include matters relating to the oil stockpile target level, the types and amount of oil to be stockpiled and the management of stockpile facilities.

Pursuant to the Petroleum Business Act, the Government announced the Fourth Stockpiling Master Plan in December 2014 which was amended in November 2018 and November 2021. Under the Fourth Stockpiling Master Plan, the Company is required to maintain its stockpiling capacity at 146 million barrels until the end of 2025. The Company had reserve levels of approximately 99 million barrels as of December 31, 2024, and the Company is seeking to reach a stockpile reserve level of 100 million barrels by 2025 pursuant to the Fourth Stockpiling Master Plan. Under the Fourth Stockpiling Master Plan, the budget for achieving the Company's reserve level target is Won 574 billion.

Under the Petroleum and Petroleum Substitute Fuel Business Enforcement Regulation, the Ministry of Trade, Industry and Energy has the authority to require the Company to give priority to financing the purchase of a portion of the target stockpile reserves and the construction and expansion of the stockpiling facilities with the revenue generated from the Company's stockpiling activity. To support the Fourth Stockpiling Master Plan, the Company expects to generate income from the stockpiling program by leasing a part of its storage facilities to foreign oil producing companies and domestic refineries, and by engaging in trading activities with respect to part of its stockpile reserves. In addition, the Company is currently cooperating with the Ministry of Trade, Industry and Energy for the establishment of the Fifth Stockpiling Master Plan.

Special Accounts for Energy and Resources

In 1995, the Government established the SAER pursuant to the SAER Act, which combines six energy-related funds that were previously operated by the Government. Prior to 1995, to ensure a stable supply of energy and natural resources for the Korean economy and to promote the development of new energy resources, the Government operated six energy and resources related funds, namely the Oil Business Fund, the Coal Industry Support Fund, the Coal Industry Stabilization Fund, the Overseas Mineral Resources Development Fund, the Energy Use Rationalization Fund and the Natural Gas Safety Management Fund. These funds were designed to support a variety of public and private projects, including those relating to the exploration and development of energy resources both domestically and abroad, the stockpiling of energy resources, the restructuring of the coal and other energy-related industries, the safe distribution of natural gas, the development of alternative energy sources and research activities related to the foregoing.

The Government's annual budget for the SAER is prepared with input from Government-controlled and private entities engaged in the energy and natural resources business, the Ministry of Trade, Industry and Energy and the Ministry of Economy and Finance, and approved by the National Assembly. The SAER budget in 2022, 2023 and 2024 amounted to Won 5,338 billion, Won 5,770 billion and Won 6,471 billion, respectively, and has been set at Won 6,306 billion for 2025.

Pursuant to the SAER Act, the Minister of Trade, Industry and Energy oversees the management and operation of the SAER. A significant portion of the SAER budget consists of loans to be made for various energy- and resource-related projects. There are generally two types of SAER loans for the oil industry: loans for domestic and international oil exploration and production projects and loans to support general oil-related projects, such as the construction of oil pipelines. The loans for the oil industry are available for use by the Company and by certain qualifying third-party borrowers engaging in oil-related businesses.

The SAER loans used by the Company that were outstanding as of December 31, 2024 equaled Won 241 billion (after excluding loans relating to exploration fields which failed to discover commercially viable oil reserves, as payment obligations for such loans will be relieved). Under the SAER Act, loans used to fund exploration projects that do not result in discoveries are exempted from repayment of all or part of the principal amount of the loan and interest if they meet established criteria set by the Ministry of Trade, Industry and Energy.

Organizational Structure

The following diagram illustrates the Company's organizational structure as of the date hereof.

The Company has broadly organized its divisions by function and has an integrated exploration and development structure whereby separate divisions specialize in, and are responsible for, individual stages of exploration, development and production. The Exploration & Production/Energy Business Division oversees all exploration, production and renewable energy related activities and includes regional Business Departments, the Low Carbon Solutions Department and the Global E&P Technology Center. The Low Carbon Solutions Department manages activities relating to the Company's CCS and offshore wind power projects. The Global E&P Technology Center establishes the Company's mid-to-long-term research and development strategy and conducts research and development to enhance the Company's technological competitiveness. The Petroleum Stockpiling & Marketing Division oversees all activities relating to the operations of stockpiling facilities, as well as the Company's oil trading business.

In January 2024, the Company established the SHE (Safety, Health, Environment) Department in order to establish and enforce policies and strategies relating to safety, health and environment. The SHE Department reports directly to the Company's President & CEO.

Exploration, Development and Production

Overview

The Company engages in crude oil and natural gas exploration, development and production in Korea and abroad. The Company's operations include projects that the Company operates with a 100.0% ownership interest or a shared ownership with joint venture partners.

Contractual arrangements among participants in a joint venture are usually governed by an operating agreement, which usually provides that costs, entitlements to production, and liabilities are to be shared according to each party's percentage interest in the joint venture. Upon completion of the initial exploration phase, and if the Company and its joint venture partners determine that a project has commercially viable development potential, the project will enter the development phase and join the production and development portfolio.

A major element of the Company's past business strategy had been to achieve organic growth through exploration activities and pursue selective acquisitions to optimize its asset portfolio to provide the basis for the Company to compete with larger global oil companies engaged in oil and gas exploration, development and production. In pursuit of this strategy, the Company made substantial acquisitions in the past.

As of December 31, 2024, the Company had interests in 29 projects, and it was the operator in 21 projects.

Reserves Data

The Company's estimated proved reserves of crude oil and natural gas as of December 31, 2024 totaled approximately 237 million barrels of crude oil, approximately 53 million barrels of natural gas liquids and approximately 623 billion cubic feet of natural gas, respectively. As of December 31, 2024, proved developed reserves accounted for approximately 57% and 69% of the Company's total proved crude oil and natural gas reserves, respectively.

The following table sets forth the Company's estimated proved reserves (including proved developed reserves and proved undeveloped reserves) and proved developed reserves of crude oil and natural gas as of December 31, 2022, 2023 and 2024. The reserve data presented below and elsewhere in this Offering Circular are based on the Company's valuation of the reserves as of the date hereof, and are therefore subject to changes if further valuations of the reserves are conducted which revises the prior estimates.

	Crude Oil[1]	Natural Gas	Combined
	(Millions of barrels)	(Billions of cubic feet)	(Barrel of oil equivalent, in millions)
Proved developed and undeveloped reserves			
Reserves as of December 31, 2022[2]	309.5	653.6	420.2
Revisions of previous estimates	9.1	35.4	15.3
Extensions and discoveries & Improved recovery	9.3	19.9	12.7
Acquisitions & Disposals	(2.0)	(6.5)	(3.1)
Production for the year	(36.5)	(75.1)	(49.4)
Reserves as of December 31, 2023[2]	289.4	627.3	395.7
Revisions of previous estimates	24.9	71.2	36.3
Extensions and discoveries & Improved recovery	6.6	7.7	7.9
Acquisitions & Disposals	3.3	11.3	5.1
Production for the year	(34.3)	(94.8)	(49.8)
Reserves as of December 31, 2024[2]	289.9	622.6	395.3
Proved developed reserves[2]			
As of December 31, 2022	170.9	463.8	249.9
As of December 31, 2023	175.6	454.5	253.1
As of December 31, 2024	166.3	432.1	239.9

(1) Includes natural gas liquids.

(2) The reserve data include reserve data of Harvest Operations, as estimated under Canadian oil and gas reporting standards, COGEH and NI 51-101, as evaluated by the Independent Reserves Evaluator. If the reserve data of Harvest Operations as estimated under the Securities Act oil and gas reporting standards were included, the proved developed and undeveloped crude oil reserves, natural gas reserves and combined reserves as of December 31, 2022, 2023 and 2024 may differ from the corresponding amounts shown in the tables above.

In general, the Company's engineers estimate its proved crude oil and natural gas reserve quantities based on its internal surveys, external reserve reports and data collected from third-party operators of production facilities in which the Company has a working interest.

The following tables set forth the Company's crude oil and natural gas proved reserves (including proved developed and proved undeveloped reserves) and proved developed reserves by country as of December 31, 2022, 2023 and 2024.

	As of December 31,					
	2022		2023		2024	
	Proved Developed and Undeveloped	Proved Developed	Proved Developed and Undeveloped	Proved Developed	Proved Developed and Undeveloped	Proved Developed
	(millions of barrels)					
Crude oil reserves[1]						
Canada[2]	120.9	34.4	113.7	30.0	114.3	31.3
Kazakhstan	29.6	25.5	32.1	28.8	24.5	22.5
Korea	0.0	0.0	0.0	0.0	0.0	0.0
Libya	3.2	3.2	3.3	3.3	4.1	4.1
Peru	0.0	0.0	0.0	0.0	0.0	0.0
United Arab Emirates	47.7	31.7	43.3	42.4	42.1	34.1
United Kingdom[3]	32.9	15.0	27.7	14.4	32.8	21.3
United States of America	72.1	58.0	65.6	53.0	68.6	49.5
Venezuela	2.6	2.6	2.6	2.6	2.6	2.6
Vietnam	0.5	0.5	1.1	1.1	0.8	0.8
	309.5	170.9	289.4	175.6	289.9	166.3

	As of December 31,					
	2022		2023		2024	
	Proved Developed and Undeveloped	Proved Developed	Proved Developed and Undeveloped	Proved Developed	Proved Developed and Undeveloped	Proved Developed
	(billions of cubic feet)					
Natural gas reserves						
Canada[(2)]	237.4	92.3	224.4	84.6	225.4	90.1
Kazakhstan	9.3	7.3	9.1	7.7	7.3	6.7
Korea	0.0	0.0	0.0	0.0	0.0	0.0
Peru	0.0	0.0	0.0	0.0	0.0	0.0
United Kingdom[(3)]	78.0	68.3	71.6	70.0	59.7	57.3
United States of America	202.8	169.8	198.5	168.5	211.5	159.1
Venezuela	14.5	14.5	14.5	14.5	14.5	14.5
Vietnam	34.9	34.9	32.5	32.5	27.5	27.5
Yemen	76.7	76.7	76.7	76.7	76.7	76.7
Total	653.6	463.8	627.3	454.5	622.6	432.1

(1) Includes natural gas liquids.

(2) The reserve data of Harvest Operations are as estimated under Canadian oil and gas reporting standards, COGEH and NI 51-101, as evaluated by the Independent Reserves Evaluators. The reserves of Harvest Operations as estimated under the Securities Act oil and gas reporting standards as of December 31, 2022, 2023 and 2024 may differ from the amounts shown in the tables above.

(3) Indicates the reserve data of Dana Petroleum, whose headquarters are located in the UK. However, Dana Petroleum's production sites are located throughout Europe and Africa, including the Netherlands, Norway and Egypt.

Estimation and evaluation of reserves naturally involve multiple uncertainties. The accuracy of any reserve evaluation depends on the quality of available information and engineering and geological interpretation. Based on the results of drilling, testing and production after the date of this Offering Circular, reserves may be significantly restated upwards or downwards. Changes in the price of crude oil and natural gas may also affect the Company's reserve estimates as well as estimates of the Company's discounted future net cash flows because those reserves are evaluated, and the discounted future net cash flows are estimated, based on prices and costs as of the date of the evaluation. A relative decrease in the amount of the Company's estimated proved reserves and future discounted net cash flows could, if material, affect the amount of the Company's depreciation and depletion expenses, impairment charges or certain other financial information derived from or relating to such information reported in the Company's financial statements in future periods. Significant changes in these amounts could have a material adverse effect on the Company's financial condition and results of operations and cause future results to differ materially from those reported in this Offering Circular. See "Risk Factors — Risks Relating to the Company — The crude oil and natural gas reserve estimates in this Offering Circular are only estimates, and may require substantial revisions as a result of future drilling, testing and production, and as such, the Company's actual production, revenues and expenditures may also differ materially from estimates."

Production and Development

The Company currently has 17 projects in production and one project under development. As of December 31, 2024, the Company's daily average production was 136,003 barrels of oil equivalent. Oil producing projects owned by Dana Petroleum, oil producing projects located in Eagle Ford, United States owned by KNOC Eagle Ford Corporation and oil producing projects owned by Harvest Operations in Canada are the Company's most economically significant operating oil producing projects, accounting for approximately 18%, 11% and 15%, respectively, of the Company's oil production for 2024. Gas producing projects owned by Dana Petroleum, gas producing projects located in Eagle Ford, United States owned by KNOC Eagle Ford Corporation and gas producing projects owned by Harvest Operations in Canada are the Company's most economically significant operating gas producing projects, accounting for approximately 41%, 36% and 14%, respectively, of the Company's natural gas production for 2024. The following is a summary of the Company's current production activities by country and region.

Country	Project Name	Type of Project	KNOC Share	Investment as of December 31, 2024	Operated by	Arrangement Type	Participation Year
				(In thousands)			
Production Projects							
Canada	Harvest	Oil & Gas	100.00%	US$6,294,678[(1)]	KNOC	Lease	2009
Kazakhstan.	Altius	Oil	100.00%	US$516,826	KNOC	Concession agreement	2011
	KNOC Caspian	Oil & Gas	100.00%	US$424,201	KNOC	Concession agreement	2009
Libya.	Elephant	Oil	2.00%	US$225,515	Third Party	Production sharing agreement ("PSA")	1990
United Kingdom (three projects)	Dana Petroleum	Oil & Gas	100.00%	US$4,957,086[(2)]	KNOC	Concession agreement	2010
USA	ANKOR Offshore	Oil	71.00%	US$897,944	KNOC	Lease	2008
	Eagle Ford	Shale Oil	23.70%	US$2,156,932	Third Party	Lease	2011
Venezuela	Onado	Oil	5.64%	US$34,197	Third Party	Available for Sale	1997
Vietnam	15-1	Oil	14.25%	US$2,755,269	Joint	PSA	1998
Yemen.	LNG	Gas	1.0614%	US$37,256	Third Party	Gas Development Agreement	1997
UAE	Al Dhafra	Oil	30.00%	US$451,872	Joint	Concession agreement	2012
	ADNOC Onshore	Oil	0.90%	US$244,054	Third Party	Concession agreement	2020

(1) Interests in these projects are held through Harvest Operations. US$6,294,678,000 represents the total amount of investment made by the Company in Harvest Operations, which was acquired by a subsidiary of the Company in December 2009.

(2) Interests in these projects are held through Dana Petroleum. US$4,957,086,000 represents US$3,496,454,000 of investment made by the Company in Dana Petroleum, which was acquired through a hostile tender offer in October 2010, and US$1,460,632,000 of investments made by the Company in Korea Captain Company Limited, which the Company transferred entirely to Dana Petroleum in October 2011, in consideration for additional shares issued by Dana Petroleum to the Company.

Major Production Projects

Canada

Harvest Conventional Projects. The Company's interests in production fields located in Canada are owned through Harvest Operations, a wholly owned subsidiary of the Company acquired in December 2009. Harvest Operations' operations are principally located in the western Canadian sedimentary basin. Harvest Operations has a high degree of operational control as it is the operator on properties that generate the majority of its production. Harvest Operations' core and strategic conventional production areas include Deep Basin Partnership, Hay River and Rocky Mountain House, which are located throughout Alberta and British Columbia. Harvest Operations had interests in 1,383 active wells, consisting of 1,187 producing wells and 196 injection wells, and 4,191 inactive wells, located throughout Alberta and British Columbia as of December 31, 2024, and had a daily crude oil and natural gas production of 20,194 barrels of oil equivalent for the year ended December 31, 2024 (including its equity share of Deep Basin Partnership production).

Oil and gas produced from these fields are sometimes processed at nearby processing facilities and transported to sales points through pipelines or other infrastructures, both of which may be owned by Harvest Operations or other third parties.

Pursuant to the June 2016 Government Plan, the Company disposed of Harvest Operations' interest in (1) Caroline Shallow field in Canada in 2018, (2) Blueberry, Consort Viking, Crooked Creek, Killarney and Worsley fields and Loon Oil sands in Canada in 2019, (3) Chamber fields in Canada in

2020, (4) certain additional assets, including West Central, Loon Lake and Royce, in 2021 and (5) the Wilson Creek field in Canada in 2025. The Company is exploring potential avenues to dispose of certain additional assets of Harvest Operations.

BlackGold Oil Sands Project. The Company acquired a 100.0% interest in an oil sands lease for the BlackGold area in August 2006. The BlackGold area is located 140 kilometers southeast of Fort McMurray within the Athabasca Oil Sands region of northern Alberta. Oil sands contain crude bitumen, which is a heavy and thick form of crude oil that does not flow unless it is heated or diluted with lighter hydrocarbons. In August 2010, the Company transferred its interest in the BlackGold project to Harvest Operations for approximately CAD 374 million, which was funded by Harvest Operations through the issuance of additional capital stock to the Company. To help Harvest Operations fund BlackGold project's initial capital, the Company has also injected approximately CAD 86 million of capital through the subsequent issuance of additional capital stock by Harvest Operations in 2010.

The initial phase of the project commenced production of approximately 8,000 to 9,000 barrels per day in September 2018. The expansion phase of the BlackGold project, which is targeted to expand production to 30,000 barrels per day, was approved by provincial regulators in 2013. The BlackGold project had daily production of 7,335 barrels of oil equivalent for the year ended December 31, 2024.

Kazakhstan

Akzhar Block. KNOC Kaz B.V., a wholly owned subsidiary of the Company located in Kazakhstan, acquired a 95.0% interest in Altius, a Canadian company listed on the Kazakhstan Stock Exchange, for US$515 million in March 2011. A local partner of the Company acquired the remaining 5.0%. In November 2023, KNOC Kaz B.V. acquired the 5.0% interest held by the local partner following its declaration of bankruptcy. Altius owns the Akzhar block in western Kazakhstan, which had daily production of 4,076 barrels of oil equivalent for the year ended December 31, 2024 and holds estimated reserves of 7.2 million barrels as of December 31, 2024.

Arystan and Kulzhan projects. In December 2009, KNOC Kaz B.V., a wholly owned subsidiary of the Company located in Kazakhstan, acquired an 85.0% ownership interest in KNOC Caspian LLP (formerly known as Sumbe JSC) in Kazakhstan, which owns the Arystan and Kulzhan projects located in western Kazakhstan. In 2023, KNOC Kaz B.V. acquired the remaining 15.0% interest from the local partner as the local partner declared bankruptcy. The Arystan project had daily production of 9,256 barrels of oil equivalent for the year ended December 31, 2024, and holds estimated reserves of 36.4 million barrels as of December 31, 2024. The Kulzhan project had daily production of 1,839 barrels of oil equivalent for the year ended December 31, 2024 and holds estimated reserves of 3.1 million barrels as of December 31, 2024.

Libya

Elephant Project. The Company owns a 2.0% interest in the Elephant project pursuant to an exploration PSA entered into in October 1990, the term of which was extended from 2015 to 2037 in 2008. The Elephant project is located in the Murzuk Basin, 850 kilometers south of Tripoli, and covers an area of approximately 139 square kilometers. Mellitah Oil & Gas B.V. is the operator of the Elephant project. The Elephant project had proved and probable reserves of approximately 4.5 million barrels of crude oil as of December 31, 2024. Production was temporarily halted from January 2020 to September 2020 due to the Second Libyan Civil War and from April 2022 to July 2022 and in September 2024 due to Libyan internal political conflicts. The Elephant project produced approximately 80,807 barrels of oil per day for the year ended December 31, 2024.

Peru

Block 8. The Company acquired a 20.00% interest in Block 8 in 1996 through a competitive bidding process. The three other equity holders in Block 8 are POSCO International, SK Innovation Co., Ltd. and Pluspetrol Norte S.A., which own an 11.67%, 8.33% and 60.00% interest, respectively. Block 8 is located in Maranon Basin in northern Peru, covering an area of approximately 1,800 square kilometers. Block 8 consists of four oil fields, Corrientes, Pavayacu, Yanayacu and Chambira. As of December 31, 2024, Block 8 has produced a cumulative total of 140 million barrels of oil since the Company acquired an equity interest. Block 8 was shut down in April 2020 due to the country-wide lockdown announced by the President of Peru. In October 2020, the Company notified the Peruvian government of its intentions to withdraw from the project and in April 2021, the Peruvian government and the equity holders of Block 8 entered into an international arbitration relating to the termination of mining rights and decommissioning of Block 8. In February 2023, the mining rights were terminated pursuant to the result of the arbitration. The arbitration relating to such termination is currently pending at the ICC International Court of Arbitration.

United Arab Emirates

Al Dhafra. The Company acquired a 30.0% interest in Area 1, an on-shore field in Abu Dhabi, through a Joint Venture Field Entry Agreement ("JVFEA") entered into with Abu Dhabi National Oil Corporation in March 2012, in consideration of cash payments and a commitment to engage in exploration and appraisal activities. Al Dhafra Petroleum Operations Company Ltd. ("Al Dhafra"), serving as the co-operator, was established in December 2013. Commercial oil production from the Haliba field in Area 1 commenced in June 2019 and the Haliba field achieved field production of 42,297 barrels of oil per day for the year ended December 31, 2024. As of December 31, 2024, Area 1 had remaining crude oil reserves of 196 million barrels. In addition, the Al Humrah and Bu Tasah fields achieved initial oil production in September 2021 and November 2021, respectively.

ADNOC Onshore. The Company acquired a 0.9% interest in the ADNOC Onshore project from Korea GS E&P in February 2020. ADNOC Onshore, a subsidiary of the Abu Dhabi National Oil Corporation, serves as the operator of the project which consists of twelve oil fields. The ADNOC Onshore project had total crude oil reserves of approximately 22.2 billion barrels as of December 31, 2024 and average daily production of 2.0 million barrels of oil equivalent in 2024.

United Kingdom

Dana Petroleum Projects. In January 2011, the Company acquired a 100.0% interest in Dana Petroleum through a hostile tender offer. Dana Petroleum is an oil and gas exploration and production company incorporated in the UK and headquartered in Aberdeen, UK, with a significant portion of its production and exploration assets located in the North Sea and Egypt. In March 2011, Dana Petroleum added six new offshore production fields through acquisition of production assets from Petro-Canada UK Limited. In October 2011, the Company transferred its entire interest in the KCCL to Dana Petroleum in consideration for additional shares issued by Dana Petroleum to the Company. In September 2012, the Company, through Dana Petroleum, acquired a 28.3% additional stake in the Bittern oilfields located in the North Sea from Hess Corp. for approximately US$135 million, raising its total interest in the field to 33.0%, together with the 4.7% interest that Dana Petroleum had already owned. In October 2013, the Company, through Dana Petroleum, sold a 19.0% stake in the Otter oilfield located in the North Sea to Abu Dhabi National Energy Company PJSC for approximately US$4.28 million. Dana Petroleum had proved and probable oil and gas reserves of approximately 72 million barrels of oil equivalent as of December 31, 2024, and had average daily oil and gas production of 35,539 barrels of oil equivalent in 2024. As of December 31, 2024, Dana Petroleum had interests in 38 production fields, which included 18 fields in the UK, five fields in Egypt and 15 fields in the Netherlands. The most significant contributions in terms of production are associated with participation in the fields of Tolmount, Greater Guillemot Area, Bittern and Captain in the UK and North Zeit Bay and South October in Egypt. As of December 31, 2024, the Company has provided guarantees to creditors for certain obligations of Dana Petroleum. See "Related Party Transactions." The Company is currently exploring potential avenues to dispose of certain assets of Dana Petroleum, including its interests in the production fields in the Netherlands and Denmark.

Tolmount Project. Dana Petroleum has a 50.0% interest as a non-operator in the development of the Greater Tolmount Area, which is located in the Southern North Sea in Block 42/28d (License P1330), 47 kilometers off the coast of East Yorkshire. The Tolmount main gas field was discovered in 2011 and initial production of gas commenced in April 2022 and is estimated to hold remaining proved and probable reserves of approximately 3.3 million barrels of oil equivalent as of December 31, 2024. In 2019, the Tolmount East gas field was discovered within the Tolmount block and initial production of gas commenced in December 2023 and is estimated to hold proved and probable reserves of approximately 8.1 million barrels of oil equivalent. The Tolmount main gas field and the Tolmount East gas field, together, held an average daily production of 15,105 barrels of oil equivalent in 2024.

Furthermore, in 2020, Dana Petroleum acquired 50.0% interest as an operator in Blocks 42/27, 47/2b and 47/3g (License P2563).

United States of America

ANKOR Offshore Project. In March 2008, the Company and Samsung C&T Corporation acquired an 80.0% and a 20.0% interest, respectively, in the ANKOR Offshore Project located on the shelf of the Gulf of Mexico. ANKOR Offshore Project contains several significant producing fields. In February 2012, the Company sold a 29.0% interest in the ANKOR Offshore Project to a consortium of Korean companies for approximately US$308 million, as part of an effort to increase Korean private sector involvement in resource development and to enhance the Company's liquidity. As a result of the sale, the Company's interest in the ANKOR Project was reduced from 80.0% to 51.0%. In January 2018, Samsung C&T Corporation sold its interest in the ANKOR Offshore Project to Sanare Energy Partners LLC. In February 2022, the Company sold its interest in ANKOR Offshore Project's SS230, SM27 and SM73 fields. The remaining field, MC21, has been transferred to KNOC Eagle Ford Corporation. The Company is currently in the process of terminating the ANKOR Offshore Project.

Eagle Ford Project. In March 2011, KNOC Eagle Ford Corporation, a wholly owned subsidiary of the Company, entered into a joint venture agreement with Anadarko. Under the joint venture agreement, the Company, through KNOC Eagle Ford Corporation, acquired a 23.7% interest in Anadarko's Maverick Basin assets, located in southwest Texas, which is mainly comprised of the liquids-rich Eagle Ford shale assets. In exchange, the Company funded approximately US$1.55 billion of Anadarko's 3-year capital costs from 2011 to 2013 in the Maverick Basin, and reimbursed Anadarko for net cash outflows relative to the Company's interests. In addition, as part of the arrangement with Anadarko, the Company acquired a 24.9% working interest in midstream (gathering, processing, treating and transporting) systems and facilities associated with the Maverick Basin assets for approximately US$27 million. In December 2012 and January 2013, KNOC Eagle Ford Corporation sold a 4.74% interest in the upstream assets and a 4.98% interest in the midstream assets to Vogo Eagle Ford LLC, for US$321 million and US$32 million, respectively. However, in December 2022, KNOC Eagle Ford Corporation re-acquired such previously sold interests in the upstream and midstream assets for US$287 million. In March 2017, Anadarko sold its interest in the Maverick Basin assets to Mesquite Energy Inc. (formerly known as Sanchez Energy Corporation). The Eagle Ford Project produced 103,547 barrels of oil equivalent per day in 2024. In July 2023, Mesquite Energy Inc. sold its interest in the Maverick Basin assets to Cresent Energy Company. In September 2023, Cresent Energy Company appointed Javelin EF L.P. as the operator.

Northstar Project. In December 2011, the Company, through ANKOR E&P Holdings Corporation and in consortium with GS E&R Co. Ltd. (formerly known as STX Energy E&P Offshore Management, LLC) and SCL Resources, LLC, jointly acquired a 100.0% interest in an offshore oil field located in the Gulf of Mexico region for approximately US$201 million from Northstar. In December 2018, SCL Resources LLC sold its interest to Sanare Energy Partners LLC. The Company has a 67.0% interest in the field. The Company is currently in the process of decommissioning and restoring the facilities prior to termination and such decommissioning is expected to be completed by the end of 2025.

Venezuela

Onado Project. The Company currently owns a 5.64% interest in the Onado Project, after initially acquiring a 12.00% interest in 1997 and undergoing ownership changes in 1998, 2002 and 2006. Other owners are Corporación Venezolana del Petróleo, S.A., Compañía General de Combustibles S.A. and EP Petroecuador, which own 60.0%, 26.0% and 8.36% interest, respectively. The Onado Project is located near Maturin in the center of Venezuela, and covers an area of approximately 160 square kilometers. Petronado Empresa Mixta S.A. is the current operator of the Onado Project. Hydrocarbon in the Onado Project was first discovered in 1971, and the Onado Project produced crude oil and natural gas in the amount of 363 barrels of oil equivalent per day in 2024.

Vietnam

Block 15-1. The Company entered into a PSA for a 14.25% interest in Block 15-1 with PetroVietnam Exploration and Production Company (which owns 50.0%), Perenco (which owns 23.25%), SK Innovation (which owns 9.00%) and Geopetrol (which owns 3.5%) in September 1998. Block 15-1 is located 50 kilometers offshore of Vietnam, and covers an area of 800 square meters. Cuu Long Joint Operating Company is the operating company for Block 15-1. The Company performed a leading role in the exploration stage and discovered a large, high-quality oil field in Su Tu Den field in September 2000, which was selected as "One of the World's Top Discoveries of 2000" by the American Association of Petroleum Geologists. Oil production in Su Tu Den field began in October 2003.

Following the discovery at Su Tu Den field, Cuu Long Joint Operating Company successfully discovered oil in Su Tu Vang field in October 2001, natural gas and condensate in Su Tu Trang field in November 2003, and oil in Su Tu Nau field in September 2005. In Su Tu Den Southwest and Northeast fields, 36 production wells produced oil and gas at an average of 11,317 barrels of oil equivalent per day as of December 31, 2024. In the Su Tu Vang field, 13 production wells produced oil and gas at an average of 2,786 barrels of oil equivalent per day in 2024. The Su Tu Trang field also commenced production in 2012 and produced 19,701 barrels of oil equivalent of oil and gas per day in 2024. In the Su Tu Nau field, 12 production wells produced 3,548 barrels of oil equivalent of oil and gas per day in 2024. The Company is also currently in the process of developing phase 2 production of the Su Tu Trang field, which is targeted to expand production to 44,500 barrels per day, and was approved by provincial regulators in 2019. Initial production of Su Tu Trang phase 2 commenced in June 2021.

Yemen

LNG Project. The Company began participation in the Yemen LNG Project as part of the SK consortium in 1997 and currently owns a 1.06% interest in the project. The project launched an LNG liquefaction plant in 2005, which was completed in 2010. The reserves within the Marib area which are currently dedicated to the project include 7.2 trillion cubic feet of proven gas reserves and an additional 0.7 trillion cubic feet of probable gas reserves. The plant and terminal are located in Balhaf, Yemen. First shipment was in November 2009. The operator of the project ceased production in April 2015 due to security concerns around the region. The Company and other participants of the project are continually monitoring the situation and plan to resume production when practicable.

Block 4-Production. The Company owns a 50.00% interest in Block 4 pursuant to a PSA entered into with the Yemeni government in 2007, and the subsequent dissolution of the consortium which initially purchased the interest in the block. Block 4 is located in the Sabatayn (Marib — Shabwa) basin, in the southeastern part of Yemen, covering an area of approximately 2,000 square kilometers. In July 2013, the board of directors of the Company approved a withdrawal plan from the field due to the failure to discover viable oil reserves and the political instability in the region and in September 2013, the Company notified the Yemeni government of the withdrawal and the return of the Company's interests. The Company is currently in the process of carrying out the withdrawal plan.

Production Volume and Pricing

The following table sets forth the Company's historical annual crude oil and natural gas production by country and the Company's average sales price for the years ended December 31, 2022, 2023 and 2024.

	For the Year Ended December 31,		
	2022	2023	2024
Crude oil production(1)(2)(3)			
(thousands of barrels, except percentages or otherwise indicated)			
Canada	5,422	4,762	5,113
Iraq	0	0	0
Kazakhstan	5,053	5,576	5,607
Korea	19	0	0
Libya	370	592	592
Peru	0	0	0
United Arab Emirates	10,463	11,065	11,238
United Kingdom	8,018	7,084	6,270
United States of America	5,500	5,553	3,926
Venezuela	3	5	7
Vietnam	2,104	1,892	1,575
Total	36,952	36,529	34,327
Average sales price(4) (US$ per barrel)	68.15	70.48	69.58
Natural gas production(1)(2)(3)			
(millions of cubic feet, except percentages or otherwise indicated)			
Canada	11,875	13,837	13,669
Kazakhstan	1,219	1,395	1,522
Korea	0	0	0
Peru	0	0	0
United Kingdom	39,058	34,226	39,077
United States of America	17,364	16,597	34,300
Venezuela	5	3	3
Vietnam	10,257	9,071	6,272
Total	79,778	75,129	94,843
Average sales price(4) (US$ per thousand cubic feet)	12.83	7.24	7.09

(1) Production volumes for regions where the Company does not own 100.0% interest consist of the Company's share of the production from all of the Company's cooperative projects with other companies in that region.

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

(3) Includes natural gas liquids.

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

Major Exploration Projects

The Company undertakes a number of projects to expand its commercially viable production facilities and fields. As exploring for oil and gas is a time-consuming and capital-intensive process, the Company's New Ventures and Exploration Group carefully analyzes each prospective location along with its partners and third party technical experts to determine the proper scope of each project, as well as consult an internal committee composed of heads of other departments and technical experts before making investment decisions. The Company is currently conducting exploratory activities in 11 projects. The following is a summary of the Company's major exploration projects as of December 31, 2024.

Exploration Projects	Company Ownership	Arrangement Type	Status	Operated By
Korea (Block VI-1 Central, East). . .	100.0%	Exploration Right	Conducting technical evaluation	KNOC
Korea (Block VI-1 North/VIII)	100.0%	Exploration Right	Conducting post-well evaluation	KNOC
Korea (Block IV/V).	100.0%	Exploration Right	Conducting technical evaluation of the South Sea shelf area	KNOC
Korea (Block I/II/III)	100.0%	Exploration Right	Progress/preparing for 3D seismic data acquisition	KNOC

Korea

Korea is surrounded by extensive continental shelves with an area of approximately 300,000 square kilometers, which contain potential for oil and gas reserves. Between 1972 and 1982, oil and gas exploration in Korea was led by western oil companies. In 1983, the Company began its own exploration projects within Korea, and has conducted significant 2D seismic surveys and drilled many exploratory wells since then.

There are currently three offshore sedimentary basins (Jeju Basin, Ulleung Basin and Yellow Sea Basin (West Sea Basin)) around the Korean peninsula.

Jeju Basin. The Jeju Basin is in the northeastern part of the East China Sea Shelf Basin, which is the largest Mesozoic-Cenozoic basin in the continental margin of China. The Jeju Basin is sub-divided into three sub-basins, the Ieodo sub-basin including Block IV and Block V, the Domi sub-basin including Block VI-2 and the Jeju sub-basin spanning Block V and situated on the western part of the Joint Development Zone (the "JDZ") between Korea and Japan. Exploration at these blocks began in the 1960s by foreign oil companies, and there are 57,133 L-kilometers of 2D seismic data and 1,058 square kilometers of 3D seismic data as well as 15 exploratory wells in the region. The Company and several Japanese oil companies also conducted joint studies on petroleum potential throughout the JDZ from 2004 to 2009. The exploration and studies in the region have resulted in only a few oil and gas showings and have yet to reveal reserves substantial enough for commercial development. As a result, the Company discontinued its exploration activities in JDZ subzone-1 in June 2017. However, the Company believes there is significant potential for petroleum reserves in the production fields and has acquired concessions for JDZ subzones-2 and 4 in 2020 and for Blocks IV and V in 2022 for the exploration of hydrocarbon. The Company has conducted 495 square kilometers of 3D seismic data and is evaluating the hydrocarbon potential of the Jeju Basin. In addition, the Company is currently preparing to acquire exploration licenses for Block VI-2 by the end of 2025 to re-evaluate its exploration potential.

Ulleung Basin. The Ulleung Basin is located in the southwestern part of the East Sea, and contains Block VI-1 and Block VIII, each covering an area of 12,917 square kilometers and 8,481 square kilometers, respectively. Initial exploration efforts in Block VI-1 began in 1970 by the Royal Dutch Shell Oil Company, resulting in 5,193 L-kilometers of 2D seismic survey data and one exploratory well. Although not tested, the exploratory well encountered numerous gas shows. Since 1983, the Company and other oil companies have conducted 23,119 L-kilometers of 2D seismic survey and 10,439 square kilometers of 3D seismic survey and drilled 26 exploratory wells, most of which are focused on the shelf area and found 12 minor gas deposits. These efforts led to the eventual discovery of Donghae-1 gas project in 1998. Additional gas reservoirs around Donghae-1 gas project were confirmed in 2005 and 2006, and were further developed between 2008 and 2009.

Starting in 2003, the Company expanded its exploration efforts to the continental slope and the deep-sea area of the Ulleung Basin. In February 2007, Woodside Energy (Korea) Pte. Ltd. ("Woodside") and the Company agreed to explore 8/6-1N. Pursuant to a Joint Operating Agreement, the Company and Woodside each holds a 50.0% interest in 8/6-1N. Prior to the expiration of the exploration rights in 8/6-1N in December 2016, the Company and Woodside carried out two Marine Seismic Surveys ("MSS"), one 2D MSS of 5,100 L-kilometers in 2008 and one 3D MSS of 504 square kilometers in 2014, and two exploratory drillings in 2015 that resulted in one well tested to produce gas. In April 2019, the Company and Woodside acquired new exploration rights in 8/6-1N and carried out additional 3D MSSs of 2,071 square kilometers in 2021. In January 2023, the Company acquired Woodside's 50.0% interest in 8/6-1N and in May 2023, acquired 1,206 square kilometers of 3D seismic data. In 2024, an exploration well was drilled in 8/6-1N. In September 2011, the Company obtained the right to explore underwater resources at Block VI-1 ("6-1C") pursuant to an agreement entered into with the Korean government. In March 2014, the Company started to explore the Donghae-2 gas project (within 6-1C) located approximately 5.4 kilometers away from the Donghae-1 gas project, and drilled one production well named DH 2-1P in December 2015. In April 2016, the Company and POSCO International conducted a 3D marine seismic survey of 612 square kilometers for further exploration in 6-1C. The Company acquired the right to explore the eastern part of Block VI-1 ("6-1E") from the Korean government in 2013, and conducted a technical review of 6-1E during 2014 as part of the overall evaluation of the Company's projects in Korea. The Company conducted a 3D seismic survey of 224 square kilometers in 2015. The Company's exploration rights to 6-1C and 6-1E had expired in 2018 and 2019, respectively. However, in February 2020, the Company acquired new exploration rights for 6-1C and 6-1E, which were combined. The Company holds 100.0% interest in the combined blocks and has conducted 2,575 square kilometers of 3D seismic survey in 2022 based on results from exploration drillings which were carried out in 2021.

Yellow Sea Basin. The Yellow Sea Basin is composed of three exploration blocks containing numerous sub-basins that are relatively less explored than the other sedimentary basins in offshore Korea. The Company and several foreign companies conducted seismic data acquisition and offshore drilling, totaling 39,782 L-kilometers of 2D seismic data, 606 square kilometers of 3D seismic data and six exploratory wells. Although exploration results have not been successful, the Company has been trying to make hydrocarbon discoveries in the region. Based on studies conducted by the Industry-University-Institute Cooperation in 2013, the Company identified several potential areas in the West Sea Basin. In October 2023, the Company acquired exploration licenses for Blocks 1, 2 and 3 and acquired 4,000 L-kilometers of 2D seismic surveys in the second half of 2024. The Company plans to complete 1,213 square kilometers of 3D seismic surveys in 2025 and explore new exploration plays and drillable targets.

Types of Exploration, Development and Production Agreements Entered into by the Company

The Company participates in the exploration, development and production of crude oil and natural gas ("E&P project") in a number of countries and geographic regions and is therefore subject to a broad range of rules and regulations which cover many aspects of exploration, development and production activities, including lease tenure, production sharing rates, royalties, pricing, environmental protection, export taxes and foreign exchange. The Company enters into a wide range of contractual arrangements governing the Company's E&P projects and its interest in oil and natural gas from those projects. Depending on the type of E&P project, the Company holds its interest in a project or an area through a PSA, concession agreement or service contract, or permits and licenses from a government-controlled entity or a national oil company of the country in which such E&P project is located. After acquiring its interest in an E&P project, the Company also enters into joint operating agreements to designate an operator of the E&P project and to determine the operational details of the exploration, development and production process.

The terms of different contractual arrangements vary substantially among different countries and geographic regions, project types and the time the agreements were entered into. To evaluate geological, geophysical, engineering and transportation issues involved in exploration and production, the Company also may enter into a technical evaluation agreement prior to entering into a PSA, which contains terms similar to a PSA.

Production Sharing Agreements

Most of the Company's exploration, development and production arrangements are governed by PSAs. Under a typical PSA, the government or the national oil company owning rights over the particular block at issue is the licensee and the Company and its partners, if any, assume the role of a contractor engaged in the exploration and development of the specific block, usually on the condition that the host government does not directly participate in the E&P project. The contractor is typically required to provide all the financing and bear all exploration and development costs and the associated risks. To compensate for these investments and the risks, upon the successful development and production of oil or natural gas in the relevant block, the contractor recovers its costs and receives the economic benefit of a portion of the produced oil and natural gas in accordance with a production sharing formula set out in the PSA.

A typical PSA has a term of two to six years for the exploration period, renewable upon the parties' agreement. During the exploration period, the contractor may be required to relinquish a portion of the original contract block to the government or the national oil company, excluding the areas in which oil or natural gas has been discovered. Moreover, the contractor is usually required to complete a minimum amount of survey and drilling during the exploration period.

Concession Agreements, Permits and Licenses

In addition to PSAs, the Company also enters into concession agreements. In a concession agreement, the government grants to the contractor an exclusive right to explore for, develop, produce, transport and dispose of crude oil and natural gas within a specified block. Thus the contractor bears the risk of exploration, development and production activities as well as the related costs, including financing for the operations. In principle, the contractor has the right to all of the production, less any production related fees, royalties or taxes that are payable in cash or in kind. The contractor recovers its investments and associated operating, exploration and development costs from the sale proceeds of the oil or natural gas produced, after such deductions.

A concession agreement usually requires the contractor to undertake a minimum amount of exploratory work as scheduled in the agreement. From the commencement date, the contractor is usually required to pay the host governmental entity an annual fixed sum for its exploration and development rights. Once crude oil and natural gas are produced in commercial quantities, the contractor is required to pay a royalty in lieu of the annual fixed payment. The amount of royalty payment is usually higher than that of the annual fixed payment. In addition, the contractor is required to pay the governmental entity bonuses when the production volume reaches the thresholds specified in the agreement, and production taxes to the host country's government. The contractor may also be obligated to grant to the host country's government a right to purchase certain amounts of crude oil at discounted prices.

The Company and its partners, if any, also enter into arrangements similar to concession agreements called "permits," "licenses" or "exploration and production contracts" granted by the relevant governmental authority to explore and develop specified areas. Under permits, licenses or exploration and production contracts, the contractor bears the risk of exploration, development and production activities and is responsible for the related financing. The contractor has the right to all of the production less any royalties that are payable in kind or cash whereby it can recover all of its investments and associated operating, exploration and development costs from the sale proceeds of the oil or natural gas produced. The Company is generally required to pay production taxes, bonuses or royalties, the amount of which may be in proportion to the actual volume of the produced oil or natural gas. Moreover, similar to the concession arrangements in the Middle East or typical PSAs, the contractor is also obligated to complete a minimum amount of exploration work as specified in the applicable agreement.

Service Contract

A service contract is a particular exploration, development and production arrangement entered into in countries where local laws restrict the ownership by foreign investors over domestic oil and natural gas. A foreign company, as a contractor, enters into a service contract with the host government or the national oil company, which delineates certain exploration, development and production targets that the contractor is obligated to meet within a specified period. Upon completion of the exploration and development stages and the commencement of oil and natural gas production, the ownership of certain facilities, such as exploration and developmental wells along with operational facilities, are transferred to the relevant host government or the national oil company, which then assumes the production activities.

Pursuant to a compensation agreement entered into with the host government or the national oil company together with a service contract, the contractor under the service contract recovers all investments and financing costs associated with the project from the produced crude oil and natural gas. In addition, the contractor receives compensation for its services, typically a predetermined percentage of the proceeds from the sale of the produced oil and natural gas received by the host government or the national oil company for a certain period, either in cash or in kind. Certain countries allow the contractors to purchase the produced oil or natural gas themselves.

Joint Operating Agreements

When the Company participates in exploration, development and production projects together with other companies, it enters into joint operating agreements (“JOAs”). Under a typical JOA, a joint venture is formed and each joint venture partner holds its respective undivided proportionate interest in the underlying contractual arrangement and the rights and obligations under such arrangement. The JOA typically designates an operator who is exclusively in charge of all petroleum-related operations, which usually includes preparing work programs and budgets, procuring equipment and materials relating to operations, establishing insurance programs, and issuing cash call notices to the joint venture partners. The operator is also responsible for determining and executing operation and budget plans and managing all day-to-day operational matters.

The operational activities conducted by the operator are generally funded by monthly cash calls based on the annual work program and budget approved by the operating committee, which is usually composed of representatives from each of the joint venture partners. If the operational costs exceed the approved operational budget, the operator is usually required to obtain an additional approval of the operating committee. The operating committee has the authority to make all material decisions concerning the joint operating project.

Representatives of each joint venture partner review joint venture accounts and records and provide reports before they are sent to the relevant government entities. Liabilities with respect to uninsured operations are generally borne by all joint venture partners in proportion to their respective interests in the project. The JOAs generally specify that the operator will acquire insurance on behalf of the joint venture partners, unless such joint venture partner or partners choose to acquire insurance individually, or self-insure their risks.

The JOAs generally terminate on the earlier of an agreement by the parties to terminate the joint venture or the termination of the underlying contractual arrangements. In addition, the ability of the joint venture partners (including the operator) to transfer or assign their rights under the JOA or otherwise withdraw from the joint venture is generally subject to pre-emptive or first refusal rights in favor of the remaining joint venture partners as set forth in the relevant JOA.

Exploratory and Development Wells

The following table sets forth the number of net exploratory and development wells the Company drilled, or in which the Company participated, and the results thereof, for the periods indicated.

Exploratory and Development Wells

Period		Total
2022	**Net exploratory wells drilled**[(1)]	1.47
	Crude oil	0.77
	Natural gas	—
	Dry[(2)]	0.70
	Net development wells drilled[(1)]	8.25
	Crude oil	7.75
	Natural gas	0.50
	Dry[(2)]	—
2023	**Net exploratory wells drilled**[(1)]	0.8
	Crude oil	0.5
	Natural gas	—
	Dry[(2)]	0.3
	Net development wells drilled[(1)]	0.6
	Crude oil	0.6
	Natural gas	—
	Dry[(2)]	—
2024	**Net exploratory wells drilled**[(1)]	0.55
	Crude oil	0.3
	Natural gas	0.25
	Dry[(2)]	—
	Net development wells drilled[(1)]	0.6
	Crude oil	0.6
	Natural gas	—
	Dry[(2)]	—

(1) "Net" wells refer to the wells after deducting interests of others.

(2) "Dry" wells are wells with insufficient reserves to sustain commercial production.

Sales and Marketing

The Company sells all of its domestically produced natural gas to Korea Gas Corporation. Natural gas produced in other countries, such as Vietnam and Indonesia, is sold directly to customers worldwide, including energy companies and trading companies. Most of the Company's crude oil and natural gas produced outside of Korea is sold to major domestic and international refineries, and energy and resource trading companies.

Sales of Crude Oil

The Company sells various types of crude oil with different gradations of quality and chemical content. The Company generally sells its crude oil and condensate oil to oil refineries, trading companies and petrochemical companies worldwide. The Company estimates the demand for crude oil from potential buyers and uses such estimates to determine the volume of crude oil to supply.

The price of crude oil is directly correlated to the global market price because it is a publicly traded commodity. The contract price of crude oil is determined through negotiations or tenders with buyers based upon the pricing standards adopted by each oil-producing country. For example, the price of oil produced in Indonesia is determined based on the Indonesian Crude Oil Price, which is based on price assessments announced by three private oil-rating companies in Indonesia. Prices of oil produced in other regions are typically determined based on the prevailing international oil price in the region. Spot oil prices are determined by either adding a premium or providing a discount to the public crude oil prices discussed above.

The crude oil and condensates are generally sold under free on board terms directly or through trading companies to oil refineries, power companies and petrochemical companies. Generally, there are two types of oil sales contracts — term contracts and spot contracts. A term contract is typically an annual contract usually lasting from January to December of the same year or from April to March of the following year (each such period, a "term year"). The Company determines the sales volume for the term year based on the estimated production for such term year estimated by the project operator at the end of the year before the beginning of the corresponding term year.

The Company decides when and to whom it sells its products taking market conditions into consideration. The Company also maintains favorable business relationships with major domestic refineries to ensure stable energy supply into Korea. The Company partially conducts its crude oil marketing and sales activities through its Petroleum Marketing Department, usually pursuant to term contracts. The Company hedges a portion of its crude oil sales through swap or option contracts and such hedging decisions are recommended by its Risk Management Department and decided on by the relevant subsidiaries.

Harvest Operations markets its crude oil and natural gas liquids ("NGLs") production to a diverse portfolio of intermediaries and end users with the majority of oil contracts continually renewing on a 30 day basis and the NGL contracts on one year terms with the prices of both commodities derived from the prevailing monthly market prices. Harvest Operations has a small number of condensate purchase contracts, required for blending heavy oil to meet pipeline specifications, that are a combination of one year and monthly spot contracts, both with prices derived from the prevailing monthly market prices.

Sales of Natural Gas

The Company sells and supplies natural gas to its customers abroad. The Company's revenues derived from natural gas sales accounted for approximately 27%, 17% and 17% of its total sales for the years ended December 31, 2022, 2023 and 2024, respectively. Due to its gaseous state, natural gas must be transported to the market either through pipelines or by a tanker after liquefaction into liquefied natural gas ("LNG"). Petroleum gas or propane and butane are also liquefied for transportation. Such liquefying facilities and pipelines require significant capital investment. In order to recover the high cost of investment, suppliers of LNG or natural gas seek buyers to whom they can sell a steady volume of gas over a long period of time to ensure consistent flow of future revenue. Moreover, upstream natural gas suppliers, such as the Company, have commonly sold gas products jointly with other companies instead of individually. For example, in Vietnam, the Company and other oil and gas companies supply most of their natural gas to Vietnam Oil and Gas Corporation, Vietnam's state-owned oil and gas corporation pursuant to long-term gas supply agreements. Vietnam Oil and Gas Corporation, in turn, sells the natural gas to various purchasers, including power companies, gas companies, petrochemical companies, trading companies and oil refineries within Vietnam and worldwide pursuant to long-term sales contracts and purchase agreements. The Company supplies 100% of the natural gas produced at the domestic Donghae-1 gas project to Korea Gas Corporation pursuant to a long-term supply contract.

The majority of Harvest Operations' natural gas production is currently being sold at the monthly average price of Alberta Energy Company ("AECO"), the benchmark price for natural gas in Western Canada.

Petroleum Stockpiling

Overview and Strategy

Korea was the world's seventh largest consumer of petroleum in 2023 according to the 2024 Statistical Review of World Energy by BP p.l.c. and meets substantially all of its oil needs from imports. To mitigate the risks to the Korean economy posed by disruptions in oil supply or fluctuations in oil prices, the Government has adopted a series of oil stockpiling plans that have been implemented by the Company. The Company currently owns and operates nine stockpiling facilities, with a total storage capacity of 146 million barrels. The Company stockpiles crude oil, refined oil products (including kerosene, gasoline and diesel) and liquefied petroleum gas ("LPG"). The Company's stockpile facilities are located in Donghae, Geoje, Gokseong, Guri, Pyeongtaek, Seosan, Ulsan, Yeosu and Yongin.

Under the Government's Fourth Stockpiling Master Plan, which was announced in December 2014 and amended in November 2018 and November 2021, the Company is required to maintain its stockpiling capacity at 146 million barrels until the end of 2025. Pursuant to the Fourth Stockpiling Master Plan, the Company is seeking to reach a stockpile reserve level of 100 million barrels by 2025. Korea's stockpile reserve level as of December 31, 2024, which includes the reserves held by the Company and companies in private industry, is approximately 196 days of net oil imports based on calculation standards of the International Energy Agency (the "IEA"). Korea joined the IEA as a member in 2002 and became a party to the Agreement on an International Energy Program, which requires that participating countries maintain oil reserve levels of at least 90 days of net oil imports. The Government contributed a total of approximately Won 5.8 trillion to the Company for execution of the Stockpiling Master Plans as of December 31, 2024, of which approximately Won 2.4 trillion was used to construct stockpile facilities and Won 3.4 trillion was used to purchase additional stockpile oil reserves.

The Company's stockpiling strategy prior to 1999 consisted mainly of purchasing and storing oil supplies and providing oil to domestic refineries when anticipated deliveries of crude oil do not arrive on time or when there is a shortage of crude oil due to other emergencies. The Company also leases excess storage facilities to domestic oil companies. Since 1999, the Company has sought to increase its stockpile level and generate more income from its stockpiling activities by participating in international stockpile arrangements and engaging in oil trading activity.

International Stockpiling. As a means of increasing the Company's stockpile level, the Company enters into contracts with national oil companies of oil-producing countries, major international oil companies and oil trading companies to store their petroleum in the Company's stockpile facilities as part of these companies' distribution network for markets in northeast Asia. The Company receives a fee for allowing these companies to use its stockpile facilities, and as part of the arrangement, these companies are obligated to supply petroleum to the Company at the market price up to the volume of the leased storage space during periods of oil shortage or other emergencies. Participation in international stockpiling arrangements has allowed the Company to increase its oil reserve levels, generate revenue from its stockpile facilities and create opportunities to purchase crude oil for domestic use in emergencies.

Oil Trading. Since 2000, the Company has been engaging in trading activities for a portion of its oil reserves to supplement its revenues and increase its oil reserves, but only at levels that would not compromise its oil reserve maintenance objectives. The Company uses its oil reserves as well as its storage facilities to enter into oil trading transactions with oil and commodities trading companies. The Company also receives fees from lending its oil reserves to domestic refineries.

Gasoline and Gas Oil Wholesale and Economical Gas Stations. In order to reform the oil product distribution landscape in Korea and to minimize price increase, the Company began engaging in gasoline and gas oil wholesale and operation of economical gas stations with the opening of the first economical gas station in December 2011. The Company purchases gasoline and gas oil at wholesale prices from refineries and overseas sources utilizing its stockpile facilities, and delivers such oil to the economical gas stations. As of December 31, 2024, the Company, along with Korea Expressway Corporation and the National Agricultural Cooperative Federation, operated 1,279 such economical gas stations located throughout Korea. The Company believes that the economical gas stations provide reasonably priced petroleum products to Korean consumers and expects the business to stabilize at its current level.

Operation of Stockpile Facilities

The Company's stockpile facilities are located throughout Korea. The following table is a summary of the Company's stockpile facilities as of December 31, 2024:

Stockpile Facility	Location	Surface Area (in square kilometers)	Operation Since	Aboveground/ Underground	Total Storage Capacity
Donghae	Gangwon Province	0.1	2000	Aboveground	1.1 million barrels (refined oil products)
Geoje	South Gyeongsang Province	2.9	1985	Aboveground and underground	47.5 million barrels (crude oil)
Gokseong	South Jeolla Province	0.4	1999	Aboveground	2.1 million barrels (refined oil products)
Guri	Gyeonggi Province	0.6	1981	Underground	3.0 million barrels (refined oil products)
Pyeongtaek	Gyeonggi Province	0.7	1989	Aboveground and underground	4.4 million barrels (LPG); 1.8 million barrels (refined oil products)
Seosan	South Chungcheong Province	0.9	2005	Aboveground	11.0 million barrels (crude oil); 3.6 million barrels (refined oil products)
Ulsan	Ulsan Metropolitan City	0.7	1981	Underground	16.8 million barrels (crude oil)
Yeosu	South Jeolla Province	3.9	1998	Aboveground and underground	52.2 million barrels (crude oil)
Yongin	Gyeonggi Province	0.3	1998	Aboveground	2.5 million barrels (refined oil products)

Engineering and Construction

Overview

In support of the Company's stockpiling and exploration and production business, the Company is also engaged in the construction of crude oil and gas storage facilities throughout Korea, as well as the construction of production facilities. The Company constructed nine stockpile facilities that it currently operates pursuant to the Stockpiling Master Plans, as well as the production facilities used in the Donghae-1 gas project and the Vietnam Block 11-2 gas project. The Company is also working to expand its construction business overseas and assisting domestic construction companies to increase their competitiveness in overseas construction markets by providing technological support. In addition, the Company is planning to construct a low-carbon ammonia distribution infrastructure for the distribution and storage of low-carbon ammonia, including the construction of related terminals and pipelines. In July 2019, the Company, in consortium with Korea East-West Power Co., Ltd. and Equinor ASA, agreed to develop and construct a 200MW floating offshore wind farm near its Donghae project, and the project has currently received approval from relevant Government authorities, including an electricity business license, which was granted in 2021. The project utilizes the gas production platform of the Company's Donghae 1 project, which has ceased operations.

Construction of Petroleum and LPG Stockpile Facilities

Stockpile facilities consist of aboveground tank facilities or underground cavern facilities. Aboveground facilities are easier to construct, and thus require a shorter construction period, usually from three to five years, are easier to maintain initially, and are not restricted in where they can be built or in the types of product that can be stored there. However, aboveground facilities are also more vulnerable to external threats such as theft, terrorist attacks or fires, more expensive to construct, and have a shorter life cycle. Underground facilities provide higher security and safety, have a semi-permanent life cycle, are more environmentally friendly and require lower construction and maintenance costs. However, they also take longer to build, usually from five to eight years, may be built only on sites that meet specific geological requirements, and are limited in the types of petroleum products that can be stored in them. The Company currently has seven aboveground tank facilities and five underground facilities.

In 2018, the Company commenced construction to update the water curtain system at its Geoje underground storage facilities and transferred the Ulsan storage facility's offshore loading platform to another location as part of the Government's plan to develop a new seaport in Ulsan. The first phase of such constructions were completed in 2018. The second phase of such constructions, which relate to the Geoje underground storage facilities, commenced in April 2022 with an aim for completion in 2027. In June 2021, the Company completed the construction of new underground storage facilities at its Ulsan site to replace certain aboveground storage facilities, and has also completed building additional aboveground storage facilities at its Yeosu site in October 2017. Furthermore, in August 2023, the Company commenced construction to substitute its underground crude oil pipeline at its Ulsan site and construction is expected to be completed in 2026.

Construction of Production Facilities

The Company also supports its exploration and development projects by constructing production facilities used at some of its oil and gas fields. The Company constructed the offshore platform, onshore terminal, subsea production system, and the subsea and onshore pipeline at the Donghae-1 gas project. The Company also constructed the natural gas production facilities at the Vietnam Block 11-2 gas project in Rong Doi, consisting of two offshore platforms, a subsea pipeline and a floating storage and offloading unit. The Company also provides construction support for construction of production platforms or pipelines at several of its production or exploration sites, including Vietnam Block 15-1, BlackGold Project, Arystan block and Tolmount East.

New Energy

The Company focuses on establishing and enforcing Government policies and strategies relating to the environment, social responsibility and corporate governance in order to promote sustainable growth. The amendment to the Korea National Oil Corporation Act which was implemented in July 2024 expands the scope of the Company's business to include clean hydrogen and ammonia projects, including overseas production projects and domestic infrastructure projects for securing stable supply chains and for the efficient distribution of clean hydrogen and ammonia, and carbon reduction projects, including carbon capture, transport and storage projects, for the proactive reduction of greenhouse gas.

Floating Offshore Wind Farm Project

In July 2019, the Company, in consortium with Korea East-West Power Co., Ltd. and Equinor ASA, agreed to develop a 200MW floating offshore wind farm near its Donghae project, and the project has currently received approval from relevant Government authorities, including an electricity business license, which was granted in 2021. The project utilizes the gas production platform of the Company's Donghae 1 project, which has ceased operations. The Company is also planning to acquire a 29% equity interest in Donghae Floating Offshore Windpower Co., Ltd. in order to mobilize its floating offshore wind farm business.

Carbon Capture and Storage

In furtherance of the Government's Nationally Determined Contribution targets, the Company participates in CCS projects which comprise (1) capturing carbon dioxide from industrial emission sources, (2) transporting the captured carbon dioxide to injection sites and (3) injecting the captured carbon dioxide into safe geological formations for permanent storage. Currently, the Company is working on Korea's first large-scale CCS demonstration project by converting certain facilities of its Donghae project, which has ceased operations, with an aim to inject 1.2 million tons of carbon dioxide per annum into the Donghae-1 gas reservoir in 2028.

Low-Carbon Hydrogen Ammonia Project

The Company strives to actively engage in projects relating to the production, transportation, import, stockpile and distribution of low-carbon hydrogen and ammonia based on its exploration, production and oil stockpiling business experiences and capabilities. The Company aims to establish a domestic clean hydrogen and ammonia infrastructure, including distribution terminals, processing facilities and stockpiling bases. The Company also plans to utilize its network with oil producing countries to diversify hydrogen and ammonia production bases. With the support from the Government, the Company endeavors to establish global value chains with overseas and domestic companies for the production, transportation, distribution and storage of low-carbon hydrogen and ammonia.

Other Businesses

Petroleum Information and Publication

Due to Korea's heavy dependence on foreign oil, efficient and accurate collection of information related to the global oil market is essential to Korea's ability to promptly respond to international market developments. In furtherance of its position as the execution arm of Korea's oil-related policies and operations, the Company, through its Smart Data Center, also engages in the collection, compilation, analysis and publication of domestic and international oil-related information. The information provided by the Company is used widely not only in the oil industry, but also in the decision-making process for oil policies by the Government. The Company is currently certified by the Government to provide the official domestic oil usage and pricing data.

The Company currently publishes oil-related information through the following media:

Publication Title	Content	Medium	Language
Petronet	Multimedia internet website with comprehensive oil information service network, consisting of an extensive database on all Korean oil-related information. Both paid and free subscriptions are available.	Internet	Korean/ English
Korea Monthly Oil Statistics	Provides historical and up-to-date statistics on Korean oil supply and demand, including export, import, throughput, consumption and inventories, as well as analysis of Korean oil statistics.	Internet (Email)	Korean/ English
Daily Petroleum Status	Provides key international oil prices and indices, major news related to the domestic and international oil market, and prices of domestic oil (crude and refined) products.	Internet	Korean
Weekly International Oil Price Status	Provides weekly price status of international crude oil, oil products, as well as an update on the status of the Singapore oil market.	Internet	Korean
Weekly Domestic Oil Price Status	Provides weekly price status of domestic oil products, classified by gas stations, refineries and distributors.	Internet	Korean
Annual Oil Supply Statistics	Compilation of annual statistics relating to domestic oil imports, refineries and distributors.	Printed	Korean
Opinet	Publishes real-time product prices for domestic gas stations, as well as oil sale prices for all domestic oil distributors and refineries, both through www.opinet.co.kr(1) and other devices such as Global Positioning System navigators and mobile phones.	Internet	Korean

(1) Website addresses in this Offering Circular are included for reference only, and the contents of such websites are not incorporated by reference into this Offering Circular and should not be considered a part of this Offering Circular.

Affiliates

Certain information with regard to affiliates of the Company that are accounted for using the equity method as of such date are set forth in the table below.

	As of or for the year ended December 31, 2022					
Entity	Country of Incorporation	Equity Interest	Total Assets	Total Liabilities	Revenue	Net Income (Loss)
	(In billions of Won, except for percentages)					
Oilhub Korea Yeosu Co., Ltd.	Korea	29%	468	256	47	(2)
Parallel Holdings LLC	United States	10%	181	327	95	39
KOREA GS E&P Pte. Ltd.	Singapore	30%	2,053	969	2,696	99
Korea Energy Terminal Ltd.	Korea	52%	788	633	—	(4)
Deep Basin Partnership	Canada	84%	190	210	50	4
HKMS Partnership	Canada	70%	85	42	27	14
Al Dhafra Petroleum	United Arab Emirates	30%	507	—	—	—

	As of or for the year ended December 31, 2023					
Entity	Country of Incorporation	Equity Interest	Total Assets	Total Liabilities	Revenue	Net Income (Loss)
	(In billions of Won, except for percentages)					
Oilhub Korea Yeosu Co., Ltd.	Korea	29%	434	221	53	2
Parallel Petroleum LLC	United States	10%	—	—	94	53
KOREA GS E&P Pte. Ltd.	Singapore	30%	2,183	1,087	2,357	104
Korea Energy Terminal Ltd.	Korea	52%	1,050	903	—	(7)
Deep Basin Partnership	Canada	84%	147	194	35	(30)
HKMS Partnership	Canada	70%	82	23	29	15

	As of or for the year ended December 31, 2024					
Entity	Country of Incorporation	Equity Interest	Total Assets	Total Liabilities	Revenue	Net Income (Loss)
	(In billions of Won, except for percentages)					
Oilhub Korea Yeosu Co., Ltd.	Korea	29%	443	219	64	11
Parallel Holdings LLC	United States	10%	—	—	—	(13)
KOREA GS E&P Pte. Ltd.	Singapore	30%	2,583	1,312	2,445	116
Korea Energy Terminal Ltd.	Korea	52%	1,229	993	28	(13)
Donghae Floating Offshore Wind Power Co. Ltd.	Korea	50%	9	—	—	—
Deep Basin Partnership[(1)]	Canada	—	144	25	33	(18)
HKMS Partnership[(1)]	Canada	—	80	12	13	5

(1) Harvest Operations Corp. acquired control over Deep Basin Partnership and HKMS Partnership due to changes in the scope of consolidation, resulting in the reclassification of the entities as subsidiaries of Harvest Operations Corp. for the year ended December 31, 2024.

Employees and Labor Relations

As of December 31, 2024, the Company had 1,240 employees on a separate basis. The following table describes the total number of employees by department as of the period indicated.

Department	As of December 31, 2024
Strategy & Planning	104
Administration (inclusive of HSE Dept.)	192
E&P Business	245
Petroleum Stockpile & Business	126
Stockpile Offices	374
Legal & Secretariat	10
E&P Support (inclusive of Technology Dept.)	97
Auditing	25
Others (Task force, Training, Labor union, etc.)	67
Total	1,240

Most of the Company's eligible employees are members of a labor union. The Company has not experienced any strikes, work stoppages, labor disputes or actions which affected the operation of any of the Company's businesses, and the Company considers its relations with its workforce to be generally good. The Company re-negotiated its collective bargaining agreement with the labor union in April 2023. The negotiation for a new collective bargaining agreement will begin upon expiration of the current agreement, which is scheduled to expire in April 2025. The collective bargaining agreement provides for, among other things, various employment benefits, the scope of union activities and negotiation procedures.

The Company, like most Korean companies, grants its employees annual increases in basic wages and pays periodic bonuses. Employees and directors with more than one year of service are entitled to receive a lump-sum payment upon termination of their service with the Company, based on their length of service and rate of pay at the time of termination.

Safety and Environmental Matters

Safety

Safety standards and regulations in the domestic oil industry are issued, and compliance is monitored, by the Ministry of Trade, Industry and Energy and the Korea Occupational Safety and Health Agency, a Government body under the control of the Ministry of Employment and Labor.

Because a number of the Company's stockpile facilities are located in industrial areas, the Company has established a series of preventative measures to improve the safety of its employees and surrounding communities and minimize disruptions or other adverse effects on its business, such as providing each individual member of the communities in areas surrounding its stockpile facilities with printed materials to explain and illustrate safety and protection knowledge and skills.

The Company has also undertaken various measures including improving its automatic control systems, increasing safety and maintenance training for employees and improving the Company's monitoring equipment (used to detect crude oil and petroleum product leaks, fire and other defects in pipes and stockpile facilities). The Company believes that its safety standards are at least comparable to domestic and international safety standards relating to the oil industry. In addition, the Company has been operating its safety system in compliance with international safety standards such as Process Safety Management since 1996 and Korea Occupational Safety and Health Agency 18001 since 2000.

The Government from time to time conducts spot-checks of the Company's facilities to ensure that they are in compliance with occupational health and safety regulations. These spot-checks have never identified any major violations or resulted in monetary fines or other penalties.

To further enhance its management of such safety and other operational risks, which may increase as the Company follows its expansion plans, the Company implemented a comprehensive enterprise risk management ("ERM") system in November 2010. The ERM system allows the Company to centralize the detection, analysis and management of various safety, financial and other operational risks related to its business.

Environmental Matters

The Company is subject to numerous international, national, regional and local environmental laws and regulations concerning its oil and gas exploration and production operations, stockpiling operation and other activities. In particular, these laws and regulations:

- require an environmental impact assessment report to be submitted and approved prior to the commencement of exploration, development and production activities;

- restrict the type, quantities and concentration of various substances that can be released into the environment in connection with oil and gas exploration and production activities;
- limit or prohibit drilling activities on certain lands lying within protected areas and certain other areas; and
- impose penalties for pollution resulting from oil, natural gas and petrochemical operations, including criminal and civil liabilities for serious pollution.

These laws and regulations may also restrict air emissions and discharge to surface and subsurface water resulting from the operation of oil and natural gas processing plants, pipeline transportation systems and other facilities that the Company and its joint venture partners own or operate. In addition, the Company's operations may be subject to laws and regulations relating to the generation, handling, storage, transportation, disposal and treatment of waste materials. Moreover, since exploration and production activities may take place on sites that are ecologically sensitive (tropical forest, marine environment, etc.), each site may require a specific approach to minimize the impact on the related ecosystem, biodiversity and human health.

The Company anticipates that the environmental laws and regulations to which it is subject will become increasingly more strict and therefore likely to have an increasing impact on its operations. For example, the Glasgow Climate Pact which was agreed to at COP26 includes commitments to phase down the use of unabated coal power and inefficient fossil fuel subsidies. The Government also announced its commitment to reduce greenhouse gas emissions by 40% by 2030 at COP26 and such commitments were reconfirmed at COP27 in Egypt in November 2022. In addition, COP28 in Dubai in December 2023 resulted in an agreement to transition away from fossil fuels to achieve net-zero emissions by 2050 as well as to triple renewable energy capacity globally by 2030. It is impossible, however, to predict accurately the effect of future developments in such laws and regulations on the Company's future earnings and operations. Some risk of environmental costs and liabilities is inherent in certain of the Company's operations and products, as it is with other companies engaged in similar businesses, and there can be no assurance that material costs and liabilities will not be incurred. The Company does not currently expect any material adverse effect on its financial conditions or results of operations as a result of compliance with such laws and regulations. In addition to complying with laws, regulations and standards to which the Company is subject, it is the Company's policy to exercise maximum due care with respect to environmental matters in the course of its operations, and to maintain adequate insurance coverage. See "Risk Factors — Risks Relating to the Company — The Company's business operations may be adversely affected by present or future environmental or safety regulations."

In addition, the Company's ESG department focuses on establishing and enforcing policies and strategies relating to the environment, social responsibility and corporate governance in order to promote sustainable growth. The Company also has been conducting regular environmental audits on its operations and facilities by a third-party auditors, pursuant to the ISO 14001:2015 since 1998, to identify any potential areas of problem and to assess ways of improving its compliance with environmental laws.

Insurance

The Company's operations are subject to hazards and risks inherent in the drilling, production and storage of petroleum products. As protection against these operations risks, the Company maintains insurance coverage against some, but not all, potential losses, including the loss of wells, as well as liabilities related to costs of pollution control and environmental compliance. In some cases, the agreement under which the Company operates its fields and sells the petroleum products require it to carry insurance, while in other cases, the Company's management exercises its discretion and determines the fields for which to purchase insurance coverage, taking into account the costs of such insurance and related risks. The Company's insurance coverage includes property damage insurance for certain of its oil and gas fields and its stockpile facilities and business interruption insurance for its production activities. The Company also has insurance against damage from terrorism for all of its stockpile and offshore facilities. The Company is not delinquent on any of its insurance payments. The Company believes that its insurance coverage is comparable to that of other companies engaged in similar businesses.

Legal Matters

From time to time the Company is involved in litigations or proceedings that have arisen in the ordinary course of its business, including disputes with respect to its exploration, development and production rights.

As of the date of this Offering Circular, it is the Company's view that there are no other current or expected litigation or governmental proceedings involving the Company or any of its affiliates the outcome of which may have a material adverse effect on the results of operations or financial condition of the Company. See "Risk Factors — Risks Relating to the Company — The Company's business may be materially and adversely affected by legal claims and regulatory actions against it."

Intellectual Property and Research & Development

The Company's general policy is to seek intellectual property protection for those inventions and improvements likely to be utilized by its activities or to give it a competitive advantage compared to other fuel sources. The Company relies on a variety of patents, copyrights, trade secrets, trademarks and proprietary information to maintain and enhance its competitive position. The Company's principal brand names are registered trademarks in Korea.

The Company held 19 patents and 15 trademarks as of December 31, 2024. The Company does not believe that any individual property right or related group of intellectual property rights is of such importance that its expiration or termination would materially affect the business of the Company.

As of December 31, 2024, the Company employed 75 researchers (including 12 with doctorate degrees and 29 with master's degrees). The Company incurred research and development costs of approximately Won 3 billion in 2024.

Properties

The Company's headquarters and principal offices are located in Ulsan, at 305, Jongga-ro, Jung-gu, Ulsan, 44538, Korea. The Company had disposed of its headquarters building in January 2017 and had entered into a lease contract for the same premises. The Company is planning to re-acquire its headquarters building in January 2026. The Company has title over nine stockpile branch offices and the stockpile facilities at Yeosu, Seosan, Geoje, Ulsan, Pyeongtaek, Guri, Yongin, Gokseong and Donghae.

MANAGEMENT

The Company's Articles of Incorporation provide that the board of directors shall be made up of no more than seven standing directors (including the President, who also serves as the Chief Executive Officer of the Company) and eight non-standing directors. The Articles of Incorporation also requires the Company to establish an Audit Committee as a committee of the board of directors. All non-standing directors are independent. The directors have terms of two years (with the exception of the President, whose term is for three years). The activities within the discretion of the board of directors are subject to the Act on the Management of Public Institutions, the KNOC Act, the Company's Articles of Incorporation and its internal regulations, and include establishing the budget, issuing debentures and amending the Company's Articles of Incorporation when necessary.

Under the KNOC Act, the Act on the Management of Public Institutions and the Articles of Incorporation of the Company, the President, who serves as the Company's chief executive, is nominated by the Company's Officer and Executive Recommending Committee. The Officer and Executive Recommendation Committee recommends a pool of candidates, which is then deliberated by the Committee for Management of Public Institutions established pursuant to the Act on Management of Public Institutions. After such deliberations, the President is appointed by the President of Korea upon the recommendation of the Minister of Trade, Industry and Energy.

The President is deemed to have the capacity of a representative director where the Korean Commercial Code applies and thus administers most of the day-to-day business that is not specifically designated as a responsibility of the board of directors. The President must enter into a management contract with the Ministry of Trade, Industry and Energy pursuant to which the President must meet a certain minimum level of performance each year. Under the current management contract with the President and the Articles of Incorporation of the Company, if the board of directors of the Company determines that the President's ability to perform its duties has been seriously impaired (due to reasons such as the President's violation of applicable laws or the Company's Articles of Incorporation, or the President's failure to diligently perform its duties), the board of directors may pass a resolution to propose dismissal of the President to the Minister of Trade, Industry and Energy.

Standing directors other than the President and the standing member of the Audit Committee are appointed by the President. The standing directors assist the President and act on his or her behalf when the President is unable to act.

The non-standing directors are appointed by the Minister of Economy and Finance, after being selected by the Committee for Management of Public Institutions from a pool of candidates recommended by the Officer and Executive Recommendation Committee. Furthermore, at least one non-standing director must be an employee who (i) has worked for the Company for at least three years, and (ii) either (x) has been recommended by the representative of the labor union (if there is a labor union organized by a majority of employees), or (y) has obtained the consent of a majority of employees (if no labor union is organized by a majority of employees).

Pursuant to the Articles of Incorporation of the Company or, if applicable, as mandated by applicable laws, the board of directors may establish by resolution committees to facilitate its efficient operation in carrying out various management functions. The Audit Committee and the Officer and Executive Recommendation Committee have been established pursuant to applicable laws.

The Audit Committee is comprised of three or more members, and at least two-thirds of the members are non-standing directors. The Audit Committee has at least one member who is an accounting or financial expert, and its chairperson is a non-standing director. The principal function of the Audit Committee is to conduct internal review of the Company's operations and accounting, and to present its opinion to the board of directors, thereby ensuring the independence and professionalism of the Company.

The Officer and Executive Recommendation Committee is comprised of non-standing directors and private citizens appointed by the board of directors, and is chaired by one of the non-standing directors elected by the members of the Committee to serve as chairperson. The Officer and Executive Recommendation Committee is responsible for the selection and recommendation of candidates to serve as President, standing member of the Audit Committee or non-standing directors.

In addition to the Audit Committee and the Officer and Executive Recommendation Committee, the Risk Management Committee and the Evaluation Committee, as well as various other committees, have been established to advise the president or the board of directors.

The Evaluation Committee is composed of seven members, including two internal experts, four external experts and the chairperson, who is the standing director responsible for the Evaluation Committee. The Evaluation Committee reviews and resolves the Company's new projects, change of projects, sale, exchange, and transfer of assets, acquisitions or disposals of equity interests, guarantees and conversion of loans into equity, etc. The Risk Management Committee is composed of seven members, including two internal and four external experts, as well as the chairperson, who is the standing director responsible for the Risk Management Committee. The Risk Management Committee reviews and resolves matters subject to the resolution of the board of directors of the Company that may affect the financial risks of the Company and matters regarding the establishment and change in policies on currency risk tolerance and currency hedges, but excluding matters reviewed by the Evaluation Committee.

The Company's address is 305, Jongga-ro, Jung-gu, Ulsan, 44538, Korea. Summary biographical information regarding the Company's directors is set out below.

Standing Directors

The Company's standing directors are as follows:

Name	Age	Position	Director Since	Date Term Ends
Dong Sub Kim	67	President and Chief Executive Officer	June 2021	September 2025
Kong Woo Park	61	Auditor General/Standing Member of the Audit Committee	December 2023	December 2025
Moon Gyu Choi[(1)]	61	Senior Executive Vice President of the Planning and Financing Division	January 2021	January 2024
Won Jun Kwak	59	Senior Executive Vice President of the Exploration & Production/Energy Business Division	August 2024	August 2026

(1) The term of this director has expired, but pursuant to the Act on the Management of Public Institutions, the director is continuing his duties until his term is officially extended or a successor is appointed.

Dong Sub Kim has served as a standing director, president and chief executive officer of the Company since June 8, 2021. Mr. Kim previously served as the chief technology officer of SK Innovation and the dean of the College of Info-Bio Convergence Engineering at the Ulsan National Institute of Science and Technology. He holds a bachelor's degree and a master's degree in naval architecture and ocean engineering from Seoul National University and a doctorate in engineering from Ohio State University.

Kong Woo Park has served as the auditor general and standing member of the Audit Committee of the Company since December 12, 2023. Prior to joining the Company, Mr. Park served as the secretary general of the Supreme Prosecutors' Office. He holds a bachelor's degree in law from Chosun University.

Moon Gyu Choi has served as a standing director since January 4, 2021 and was appointed as a senior executive vice president of the Planning & Financing Division on August 23, 2021. Mr. Choi previously served as the Company's senior executive vice president of the Administration, Services & HSE Division and head of the Public Relations & Corporate Culture Department. He holds a bachelor's degree in philosophy from Korea University.

Won Jun Kwak has served as a standing director and senior executive vice president of the Exploration & Production/Energy Business Division since August 19, 2024. Mr. Kwak previously served as the Company's head of the Exploration & Production/Business Management Department. He holds a bachelor's degree and a master's degree in geology from Seoul National University.

Non-Standing Directors

The Company's non-standing directors are as follows:

Name	Age	Position	Director Since	Date Term Ends
Cheol Hyun Kim	57	Special Appointment Professor, Kyungil University	November 2022	October 2024
Chung Keun Park	60	—	December 2022	December 2024
Jung Sik Yoon	58	Director, Korean Institute for Gender Equality Promotion and Education	December 2022	January 2026
Rae Kwang Kang	55	Director of Labor Relations, Korea National Oil Corporation	June 2023	May 2025
Soon Kee Park	60	—	December 2023	November 2025
Ki Un Ohn	69	—	December 2023	November 2025

Cheol Hyun Kim has served as a non-standing director since November 1, 2022. Mr. Kim currently serves as a special appointment professor at Kyungil University. He holds a bachelor's degree in sociology from Kyungpook National University and a master's degree in political science from Kyung Hee University.

Chung Keun Park has served as a non-standing director since December 30, 2022. Mr. Park holds a bachelor's degree in economics and a master's degree in public administration from Seoul National University.

Jung Sik Yoon has served as a non-standing director since December 30, 2022. Mr. Yoon currently serves as a director for the Korean Institute for Gender Equality Promotion and Education. He holds a bachelor's degree in international trade from Dongguk University and a master's in business administration from Sogang University.

Rae Kwang Kang has served as a non-standing director since June 1, 2023. Mr. Kang holds a bachelor's degree in accounting from Kyung Hee University.

Soon Kee Park has served as a non-standing director since December 1, 2023. Mr Park holds a bachelor's degree in law and a master's degree in public administration from Seoul National University.

Ki Un Ohn has served as a non-standing director since December 1, 2023. Mr Ohn holds a bachelor's degree in business administration from Hankuk University of Foreign Studies, a master's degree in economics from Seoul National University and a doctorate in business administration from Kobe University.

RELATED PARTY TRANSACTIONS

The Company engages in a variety of transactions with related parties in its ordinary course of business, including providing long-term loans to its affiliates from time to time. The following table sets forth the amount of long-term loans outstanding with respect to loans made to affiliates as of December 31, 2022, 2023 and 2024. See Note 45 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2024 and 2023 and Note 46 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2023 and 2022 included elsewhere in this Offering Circular for further information about the Company's related party transactions.

	As of December 31,		
Related Parties	**2022**	**2023**	**2024**
	(In millions of Won)		
KNOC Nigerian East Oil Company Ltd. [1]	₩ 31	₩ 31	₩ 35
KNOC Nigerian West Oil Company Ltd[1]	33	33	37
KNOC Ferghana2 Ltd. [1]	23	24	27
KNOC INAM Ltd. [1]	30	30	35
K.K. Korea Kamchatka Co. Ltd. [1]	146	149	166
KC kazakh B.V. [1]	218	—	—
KNOC Ferghana Ltd. [1]	33	34	38

(1) The Company recognizes 100% of allowance for doubtful accounts in respect to such loans. The above loans are amounts prior to the reflection of allowance for doubtful accounts.

The Company also provides payment and performance guarantees for Harvest Operations, Dana Petroleum and ANKOR E&P Holdings Corporation. For Dana Petroleum, the Company provided, as of December 31, 2024, a payment guarantee of up to US$300 million, a performance guarantee of GBP 241 million for expenses in restoring, decommissioning, dismantling, removing and disposing facilities and structures in Dana Petroleum's oil field and a restoration performance guarantee of EUR 164 million and GBP 40 million for expenses in restoring, decommissioning, dismantling, removing and disposing facilities and structures in connection with the issuance of letters of credit. For ANKOR E&P Holdings Corporation, the Company provided, as of December 31, 2024, a guarantee of US$90 million for the future restoration of oil and gas sites held by the affiliate. See Note 47 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2024 and 2023 included elsewhere in this Offering Circular.

REGULATION

The Company was established as a juridical entity under the KNOC Act and is subject to the rules and regulations of the KNOC Act. The Company is also subject to all general rules and regulations applicable to corporations under the Act on the Management of Public Institutions, unless otherwise provided for in the KNOC Act.

The KNOC Act

Under the KNOC Act, the Company is established as a statutory juridical entity for the purpose of efficient performance of businesses relating to development of oil resources, oil stockpile and enhancement of oil distribution channels. In order to achieve these objectives, the KNOC Act allows the Company to undertake, among others, the following activities:

(1) Exploration and development of oil resources;

(2) Export and import, stockpiling, transportation, lease and sales of crude oil and oil products;

(3) Construction, maintenance, management and lease of oil stockpile facilities;

(4) Enhancement of oil distribution channels;

(5) Investment, financing, guarantee of debt and materials lease for corporations engaged in businesses relating to energy and resources;

(6) Carbon capture, transportation, storage and other carbon reduction activities;

(7) Development, production, import and export, stockpiling, transportation, leasing, sale, processing and supply of hydrogen compounds such as ammonia and their byproducts;

(8) Utilization and recycling of facilities relating to businesses set forth in (1) to (7) above;

(9) Construction, management, operation and leasing of facilities for businesses set forth in (6) to (8) above; and

(10) Technology support, research and development and provision of information for businesses set forth above.

The Company's authorized capital is Won 13 trillion which is to be funded solely by the Government. Under the KNOC Act, the Ministry of Trade, Industry and Energy is granted the power to direct and supervise the Company's activities relating to its business of exploration, development and production of oil resources inside and outside of Korea, purchase and operation of the oil stockpile, construction and management of oil stockpile facilities, collection, processing and production of oil trading information, and enhancement of oil distribution channels.

In addition, the Company may issue bonds for its business to the extent not exceeding 200% of the sum of the Company's capital and reserve, by a resolution of its board of directors in accordance with the KNOC Act. The Company may also incur indebtedness (such as loans) for its operations. The Government may guarantee the repayment of the Company's bonds and the principal and interest amount of its loans, and provide subsidies in respect of the Company's business activities. However, the Notes are not guaranteed by the Government.

Petroleum and Petroleum Substitute Fuel Business Act

Under the Petroleum Business Act, the Ministry of Trade, Industry and Energy is required to set goals for oil stockpiling to stabilize the supply and demand of oil as well as its prices, and develop a master plan each year to implement these goals. The stockpiling master plan must include matters relating to the oil stockpile target level, categories of oil to be stockpiled and stockpiling facilities. Under the Government's Fourth Stockpiling Master Plan, the Company is required to implement the Government's goal of maintaining the stockpile capacity at 146 million barrels and achieve stockpile oil reserves of 100 million barrels. The Fourth Stockpiling Master Plan is effective until 2025, and the Company is currently cooperating with the Ministry of Trade, Industry and Energy for the establishment of the Fifth Stockpiling Master Plan.

Persons who intend to operate an oil export-import business are required to have their business registered with the Minister of Trade, Industry and Energy. However, this requirement does not apply to exports and imports of oil undertaken by the Company to implement the oil stockpile plan under the KNOC Act.

Overseas Resources Development Business Act

Under the Overseas Resource Development Business Act, the development of overseas resources may be conducted in one of the following manners:

- a Korean national developing overseas resources individually or jointly with foreigners (including development through local companies established overseas);
- a Korean national providing technical services to foreigners that are developing overseas resources; or
- a Korean national providing funding to foreigners that are developing overseas resources and importing all or part of the overseas resources they develop.

The Government must establish and execute a master plan for the development of overseas resources. If a Korean national desires to operate an overseas resources development business, such person must report the plan for overseas resources development to the Minister of Trade, Industry and Energy.

The Government may provide funds to an overseas resource developer to conduct the necessary research and analysis for starting an overseas resources development business and to acquire the right to develop such resources. The Government may also provide funds for the installation and operation of facilities required for an overseas resources development business, and funds for leasing or buying land necessary to conduct an overseas resources development business.

If the stability and normal functioning of the national economy are harmed or feared to be harmed when a serious disruption to the supply and demand of resources occurs due to an imbalance of supply and demand of resources in Korea and abroad, or there are concerns over such occurrence, the Minister of Trade, Industry and Energy may order overseas resources developers to bring to Korea the whole or part of the overseas resources developed by such developer under proper and reasonable conditions, to stabilize the supply and demand of resources, and the overseas resources developers subject to such an order must comply with the order in the absence of special circumstances.

The Company has been delegated by the Ministry of Trade, Industry and Energy to inspect or investigate matters necessary for the operation of overseas oil development businesses.

Submarine Mineral Resources Development Act

The Submarine Mineral Resources Development Act aims to contribute to the growth of the Korean industry by developing, in a reasonable manner, submarine resources in (i) the Korean peninsula, (ii) the ocean adjacent to the coastlines of islands belonging to Korea, and (iii) the continental shelf under Korea's control to the greatest extent possible. Submarine mining rights are the rights authorized by the Ministry of Trade, Industry and Energy to explore, gather and acquire submarine resources from submarine resource areas owned by Korea, and such rights are categorized into exploration rights and production rights. The exploration rights cannot be granted for a period greater than 10 years from the date of the issuance unless there are special circumstances. The production rights cannot be granted for a period exceeding 30 years from the date of the issuance. A holder of a submarine mining right must pay a mining fee to the Ministry of Trade, Industry and Energy in accordance with the standard stipulated in the Presidential Decree when producing submarine resources in the submarine resource areas. If the submarine resource produced by the holder of production rights is natural gas, the natural gas may be sold to gas wholesalers pursuant to the Urban Gas Business Act or to installers of gas supply facilities other than urban gas businesses. In such cases, there is no need to obtain a permit under the Urban Gas Business Act relating to the gas wholesale business.

Legislation Relating to the Operation and Management of the Company

Act on the Management of Public Institutions

The KNOC Act prescribes that the affairs regarding the Company's structure and management must be governed by the Act on the Management of Public Institutions. Under the Act on the Management of Public Institutions, the Company is required to make public many aspects of its affairs including, among others, the objectives of management, its budget and business plan, its financial statements and supplementary documents, status of personnel including directors and officers, its articles of incorporation, its bond register and the minutes of the board of directors (but confidential information on the management provided for in the minutes of board of directors need not be disclosed to the public) and the audit report of its Audit Committee. Full-time officers and employees may not be engaged in activities having purposes of commercial advantage. The Company's fiscal year must be the same as the Korean government's fiscal year. The Company must present mid- to long-term management objectives covering five fiscal years to the Minister of Trade, Industry and Energy and the Minister of Economy and Finance on an annual basis. The Company may be audited by the Board of Audit and Inspection of Korea based on its business activities and accounting.

Act on the Special Accounts for Energy and Resources

The SAER Act has been enacted to implement certain special accounts for energy and resources-related projects so as to supply energy, stabilize prices and efficiently promote resources-related projects. The SAER Act is managed and supervised by the Ministry of Trade, Industry and Energy. Those accounts may be categorized into investment accounts and loan accounts.

Revenue from the investment account is primarily composed of surcharges and additional charges arising out of the Petroleum Business Act, the Urban Gas Business Act and the Mining Industry Act. Expenditure from the investment account is primarily composed of operating expenses needed for energy and resources related businesses and contributions or subsidies for such businesses as well as contributions or investments to institutions or groups engaged in the energy and resources-related businesses.

Revenue from the loan account is primarily composed of income from the principal and interest amount arising out of the loan amount. Expenditure is primarily composed of loans to the subject institutions to support energy and resources- related businesses.

If there are insufficient funds to meet the expenditure, long term loans may be arranged within the limits set by the resolution of the National Assembly. Temporary loans may also be arranged if there is a temporary shortage of funds, provided that repayment on the principal amount of the temporary loan must be made within the relevant accounting year. Any expenditure not made within the relevant accounting year may be carried over to the following accounting year notwithstanding any provisions in the State Finance Act.

The Ministry of Trade, Industry and Energy may commission the Company to manage finances such as the receipt of revenue, payment and settlement of the budget relating to this account (excluding management of coal stockpiling facilities and coal reserves) and to manage the reserve funds.

Regulations on Contractual Business of Public Enterprises and Semi-Government Institutions

Contracts entered into by the Company must conform to Regulations on Contractual Business of Public Enterprises and Semi-Governmental Institutions ("Regulations on Contractual Business") determined by the Ministry of Economy and Finance in accordance with the Act on the Management of Public Institutions. According to the Regulations on Contractual Business, if it is deemed necessary for the business characteristics of public enterprises and semi-government entities or for fairness and transparency, or if there are any other inevitable reasons, a standard or procedure different from those set forth in the Regulations on Contractual Business may be newly established. For those matters not specified in the Regulations on Contractual Business, the Act on Contracts to which the Government Is a Party will be applied. In principle, contracts must be made through open bids, but if it is deemed necessary, nominated competitive bids or private contracts may also be made.

Environmental Legislation

Air Environment Preservation Act

The purpose of the Air Environment Preservation Act is to protect public health and prevent environmental damage arising from air pollution. The Air Environment Preservation Act provides for the Ministry of Environment to determine standards for the sulphur content of fuel. The Ministry of Environment can determine the supply area and range of facilities to use the respective fuels and may in some circumstances prohibit or restrict the production, sale or use of certain fuels. According to the Air Environment Preservation Act, the Minister of Environment or mayor or provincial governor may prohibit the use of fuels other than gaseous fuel such as LNG and LPG which release relatively smaller amounts of pollutants in an area or facility designated by the Enforcement Decree of the Air Environment Preservation Act as a place where these permitted fuels should be used, regardless of the restriction measures on the use of fuel under the Air Environment Preservation Act.

Marine Environment Management Act

The purpose of the Marine Environment Management Act is to prevent dangers arising from marine life damage or marine pollution, and create a clean and safe marine environment. Under the Marine Environment Management Act, no one may discharge pollutants from a ship, marine facility or marine space to the ocean or discharge waste generated from land unless otherwise permitted pursuant to the Marine Environment Management Act. Any person who owns a marine facility must prepare and keep a log of noxious liquid substances in the facility, including the volume of use and matters relating to the carrying in and out of such noxious liquid substances. The owner of a marine facility must equip the marine facility with the materials and chemicals used for the prevention and control of pollutants.

Soil Environment Conservation Act

The purpose of the Soil Environment Conservation Act is to prevent potential danger or injury to public health and the environment due to soil contamination and to conserve the soil ecosystem by properly maintaining and preserving soil, including by restoring contaminated soil.

The level of soil contamination is determined by the ordinance of the Ministry of Environment. A person who causes soil contamination must, where any damages occur due to such soil contamination, compensate for the damages caused and restore the contaminated soil. Where there exist two or more persons who cause soil contamination, and it is impossible to determine which one has caused the damages, each of them must jointly and severally compensate for such damages and restore the contaminated soil.

If anyone who produces, transports, stores, handles, processes or treats soil contaminants discharges or leaks them in the process, such person must report such fact without delay to the competent administrative agency. The competent administrative agency that receives such a report may survey the cause and the level of soil contamination. If the competent administrative agency determines that the soil has been contaminated, then the person who causes such soil contamination may be ordered to restore the contaminated soil and, if such order is not complied with, such person will become subject to criminal liabilities.

Environmental Impact Assessment Act

The purpose of the Environmental Impact Assessment Act is to promote the environmentally friendly and sustainable development of business by assessing in advance the impact on the environment of the business which is subject to the environmental impact assessment when the business plan is established and implemented and, thus, promoting the comfortable and secure lives of citizens. Anyone who desires to operate a business that is subject to the environmental impact assessment must prepare such assessment which will be reviewed by the Minister of Environment. The Minister of Environment may supplement or adjust the business plan according to its review.

To avoid damage to the environment from of the operation of a business, its impact on the environment must be investigated according to the assessment items agreed in advance and the result must be notified to the approval institution or the Minister of Environment ("Post Investigation of Impact on the Environment"). An energy development business is one of the businesses that are subject to the environmental impact assessment and the Post Investigation of Impact on the Environment. Among other things, the following businesses are subject to the environmental impact assessment and the Post Investigation of Impact on the Environment:

- Businesses in the development of underwater mining under the Submarine Mineral Resources Development Act which have the objective of energy development;

- Businesses in the mining industry under the Mining Industry Act having the objective of energy development (limited to those equal to or exceeding 300,000 square meters of mining area); and

- Oil business operator's installation of (i) oil storage facilities under the Petroleum Business Act and (ii) oil stockpile facilities under the KNOC Act (limited to those equal to or exceeding 100,000 kilo liters of storage volume).

TAXATION

Certain U.S. Federal Income Tax Considerations

The following is a summary of certain U.S. federal income tax considerations that may be relevant to a beneficial owner of a Note that is a citizen or resident of the United States or a domestic corporation or that otherwise is subject to U.S. federal income taxation on a net income basis in respect of the Note (a "United States holder"). This summary is based on laws, regulations, rulings and decisions now in effect, all of which are subject to change (possibly with retroactive effect). This summary deals only with United States holders that will hold Notes as capital assets, and does not address tax considerations applicable to investors that may be subject to special tax rules, such as financial institutions, real estate investment trusts, tax-exempt entities, entities taxed as partnerships and partners therein, insurance companies, regulated investment companies, dealers in securities or currencies, traders in securities electing to mark to market, persons liable for alternative minimum tax, United States expatriates, nonresident alien individuals present in the United States for more than 182 days in a taxable year, persons that will hold Notes as a position in a "straddle" or conversion transaction, or as part of a "synthetic security" or other integrated financial transaction, investors that will hold the Notes in connection with a trade or business or permanent establishment in Korea, or persons that have a "functional currency" other than the U.S. dollar.

Except as specifically set forth below, any special U.S. federal income tax considerations relevant to a particular issue of Notes, including any Floating Rate Notes, Index Linked Notes, Dual Currency Notes, Zero Coupon Notes, Notes that may not be properly characterized as indebtedness for U.S. federal income tax purposes or Notes having a term to maturity of more than 30 years will be provided in the applicable Pricing Supplement.

This summary does not discuss tax considerations relevant to the ownership and disposal of Notes in bearer form. In addition, this summary does not address the tax consequences of a redenomination. If the Issuer effects a redenomination, investors should consult their own advisors regarding the tax consequences to them, including the possibility that an investor will recognize foreign currency gain or loss as a result of the redenomination.

Further, this summary addresses only U.S. federal income tax consequences, and does not address the effects of the Medicare contribution tax on net investment income, the alternative minimum tax, the special timing rules prescribed under section 451(b) of the U.S. Internal Revenue Code of 1986, as amended, or foreign, state, local or other tax considerations that may be relevant to United States holders in light of their particular circumstances. Investors should consult their own tax advisors in determining the tax consequences to them of holding Notes, including the application to their particular situation of the U.S. federal income tax considerations discussed below, as well as the application of state, local, foreign or other tax laws.

Payments or Accruals of Interest

Payments or accruals of "qualified stated interest" (as defined below under "— Original Issue Discount") on a Note, but excluding any pre-issuance accrued interest, will be taxable to a United States holder as ordinary interest income at the time that such payments are accrued or are received (in accordance with the United States holder's method of tax accounting). Interest income on a Note, including any additional amounts and any taxes withheld in respect thereof, generally will constitute foreign source income and generally will be considered "passive category income" in computing the foreign tax credit allowable to a United States holder under U.S. federal income tax laws.

If such payments of interest are made with respect to a Note denominated in a single currency other than the U.S. dollar (a "Foreign Currency Note"), the amount of interest income realized by a United States holder that uses the cash method of tax accounting will be the U.S. dollar value of the Specified Currency payment based on the exchange rate in effect on the date of receipt regardless of whether the payment in fact is converted into U.S. dollars. A United States holder that uses the accrual method of accounting for tax purposes will accrue interest income on the Note in the Specified Currency and translate the amount accrued into U.S. dollars based on the average exchange rate in effect during the interest accrual period (or portion thereof within the United States holder's taxable year), or, at the accrual basis United States holder's election, at the spot rate of exchange on the last day of the accrual period (or the last day of the taxable year within such accrual period if the accrual period spans more than one taxable year), or at the spot rate of exchange on the date of receipt, if such date is within five business days of the last day of the accrual period. A United States holder that makes such election must apply it consistently to all debt instruments from year to year and cannot change the election without the consent of the Internal Revenue Service (the "IRS"). A United States holder that uses the accrual method of accounting for tax purposes will recognize foreign currency gain or loss, as the case may be, on the receipt of an interest payment made with respect to a Foreign Currency Note if the exchange rate in effect on the date the payment is received differs from the rate applicable to a previous accrual of that interest income regardless of whether the payment is in fact converted into U.S. dollars. Amounts attributable to pre-issuance accrued interest will generally not be includible in income, except to the extent of foreign currency gain or loss attributable to any changes in exchange rates during the period between the date the United States holder acquired the Note and the first Interest Payment Date. This foreign currency gain or loss will be treated as U.S. source ordinary income or loss but generally will not be treated as an adjustment to interest income received on the Note.

Additional Amounts and Foreign Tax Credits

Although interest payments to a United States holder are generally currently exempt from Korean taxation unless such United States holder has a permanent establishment in Korea, (see "— Korean Taxation — Tax on Interest" below) if the Korean law providing for the exemption is repealed or otherwise limited with respect to the Notes held by such United States holder, then in addition to interest on the Notes, such United States holder would be required to include in income any additional amounts received and any tax withheld from interest payments, notwithstanding that such tax withheld is not in fact received by such United States holder. Subject to generally applicable limitations and conditions, Korean interest withholding tax paid at the appropriate rate applicable to the United States holder may be eligible for credit against such United States holder's U.S. federal income tax liability. These generally applicable limitations and conditions include requirements adopted by the IRS in regulations promulgated in December 2021 and any Korean tax will need to satisfy these requirements in order to be eligible to be a creditable tax for a United States holder. In the case of a United States holder that consistently elects to apply a modified version of these rules under recently issued temporary guidance and complies with specific requirements set forth in such guidance, the Korean tax on interest will be treated as meeting the new requirements and therefore as a creditable tax. In the case of all other United States holders, the application of these requirements to the Korean tax on interest is uncertain and we have not determined whether these requirements have been met. If the Korean interest tax is not a creditable tax or the United States holder does not elect to claim a foreign tax credit for any foreign income taxes, the United States holder may be able to deduct the Korean tax in computing such United States holder's taxable income for U.S. federal income tax purposes. Interest and additional amounts will constitute income from sources without the United States and, for United States holders that elect to claim foreign tax credits, generally will constitute "passive category income" for foreign tax credit purposes.

The availability and calculation of foreign tax credits and deductions for foreign taxes depend on a United States holder's particular circumstances and involve the application of complex rules to those circumstances. The temporary guidance discussed above also indicates that the U.S. Treasury and the IRS are considering proposing amendments to the December 2021 regulations and that the temporary guidance can be relied upon until additional guidance is issued that withdraws or modifies the temporary guidance. United States holders should consult their own tax advisors regarding the application of these rules to their particular situations.

Purchase, Sale and Retirement of Notes

A United States holder's adjusted tax basis in a Note generally will equal the cost of such Note to such holder, increased by any amounts includible in income by the holder as original issue discount and market discount and reduced by any amortized premium (each as described below) and any payments other than payments of qualified stated interest made on such Note. In the case of a Foreign Currency Note, the cost of such Note to a United States holder generally will be the U.S. dollar value of the foreign currency purchase price calculated at the exchange rate in effect on the date of purchase. However, in the case of a Foreign Currency Note that is traded on an established securities market, a cash basis United States holder (and, if it so elects, an accrual basis United States holder) will determine the U.S. dollar value of the cost of such Note by translating the amount paid at the spot rate of exchange on the settlement date of the purchase. The amount of any subsequent adjustments to a United States holder's adjusted tax basis in a Note in respect of original issue discount, market discount and premium denominated in a Specified Currency will be determined in the manner described under "— Original Issue Discount" and "— Premium and Market Discount" below. The conversion of U.S. dollars to the Specified Currency and the immediate use of the Specified Currency to purchase a Foreign Currency Note generally will not result in taxable gain or loss for a United States holder.

Upon the sale, exchange or retirement of a Note, a United States holder generally will recognize gain or loss equal to the difference between the amount realized on the sale, exchange or retirement (less any accrued qualified stated interest, which will be taxable as such) and the United States holder's adjusted tax basis in such Note. If a United States holder receives a currency other than the U.S. dollar in respect of the sale, exchange or retirement of a Note, the amount realized generally will be the U.S. dollar value of the Specified Currency received calculated at the exchange rate in effect on the date the instrument is disposed of or retired. However, in the case of a Foreign Currency Note that is traded on an established securities market, a cash basis United States holder, and if it so elects, an accrual basis United States holder will determine the U.S. dollar value of the amount realized by translating such amount at the spot rate on the settlement date of the sale, exchange or retirement. Furthermore, regardless of which of the foregoing methods applies, if Korean tax is withheld on the sale, exchange or retirement of a Note, the amount realized by a United States holder will include the gross amount of the proceeds of that sale, exchange or retirement before deduction of the Korean tax. The election available to accrual basis United States holders in respect of the purchase and sale of Foreign Currency Notes traded on an established securities market, discussed above, must be applied consistently to all debt instruments from year to year and cannot be changed without the consent of the IRS.

A United States holder generally will not be entitled to credit any Korean tax imposed on the sale or other disposition of the Notes against such United States holder's U.S. federal income tax liability, except in the case of a United States holder that consistently elects to apply a modified version of the U.S. foreign tax credit rules that is permitted under recently issued temporary guidance and complies with the specific requirements set forth in such guidance. Additionally, capital gain or loss recognized by a United States holder on the sale or other disposition of the Notes generally will be U.S. source gain or loss for U.S. foreign tax credit purposes. Consequently, even if the withholding tax qualifies as a creditable tax, a United States holder may not be able to credit the tax against its U.S. federal income tax liability unless such credit can be applied (subject to generally applicable conditions and limitations) against tax due on other income treated as derived from foreign sources. If the Korean tax is not a creditable tax, the tax would reduce the amount realized on the sale or other disposition of the Notes even if the United States holder has elected to claim a foreign tax credit for other taxes in the same year. The temporary guidance discussed above also indicates that the U.S. Treasury and the IRS are considering proposing amendments to the December 2021 regulations and that the temporary guidance can be relied upon until additional guidance is issued that withdraws or modifies the temporary guidance. United States holders should consult their own tax advisors regarding the application of the foreign tax credit rules to a sale or other disposition of the Notes and any Korean tax imposed on such sale or disposition.

A United States holder will recognize foreign currency gain or loss, generally taxable as U.S. source ordinary income or loss, on the sale, exchange or retirement of a Note equal to the difference, if any, between the U.S. dollar values of the United States holder's purchase price for the Note (as adjusted for amortized bond premium, if any) (i) on the date of sale or retirement and (ii) the date on which the United States holder acquired the Note. However, any such foreign currency gain or loss (including any foreign currency gain or loss with respect to the receipt of accrued but unpaid interest) will be realized only to the extent of total gain or loss realized on the sale or retirement. This foreign currency gain or loss will not be treated as an adjustment to interest income received on the Notes.

Original Issue Discount

If the Issuer issues Notes at a discount from their stated redemption price at maturity (as defined below), and the discount is equal to or more than the product of one-fourth of one percent (0.25%) of the stated redemption price at maturity of the Notes multiplied by the number of full years to their maturity (the "*de minimis* threshold"), the Notes will be "Original Issue Discount Notes." The difference between the issue price and the stated redemption price at maturity of the Notes will be the "original issue discount" ("OID"). The "issue price" of the Notes will be the first price at which a substantial amount of the notes are sold to the public (i.e., excluding sales of Notes to underwriters, placement agents, wholesalers, or similar persons). The "stated redemption price at maturity" will include all payments under the Notes other than payments of "qualified stated interest" (as determined below).

United States holders of Original Issue Discount Notes generally will be subject to the special tax accounting rules for obligations issued with OID provided by the Internal Revenue Code of 1986, as amended, and certain regulations promulgated thereunder (the "OID Regulations"). United States holders of such Notes should be aware that, as described in greater detail below, they generally must include OID in ordinary gross income for U.S. federal income tax purposes as it accrues, in advance of the receipt of cash attributable to that income.

In general, each United States holder of an Original Issue Discount Note, whether such holder uses the cash or the accrual method of tax accounting, will be required to include in ordinary gross income the sum of the "daily portions" of OID on the Note for all days during the taxable year that the United States holder owns the Note. The daily portions of OID on an Original Issue Discount Note are determined by allocating to each day in any accrual period a ratable portion of the OID allocable to that accrual period. Accrual periods may be of any length and may vary in length over the term of an Original Issue Discount Note, provided that no accrual period is longer than one year and each scheduled payment of principal or interest occurs on either the final day or the first day of an accrual period. In the case of an initial holder, the amount of OID on an Original Issue Discount Note allocable to each accrual period is determined by (a) multiplying the "adjusted issue price" (as defined below) of the Original Issue Discount Note at the beginning of the accrual period by the "yield to maturity" of such Original Issue Discount Note (appropriately adjusted to reflect the length of the accrual period) and (b) subtracting from that product the amount (if any) of qualified stated interest (as defined below) allocable to that accrual period. The "yield to maturity" of a Note is the discount rate that causes the present value of all payments on the Note as of its original issue date to equal the issue price of such Note. The "adjusted issue price" of an Original Issue Discount Note at the beginning of any accrual period will generally be the sum of its issue price (generally including accrued interest, if any) and the amount of OID allocable to all prior accrual periods, reduced by the amount of all payments other than payments of qualified stated interest (if any) made with respect to such Note in all prior accrual periods. The term "qualified stated interest" generally means stated interest that is unconditionally payable in cash or property (other than debt instruments of the issuer) at least annually during the entire term of an Original Issue Discount Note at a single fixed rate of interest or, subject to certain conditions, based on one or more interest indices. In the case of an Original Issue Discount Note that is a Floating Rate Note, both the "yield to maturity" and "qualified stated interest" will generally be determined for these purposes as though the Original Issue Discount Note will bear interest in all periods at a fixed rate generally equal to the rate that would be applicable to the interest payments on the Note on its date of issue or, in the case of certain Floating Rate Notes, the rate that reflects the yield that is reasonably expected for the Note. (Additional rules may apply if interest on a Floating Rate Note is based on more than one interest index.) As a result of this "constant yield" method of including OID in income, the amounts includible in income by a United States holder in respect of an Original Issue Discount Note denominated in U.S. dollars generally are lesser in the early years, and greater in the later years, than the amounts that would be includible on a straight-line basis.

A United States holder generally may make an irrevocable election to include in its income its entire return on a Note (i.e., the excess of all remaining payments to be received on the Note, including payments of qualified stated interest, over the amount paid by such United States holder for such Note) under the constant-yield method described above. For Notes purchased at a premium or bearing market discount in the hands of the United States holder, the United States holder making such election will also be deemed to have made the election (discussed below in "— Premium and Market Discount") to amortize premium or to accrue market discount in income currently on a constant-yield basis.

In the case of an Original Issue Discount Note that is also a Foreign Currency Note, a United States holder should determine the U.S. dollar amount includible in income as OID for each accrual period by (a) calculating the amount of OID allocable to each accrual period in the Specified Currency using the constant-yield method described above, and (b) translating the amount of the Specified Currency so derived at the average exchange rate in effect during that accrual period (or portion thereof within a United States holder's taxable year) or, at the United States holder's election (as described above under "— Payments of Interest"), at the spot rate of exchange on the last day of the accrual period (or the last day of the taxable year within such accrual period if the accrual period spans more than one taxable year), or at the spot rate of exchange on the date of receipt, if such date is within five business days of the last day of the accrual period. Because exchange rates may fluctuate, a United States holder of an Original Issue Discount Note that is also a Foreign Currency Note may recognize a different amount of OID income in each accrual period than would the holder of an otherwise similar Original Issue Discount Note denominated in U.S. dollars. All payments on an Original Issue Discount Note (other than payments of qualified stated interest) will generally be viewed first as payments of previously-accrued OID (to the extent thereof), with payments attributed first to the earliest-accrued OID, and then as payments of principal. Upon the receipt of an amount attributable to OID (whether in connection with a payment of an amount that is not qualified stated interest or the sale or retirement of the Original Issue Discount Note), a United States holder will recognize ordinary income or loss measured by the difference between the amount received (translated into U.S. dollars at the exchange rate in effect on the date of receipt or on the date of disposition of the Original Issue Discount Note, as the case may be) and the amount accrued (using the exchange rate applicable to such previous accrual).

A subsequent United States holder of an Original Issue Discount Note that purchases the Note at a cost less than its remaining redemption amount (as defined below), or an initial United States holder that purchases an Original Issue Discount Note at a price other than the Note's issue price, also generally will be required to include in gross income the daily portions of OID, calculated as described above. However, if the United States holder acquires the Original Issue Discount Note at a price greater than its adjusted issue price, such holder is required to reduce its periodic inclusions of OID income to reflect the premium paid over the adjusted issue price. The "remaining redemption amount" for a Note is the total of all future payments to be made on the Note other than payments of qualified stated interest.

Floating Rate Notes generally will be treated as "variable rate debt instruments" under the OID Regulations. Accordingly, the stated interest on a Floating Rate Note generally will be treated as "qualified stated interest" and such a Note will not have OID solely as a result of the fact that it provides for interest at a variable rate. If a Floating Rate Note qualifying as a "variable rate debt instrument" is an Original Issue Discount Note, for purposes of determining the amount of OID allocable to each accrual period under the rules above, the Note's "yield to maturity" and "qualified stated interest" will generally be determined as though the Note bore interest in all periods at a fixed rate determined at the time of issuance of the Note. Additional rules may apply if interest on a Floating

Rate Note is based on more than one interest index. If a Floating Rate Note does not qualify as a "variable rate debt instrument," such Note will be subject to special rules (the "Contingent Payment Regulations") that govern the tax treatment of debt obligations that provide for contingent payments ("Contingent Debt Obligations"). A detailed description of the tax considerations relevant to United States holders of any such Notes will be provided in the applicable Pricing Supplement.

Certain of the Notes may be subject to special redemption, repayment or interest rate reset features, as indicated in the applicable Pricing Supplement. Notes containing such features, in particular Original Issue Discount Notes, may be subject to special rules that differ from the general rules discussed above. Purchasers of Notes with such features should carefully examine the applicable Pricing Supplement and should consult their own tax advisors with respect to such Notes since the tax consequences with respect to such features, and especially with respect to OID, will depend, in part, on the particular terms of the purchased Notes.

If a Note provides for a scheduled Accrual Period that is longer than one year (for example, as a result of a long initial period on a Note with interest that is generally paid on an annual basis), then stated interest on the Note will not qualify as "qualified stated interest" under the OID Regulations. As a result, the Note would be an Original Issue Discount Note. In that event, among other things, cash-method United States holders will be required to accrue stated interest on the Note under the rules for OID described above, and all United States holders will be required to accrue OID that would otherwise fall under the *de minimis* threshold.

Premium and Market Discount

A United States holder of a Note that purchases the Note at a cost greater than its remaining redemption amount (as defined in the fourth preceding paragraph) will be considered to have purchased the Note at a premium, and may elect to amortize such premium (as an offset to interest income), using a constant-yield method, over the remaining term of the Note. Such election, once made, generally applies to all bonds held or subsequently acquired by the United States holder on or after the first day of the first taxable year to which the election applies and may not be revoked without the consent of the IRS. A United States holder that elects to amortize such premium must reduce its tax basis in a Note by the amount of the premium amortized during its holding period. Original Issue Discount Notes purchased at a premium will not be subject to the OID rules described above. In the case of premium in respect of a Foreign Currency Note, a United States holder should calculate the amortization of such premium in the Specified Currency. Amortization deductions attributable to a period reduce interest payments in respect of that period and therefore are translated into U.S. dollars at the exchange rate used by the United States holder for such interest payments. Exchange gain or loss will be realized with respect to amortized bond premium on such a Note based on the difference between the exchange rate on the date or dates such premium is recovered through interest payments on the Note and the exchange rate on the date on which the United States holder acquired the Note. With respect to a United States holder that does not elect to amortize bond premium, the amount of bond premium will be included in the United States holder's adjusted tax basis when the Note matures or is disposed of by the United States holder. Therefore, a United States holder that does not elect to amortize such premium and that holds the Note to maturity generally will be required to treat the premium as capital loss when the Note matures.

If a United States holder of a Note purchases the Note at a price that is lower than its remaining redemption amount, or in the case of an Original Issue Discount Note, a price that is lower than its adjusted issue price, by at least 0.25% of its remaining redemption amount multiplied by the number of remaining whole years to maturity, the Note will be considered to have "market discount" in the hands of such United States holder. In such case, gain realized by the United States holder on the disposition of the Note generally will be treated as ordinary income to the extent of the market discount that accrued on the Note while held by such United States holder. In addition, the United States holder could be required to defer the deduction of a portion of the interest paid on any indebtedness incurred or maintained to purchase or carry the Note. In general terms, market discount on a Note will be treated as accruing ratably over the term of such Note, or, at the election of the holder, under a constant-yield method. Market discount on a Foreign Currency Note will be accrued by a United States holder in the Specified Currency. The amount includible in income by a United States holder in respect of such accrued market discount will be the U.S. dollar value of the amount accrued, generally calculated at the exchange rate in effect on the date that the Note is disposed of by the United States holder.

A United States holder may elect to include market discount in income on a current basis as it accrues (on either a ratable or constant-yield basis), in lieu of treating a portion of any gain realized on a sale of a Note as ordinary income. If a United States holder elects to include market discount on a current basis, the interest deduction deferral rule described above will not apply. Any accrued market discount on a Foreign Currency Note that is currently includible in income will be translated into U.S. dollars at the average exchange rate for the accrual period (or portion thereof within the United States holder's taxable year). Any such election, if made, applies to all market discount bonds acquired by the taxpayer on or after the first day of the first taxable year to which such election applies and is revocable only with the consent of the IRS.

Short-Term Notes

The rules set forth above will also generally apply to Notes having maturities of not more than one year ("Short-Term Notes"), but with certain modifications.

The OID Regulations treat none of the interest on a Short-Term Note as qualified stated interest. Thus, all Short-Term Notes will be Original Issue Discount Notes. OID will be treated as accruing on a Short-Term Note ratably, or at the election of a United States holder, under a constant yield method.

A United States holder of a Short-Term Note that uses the cash method of tax accounting and is not a bank, securities dealer, regulated investment company or common trust fund, and does not identify the Short-Term Note as part of a hedging transaction, will generally not be required to include OID in income on a current basis. Such a United States holder may not be allowed to deduct all of the interest paid or accrued on any indebtedness incurred or maintained to purchase or carry such Note until the maturity of the Note or its earlier disposition in a taxable transaction. In addition, such a United States holder will be required to treat any gain realized on a sale, exchange or retirement of the Note as ordinary income to the extent such gain does not exceed the OID accrued with respect to the Note during the period the United States holder held the Note. Notwithstanding the foregoing, a cash-basis United States holder of a Short-Term Note may elect to accrue OID into income on a current basis or to accrue the "acquisition discount" on the Note under the rules described below. If the United States holder elects to accrue OID or acquisition discount, the limitation on the deductibility of interest described above will not apply.

A United States holder using the accrual method of tax accounting and certain cash-basis United States holders (including banks, securities dealers, regulated investment companies and common trust funds) generally will be required to include original issue discount on a Short-Term Note in income on a current basis. Alternatively, a United States holder of a Short-Term Note can elect to accrue the "acquisition discount," if any, with respect to the Note on a current basis. If such an election is made, the OID rules will not apply to the Note. Acquisition discount is the excess of the Short-Term Note's stated redemption price at maturity (i.e., all amounts payable on the Short-Term Note) over the purchase price. Acquisition discount will be treated as accruing ratably or, at the election of the United States holder, under a constant-yield method based on daily compounding. The market discount rules will not apply to a Short-Term Note.

Index Linked Notes and Other Notes Providing for Contingent Payments

The Contingent Payment Regulations, which govern the tax treatment of Contingent Debt Obligations, generally require accrual of interest income on a constant-yield basis in respect of such obligations at a yield determined at the time of their issuance, and may require adjustments to such accruals when any contingent payments are made. A detailed description of the tax considerations relevant to United States holders of any Contingent Debt Obligations will be provided in the applicable Pricing Supplement.

Estate and Gift Taxation

As discussed in "— Korean Taxation — Inheritance Tax and Gift Tax," Korea imposes an inheritance tax on (a) all assets (wherever located) of the deceased if at the time of death the deceased was a resident of Korea and (b) property located in Korea (including the Notes) that passes on death, even if the decedent was not a resident of Korea. Korean gift tax is imposed in similar circumstances to the above. Subject to certain conditions and limitations, the amount of any inheritance tax paid to Korea may be eligible for credit against the amount of U.S. federal estate tax imposed on the estate of a United States holder. The Korean gift tax generally will not be treated as a creditable foreign tax for U.S. tax purposes. Prospective purchasers should consult their own tax advisors regarding the consequences of the imposition of the Korean inheritance or gift tax on their U.S. federal income tax liability.

Information Reporting and Backup Withholding

Information returns will be filed with the IRS in connection with payments on the Notes made to, and the proceeds of dispositions of Notes effected by, certain "United States persons" (as defined in the Code). In addition, certain United States persons may be subject to backup withholding tax in respect of such payments if they do not provide their taxpayer identification numbers or certifications of exempt status to the applicable withholding agent or fail to report all interest and dividends required to be shown on their U.S. federal income tax returns. Persons holding Notes who are not United States persons may be required to comply with applicable certification procedures to establish that they are exempt from the application of such information reporting requirements and backup withholding tax. The amount of any backup withholding from a payment to a holder will be allowed as a credit against the holder's U.S. federal income tax liability and may entitle the holder to a refund, provided that the required information is timely furnished to the IRS.

Information with Respect to Foreign Financial Assets

Individual United States holders that own "specified foreign financial assets" with an aggregate value in excess of US$50,000 on the last day of the taxable year or US$75,000 at any time during the taxable year are generally required to file an information statement along with their tax returns, currently on IRS Form 8938, with respect to such assets. "Specified foreign financial assets" include any financial accounts held at a non-U.S. financial institution, as well as securities issued by a non-U.S. issuer (which would include the Notes) that are not held in accounts maintained by financial institutions. Higher reporting thresholds apply to certain individuals living abroad and to certain married individuals. Regulations extend this reporting requirement to certain entities that are treated as formed or availed of to hold direct or indirect interests in specified foreign financial assets based on certain objective criteria. United States holders who fail to report the required information could be subject to substantial penalties. In addition, the statute of limitations for assessment of tax would be suspended, in whole or part. Prospective investors should consult their own tax advisors concerning the application of these rules to their investment in the Notes, including the application of the rules to their particular circumstances.

Reportable Transactions

A United States holder that participates in a "reportable transaction" will be required to disclose its participation to the IRS. The scope and application of these rules is not entirely clear. A United States holder may be required to treat a foreign currency exchange loss from the Foreign Currency Notes as a reportable transaction if the loss exceeds US$50,000 in a single taxable year if the United States holder is an individual or trust, or higher amounts for other United States holders. In the event the acquisition, ownership or disposition of the Foreign Currency Notes constitutes participation in a "reportable transaction" for purposes of these rules, a United States holder will be required to disclose its investment to the IRS, currently on IRS Form 8886. A penalty in the amount of US$10,000 in the case of a natural person and US$50,000 in all other cases is generally imposed on any taxpayer that fails to timely file an information return with the IRS with respect to a transaction resulting in a loss that is treated as a reportable transaction. Prospective investors should consult their own tax advisors regarding the application of these rules to the acquisition, ownership or disposition of the Foreign Currency Notes.

Korean Taxation

The information provided below does not purport to be a complete summary of Korean tax law and practice currently applicable. Prospective investors who are in any doubt as to their tax position should consult with their own professional advisors.

The taxation of non-resident individuals and non-Korean corporations ("Non-Residents") depends on whether they have a "permanent establishment" (as defined under Korean law and applicable tax treaty) in Korea to which the relevant Korean source income is attributable or with which such income is effectively connected. Non-Residents without a permanent establishment in Korea are taxed in the manner described below. Non-Residents with permanent establishments in Korea are taxed in accordance with different rules.

Tax on Interest

Interest on the Notes paid to Non-Residents (except for their permanent establishments in Korea), being foreign currency denominated bonds issued outside Korea, is exempt from income tax and corporation tax (whether payable by withholding or otherwise) pursuant to the Special Tax Treatment Control Law (the "STTCL"). The term "foreign currency denominated bonds" in this context is not defined under the STTCL. In this regard, the Korean tax authority issued a ruling on September 1, 1990 to the effect that "a notes issuance facility, commercial paper issued in U.S. dollars or euros or a banker's acceptance" are not treated as "foreign currency denominated bonds."

If the tax exemption under the STTCL referred to above were to cease to be in effect, the rate of income tax or corporation tax applicable to interest on the Notes for a Non-Resident without a permanent establishment in Korea, would be 14% of income. In addition, a tax surcharge called a local income tax would be imposed at the rate of 10% of the income tax or corporation tax (raising the total tax rate to 15.4%).

The tax rates may be reduced by an applicable tax treaty, convention or agreement between Korea and the country of the recipient of the income. The relevant tax treaties are discussed below.

Index Linked Notes

A detailed description of the tax considerations relevant to Index Linked Notes will be provided in the applicable Pricing Supplement.

Tax on Capital Gains

Korean tax laws currently exclude from Korean taxation gains made by a Non-Resident without a permanent establishment in Korea from the sale of the Notes to other Non-Residents (other than to their permanent establishments in Korea). In addition, capital gains earned by Non-Residents with or without permanent establishments in Korea from the transfer taking place outside Korea of the Notes are currently exempt from taxation by virtue of the STTCL, provided that the issuance of the Notes is deemed to be an overseas issuance denominated in foreign currency under the STTCL.

If the exclusion or exemption from Korean taxation referred to above were to cease to be in effect, in the absence of an applicable tax treaty reducing or eliminating tax on capital gains, the applicable rate of tax would be the lower of 11% (including local income tax) of the gross realization proceeds or (subject to the production of satisfactory evidence of the acquisition cost and certain direct transaction costs of the relevant Note 22% (including local income tax) of the realized gain (i.e., the excess of the gross realization proceeds over the acquisition cost and certain direct transaction costs) made. If such evidence shows that no gain (or a loss) was made on the sale, no Korean tax is payable. There is no provision under relevant Korean law to allow offsetting of gains and losses or otherwise aggregating transactions for the purpose of computing the net gain attributable to sales of the Notes issued by Korean companies. The purchaser or any other designated withholding agent of the Notes is obliged under Korean law to withhold the applicable amount of Korean tax and make payment thereof to the relevant Korean tax authority. Unless the seller can claim the benefit of an exemption from tax under an applicable tax treaty or on the failure of the seller to produce satisfactory evidence of his acquisition cost and certain direct transaction costs in relation to the instruments being sold, the purchaser or such withholding agent must withhold an amount equal to 11% of the gross realization proceeds. Any amounts withheld by the purchaser or such withholding agent must be paid to the competent Korean tax office. The purchaser or withholding agent must pay any withholding tax no later than the tenth day of the month following the month in which the payment for the purchase of the relevant instruments occurred. Failure to transmit the withheld tax to the Korean tax authorities in time subjects the purchaser or such withholding agent to penalties under Korean tax laws. The Korean tax authorities may attempt to collect such tax from a Non-Resident who is liable for payment of any Korean tax on gains, as a purchaser or withholding agent who is obliged to withhold such tax, through proceedings against payments due to the Non-Resident from its Korean investments and the assets or revenues of any of the Non-Resident's branch or representative offices in Korea.

Inheritance Tax and Gift Tax

Korean inheritance tax is imposed upon (a) all assets (wherever located) of the deceased if at the time of his death he was domiciled in Korea or had resided in Korea for at least 183 days immediately prior to his death and (b) all property located in Korea that passes on death (irrespective of the domicile or residence of the deceased). Gift tax is imposed in similar circumstances to the above. The taxes are imposed if the value of the relevant property is above a certain limit and the rate varies from 10% to 50%. At present, Korea has not entered into any tax treaties regarding its inheritance or gift taxes.

Under Korean inheritance and gift tax laws, bonds issued by Korean corporations are deemed located in Korea irrespective of where they are physically located or by whom they are owned, and, consequently, the Korean inheritance and gift taxes may be imposed on transfers of the Notes by inheritance or gift. Prospective purchasers should consult their personal tax advisors regarding the consequences of the imposition of the Korean inheritance or gift tax.

Stamp Duty and Securities Transaction Tax

No stamp, issue or registration duties will be payable in Korea by the holders of the Notes in connection with the issue of the Notes except for a nominal amount of stamp duty on certain documents executed in Korea which will be paid by the Issuer. No securities transaction tax will be imposed upon the transfer of the Notes.

Tax Treaties

At the date of this Offering Circular, Korea has tax treaties with, *inter alia*, Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Luxembourg, The Netherlands, New Zealand, Norway, Singapore, Sweden, Switzerland, the UK and the United States of America, under which the rate of withholding tax on interest is reduced, generally to between 5 and 16.5% (including local income tax), and the tax on capital gains is often eliminated.

Each holder of the Notes should inquire whether he is entitled to the benefit of a tax treaty with respect to any transaction involving the Notes. It is the responsibility of the party claiming the benefits of a tax treaty in respect of interest payments to file with the payer or the Issuer a certificate as to his residence. In the absence of sufficient proof, the payer or the Issuer must withhold taxes in accordance with the above discussion.

In order to claim the benefit of a tax rate reduction or tax exemption available under the applicable tax treaties, a non-resident holder should submit to the payer of such Korean source income an application (for a reduced withholding tax rate, the "application for entitlement to reduced tax rate," and for an exemption from withholding tax, the "application for exemption" under a tax treaty along with a certificate of the non-resident holder's tax residence issued by a competent authority of the non-resident holder's residence country) as the beneficial owner of such Korean source income ("BO Application"). Such application should be submitted to the withholding agent prior to the payment date of the relevant income. Subject to certain exceptions, where the relevant income is paid to an overseas investment vehicle (which is not the beneficial owner of such income) ("OIV"), a beneficial owner claiming the benefit of an applicable tax treaty with respect to such income must submit its BO Application to such OIV, which must submit an OIV report and a schedule of beneficial owners to the withholding agent prior to the payment date of such income. In the case of a tax exemption application, the withholding agent is required to submit such application (together with the applicable OIV report in the case of income paid to an OIV) to the relevant district tax office by the ninth day of the month following the date of the payment of such income.

Withholding and Gross Up

As mentioned above, interest paid on the Notes is exempt from any withholding or deduction on account of income tax or corporation tax pursuant to the STTCL. However, in the event that the payer or the Issuer is required by law to make any withholding or deduction for or on account of any Korean taxes (as more fully described in "Terms and Conditions of the Notes — Taxation") the Issuer has agreed to pay (subject to the customary exceptions as set out in "Terms and Conditions of the Notes — Taxation") such additional amounts as may be necessary in order that the net amounts received by the Holder of any Note after such withholding or deduction shall equal the respective amounts which would have been received by such holder in the absence of such withholding or deduction.

The Proposed Financial Transaction Tax

The European Commission has published a proposal (the "Commission's Proposal") for a Directive for a common financial transaction tax ("FTT") in Austria, Belgium, Estonia, France, Germany, Greece, Italy, Portugal, Slovakia, Slovenia and Spain (the "participating Member States"). However, Estonia has since stated that it will not participate.

The Commission's Proposal has very broad scope and could, if introduced in its current form, apply to certain dealings in the Notes in certain circumstances.

Under the Commission's Proposal, the FTT could apply in certain circumstances to persons both within and outside of the participating Member States. Generally, it would apply to certain dealings in the Notes where at least one party is a financial institution, and at least one party is established in a participating Member State. A financial institution may be, or be deemed to be, "established" in a participating Member State in a broad range of circumstances, including (a) by transacting with a person established in a participating Member State or (b) where the financial instrument which is subject to the dealings is issued in a participating Member State.

The FTT remains subject to negotiation between participating Member States and the legality of the proposal is uncertain. It may therefore be altered prior to any implementation, the timing of which remains unclear. Additional EU Member States may decide to participate and/or certain of the participating Member States may decide to withdraw.

Prospective holders of the Notes are advised to seek their own professional advice in relation to the FTT.

INDEPENDENT AUDITORS

The audited consolidated financial statements of the Issuer as of and for the years ended December 31, 2024 and 2023 and as of and for the years ended December 31, 2023 and 2022, included elsewhere in this Offering Circular, have been audited by Ernst & Young Han Young, independent auditors, as stated in their reports appearing herein.

SUBSCRIPTION AND SALE AND TRANSFER AND SELLING RESTRICTIONS

The Dealers have, in an amended and restated program agreement dated September 21, 2015 as further amended and/or supplemented from time to time (the "Program Agreement"), agreed with the Issuer a basis upon which they or any of them may from time to time agree to purchase Notes. Any such agreement will extend to those matters stated under "Form of the Notes" and "Terms and Conditions of the Notes." In the Program Agreement, the Issuer has agreed to reimburse the Dealers for certain of their expenses reasonably and properly incurred in protecting or enforcing any of their rights under the Program Agreement and to indemnify the Dealers against certain liabilities incurred by them.

In order to facilitate the offering of any Tranche of the Notes, certain persons participating in the offering of the Tranche may to the extent permitted by applicable laws and regulations engage in transactions that stabilize, maintain or otherwise affect the market price of the relevant Notes for a limited period after the issue date. Specifically such persons may over-allot or create a short position in the Notes for their own account by selling more Notes than have been sold to them by the Issuer. Such persons may also elect to cover any such short position by purchasing Notes in the open market. In addition, such persons may stabilize or maintain the price of the Notes by bidding for or purchasing Notes in the open market and may impose penalty bids, under which selling concessions allowed to syndicate members or other broker-dealers participating in the offering of the Notes are reclaimed if Notes previously distributed in the offering are repurchased in connection with stabilization transactions or otherwise. The effect of these transactions may be to stabilize or maintain the market price of the Notes at a level above that which might otherwise prevail in the open market. The imposition of a penalty bid may also affect the price of the Notes to the extent that it discourages resales thereof. No representation is made as to the magnitude or effect of any such stabilizing or other transactions. Such transactions, if commenced, may be discontinued at any time and must be brought to an end after a limited period.

If a jurisdiction requires that any offering of Notes under the Program be made by a licensed broker or dealer and the Dealers or any affiliate of the Dealers is a licensed broker or dealer in that jurisdiction, the offering shall be deemed to be made by that Dealer or its affiliate on behalf of the Issuer in such jurisdiction.

Certain Relationships

The Dealers and certain of their respective affiliates may have performed certain investment banking, commercial banking and advisory services for the Issuer and its affiliates from time to time for which they have received customary fees and expenses and may, from time to time, engage in transactions with and perform services for the Issuer and its affiliates in the ordinary course of their business. The Dealers or certain of their respective affiliates may purchase the Notes and be allocated the Notes for asset management and/or proprietary purposes but not with a view to distribution.

The Dealers or their respective affiliates may purchase the Notes for their own account and enter into transactions, including credit derivatives, such as asset swaps, repackaging and credit default swaps relating to the Notes and/or other securities of the Issuer or its subsidiaries or associates, at the same time as the offer and sale of the Notes or in secondary market transactions. Such transactions would be carried out as bilateral trades with selected counterparties and separately from any existing sale or resale of the Notes to which this Offering Circular relates (notwithstanding that such selected counterparties may also be purchasers of the Notes).

In addition, in the ordinary course of their business activities, the Dealers and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of the Issuer or its affiliates. The Dealers and their respective affiliates may also make investment recommendations and/or publish or express independent research views with respect to such securities or financial instruments and may hold, or recommend to clients that they acquire long and/or short positions in such securities and instruments.

Transfer Restrictions

As a result of the following restrictions, purchasers of Notes in the United States are advised to consult legal counsel prior to making any purchase, offer, sale, resale or other transfer of such Notes.

Each purchaser of Registered Notes (other than a person purchasing an interest in a Registered Global Note with a view to holding it in the form of an interest in the same Global Note) or person wishing to transfer an interest from one Registered Global Note to another or from global to definitive form or vice versa, will be required to acknowledge, represent and agree as follows (terms used in this paragraph that are defined in Rule 144A or in Regulation S are used herein as defined therein):

(a) that either: (i) it is a QIB, purchasing (or holding) the Notes for its own account or for the account of one or more QIBs and it is aware that any sale to it is being made in reliance on Rule 144A or (ii) it is an Institutional Accredited Investor which has delivered an IAI Investment Letter or (iii) it is outside the United States and is not a U.S. person;

(b) that the Notes are being offered and sold in a transaction not involving a public offering in the United States within the meaning of the Securities Act, and that the Notes have not been and will not be registered under the Securities Act or any other applicable U.S. state securities laws and may not be offered or sold within the United States or to, or for the account or benefit of, U.S. persons except as set forth below;

(c) that, unless it holds an interest in a Regulation S Global Note and either is a person located outside the United States or is not a U.S. person, if in the future it decides to resell, pledge or otherwise transfer the Notes or any beneficial interests in the Notes, it will do so, prior to the date which is one year after the later of the last Issue Date for the Series and the last date on which the Issuer or an affiliate of the Issuer was the owner of such Notes, only (i) to the Issuer or any affiliate thereof, (ii) inside the United States to a person whom the seller reasonably believes is a QIB purchasing for its own account or for the account of a QIB in a transaction meeting the requirements of Rule 144A, (iii) outside the United States in compliance with Rule 903 or Rule 904 under the Securities Act, (iv) pursuant to the exemption from registration provided by Rule 144 under the Securities Act (if available) or (v) pursuant to an effective registration statement under the Securities Act, in each case in accordance with all applicable U.S. state securities laws;

(d) it will, and will require each subsequent holder to, notify any purchaser of the Notes from it of the resale restrictions referred to in paragraph (c) above, if then applicable;

(e) that Notes initially offered in the United States to QIBs will be represented by one or more Rule 144A Global Notes, that Notes offered to Institutional Accredited Investors will be in the form of Definitive IAI Registered Notes and that Notes offered outside the United States in reliance on Regulation S will be represented by one or more Regulation S Global Notes;

(f) that the Notes, other than the Regulation S Global Notes, will bear a legend to the following effect unless otherwise agreed to by the Issuer:

"THIS SECURITY HAS NOT BEEN REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR ANY OTHER APPLICABLE U.S. STATE SECURITIES LAWS AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD WITHIN THE UNITED STATES OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, U.S. PERSONS EXCEPT AS SET FORTH IN THE FOLLOWING

SENTENCE. BY ITS ACQUISITION HEREOF, THE HOLDER (A) REPRESENTS THAT (I) IT IS A "QUALIFIED INSTITUTIONAL BUYER" (AS DEFINED IN RULE 144A UNDER THE SECURITIES ACT) PURCHASING THE SECURITIES FOR ITS OWN ACCOUNT OR FOR THE ACCOUNT OF ONE OR MORE QUALIFIED INSTITUTIONAL BUYERS OR (II) IT IS AN INSTITUTIONAL "ACCREDITED INVESTOR" (AS DEFINED IN RULE 501(A)(1), (2), (3) OR (7) UNDER THE SECURITIES ACT) (AN "INSTITUTIONAL ACCREDITED INVESTOR"); (B) AGREES THAT IT WILL NOT RESELL OR OTHERWISE TRANSFER THE SECURITIES EXCEPT IN ACCORDANCE WITH THE AGENCY AGREEMENT AND, PRIOR TO THE DATE WHICH IS ONE YEAR AFTER THE LATER OF THE LAST ISSUE DATE FOR THE SERIES AND THE LAST DATE ON WHICH THE ISSUER OR AN AFFILIATE OF THE ISSUER WAS THE OWNER OF SUCH SECURITIES OTHER THAN (I) TO THE ISSUER OR ANY AFFILIATE THEREOF, (II) INSIDE THE UNITED STATES TO A PERSON WHOM THE SELLER REASONABLY BELIEVES IS A QUALIFIED INSTITUTIONAL BUYER WITHIN THE MEANING OF RULE 144A UNDER THE SECURITIES ACT PURCHASING FOR ITS OWN ACCOUNT OR FOR THE ACCOUNT OF A QUALIFIED INSTITUTIONAL BUYER IN A TRANSACTION MEETING THE REQUIREMENTS OF RULE 144A, (III) OUTSIDE THE UNITED STATES IN COMPLIANCE WITH RULE 903 OR RULE 904 UNDER THE SECURITIES ACT, (IV) PURSUANT TO THE EXEMPTION FROM REGISTRATION PROVIDED BY RULE 144 UNDER THE SECURITIES ACT (IF AVAILABLE) OR (V) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT, IN EACH CASE IN ACCORDANCE WITH ALL APPLICABLE SECURITIES LAWS OF THE STATES OF THE UNITED STATES AND ANY OTHER JURISDICTION; AND (C) IT AGREES THAT IT WILL DELIVER TO EACH PERSON TO WHOM THIS SECURITY IS TRANSFERRED A NOTICE SUBSTANTIALLY TO THE EFFECT OF THIS LEGEND.

THIS SECURITY AND RELATED DOCUMENTATION (INCLUDING, WITHOUT LIMITATION, THE AGENCY AGREEMENT REFERRED TO HEREIN) MAY BE AMENDED OR SUPPLEMENTED FROM TIME TO TIME, WITHOUT THE CONSENT OF, BUT UPON NOTICE TO, THE HOLDERS OF SUCH SECURITIES SENT TO THEIR REGISTERED ADDRESSES, TO MODIFY THE RESTRICTIONS ON AND PROCEDURES FOR RESALES AND OTHER TRANSFERS OF THIS SECURITY TO REFLECT ANY CHANGE IN APPLICABLE LAW OR REGULATION (OR THE INTERPRETATION THEREOF) OR IN PRACTICES RELATING TO RESALES OR OTHER TRANSFERS OF RESTRICTED SECURITIES GENERALLY. THE HOLDER OF THIS SECURITY SHALL BE DEEMED, BY ITS ACCEPTANCE OR PURCHASE HEREOF, TO HAVE AGREED TO ANY SUCH AMENDMENT OR SUPPLEMENT (EACH OF WHICH SHALL BE CONCLUSIVE AND BINDING ON THE HOLDER HEREOF AND ALL FUTURE HOLDERS OF THIS SECURITY AND ANY SECURITIES ISSUED IN EXCHANGE OR SUBSTITUTION THEREFOR, WHETHER OR NOT ANY NOTATION THEREOF IS MADE HEREON).";

(g) if it is outside the United States and is not a U.S. person, that if it should resell or otherwise transfer the Notes prior to the expiration of the distribution compliance period (defined as 40 days after the later of the commencement of the offering and the closing date with respect to the original issuance of the Notes), it will do so only (i)(A) outside the United States in compliance with Rule 903 or 904 under the Securities Act or (B) to a QIB in compliance with Rule 144A and (ii) in accordance with all applicable U.S. state securities laws; and it acknowledges that the Regulation S Global Notes will bear a legend to the following effect unless otherwise agreed to by the Issuer:

"THIS SECURITY HAS NOT BEEN AND WILL NOT BE REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR ANY OTHER APPLICABLE U.S. STATE SECURITIES LAWS AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD WITHIN THE UNITED STATES OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, U.S. PERSONS EXCEPT IN ACCORDANCE WITH THE AGENCY AGREEMENT AND PURSUANT TO AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OR PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT. THIS LEGEND SHALL CEASE TO APPLY UPON THE EXPIRY OF THE PERIOD OF 40 DAYS AFTER THE COMPLETION OF THE DISTRIBUTION OF ALL THE NOTES OF THE TRANCHE OF WHICH THIS NOTE FORMS PART."; and

(h) that the Issuer and others will rely upon the truth and accuracy of the foregoing acknowledgements, representations and agreements and agrees that if any of such acknowledgements, representations or agreements made by it are no longer accurate, it shall promptly notify the Issuer; and if it is acquiring any Notes as a fiduciary or agent for one or more accounts it represents that it has sole investment discretion with respect to each such account and that it has full power to make the foregoing acknowledgements, representations and agreements on behalf of each such account.

Institutional Accredited Investors who purchase Registered Notes in definitive form offered and sold in the United States in reliance upon the exemption from registration provided by Regulation D of the Securities Act are required to execute and deliver to the Registrar an IAI Investment Letter. Upon execution and delivery of an IAI Investment Letter by an Institutional Accredited Investor, Notes will be issued in definitive registered form, see "Form of the Notes."

The IAI Investment Letter will state, among other things, the following:

(a) that the Institutional Accredited Investor has received a copy of the Offering Circular and such other information as it deems necessary in order to make its investment decision;

(b) that the Institutional Accredited Investor understands that any subsequent transfer of the Notes is subject to certain restrictions and conditions set forth in the Offering Circular and the Notes (including those set out above) and that it agrees to be bound by, and not to resell, pledge or otherwise transfer the Notes except in compliance with, such restrictions and conditions and the Securities Act;

(c) that, in the normal course of its business, the Institutional Accredited Investor invests in or purchases securities similar to the Notes;

(d) that the Institutional Accredited Investor is an Institutional Accredited Investor within the meaning of Rule 501(a)(1), (2), (3) or (7) of Regulation D under the Securities Act and has such knowledge and experience in financial and business matters as to be capable of evaluating the merits and risks of its investment in the Notes, and it and any accounts for which it is acting are each able to bear the economic risk of its or any such accounts' investment for an indefinite period of time;

(e) that the Institutional Accredited Investor is acquiring the Notes purchased by it for its own account or for one or more accounts (each of which is an Institutional Accredited Investor) as to each of which it exercises sole investment discretion and not with a view to any distribution of the Notes, subject, nevertheless, to the understanding that the disposition of its property shall at all times be and remain within its control; and

(f) that, in the event that the Institutional Accredited Investor purchases Notes, it will acquire Notes having a minimum purchase price of at least U.S.$250,000 (or the approximate equivalent in another Specified Currency).

No sale of Legended Notes in the United States to any one purchaser will be for less than U.S.$100,000 (or its foreign currency equivalent) principal amount or, in the case of sales to Institutional Accredited Investors, U.S.$250,000 (or its foreign currency equivalent) principal amount and no Legended Note will be issued in connection with such a sale in a smaller principal amount. If the purchaser is a non-bank fiduciary acting on behalf of others, each person for whom it is acting must purchase at least U.S.$100,000 (or its foreign currency equivalent) or, in the case of sales to Institutional Accredited Investors, U.S.$250,000 (or its foreign currency equivalent) principal amount of Registered Notes.

Selling Restrictions

United States of America

The Notes have not been and will not be registered under the Securities Act and may not be offered or sold within the United States or to, or for the account or benefit of, U.S. persons except in certain transactions exempt from the registration requirements of the Securities Act.

The Notes in bearer form are subject to U.S. tax law requirements and may not be offered, sold or delivered within the United States or its possessions or to a United States person, except in certain transactions permitted by U.S. tax regulations. Terms used in this paragraph have the meanings given to them by the U.S. Internal Revenue Code of 1986 and regulations thereunder.

In connection with any Notes which are offered or sold outside the United States in reliance on an exemption from the registration requirements of the Securities Act provided under Regulation S ("Regulation S Notes"), each Dealer has represented, warranted and agreed, and each further Dealer appointed under the Program will be required to represent, warrant and agree, that it will not offer, sell or deliver such Notes (i) as part of their distribution at any time or (ii) otherwise until 40 days after the completion of the distribution, as determined and certified by the relevant Dealer or, in the case of an issue of Notes on a syndicated basis, the relevant lead manager, of all Notes of the Tranche of which such Regulation S Notes are a part, within the United States or to, or for the account or benefit of, U.S. persons. Each Dealer has further agreed, and each further Dealer appointed under the Program will be required to agree, that it will send to each dealer to which it sells any Regulation S Notes during the distribution compliance period a confirmation or other notice setting forth the restrictions on offers and sales of the Regulation S Notes within the United States or to, or for the account or benefit of, U.S. persons.

Until 40 days after the commencement of the offering of any Series of Notes, an offer or sale of such Notes within the United States by any dealer (whether or not participating in the offering) may violate the registration requirements of the Securities Act if such offer or sale is made otherwise than in accordance with an available exemption from registration under the Securities Act.

Dealers may arrange for the resale of Notes to QIBs pursuant to Rule 144A and each such purchaser of Notes is hereby notified that the Dealers may be relying on the exemption from the registration requirements of the Securities Act provided by Rule 144A. The minimum aggregate principal amount of Notes that may be purchased by a QIB pursuant to Rule 144A is U.S.$100,000 (or the approximate equivalent thereof in any other currency). To the extent that the Issuer is not subject to or does not comply with the reporting requirements of Section 13 or 15(d) of the Exchange Act or the information furnishing requirements of Rule 12g3-2(b) thereunder, the Issuer has agreed to furnish to holders of Notes and to prospective purchasers designated by such holders, upon request, such information as may be required by Rule 144A(d)(4).

Each issuance of Index Linked Notes or Dual Currency Notes shall be subject to such additional U.S. selling restrictions as the Issuer and the relevant Dealer may agree as a term of the issuance and purchase of such Notes, which additional selling restrictions shall be set out in the applicable Pricing Supplement.

European Economic Area

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

A determination will be made in relation to each issue of Notes about whether, for the purpose of the MiFID Product Governance Rules, each of the Arranger and Dealers subscribing for any Notes is a manufacturer in respect of such Notes, but otherwise neither the Arranger nor the Dealers nor any of their respective affiliates will be a manufacturer for the purpose of the MiFID Product Governance Rules.

Unless the final terms (or Pricing Supplement, as the case may be) in respect of any Series of Notes specifies "Prohibition of Sales to EEA Retail Investors" as "Not Applicable," each Dealer has represented and agreed, and each further Dealer appointed under the Program will be required to represent and agree, that it has not offered, sold or otherwise made available and will not offer, sell or otherwise make available any Notes which are the subject of the offering contemplated by this Offering Circular as completed by the final terms (or Pricing Supplement, as the case may be) in relation thereto to any retail investor in the EEA. For the purposes of this provision: (a) the expression "retail investor" means a person who is one (or more) of the following: (i) a retail client as defined in point (11) of Article 4(1) of MiFID II; (ii) a customer within the meaning of Directive (EU) 2016/97 (the "Insurance Distribution Directive"), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (iii) not a qualified investor as defined in the Prospectus Regulation; and (b) the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes.

If the final terms (or Pricing Supplement, as the case may be) in respect of any Notes specifies the "Prohibition of sales to EEA retail investors" as "Not Applicable," in relation to each Member State of the EEA, each Dealer has represented and agreed, and each further Dealer appointed under the Program will be required to represent and agree, that it has not made and will not make an offer of Notes which are the subject of the offering contemplated by this Offering Circular, as completed by the final terms in relation thereto, to the public in that Member State except that it may make an offer of such Notes to the public in that Member State:

(a) if the final terms in relation to the Notes specify that an offer of those Notes may be made other than pursuant to Article 1(4) of the Prospectus Regulation in that Member State (a "Non-exempt Offer"), following the date of publication of a prospectus in relation to such Notes which has been approved by the competent authority in that Member State or, where appropriate, approved in another Member State and notified to the competent authority in that Member State, provided that any such prospectus has subsequently been completed by the final terms contemplating such Non-exempt Offer, in accordance with the Prospectus Regulation in the period beginning and ending on the dates specified in such prospectus or final terms, as applicable, and the Issuer has consented in writing to its use for the purpose of that Non-exempt Offer;

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

(c) subject to any other restriction and obtaining the prior consent of the relevant Dealer or Dealers nominated by the Issuer for any such offer, at any time to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Regulation); or

(d) at any time in any other circumstances falling within Article 1(4) of the Prospectus Regulation;

provided that no such offer of Notes referred to in (b) to (d) above shall require the Issuer or any Dealer to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation.

For the purposes of this provision, the expression an "offer of Notes to the public" in relation to any Notes in any 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 (as amended).

The EEA selling restrictions described above are in addition to any other applicable selling restriction set out below.

United Kingdom

The final terms (or Pricing Supplement, as the case may be) in respect of any Series of Notes may include a legend entitled "UK MiFIR Product Governance" which will outline the target market assessment in respect of the Notes of any such Series and which channels for distribution of the Notes are appropriate. If such information is included, any person subsequently offering, selling or recommending the Notes (a "UK MiFIR distributor") should take into consideration the target market assessment; however, a UK MiFIR distributor subject to the FCA Handbook Product Intervention and Product Governance Sourcebook (the "UK MiFIR Product Governance Rules") will be responsible for undertaking its own target market assessment in respect of the Notes (by either adopting or refining the target market assessment) and determining the appropriate distribution channels.

A determination will be made in relation to each issue of Notes about whether, for the purpose of the UK MiFIR Product Governance Rules, each of the Arranger and Dealers subscribing for any Notes is a UK MiFIR manufacturer in respect of such Notes, but otherwise neither the Arranger nor the Dealers nor any of their respective affiliates will be a UK MiFIR manufacturer for the purpose of the UK MiFIR Product Governance Rules.

Unless the final terms (or Pricing Supplement, as the case may be) in respect of any Series of Notes specifies "Prohibition of Sales to UK Retail Investors" as "Not Applicable," each Dealer has represented and agreed, and each further Dealer appointed under the Program will be required to represent and agree, that it has not offered, sold or otherwise made available and will not offer, sell or otherwise make available any Notes which are the subject of the offering contemplated by this Offering Circular as completed by the final terms (or Pricing Supplement, as the case may be) in relation thereto to any retail investor in the UK. For the purposes of this provision: (a) the expression "retail investor" means a person who is one (or more) of the following: (i) a retail client as defined in point (8) of Article 2 of Regulation (EU) No 2017/565 as it forms part of domestic law by virtue of the EUWA; (ii) a customer within the meaning of the FSMA and any rules or regulations made under the FSMA to implement the Insurance Distribution Directive, where that customer would not qualify as a professional client as defined in point (8) of Article 2(1) of Regulation (EU) No 600/2014 as it forms part of domestic law by virtue of the EUWA; or (iii) not a qualified investor as defined in Article 2 of the UK

Prospectus Regulation; and (b) the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes.

If the final terms (or Pricing Supplement, as the case may be) in respect of any Notes specifies the "Prohibition of sales to UK retail investors" as "Not Applicable," in relation to the UK, each Dealer has represented and agreed, and each further Dealer appointed under the Program will be required to represent and agree, that it has not made and will not make an offer of Notes which are the subject of the offering contemplated by this Offering Circular, as completed by the final terms in relation thereto, to the public in the UK except that it may make an offer of such Notes to the public in the UK:

(a) if the final terms in relation to the Notes specify that an offer of those Notes may be made other than pursuant to section 86 of the FSMA (a "Public Offer"), following the date of publication of a prospectus in relation to such Notes which either (i) has been approved by the Financial Conduct Authority, or (ii) is to be treated as if it had been approved by the Financial Conduct Authority in accordance with the transitional provision in Regulation 74 of the Prospectus (Amendment etc.) (EU Exit) Regulations 2019, provided that any such prospectus has subsequently been completed by the final terms contemplating such Public Offer, in the period beginning and ending on the dates specified in such prospectus or final terms, as applicable, and the Issuer has consented in writing to its use for the purpose of that Public Offer;

(b) at any time to any legal entity which is a qualified investor as defined in Article 2 of the UK Prospectus Regulation;

(c) at any time to fewer than 150 natural or legal persons (other than qualified investors as defined in Article 2 of the UK Prospectus Regulation) in the UK subject to obtaining the prior consent of the relevant Dealer or Dealers nominated by the Issuer for any such offer; or

(d) at any time in any other circumstances falling within section 86 of the FSMA;

provided that no such offer of Notes referred to in (b) to (d) above shall require the Issuer or any Dealer to publish a prospectus pursuant to section 85 of the FSMA or supplement a prospectus pursuant to Article 23 of the UK Prospectus Regulation.

For the purposes of this provision, the expression an "offer of Notes to the public" in relation to any Notes 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 "UK Prospectus Regulation" means Regulation (EU) 2017/1129 as it forms part of domestic law by virtue of the EUWA.

Each Dealer has represented, warranted and agreed, and each further Dealer appointed under the Program will be required to represent, warrant and agree that:

(a) in relation to any Notes having a maturity of less than one year, (i) it is a person whose ordinary activities involve it in acquiring, holding, managing or disposing of investments (as principal or agent) for the purposes of its business and (ii) it has not offered or sold and will not offer or sell any Notes other than to persons whose ordinary activities involve them in acquiring, holding, managing or disposing of investments (as principal or as agent) for the purposes of their businesses or who it is reasonable to expect will acquire, hold, manage or dispose of investments (as principal or agent) for the purposes of their businesses where the issue of the Notes would otherwise constitute a contravention of Section 19 of the FSMA by the Issuer; and

(b) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the FSMA) received by it in connection with the issue or sale of any Notes in circumstances in which Section 21(1) of the FSMA would not, if the Issuer was not an authorised person, apply to the Issuer; and

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

The UK selling restrictions described above are in addition to any other applicable selling restriction set out below.

Japan

The Notes have not been and will not be registered under the Financial Instruments and Exchange Act of Japan (Act No. 25 of 1948, as amended, the "Financial Instruments and Exchange Act"). Accordingly, each Dealer has represented and agreed that it has not, directly or indirectly, offered or sold and will not, directly or indirectly, offer or sell any Notes in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan) or to others for re-offering or re-sale, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Act and other relevant laws and regulations of Japan.

Hong Kong

Each Dealer has represented, warranted and agreed and each further Dealer appointed under the Program will be required to represent, warrant and agree that:

(a) it has not offered or sold and will not offer or sell in Hong Kong, by means of any document, any Notes other than (i) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong (the "SFO") and any rules made under the SFO; or (ii) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong (the "C(WUMP)O"); and

(b) it has not issued or had in its possession for the purposes of issue, and will not issue or have in its possession for the purposes of issue, whether in Hong Kong or elsewhere, any advertisement, invitation or document relating to the Notes, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to the Notes which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the SFO and any rules made under the SFO.

Singapore

Unless the Pricing Supplement in respect of any Notes specifies "Singapore Sales to Institutional Investors and Accredited Investors only" as "Not Applicable," each Dealer has acknowledged, and each further Dealer appointed under the Program will be required to acknowledge, that this Offering Circular has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, each Dealer has represented, warranted and agreed, and each further Dealer appointed under the Program will be required to represent, warrant and agree, that it has not offered or sold any Notes or caused the Notes to be made the subject of an invitation for subscription or purchase and will not offer or sell any Notes or cause the Notes to be made the subject of an invitation for subscription or purchase, and has not circulated or distributed, nor will it circulate or distribute, this Offering Circular or any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the Notes, whether directly or indirectly, to any person in Singapore other than (i) to an institutional investor (as defined in Section 4A of the Securities and Futures Act 2001 of Singapore, as modified or amended from time to time (the "**SFA**")) pursuant to Section 274 of the SFA or; (ii) to an accredited investor (as defined in Section 4A of the SFA) pursuant to and in accordance with the conditions specified in Section 275 of the SFA.

If the Pricing Supplement in respect of any Notes specifies "Singapore Sales to Institutional Investors and Accredited Investors only" as "Not Applicable," each Dealer has acknowledged, and each further Dealer appointed under the Program will be required to acknowledge, that this Offering Circular has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, each Dealer has represented, warranted and agreed, and each further Dealer appointed under the Program will be required to represent, warrant and agree, that it has not offered or sold any Notes or caused the Notes to be made the subject of an invitation for subscription or purchase and will not offer or sell any Notes or cause the Notes to be made the subject of an invitation for subscription or purchase, and has not circulated or distributed, nor will it circulate or distribute, this Offering Circular or any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the Notes, whether directly or indirectly, to any person in Singapore other than (i) to an institutional investor (as defined in Section 4A of the SFA) pursuant to Section 274 of the SFA, (ii) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Korea

The Notes have not been and will not be registered with the Financial Services Commission under the Financial Investment Services and Capital Markets Act of Korea. Accordingly, each Dealer has represented, warranted and agreed, and each further Dealer appointed under the Program will be required to represent, warrant and agree, that Notes have not been offered, sold or delivered, and will not be offered, sold or delivered, directly or indirectly, to, or for the account or benefit of, any resident of Korea (as defined under the Foreign Exchange Transactions Law of Korea and the regulations thereunder), or to others for re-offering or resale directly or indirectly in Korea, to, or for the account or benefit of, any resident of Korea, except as otherwise permitted under applicable Korean laws and regulations.

Switzerland

This Offering Circular is not intended to constitute an offer or solicitation to purchase or invest in the Notes described herein. The Notes may not be publicly offered, sold or advertised, directly or indirectly, in, into or from Switzerland, and will not be listed on SIX Swiss Exchange ("SIX") or on any other exchange or regulated trading facility in Switzerland. Neither this Offering Circular nor any other offering or marketing material relating to the Notes constitutes a prospectus as such term is understood pursuant to article 652a or article 1156 of the Swiss Code of Obligations or a listing prospectus within the meaning of the listing rules of the SIX or any other regulated trading facility in Switzerland or a simplified prospectus or a prospectus as such term is defined in the Swiss Collective Investment Scheme Act, and neither this offering circular nor any other offering or marketing material relating to the Notes may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this offering circular nor any other offering or marketing material relating to the offering, nor the Company or the Notes have been or will be filed with or approved by any Swiss regulatory authority. The Notes are not subject to the supervision by any Swiss regulatory authority, e.g., the Swiss Financial Markets Supervisory Authority ("FINMA"), and investors in the Notes will not benefit from protection or supervision by such authority.

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, the Notes may not 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 Dealer 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 24 February 1998 (the "Financial Services Act") and Article 34-ter, paragraph 1, letter (b) of CONSOB Regulation No. 11971 of 14 May 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 paragraphs (a) or (b) above must be:

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

Canada

The Notes may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 — Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the notes must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this Offering Circular (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 — Underwriting Conflicts ("NI 33-105"), the dealers are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

General

Each Dealer has agreed and each further Dealer appointed under the Program will be required to agree that it will (to the best of its knowledge and belief) comply with all applicable securities laws and regulations in force in any jurisdiction in which it purchases, offers, sells or delivers Notes or possesses or distributes the Offering Circular and will obtain any consent, approval or permission required by it for the purchase, offer, sale or delivery by it of Notes under the laws and regulations in force in any jurisdiction to which it is subject or in which it makes such purchases, offers, sales or deliveries and neither the Issuer nor any other Dealer shall have any responsibility therefor.

Neither the Issuer nor any of the Dealers represents that Notes may at any time lawfully be sold in compliance with any applicable registration or other requirements in any jurisdiction, or pursuant to any exemption available thereunder, or assumes any responsibility for facilitating any such sale.

With regard to each Tranche, the relevant Dealer will be required to comply with such other additional restrictions as the Issuer and the relevant Dealer shall agree and as shall be set out in the applicable Pricing Supplement.

BOOK-ENTRY CLEARANCE SYSTEMS

The information set out below is subject to any change in or reinterpretation of the rules, regulations and procedures of DTC, Euroclear or Clearstream (together, the "Clearing Systems") currently in effect. The information in this section concerning the Clearing Systems has been obtained from sources that the Issuer believes to be reliable, but none of the Issuer nor any Dealer takes any responsibility for the accuracy thereof. Investors wishing to use the facilities of any of the Clearing Systems are advised to confirm the continued applicability of the rules, regulations and procedures of the relevant Clearing System. None of the Issuer nor any other party to the Agency Agreement will have any responsibility or liability for any aspect of the records relating to, or payments made on account of, beneficial ownership interests in the Notes held through the facilities of any Clearing System or for maintaining, supervising or reviewing any records relating to such beneficial ownership interests.

Book-entry Systems

DTC

DTC has advised the Issuer that it is a limited purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a "clearing corporation" within the meaning of the New York Uniform Commercial Code and a "clearing agency" registered pursuant to Section 17A of the Exchange Act. DTC holds securities that its participants ("Participants") deposit with DTC. DTC also facilitates the settlement among Participants of securities transactions, such as transfers and pledges, in deposited securities through electronic computerized book-entry changes in Participants' accounts, thereby eliminating the need for physical movement of securities certificates. Direct Participants include securities brokers and dealers, banks, trust companies, clearing corporations and certain other organizations. Access to the DTC System is also available to others such as securities brokers and dealers, banks and trust companies that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly ("Indirect Participants").

Under the rules, regulations and procedures creating and affecting DTC and its operations (the "Rules"), DTC makes book-entry transfers of Registered Notes among Direct Participants on whose behalf it acts with respect to Notes accepted into DTC's book-entry settlement system ("DTC Notes") as described below and receives and transmits distributions of principal and interest on DTC Notes. The Rules are on file with the Securities and Exchange Commission. Direct Participants and Indirect Participants with which beneficial owners of DTC Notes ("Owners") have accounts with respect to the DTC Notes similarly are required to make book-entry transfers and receive and transmit such payments on behalf of their respective Owners. Accordingly, although Owners who hold DTC Notes through Direct Participants or Indirect Participants will not possess Registered Notes, the Rules, by virtue of the requirements described above, provide a mechanism by which Direct Participants will receive payments and will be able to transfer their interest in respect of the DTC Notes.

Purchases of DTC Notes under the DTC system must be made by or through Direct Participants, which will receive a credit for the DTC Notes on DTC's records. The ownership interest of each actual purchaser of each DTC Note ("Beneficial Owner") is in turn to be recorded on the Direct and Indirect Participant's records. Beneficial Owners will not receive written confirmation from DTC of their purchase, but Beneficial Owners are expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owner entered into the transaction. Transfers of ownership interests in the DTC Notes are to be accomplished by entries made on the books of Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in DTC Notes, except in the event that use of the book-entry system for the DTC Notes is discontinued.

To facilitate subsequent transfers, all DTC Notes deposited by Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co. The deposit of DTC Notes with DTC and their registration in the name of Cede & Co. effect no change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the DTC Notes; DTC's records reflect only the identity of the Direct Participants to whose accounts such DTC Notes are credited, which may or may not be the Beneficial Owners. The Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time.

Redemption notices shall be sent to Cede & Co. If less than all of the DTC Notes within an issue are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such issue to be redeemed.

Neither DTC nor Cede & Co. will consent or vote with respect to DTC Notes. Under its usual procedures, DTC mails an Omnibus Proxy to the Issuer as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the DTC Notes are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal and interest payments on the DTC Notes will be made to DTC. DTC's practice is to credit Direct Participants' accounts on the due date for payment in accordance with their respective holdings shown on DTC's records unless DTC has reason to believe that it will not receive payment on the due date. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participant and not of DTC or the Issuer, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of principal and interest to DTC is the responsibility of the Issuer, disbursement of such payments to Direct Participants is the responsibility of DTC, and disbursement of such payments to the Beneficial Owners is the responsibility of Direct and Indirect Participants.

Under certain circumstances, including if there is an Event of Default under the Notes, DTC will exchange the DTC Notes for definitive Registered Notes, which it will distribute to its Participants in accordance with their proportionate entitlements and which, if representing interests in a Rule 144A Global Note, will be legended as set forth under "Subscription and Sale and Transfer and Selling Restrictions."

Since DTC may only act on behalf of Direct Participants, who in turn act on behalf of Indirect Participants, any Owner desiring to pledge DTC Notes to persons or entities that do not participate in DTC, or otherwise take actions with respect to such DTC Notes, will be required to withdraw its Registered Notes from DTC as described below.

Euroclear and Clearstream

Euroclear and Clearstream each holds securities for its customers and facilitates the clearance and settlement of securities transactions by electronic book-entry transfer between their respective account holders. Euroclear and Clearstream provide various services including safekeeping, administration, clearance and settlement of internationally traded securities and securities lending and borrowing. Euroclear and Clearstream also deal with domestic securities markets in several countries through established depository and custodial relationships. Euroclear and Clearstream have established an electronic bridge between their two systems across which their respective participants may settle trades with each other. Euroclear and Clearstream customers are worldwide financial institutions, including underwriters, securities brokers and dealers, banks, trust companies and clearing corporations. Indirect access to Euroclear and Clearstream is available to other institutions that clear through or maintain a custodial relationship with an account holder of either system.

Book-entry Ownership of and Payments in respect of DTC Notes

The Issuer may apply to DTC in order to have any Tranche of Notes represented by a Registered Global Note accepted in its book-entry settlement system. Upon the issue of any such Registered Global Note, DTC or its custodian will credit, on its internal book-entry system, the respective nominal amounts of the individual beneficial interests represented by such Registered Global Note to the accounts of persons who have accounts with DTC. Such accounts initially will be designated by or on behalf of the relevant Dealer. Ownership of beneficial interests in such a Registered Global Note will be limited to Direct Participants or Indirect Participants, including, in the case of any Regulation S Global Note, the respective depositaries of Euroclear and Clearstream. Ownership of beneficial interests in a Registered Global Note accepted by DTC will be shown on, and the transfer of such ownership will be effected only through, records maintained by DTC or its nominee (with respect to the interests of Direct Participants) and the records of Direct Participants (with respect to interests of Indirect Participants).

Payments in U.S. dollars of principal and interest in respect of a Registered Global Note accepted by DTC will be made to the order of DTC or its nominee as the registered holder of such Note. In the case of any payment in a currency other than U.S. dollars, payment will be made to the Exchange Agent on behalf of DTC or its nominee and the Exchange Agent will (in accordance with instructions received by it) remit all or a portion of such payment for credit directly to the beneficial holders of interests in the Registered Global Note in the currency in which such payment was made and/or cause all or a portion of such payment to be converted into U.S. dollars and credited to the applicable Participants' account.

The Issuer expects DTC to credit accounts of Direct Participants on the applicable payment date in accordance with their respective holdings as shown in the records of DTC unless DTC has reason to believe that it will not receive payment on such payment date. The Issuer also expects that payments by Participants to beneficial owners of Notes will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers, and will be the responsibility of such Participant and not the responsibility of DTC, the Principal Paying Agent, the Registrar or the Issuer. Payment of principal, premium, if any, and interest, if any, on Notes to DTC are the responsibility of the Issuer.

Transfers of Notes Represented by Registered Global Notes

Transfers of any interests in Notes represented by a Registered Global Note within DTC, Euroclear and Clearstream will be effected in accordance with the customary rules and operating procedures of the relevant clearing system. The laws in some States within the United States require that certain persons take physical delivery of securities in definitive form. Consequently, the ability to transfer Notes represented by a Registered Global Note to such persons may depend upon the ability to exchange such Notes for Notes in definitive form. Similarly, because DTC can only act on behalf of Direct Participants in the DTC system who in turn act on behalf of Indirect Participants, the ability of a person having an interest in Notes represented by a Registered Global Note accepted by DTC to pledge such Notes to persons or entities that do not participate in the DTC system or otherwise to take action in respect of such Notes may depend upon the ability to exchange such Notes for Notes in definitive form. The ability of any holder of Notes represented by a Registered Global Note accepted by DTC to resell, pledge or otherwise transfer such Notes may be impaired if the proposed transferee of such Notes is not eligible to hold such Notes through a direct or indirect participant in the DTC system.

Subject to compliance with the transfer restrictions applicable to the Registered Notes described under "Subscription and Sale and Transfer and Selling Restrictions," cross-market transfers between DTC, on the one hand, and directly or indirectly through Clearstream or Euroclear accountholders, on the other, will be effected by the relevant clearing system in accordance with its rules and through action taken by the Registrar, the Principal Paying Agent and any custodian ("Custodian") with whom the relevant Registered Global Notes have been deposited.

On or after the Issue Date for any Series, transfers of Notes of such Series between accountholders in Clearstream and Euroclear and transfers of Notes of such Series between participants in DTC will generally have a settlement date three business days after the trade date (T+3). The customary arrangements for delivery versus payment will apply to such transfers.

Cross-market transfers between accountholders in Clearstream or Euroclear and DTC participants will need to have an agreed settlement date between the parties to such transfer. Because there is no direct link between DTC, on the one hand, and Clearstream and Euroclear, on the other, transfers of interests in the relevant Registered Global Notes will be effected through the Registrar, the Principal Paying Agent and the Custodian receiving instructions (and, where appropriate, certification) from the transferor and arranging for delivery of the interests being transferred to the credit of the designated account for the transferee. In the case of cross-market transfers, settlement between Euroclear or Clearstream accountholders and DTC participants cannot be made on a delivery versus payment basis. The securities will be delivered on a free delivery basis and arrangements for payment must be made separately.

DTC, Clearstream and Euroclear have each published rules and operating procedures designed to facilitate transfers of beneficial interests in Registered Global Notes among participants and accountholders of DTC, Clearstream and Euroclear. However, they are under no obligation to perform or continue to perform such procedures, and such procedures may be discontinued or changed at any time. None of the Issuer, the Agents or any Dealer will be responsible for any performance by DTC, Clearstream or Euroclear or their respective direct or indirect participants or accountholders of their respective obligations under the rules and procedures governing their operations and none of them will have any liability for any aspect of the records relating to or payments made on account of beneficial interests in the Notes represented by Registered Global Notes or for maintaining, supervising or reviewing any records relating to such beneficial interests.

GENERAL INFORMATION

Authorization and Regulatory Issues

The establishment of the Program and the issue of the Notes hereunder has been duly authorized by a resolution of the Board of Directors of the Issuer dated August 26, 2010. Each issue of Notes under the Program will be authorized by the Board of Directors of the Issuer at the time of issuance.

Documents Available

So long as Notes are capable of being issued under the Program, copies of the following documents will, when published, be available free of charge from the registered office of the Issuer and from the principal office of the Principal Paying Agent for the time being in London.

(i) the constitutional documents (with an English translation thereof) of the Issuer;

(ii) the audited consolidated financial statements of the Issuer as of and for the years ended December 31, 2022, 2023 and 2024 (in English);

(iii) the most recently published audited annual consolidated financial statements of the Issuer and the most recently published unaudited interim consolidated financial statements of the Issuer;

(iv) the Program Agreement, the Agency Agreement, the Deed Poll, the Deed of Covenant and the forms of the Global Notes, the Notes in definitive form, the Receipts, the Coupons and the Talons;

(v) a copy of this Offering Circular; and

(vi) any future offering circulars, prospectuses, information memoranda and supplements including Pricing Supplements (save that a Pricing Supplement relating to an unlisted Note will only be available for inspection by a holder of such Note and such holder must produce evidence satisfactory to the Paying Agent as to its holding of Notes and identity) to this Offering Circular and any other documents incorporated herein or therein by reference.

Clearing Systems

The Notes have been accepted for clearance through Euroclear and Clearstream. The appropriate Common Code and ISIN for each Tranche of Notes allocated by Euroclear and Clearstream will be specified in the applicable Pricing Supplement. If the Notes are to clear through an additional or alternative clearing system the appropriate information will be specified in the applicable Pricing Supplement.

Significant or Material Change

Save as disclosed in the Offering Circular, there has been no significant change in the financial or trading position of the Issuer and its subsidiaries taken as a whole since December 31, 2024 and there has been no material adverse change in the financial position or prospects of the Issuer and its subsidiaries taken as a whole since December 31, 2024.

Litigation

Save as disclosed in the Offering Circular, the Issuer is not involved in any legal, arbitration, administrative or other proceedings (including any proceedings which are pending or threatened of which the Issuer is aware) which may have or have had in the 12 months preceding the date of this document a significant effect on the financial position of the Issuer and its subsidiaries taken as a whole.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

ANNUAL FINANCIAL STATEMENTS

ANNUAL FINANCIAL STATEMENTS

Ernst & Young Han Young
2-3F, 7-8F, Taeyoung Building, 111, Yeouigongwon-ro,
Yeongdeungpo-gu, Seoul 07241 Korea

Tel: +82 2 3787 6600
Fax: + 82 2 783 5890
ey.com/kr

Shape the future with confidence

Independent auditor's report

(English translation of a report originally issued in Korean)

The Shareholders and Board of Directors
Korea National Oil Corporation

Opinion

We have audited the consolidated financial statements of Korea National Oil Corporation and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statements of financial position as of December 31, 2024 and 2023, and the consolidated statements of comprehensive income or loss, consolidated statements of changes in equity and consolidated statements of cash flows for each of the two years in the period ended December 31, 2024, and the notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Group as of December 31, 2032 and 2023, and its financial performance and its cash flows for the years then ended in accordance with Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions in the Republic of Korea.

Basis of opinion

We conducted our audits in accordance with Korean Standards on Auditing("KSA"). 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 of the Republic of Korea that are relevant to our audit of the consolidated financial statements and we have fulfilled our other ethical responsibilities in accordance with the ethical requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Emphasis of matter

We draw attention to Note 2 to the consolidated financial statements, which describes that the Group has prepared the consolidated financial statements in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions. Pursuant to Article 2-5 of the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions, the Group applies International Financial Reporting Standards as adopted by the Republic of Korea ("KIFRS") where specific accounting treatments are not prescribed by the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions. There are no accounts of which accounting treatment is materially different compared to KIFRS in order for the Group to be in full compliance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions.

EY 한영
Shape the future with confidence

Responsibilities of management and those charged with governance for the consolidated financial statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions in the Republic of Korea, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's responsibilities for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with KSA 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 KSA, 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.

Ernst & Young Han Young

February 28, 2025

This report is effective as of February 28, 2025, the independent auditor's report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the date of the independent auditor's report to the time this report is used. Such events and circumstances could significantly affect the accompanying consolidated financial statements and may result in modifications to this report.

Korea National Oil Corporation and its subsidiaries
Consolidated statements of financial position
as of December 31, 2024 and 2023

(in Korean won)	Notes		December 31, 2024		December 31, 2023
Assets					
Current assets					
Cash and cash equivalents	5,6,26,41,43,45	₩	336,637,883,066	₩	611,769,880,179
Current financial assets	7,10,11,12,41,42,43,44,45,48		156,030,811,377		227,612,600,340
Trade and other receivables, net	8,23,41,43		608,455,146,183		615,438,335,330
Inventories, net	13		86,373,033,580		90,871,393,304
Current tax assets			2,621,635,955		2,480,110,459
Current non-financial assets	14		127,469,696,160		113,540,797,392
			1,317,588,206,321		1,661,713,117,004
Non-current assets					
Non-current financial assets, net	6,7,9,10,11,41,42,43,44,45		662,213,588,684		702,412,456,365
Long-term trade and other receivables, net	6,8,23,41,43,45		19,044,648,327		34,947,019,827
Property, plant and equipment, net	17,23,26,27,44		8,701,300,709,567		7,749,569,379,376
Goodwill	18		246,637,574,301		230,028,776,879
Intangible assets other than goodwill, net	19,26,44		1,956,972,408,824		1,598,363,394,660
Investments in associates and joint ventures	16		659,921,827,095		566,191,682,773
Defined benefit assets, net	24		19,646,681,403		6,718,799,911
Deferred tax assets	39		860,616,499,132		880,266,894,589
Non-current non-financial assets	14		6,047,609,816,524		4,799,248,706,492
			19,173,963,753,857		16,567,747,110,872
Total assets		₩	20,491,551,960,178	₩	18,229,460,227,876
Liabilities					
Current liabilities					
Trade and other payables	21,23,41,43,48	₩	769,692,132,021	₩	713,939,226,671
Current financial liabilities	7,20,22,41,42,43,45,48		3,662,997,035,386		4,094,141,237,638
Current tax liabilities			71,999,009,460		116,566,228,841
Current non-financial liabilities	28		209,300,819,010		134,052,179,351
Current provisions	25,48		333,478,864,151		115,322,911,482
			5,047,467,860,028		5,174,021,783,983
Non-current liabilities					
Long-term trade and other payables	21,23,41,43,45,48		332,832,713,126		353,328,256,170
Non-current financial liabilities	7,20,22,41,42,43,45,46,48		13,470,583,062,119		11,072,359,533,333
Non-current non-financial liabilities	28		51,130,239,000		47,465,694,855
Deferred tax liabilities	39		867,708,377,819		749,546,235,471
Non-current provisions	25,48		2,043,443,421,226		2,181,402,389,796
			16,765,697,813,290		14,404,102,109,625
Total liabilities			21,813,165,673,318		19,578,123,893,608
Equity					
Equity attributable to owner of the Company					
Share capital	1,29		10,908,901,085,075		10,787,741,780,075
Accumulated deficit	30,31		(12,094,154,721,025)		(12,248,914,702,647)
Other components of equity	32		(420,366,675,018)		(117,899,420,474)
			(1,605,620,310,968)		(1,579,072,343,046)
Non-controlling interests			284,006,597,828		230,408,677,314
Total equity			(1,321,613,713,140)		(1,348,663,665,732)
Total liabilities and equity		₩	20,491,551,960,178	₩	18,229,460,227,876

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

Korea National Oil Corporation and its subsidiaries
Consolidated statements of comprehensive income or loss
for each of the two years in the period ended December 31, 2024

(in Korean won)	Notes		2024		2023
Revenue	4,26,33,44,45	₩	3,524,433,353,213	₩	3,267,082,142,228
Cost of sales	4,40		(1,879,385,281,732)		(2,077,797,937,082)
Gross profit	4		1,645,048,071,481		1,189,284,205,146
Selling and administrative expenses	4,8,24,25,34,40		(371,610,952,463)		(342,829,490,524)
Operating profit	4		1,273,437,119,018		846,454,714,622
Other income	4,8,25,35,41,45		98,267,437,304		68,921,308,465
Other expenses	4,8,25,35,41		(108,800,396,328)		(143,179,098,051)
Other gains, net	4,14,17,18,19,36,41		47,143,296,241		310,486,772,580
Finance income	4,7,9,20,37,41		234,506,122,096		237,933,619,601
Finance costs	4,7,20,38,41		(890,720,387,983)		(700,735,299,329)
Gains on investments in associates and joint ventures, net	4,16		213,390,577,409		15,450,327,514
Profit before income tax	4		867,223,767,757		635,332,345,402
Income tax expense	39		(675,692,856,956)		(456,570,411,495)
Profit from continuing operations			191,530,910,801		178,761,933,907
Profit for the year	30,31		191,530,910,801		178,761,933,907
Other comprehensive loss					
Items that will not be reclassified subsequently to profit or loss					
Gains on revaluation of property, plant and equipment, net of tax	17		-		623,459,900
Actuarial gains (losses) on defined benefit plans, net of tax	24,30		10,220,301,117		(23,590,512,022)
Net change in fair value of financial assets measured at fair value through other comprehensive income, net of tax	9,39,41		(27,939,946,611)		18,103,077,832
Items that are or may be reclassified subsequently to profit or loss					
Equity adjustments arising from investments in equity-method investees, net of tax	16		(21,846,680,399)		(7,254,115,918)
Net changes in valuation of derivatives using cash flow hedge accounting, net of tax	7,41		(19,753,952,169)		35,097,073,335
Foreign currency translation differences for foreign operations, net of tax			(198,089,985,147)		(42,176,279,149)
Other comprehensive loss for the year, net of tax			(257,410,263,209)		(19,197,296,022)
Total comprehensive income (loss) for the year		₩	(65,879,352,408)	₩	159,564,637,885
Profit attributable to:					
Owner of the Company		₩	144,463,675,693	₩	125,606,083,894
Non-controlling interests			47,067,235,108		53,155,850,013
Profit for the year		₩	191,530,910,801	₩	178,761,933,907
Total comprehensive income (loss) attributable to:					
Owner of the Company		₩	(147,707,272,922)	₩	102,095,357,824
Non-controlling interests			81,827,920,514		57,469,280,061
Total comprehensive income (loss) for the year		₩	(65,879,352,408)	₩	159,564,637,885

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

Korea National Oil Corporation and its subsidiaries
Consolidated statements of changes in equity
for each of the two years in the period ended December 31, 2024

(in Korean won)	Attributable to owner of the Company				Non-controlling interests	Total equity
	Share capital	Accumulated deficit	Other components of equity	Sub total		
Balance as of January 1, 2023	₩ 10,699,764,780,075	₩ (12,351,266,133,955)	₩ (63,563,819,300)	₩ (1,715,065,173,180)	₩ 219,086,477,947	₩ (1,495,978,695,233)
Total comprehensive income (loss) for the year						
Profit for the year	-	125,606,083,894	-	125,606,083,894	53,155,850,013	178,761,933,907
Other comprehensive income (loss)						
Items that will not be reclassified subsequently to profit or loss						
Gains on revaluation of property, plant and equipment, net of tax	-	-	623,459,900	623,459,900	-	623,459,900
Transfer from gain on revaluation of property, plant and equipment to retained earinings	-	335,859,436	(335,859,436)	-	-	-
Actuarial losses on defined benefit plans, net of tax	-	(23,590,512,022)	-	(23,590,512,022)	-	(23,590,512,022)
Net change in fair value of financial assets measured at fair value through other comprehensive income, net of tax	-	-	18,103,077,832	18,103,077,832	-	18,103,077,832
Items that may be reclassified subsequently to profit or loss						
Equity adjustments arising from investments in equity-method investees, net of tax	-	-	(7,254,115,918)	(7,254,115,918)	-	(7,254,115,918)
Net changes in valuation of derivatives	-	-	35,097,073,335	35,097,073,335	-	35,097,073,335
Foreign currency translation differences for foreign operations, net of tax	-	-	(46,489,709,197)	(46,489,709,197)	4,313,430,048	(42,176,279,149)
Total comprehensive income (loss) for the year	-	102,351,431,308	(256,073,484)	102,095,357,824	57,469,280,061	159,564,637,885
Transactions with owner of the Company, recognized directly in equity						
Issuance of share capital	87,977,000,000	-	-	87,977,000,000	-	87,977,000,000
Dividends paid	-	-	-	-	(33,055,000,000)	(33,055,000,000)
Additional acquisition of subsidiary	-	-	(54,079,527,690)	(54,079,527,690)	(13,092,080,694)	(67,171,608,384)
Total transactions with owner of the Company	87,977,000,000	-	(54,079,527,690)	33,897,472,310	(46,147,080,694)	(12,249,608,384)
Balance as of December 31, 2023	₩ 10,787,741,780,075	₩ (12,248,914,702,647)	₩ (117,899,420,474)	₩ (1,579,072,343,046)	₩ 230,408,677,314	₩ (1,348,663,665,732)
Balance as of January 1, 2024	₩ 10,787,741,780,075	₩ (12,248,914,702,647)	₩ (117,899,420,474)	₩ (1,579,072,343,046)	₩ 230,408,677,314	₩ (1,348,663,665,732)
Total comprehensive income (loss) for the year						
Profit for the year	-	144,463,675,693	-	144,463,675,693	47,067,235,108	191,530,910,801
Other comprehensive income (loss)						
Items that will not be reclassified subsequently to profit or loss						
Transfer from gain on revaluation of property, plant and equipment to retained earinings	-	76,004,812	(76,004,812)	-	-	-
Actuarial gains on defined benefit plans, net of tax	-	10,220,301,117	-	10,220,301,117	-	10,220,301,117
Net change in fair value of financial assets measured at fair value through other comprehensive income, net of tax	-	-	(27,939,946,611)	(27,939,946,611)	-	(27,939,946,611)
Items that may be reclassified subsequently to profit or loss						
Equity adjustments arising from investments in equity-method investees, net of tax	-	-	(21,846,680,399)	(21,846,680,399)	-	(21,846,680,399)
Net changes in valuation of derivatives using cash flow hedge accounting, net of tax	-	-	(19,753,952,169)	(19,753,952,169)	-	(19,753,952,169)
Foreign currency translation differences for foreign operations, net of tax	-	-	(232,850,670,553)	(232,850,670,553)	34,760,685,406	(198,089,985,147)
Total comprehensive income (loss) for the year	-	154,759,981,622	(302,467,254,544)	(147,707,272,922)	81,827,920,514	(65,879,352,408)
Transactions with owner of the Company, recognized directly in equity						
Issuance of share capital	121,159,305,000	-	-	121,159,305,000	-	121,159,305,000
Dividends paid	-	-	-	-	(28,230,000,000)	(28,230,000,000)
Total transactions with owner of the Company	121,159,305,000	-	-	121,159,305,000	(28,230,000,000)	92,929,305,000
Balance as of December 31, 2024	₩ 10,908,901,085,075	₩ (12,094,154,721,025)	₩ (420,366,675,018)	₩ (1,605,620,310,968)	₩ 284,006,597,828	₩ (1,321,613,713,140)

The accompanying notes are an integrated part of the consolidated financial statements.

Korea National Oil Corporation and its subsidiaries
Consolidated statements of cash flows
for each of the two years in the period ended December 31, 2024

(in Korean won)	2024	2023
Cash flows from operating activities		
Profit for the year	₩ 191,530,910,801	₩ 178,761,933,907
Profit from continuing operations	191,530,910,801	178,761,933,907
Adjustment for:		
Severance and retirement benefits	8,949,420,069	5,512,209,606
Salaries	22,186,377,354	52,429,302,425
Depreciation	711,667,086,591	1,059,767,655,885
Amortization of intangible assets other than goodwill	70,279,860,677	66,521,170,085
Bad debt expenses	30,825,885,257	-
Reversal of other bad debt allowances	(3,759,491,671)	(12,818,074,079)
Losses on cancellation of debt exemption	297,804,137	5,765,640,716
Transfer to provisions	104,226,363,805	176,710,772,784
Gains on disposal of property, plant and equipment	(20,286,387,995)	(1,700,452,300)
Gains on disposal of intangible assets other than goodwill	-	(39,380,747)
Gains on disposal of non-current non-financial assets	(230,432,152,696)	(307,013,975,774)
Losses on disposal of property, plant and equipment	26,004,320	1,545,096,030
Losses on disposal of intangible assets other than goodwill	28,401,405	58,016,545
Impairment losses on property, plant and equipment	63,316,741,849	37,667,515,268
Impairment losses on goodwill	141,619,406,636	9,415,497,563
Impairment losses on intangible assets other than goodwill	5,998,281,263	98,838,023,354
Reversal of impairment losses on property, plant and equipment	(17,422,906,353)	(87,116,450,337)
Reversal of impairment losses on intangible assets other than goodwill	-	(48,035,120,076)
Interest income	(42,148,486,879)	(45,088,065,805)
Interest expense	566,041,136,125	489,822,132,008
Dividends income	(6,076,531)	(5,933,676)
Gains on valuation of financial assets measured at fair value through profit or loss	-	(68,127,304,959)
Losses on valuation of financial assets measured at fair value through profit or loss	10,973,309,968	72,830,989,432
Gains on transaction of financial liabilities measured at fair value through profit or loss	(56,825,476,544)	-
Gains on valuation of financial liabilities measured at fair value through profit or loss	(2,469,799,151)	(15,266,004,732)
Losses on valuation of financial liabilities measured at fair value through profit or loss	-	10,541,611,079
Losses on transaction of derivative	5,386,613,639	552,764,442
Gains on valuation of derivative	-	(523,260,544)
Loss (gain) on foreign currency translation	99,107,078,650	(62,871,437,722)
Share of profit of associates and joint ventures	(43,077,439,343)	(49,476,201,585)
Share of loss of associates and joint ventures	24,592,416,155	34,025,874,071
Gains on disposal of investments in associates and joint ventures	(194,905,554,221)	-
Income tax expense	675,692,856,956	456,570,411,495
Gains on assets contributed	(339,639,681)	-
Others	(15,469,128,655)	(17,839,183,489)
	1,914,072,505,136	1,862,653,836,963
Changes in:		
Inventories	7,799,666,103	(6,775,632,183)
Trade and other receivables	57,177,264,374	472,668,079,729
Other receivables from operating activities	134,722,557,205	(248,859,579,561)
Trade and other payables	(180,638,152,078)	(317,286,472,797)
Other payables from operating activities	24,848,811,448	(83,490,937,176)
Payment of severance and retirement benefits	-	(212,023,636)
Payment of plan assets	(10,582,144,156)	(5,343,842,589)
Other provisions	(18,307,307,820)	(23,540,271,856)
Provisions for decommissioning cost	(208,960,284,725)	(132,245,697,062)
	(193,939,589,649)	(345,086,377,131)
Cash generated from operating activities	1,911,663,826,288	1,696,329,393,739
Dividend received	40,978,996,568	51,145,112,935
Interest paid	(525,805,354,647)	(425,743,941,926)
Interest received	36,832,144,182	41,804,753,818
Income tax paid	(599,465,851,776)	(540,777,385,640)
Net cash flows provided by operating activities	₩ 864,203,760,615	₩ 822,757,932,926

(continued)

Korea National Oil Corporation and its subsidiaries
Consolidated statements of cash flows (cont'd)
for each of the two years in the period ended December 31, 2024

(in Korean won)	2024	2023
Cash flows from investing activities		
Acquisition of investments in associates and joint ventures	₩ (57,641,272,819)	₩ (5,352,528,768)
Proceeds from disposal of property, plant and equipment	1,181,145,751	2,467,622,373
Acquisition of property, plant and equipment	(655,879,541,629)	(506,908,164,992)
Proceeds from disposal of intangible assets other than goodwill	15,651,725	206,296,697
Acquisition of intangible assets other than goodwill	(191,356,947,276)	(199,332,837,386)
Proceeds from disposal of financial assets measured at fair value through profit or loss	4,142,111,740	392
Acquisition of financial assets measured at fair value through profit or loss	(275,474,857)	(97,905,750)
Increase in deposits provied	(364,634,444)	(50,976,261)
Decrease in deposits provided	3,887,343	7,636,107,055
Receipt of gorvernment grants	13,728,882	-
Increase in long-term and short-term financial assets	(7,032,186,338)	(5,612,245,218)
Decrease in long-term and short-term financial assets	6,150,000,000	4,950,000,000
Increase in loans	(4,403,928,225)	(7,044,252,372)
Decrease in loans	11,641,759,274	9,786,864,732
Cash inflows from futures contracts, forward contracts, options contracts and swap contracts	-	829,475,491
Proceeds from disposal of other non-current non-financial assets	309,385,471,406	709,538,106,100
Acquisition of other non-current non-financial assets	(575,236,002,043)	(373,196,428,294)
Net cash outflow due to changes in the scope of consolidation	(125,938,350,166)	-
Proceeds from disposal of disposal groups	13,437,351,269	-
Net cash flows used in investing activities	(1,272,157,230,407)	(362,180,866,201)
Cash flows from financing activities		
Proceeds from issuance of share capital	121,159,305,000	87,977,000,000
Proceeds from short-term borrowings	3,760,795,444,053	2,353,395,321,817
Repayments of short-term borrowings	(3,587,658,308,230)	(2,228,616,163,924)
Repayments of current portion of long-term borrowings	(388,303,552,156)	(855,487,159,104)
Repayments of current portion of bond payables	(3,321,865,367,088)	(2,545,003,535,582)
Proceeds from issuance of bond payables	3,521,704,935,817	2,334,616,131,174
Proceeds from long-term borrowings	-	470,073,024,211
Repayments of lease liabilities	(26,387,120,811)	(24,923,298,861)
Dividends paid	(28,230,000,000)	(33,055,000,000)
Net cash outflow due to other distribution to non-controlling interests	-	(152,994,052,000)
Net cash flows provided by (used in) financing activities	51,215,336,585	(594,017,732,269)
Net decrease in cash and cash equivalents before net effect of foreign exchange differences	(356,738,133,207)	(133,440,665,544)
Net effect of foreign exchange differences	81,628,523,430	65,874,618,462
Net decrease in cash and cash equivalents	(275,109,609,777)	(67,566,047,082)
Cash and cash equivalents as of January 1 before deduction of government grants	611,769,880,179	679,878,800,390
Cash and cash equivalents as of December 31 before deduction of government grants	336,660,270,402	612,312,753,308
Government grants	(22,387,336)	(542,873,129)
Cash and cash equivalents as of December 31 after deduction of gorvernment grants	₩ 336,637,883,066	₩ 611,769,880,179

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

1. Corporate information

Korea National Oil Corporation (the “Parent Company” or the “Company”) was incorporated on March 3, 1979 to engage in the development of oil fields, distribution of crude oil, maintenance of petroleum reserve stock, improvement of the petroleum distribution infrastructure and carbon neutralization and reduction of greenhouse gas under the Korea National Oil Corporation Act. The Parent Company’s head office is located at 305, Jongga-Ro, Jung-Gu, Ulsan in Republic of Korea. The Parent Company also has 9 petroleum stockpile sites, and overseas subsidiaries and affiliates (Dana Petroleum Limited etc.) in other countries.

As of December 31, 2024, the Parent Company’s share capital is ₩ 10,908,900 million, which is wholly owned by the government of the Republic of Korea.

The list of subsidiaries as of December 31, 2024 and 2023 is disclosed in Note 15.

2. Basis of Preparation and Material Accounting Policies

2.1 Statement of compliance

The consolidated financial statements of the Group have been prepared in accordance with the Rules and Standard for Accounting Affairs of Public Corporations and Quasi-governmental Institutions in the Republic of Korea. Pursuant to Article 2-5 of the Rules and Standard for Accounting Affairs of Public Corporations and Quasi-governmental Institutions, the Group applies International Financial Reporting Standards as adopted by the Republic of Korea (“KIFRS”), a standard adopted in accordance with International Financial Reporting Standards by the Korean Accounting Standards Board, for specific accounting treatments that are not prescribed by the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions in the Republic of Korea. There are no accounts of which accounting treatment is materially different compared to KIFRS in order for the Group to be in full compliance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions in the Republic of Korea.

The accompanying consolidated financial statements have been translated into English from Korean consolidated financial statements. In the event of any differences in interpreting the consolidated financial statements or the independent auditor’s report thereon, Korean version, which is used for regulatory reporting purposes, shall prevail.

(a) Presentation of financial statements

The Group has prepared detailed accounts presented in the consolidated financial statements in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions in the Republic of Korea since 2013.

2.1 Statement of compliance (cont'd)

(b) Basis of measurement

The consolidated financial statements have been prepared on the historical cost basis, except for the following material items in the statement of financial position:

- ✓ derivative financial instruments measured at fair value;
- ✓ financial assets measured at fair value through profit or loss;
- ✓ financial assets measured at fair value through other comprehensive income;
- ✓ financial liabilities measured at fair value through profit or loss;
- ✓ liabilities for defined benefit plans recognized at the net of the total present value of defined benefit obligations less the fair value of plan assets; and
- ✓ land classified as property, plant and equipment measured at fair value according to the revaluation model.

(c) Functional and presentation currency

Items included in the consolidated financial statements of the Group are measured using the currency of the primary economic environment in which the entity operates (the “functional currency”). The accompanying consolidated financial statements are prepared in the Group’s functional currency, the United States dollar, and presented in Korean won (presented as “Korean won”, “KRW” or “₩”), the Group’s presentation currency, for the financial performance and financial position.

Assets and liabilities for each statement of financial position presented (i.e. including comparatives) were translated at the closing rate at the date of that statement of financial position, income and expenses for each statement presenting profit or loss and other comprehensive income (i.e. including comparatives) were translated at the average exchange rates of the period and all resulting exchange differences were recognized in other comprehensive income.

2.2 New standards and interpretations not yet adopted by the Group

There are no certain new accounting standards and interpretations that have been published that are not mandatory for annual reporting period commencing January 1, 2025 and have not been early adopted by the Group.

2.3 New and amended standards adopted by the Group

The Group has applied the following standards and amendments for the first time for their annual reporting period commencing January 1, 2024.

(a) Amendments to KIFRS 1116 Leases - Lease Liability in a Sale and Leaseback

The amendments to KIFRS 1116 specify the requirements that a seller-lessee uses in measuring the lease liability arising in a sale and leaseback transaction, to ensure the seller-lessee does not recognize any amount of the gain or loss that relates to the right of use it retains.
The amendments had no impact on the Group's consolidated financial statements.

(b) Amendments to KIFRS 1001 Presentation of Financial Statements − Classification of Liabilities as Current or Non-current

The amendments to KIFRS 1001 specify the requirements for classifying liabilities as current or non-current. The amendments clarify:
• what is meant by a right to defer settlement;
• that a right to defer must exist at the end of the reporting period;
• that classification is unaffected by the likelihood that an entity will exercise its deferral right; and
• that if under the condition that an entity settles the liability by transferring its equity instruments, the option is classified as equity instrument and the option is recognized separate from the liability as a component of equity for hybrid financial instrument, there is no impact on current or non-current classification.

In addition, an entity is required to disclose when a liability arising from a loan agreement is classified as non-current and the entity's right to defer settlement is contingent on compliance with future covenants within twelve months. The amendments had no impact on the Group's consolidated financial statements.

(c) Amendments to KIFRS 1007 Statement of Cash Flows and KIFRS 1107 Financial Instruments: Disclosures – Supplier finance arrangements

The amendments to KIFRS 1007 *Statement of Cash Flows* and KIFRS 1107 *Financial Instruments: Disclosures* clarify the characteristics of supplier finance arrangements and require additional disclosure of such arrangements. The disclosure requirements in the amendments are intended to assist users of financial statements in understanding the effects of supplier finance arrangements on an entity's liabilities, cash flows and exposure to liquidity risk.

The amendments had no impact on the Group's consolidated financial statements.

2.4 Material accounting policies

The material accounting policies applied by the Group in preparation of its consolidated financial statements are included below. The accounting policies set out below have been applied consistently to all periods presented in these consolidated financial statements, except for new and amended standards adopted by the Group as explained in Note 2.3.

(a) Basis of consolidation

(i) Non-controlling interests

Non-controlling interests are measured at their proportionate share of the acquiree's identifiable net assets at the date of acquisition. Changes in the Group's interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

(ii) Subsidiaries

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

(iii) Loss of control

When the Group loses control over a subsidiary, it derecognizes the assets and liabilities of the subsidiary, and any related non-controlling interests and other components of equity. Any resulting gain or loss is recognized in profit or loss. Any interest retained in the former subsidiary is measured at fair value when control is lost.

(iv) Interests in equity-accounted investees

The Group's interests in equity-accounted investees comprise interests in associates and a joint venture. Associates are those entities in which the Group has significant influence, but not control or joint control, over the financial and operating policies. A joint venture is an arrangement in which the Group has joint control, whereby the Group has rights to the net assets of the arrangement, rather than rights to its assets and obligations for its liabilities.

Interests in associates and the joint venture are accounted for using the equity method. They are initially recognized at cost, which includes transaction costs. Subsequent to initial recognition, the consolidated financial statements include the Group's share of the profit or loss and OCI of equity-accounted investees, until the date on which significant influence or joint control ceases.

2.4 Material accounting policies (cont'd)

(v) Transactions eliminated on consolidation

Intra-group balances and transactions, and any unrealized income and expenses arising from intra-group transactions, are eliminated. Unrealized gains arising from transactions with equity-accounted investees are eliminated against the investment to the extent of the Group's interest in the investee. Unrealized losses are eliminated in the same way as unrealized gains, but only to the extent that there is no evidence of impairment.

(b) Business combination

The acquisition method of accounting is used to account for business combinations by the Group. The consideration transferred in a business combination is measured at the fair values, at the acquisition date (transfer date), of the assets transferred with controlling interest in the acquired entity, liabilities issued or borne by the Group to the former owners of the acquired entity and equity interests issued by the Group in exchange for control of the acquired entity. Acquisition-related costs are generally recognized in profit or loss as incurred.

The identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date except that:

- deferred tax assets and liabilities and assets and liabilities related to employ benefit arrangements are recognized and measured in accordance with KIFRS 1012 *Income Tax* and KIFRS 1019 *Employee Benefits*, respectively;
- liabilities and equity instruments incurred due to replacing the share-based payment of the acquired entity with the share-based payment of the Group are measured in accordance with KIFRS 1102 *Share-based Payment*; and
- non-current assets (or disposal groups comprising assets and liabilities) classified as available-for-sale assets pursuant to KIFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations* are measured in accordance with KIFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations*.

Goodwill is measured as the excess of the sum of the consideration transferred, the amount of any non-controlling interests in the acquired entity, and the fair value of the Group's previously held equity interest in the acquired entity (if any) over the net of the acquisition-date amounts of the identifiable assets acquired and the liabilities assumed. If, after reassessment, the net of the acquisition-date amounts of the identifiable assets acquired and liabilities assumed exceeds the sum of the consideration transferred, the amount of any non-controlling interest in the acquired entity and the fair value of the Group's previously held interest in the acquire (if any), the excess is recognized immediately in profit or loss as a bargain purchase gain.

Non-controlling interests that present ownership interests and entitle their holders to a proportionate share of the entity's net assets in the event of liquidation may be initially measured either at fair value or at the non-controlling interests' proportionate share of the recognized amounts of the acquired entity's identifiable net assets. The choice of measurement basis is made on a transaction-by-transaction basis. Other types of non-controlling interests are measured at fair value or, when applicable, on other basis specified in KIFRS.

2.4 Material accounting policies (cont'd)

The Group's consideration transferred includes the assets and liabilities on a contingent consideration agreement. The contingent consideration is measured at its fair value at the acquisition date and is included as a part of the consideration transferred in a business combination. Changes in the fair value of the contingent consideration that qualify as measurement period adjustments are adjusted retrospectively, with corresponding adjustments against goodwill. Measurement period adjustments are the adjustments resulted from obtaining additional information on any fact and circumstance that existed at the acquisition date during the 'adjustment period (which cannot exceed one year from the acquisition date)'.

The subsequent accounting for changes in fair value of the contingent consideration, which does qualify as measurement period adjustments, depends on how the contingent consideration is classified. Contingent consideration that is classified as equity is not remeasured at the subsequent reporting dates and its subsequent settlement is accounted for within equity. Contingent consideration that is classified as an asset or a liability is remeasured at the subsequent reporting dates in accordance with KIFRS 1109 *Financial Instruments* or KIFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets*, as appropriate, with the corresponding gain or loss being recognized in profit or loss.

When a business combination is achieved in stages, the Group's previously held equity interest in the acquired entity is remeasured at fair value at the acquisition date (i.e., the date when the Group obtains control) and the resulting gain or loss, if any, is recognized in profit or loss. The amounts arising from interests in the acquisition prior to the acquisition date that have previously been recognized in other comprehensive income are reclassified to profit or loss where such treatment would be appropriate if that interests were disposed of.

If the initial recognition of the business combination has not been completed until the end of the reporting period in which the combination occurs, the Group reports provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted during the measurement period (see above), or additional assets or liabilities are recognized, to reflect new information obtained on the facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognized at that date.

(c) Investments in associates

An associate is an entity that is not a subsidiary or joint venture of the Group, and over which the Group has significant influence. The Group has a significant influence over an associate when:

- the Group participates in the Board of Directors or such decision-making bodies of the investee;
- the Group participates in making decisions on policies including decisions on dividend payment and other distribution;
- the Group has a material transaction with the investee;
- the Group has a mutual interaction of management with the investee; and/or
- the Group shares essential information on technology with the investee.

2.4 Material accounting policies (cont'd)

The results and assets and liabilities of associates are incorporated in these consolidated financial statements using the equity method of accounting, except when the investment is classified as held for sale, in which case it is accounted for in accordance with KIFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations*. Under the equity method, an investment in an associate is initially recognized in the consolidated statement of financial position at cost and adjusted thereafter to recognize the Parent Company's share of the profit or loss and other comprehensive income of the associate. When the Parent Company's share of losses of an associate exceeds the Parent Company's interest in that associate (which includes any long-term interests that, in substance, form part of the Parent Company's net investment in the associate), the Parent Company discontinues recognizing its share of further losses. Additional losses are recognized only to the extent that the Parent Company has incurred legal or constructive obligations or made payments on behalf of the associate.

Any excess of the cost of acquisition over the Parent Company's share of the net fair value of the identifiable assets, liabilities and contingent liabilities of an associate recognized at the date of acquisition is recognized as goodwill, which is included within the carrying amount of the investment. Any excess of the Parent Company's share of the net fair value of the identifiable assets, liabilities and contingent liabilities over the cost of acquisition, after reassessment, is recognized immediately in profit or loss.

The requirements of KIFRS 1028 *Investments in Associates and Joint Ventures* are applied to determine whether it is necessary to recognize any impairment loss with respect to the Group's investment in an associate. When necessary, the entire carrying amount of the investment as a single asset (including goodwill) is tested for impairment in accordance with KIFRS 1036 *Impairment of Assets* by comparing its recoverable amount (higher of value-in-use and fair value less costs to sell) with its carrying amount, and any impairment loss recognized forms part of the carrying amount of the investment. Any reversal of that impairment loss is recognized in accordance with KIFRS 1036 to the extent that the recoverable amount of the investment subsequently increases.

When an entity has transactions with an associate of the Group, profits and losses resulting from the transactions with the associate are recognized in the Parent Company's consolidated financial statements only to the extent of interests in the associate that are not related to the Group.

(d) Investments in joint venture

A joint arrangement is an arrangement for the Group and other parties to perform economic activities that are subject to a joint control. A joint control requires a unanimous consent of the parties sharing the control on the decisions related to the major financial and operational policies on the joint arrangement.

In case of that the Group performs the economic activities in accordance with the joint arrangement, the Group's share of a joint venture and the Group's share of the liabilities that the Group incurred jointly with other parties are recognized in the joint venture's financial statement and classified by nature. The liabilities and expenses incurred directly in relation to the Group's share of a joint venture are recognized on accrual basis.

2.4 Material accounting policies (cont'd)

The Group recognizes its share of revenues incurred due to sales or use of its share of the joint venture's business results and its share of costs incurred by the joint venture when it is highly possible that the economic benefits related to such transactions will flow into or out and the amounts can be measured reliably.

The Group's share of a joint venture is incorporated in the consolidated financial statements using the equity method of accounting, except when the investment share is classified as held for sale, in which case it is accounted for in accordance with KIFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations*.

Goodwill arising from acquiring a share of a joint venture is recognized in accordance with the Group's accounting policies on goodwill arising from a business combination. When the Group has a transaction with a joint venture, a gain or loss incurred from the transaction is recognized on the Group's financial statement only for the amounts that are the share of the joint venture not related to the Group.

(e) Goodwill

Goodwill arising on an acquisition of a business is carried at cost as established at the date of acquisition of the business, less accumulated impairment losses, if any. For impairment testing, goodwill is allocated to cash-generating units (or groups of cash-generating units) of the Group that were expected, at the date of acquisition, to benefit from the synergies of the combination giving rise to the goodwill.

A cash-generating unit to which goodwill has been allocated is tested for impairment annually or more frequently when there is an indication that the unit may be impaired. If the recoverable amount of the cash-generating unit is less than its carrying amount, the impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the unit and then to the other assets of the unit on a pro rata basis based on the carrying amount of each asset in the unit. Any impairment loss for goodwill is recognized directly in profit or loss in the consolidated statement of comprehensive loss. An impairment loss recognized for goodwill is not reversed in subsequent periods.

On disposal of the relevant cash-generating unit, the allocated amount of goodwill is included in the determination of the profit or loss on disposal. The Group's accounting policies with respect to the goodwill arising from acquisition of an affiliate are stated in the Note 2.4 *(b).*

(f) Non-current assets held for sale

The Group classifies non-current assets or disposal groups as held for sale if their carrying amounts will be recovered principally through a sale rather than through continuing use. These conditions are considered met only when the non-current asset (or disposal group) must be available for immediate sale in its present condition and it is highly probable that it will be sold. Management should commit to a plan for the sale of the asset and should be expected to meet the sale completion requirements within one year from the time of classification.

2.4 Material accounting policies (cont'd)

In the event that the Group commits to a sale plan that results in loss of control over a subsidiary, the Group has all of the above-mentioned conditions, regardless of whether the Group holds a non-controlling interest in the previous subsidiary after the sale. Assets and liabilities are classified as held for sale.

Such non-current assets and disposal groups classified as held for sale are measured at the lower of their carrying amount and fair value less costs to sell or to distribute.

(g) Revenue

Under the new standard, KIFRS 1115, the Group recognizes revenue base on the five-step approach (Step 1: Identify the contract(s) with a customer, Step 2: Identify the performance obligations in the contract, Step 3: Determine the transaction price, Step 4: Allocate the transaction price to the performance obligations in the contract, Step 5: Recognize revenue when the entity satisfied a performance obligation) is applied for all types of contracts or agreements. Revenue is measured based on the consideration defined by the contracts with customers, and the amount collected as an agent of a third party is excluded. In addition, the Group recognizes revenue when the control over the goods or service is transferred to the customer. Contract liabilities related to obligations to be performed in future periods are included in unearned revenue among the received revenues.

i) Sale of goods

The contracts which the Group entered with customers for the sale of crude oil and others contain a single performance obligation. Depending on sales contract with customers, performance obligation can be distinguished as 'performance obligation satisfied at a point in time' and 'performance obligation satisfied over time'. In the case of 'performance obligation satisfied at a point in time', the Group has concluded that revenue to be recognized at the time of delivery because control of goods is transferred at a point in time of delivery. Also, in the case of 'performance obligation satisfied over time', although revenue should be recognized by measuring progress towards complete satisfaction of a performance obligation, the Group has applied practical expedient allowed under KIFRS 1115 in relation to measuring progress.

ii) Rendering of services

The Group provides services such as lending stockpile oil resources, storing oil resources, and leasing related facilities. Service contract contains a large number of performance obligations whose promises with customers are distinct within the context of the contract and separately identifiable. The Group has determined that service contract contains 'performance obligation satisfied over time', and applied practical expedient of measuring progress allowed under KIFRS 1115.

(h) Leases

The Group assesses at contract inception whether a contract is, or contains, a lease. That is, if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

2.4 Material accounting policies (cont'd)

i) The Group as a lessor

A lease in which the risks and rewards of ownership of the underlying asset are not transferred to the Group is classified as a finance lease, and leases in which the risks and rewards of ownership of the underlying asset are not transferred to the Group are classified as an operating lease.

The Group recognizes the amount equivalent to the net investment in the leases as finance lease receivables. Uncollected part of net investment is recognized as interest income applying the effective interest rate.

Lease income from operating leases is recognized in income on a straight-line basis over the lease term. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the lease asset and recognized as expense over the lease term on the same basis as lease income.

ii) The Group as a lessee

- Right-of-use asset

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 remeasurement of lease liabilities. For land, the Group applies the revaluation model in accordance with KIFRS 1016, but land-related right-of-use assets are measured at cost.

The cost of the right-of-use assets comprises (a) the amount of the initial measurement of the lease liability, (b) any initial direct costs incurred by the lessee, and (c) any lease payments made at or before the commencement date, less any lease incentives received. If the lease is not reasonably expected to transfer ownership of the underlying asset to the Group by the end of the lease term, the Group shall depreciate the right-of-use asset from the commencement date to the earlier of the end of the useful life of the right-of-use asset or the end of the lease term. The Group shall perform the impairment testing to determine whether the right-of-use asset is impaired.

- Lease liability

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 the lease, if the lease term reflects the Group exercising the option to terminate. Variable lease payments that do not depend on an index or a rate are recognized as expenses (unless they are incurred to produce inventories) in the period in which the event or condition that triggers the payment occurs.

2.4 Material accounting policies (cont'd)

In calculating the present value of lease payments, the Group uses its incremental borrowing rate at the lease commencement date because 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 lease payments (e.g., changes to future payments resulting from a change in an index or rate used to determine such lease payments) or a change in the assessment of an option to purchase the underlying asset.

- Short-term leases and leases of low-value assets

The Group elects to apply recognition exemptions to short-term leases (leases that, at the commencement date, have a lease term of 12 months or less and do not contain a purchase option) and leases for which the underlying asset is of low value (i.e., below $ 5,000). Payments of short-term leases and leases for which the underlying asset is of low-value are recognized as an expense on a straight-line basis over the lease term.

- Material judgement on 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 has several lease contracts that include extension and termination options. The Group applies judgement in evaluating whether it is reasonably certain whether or not to exercise the option to renew or terminate the lease. That is, it considers all relevant factors that create an economic incentive for it to exercise either the renewal or termination. 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 or to terminate (e.g., modification of business strategy).

The carrying amounts of the right-of-use assets and lease liabilities as of the reporting date and their changes during the reporting period are explained in Note 23.

2.4 Material accounting policies (cont'd)

(i) Foreign currencies

Transactions in foreign currencies are translated to the respective functional currencies of the Group entities at exchange rates at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are retranslated to the functional currency using the reporting date's exchange rate. Non-monetary assets and liabilities denominated in foreign currencies that are measured at fair value are retranslated to the functional currency at the exchange rate at the date that the fair value was determined. Non-monetary assets and liabilities denominated in foreign currencies that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the dates of the transactions.

Foreign currency differences arising on retranslation are recognized in profit or loss, except for differences arising on the retranslation of available-for-sale equity instruments, a financial liability designated as a hedge of the net investment in a foreign operation, or qualifying cash flow hedges, which are recognized in other comprehensive income. When gains or losses on non-monetary items are recognized in other comprehensive income, exchange components of those gains or losses are recognized in other comprehensive income. Conversely, when gains or losses on non-monetary items are recognized in profit or loss, exchange components of those gains or losses are recognized in profit or loss.

(j) Borrowing costs

The Group capitalizes borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset as part of the cost of that asset. Other borrowing costs are recognized in expense as incurred. A qualifying asset is an asset that requires a substantial period of time to get ready for its intended use or sale. Financial assets and inventories that are manufactured or otherwise produced over a short period of time are not qualifying assets. Assets that are ready for their intended use or sale when acquired are not qualifying assets.

2.4 Material accounting policies (cont'd)

To the extent that the Group borrows funds specifically for the purpose of obtaining a qualifying asset, the Group determines the amount of borrowing costs eligible for capitalization as the actual borrowing costs incurred on that borrowing during the period less any investment income on the temporary investment of those borrowings. To the extent that the Group borrows funds generally and uses them for the purpose of obtaining a qualifying asset, the Group shall determine the amount of borrowing costs eligible for capitalization by applying a capitalization rate to the expenditures on that asset. The capitalization rate shall be the weighted average of the borrowing costs applicable to the borrowings of the Group that are outstanding during the period, other than borrowings made specifically for the purpose of obtaining a qualifying asset. The amount of borrowing costs that the Group capitalizes during a period shall not exceed the amount of borrowing costs incurred during that period.

(k) Government grants

Government grants are not recognized until there is reasonable assurance that the Group complies with the conditions relating to the grants and that the grants will be received. The benefits of government grants with interest rates lower than the market interest rate are treated as government grants. The difference between the fair value of government grants based on the market interest rate and the consideration received are accounted for as government grants.

Government grants related to assets are presented as a deduction of related assets. The related government grants are recognized as profit or loss in a way that decreases the depreciation over the expected lives of the related assets.

Government grants related to income are recognized in profit or loss on a systematic basis over the period to match with the related subsidized expenses. Government grants that are receivable as compensation for expenses or losses already incurred or for the purpose of giving immediate financial support to the Group with no future related costs are recognized in profit or loss in the period in which they become receivable.

(l) Employee benefits

i) Short-term employee benefits

Short-term employee benefits are employee benefits that are due to be settled within 12 months after the end of the period in which the employees render the related service. When an employee has rendered service to the Group during an accounting period, the Group recognizes the undiscounted amount of short-term employee benefits expected to be paid in exchange for that service.

2.4 Material accounting policies (cont'd)

ii) Retirement benefits: defined contribution plans

When an employee has rendered service to the Group during a period, the Group recognizes the contribution payable to a defined contribution plan in exchange for that service as a liability (accrued expense), after deducting any contribution already paid. If the contribution already paid exceeds the contribution due for service before the end of the reporting period, the Group recognizes that excess as an asset (prepaid expense) to the extent that the prepayment will lead to a reduction in future payments or a cash refund.

iii) Retirement benefits: defined benefit plans

A defined benefit plan is a post-employment benefit plan other than a defined contribution plan. The Group's net obligation in respect of defined benefit plans is calculated by estimating the amount of future benefit that employees have earned in return for their service in the current and prior periods; that benefit is discounted to determine its present value. The fair value of plan assets is deducted. The calculation is performed annually by an independent actuary using the projected unit credit method.

The discount rate is the yield at the reporting date on high-quality corporate bonds that have maturity dates approximating the terms of the Group's obligations and that are denominated in the same currency in which the benefits are expected to be paid. The Group recognizes all actuarial gains and losses arising from actuarial assumption changes and experiential adjustments in other comprehensive income when incurred.

Re-measurements of net defined benefit liabilities, which comprise actuarial gains and losses, the return on plan assets (excluding interest) and the effect of the asset ceiling (if any, excluding interest), are recognized immediately in other comprehensive income. The Group determines the net interest expense (income) on the net defined benefit liability (asset) for the period by applying the discount rate used to measure the defined benefit obligation at the beginning of the annual period to the then-net defined benefit liability (asset), taking into account any changes in the net defined benefit liability (asset) during the period as a result of contributions and benefit payments, net interest expense and other expenses related to defined benefit plans are recognized in profit or loss.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss in curtailment is recognized immediately in profit or loss. The Group recognizes gains and losses on the settlement of a defined benefit plan when the settlement occurs.

(m) Income taxes

Income tax expense comprises current and deferred tax. Current tax and deferred tax are recognized in profit or loss except to the extent that it relates to a business combination, or items recognized directly in equity or in other comprehensive income.

2.4 Material accounting policies (cont'd)

i) Current tax

Current tax is the expected tax payable or receivable on the taxable profit or loss for the year, using tax rates enacted or substantively enacted at the end of the reporting period and any adjustment to tax payable in respect of previous years. The taxable profit is different from the accounting profit for the period since the taxable profit is calculated excluding the temporary differences, which will be taxable or deductible in determining taxable profit (tax loss) of future periods, and non-taxable or non-deductible items from the accounting profit.

ii) Deferred tax

The measurement of deferred tax assets and deferred tax liabilities reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities. The Group recognizes a deferred tax liability for all taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures, except to the extent that the Group is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, the Group recognizes a deferred tax asset for all deductible temporary differences to the extent that it is probable that the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

The carrying amount of a deferred tax asset is reviewed at the end of each reporting period and reduces the carrying amount to the extent that it is no longer probable that sufficient taxable profit will be available to allow the benefit of part or all of that deferred tax asset to be utilized. Deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the period when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

Deferred tax assets and liabilities are offset only if there is a legally enforceable right to offset the related current tax liabilities and assets, and they relate to income taxes levied by the same tax authority and they intend to settle current tax liabilities and assets on a net basis.

(n) Property, plant and equipment

Property, plant and equipment, except for land, are initially measured at cost and after initial recognition, are carried at cost less accumulated depreciation and accumulated impairment losses.

Land is carried at a revalued amount, being its fair value at the date of the revaluation less subsequent accumulated impairment losses. Revaluations shall be made with sufficient regularity to ensure that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.

2.4 Material accounting policies (cont'd)

If an asset's carrying amount is increased as a result of a revaluation, the increase shall be recognized in other comprehensive income and accumulated in equity under the heading of revaluation surplus. However, the increase shall be recognized in profit or loss to the extent that it reverses a revaluation decrease of the same asset previously recognized in profit or loss. A revaluation deficit is recognized in the statement of comprehensive loss to the extent that it offsets an existing surplus on the same asset recognized in the asset revaluation reserve.

The cost of property, plant and equipment includes expenditures arising directly from the construction or acquisition of the asset, any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management and the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

The following costs are capitalized as oil and gas properties.

- the costs incurred in development stage for constructing facilities and drilling wells for production;
- the costs of acquiring production areas or fields with proved reserves;
- the construction costs and other expenditures for initiating production; and
- the estimated costs for decommissioning.

Additionally, the Group depreciates the acquisition costs of oil and gas properties which are aggregated on an area-by-area basis or field-by-field basis. For the costs of oil and gas properties which are aggregated on an area-by-area basis, the Group depreciates the acquisition costs using proved reserves as the total estimated production when applying the unit-of-production depreciation method.

For the costs of oil and gas properties which are aggregated on a field-by-field basis, the Group depreciates the acquisition costs using proved developed reserves as the total estimated production when applying the unit-of-production depreciation method.

Costs related to undeveloped oil and gas properties are not immediately included in the depletable pool of developed assets but are transferred to the depletable pool as the reserves become proved (for area-by-area basis) or developed (for field-by-field basis) through drilling activities.

Subsequent costs are recognized in the carrying amount of property, plant and equipment at cost or, if appropriate, as separated items if it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognized. The costs of the day-to-day servicing are recognized in profit or loss as incurred.

2.4 Material accounting policies (cont'd)

Property, plant and equipment, except for land and oil and gas properties, are depreciated on a straight-line basis over estimated useful lives that appropriately reflect the pattern in which the asset's future economic benefits are expected to be consumed.

	Useful lives
Buildings	20 - 40 years
Structures	20 - 40
Machinery	5 - 25
Tools and fixtures	5 - 12
Vehicles	7 - 12
Right-of-use assets	1 - 40
Others	5 - 10

Gains and losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of property, plant and equipment and are recognized in profit or loss. Depreciation methods, useful lives and residual values are reviewed at the end of each reporting date and adjusted, if appropriate. The change is accounted for as a change in an accounting estimate. The Group has taken into account the related hygiene, safety and environmental laws and regulations when estimating residual values and useful lives.

(o) Intangible assets other than goodwill

Intangible assets other than goodwill with finite useful lives acquired separately are carried at cost. Intangible assets other than goodwill acquired in a business combination are initially recognized at their fair value at the acquisition date (which is regarded as their cost). Subsequent to initial recognition, intangible assets acquired in a business combination are reported at cost less accumulated amortization and accumulated impairment losses.

Prior to acquiring the legal rights to explore an area, all costs related to exploration and evaluation of an area are charged directly to the statement of comprehensive loss. Once the legal rights to explore are acquired, all costs associated with acquisition of exploration rights, geological, geophysical and geographical research, drilling costs and evaluation of technical and commercial viability of economic production are capitalized as exploration and evaluation assets. All such costs are subject to review for impairment when facts and circumstances suggest that the carrying amount of the assets exceeds their recoverable amount. When technical feasibility and commercial viability are established, the relevant expenditure is transferred to oil and gas properties after impairment is assessed and any resulting impairment loss is recognized. If no potentially commercial petroleum is discovered from exploration drilling, the relating exploration and evaluation assets are written off through the statement of comprehensive loss.

2.4 Material accounting policies (cont'd)

The useful lives of intangible assets other than goodwill are assessed as either finite or indefinite. Intangible assets other than goodwill with finite lives are amortized over the useful economic life and assessed for impairment whenever there is an indication that the intangible asset other than goodwill may be impaired. The amortization period and the amortization method for intangible assets other than goodwill with a finite useful lives are reviewed at least each financial year end. Changes in the expected useful life or the expected pattern of consumption of future economic benefits embodied in the asset is accounted for by changing the amortization period or method, as appropriate, and are treated as changes in accounting estimates. The amortization expense on intangible assets other than goodwill with finite lives is recognized in the statement of comprehensive loss in the expense category consistent with the function of the intangible asset other than goodwill.

When future economic benefits are not expected through the use or disposition of intangible assets other than goodwill, the Group removes the book value of the assets from the consolidated statements of financial position. The difference between the amounts received from the disposal and the book values of assets is recognized in profit or loss when the assets are removed.

(p) Oil stockpiles

The Group stockpiles crude oil and petroleum products to stabilize domestic demand and market prices and classifies those assets as oil stockpiles (non-current non-financial assets) of which the cost is determined using the moving-average method. The Group performs annual impairment test for oil stockpiles.

(q) Impairment of non-financial assets

The carrying amounts of the Group's non-financial assets, other than assets arising from employee benefits, inventories, deferred tax assets and non-current assets held for sale, are reviewed at the end of the reporting period to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. Intangible assets other than goodwill that have indefinite useful lives or that are not yet available for use, irrespective of whether there is any indication of impairment, are tested for impairment annually by comparing their recoverable amount to their carrying amount.

For impairment testing, assets are grouped together into the smallest group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets ("CGUs"). The recoverable amount of an asset or CGU is the greater of its value-in-use and its fair value less costs to sell. The value-in-use is estimated by applying a pre-tax discount rate that reflect current market assessments of the time value of money and the risks specific to the asset or CGU for which estimated future cash flows have not been adjusted, to the estimated future cash flows expected to be generated by the asset or CGU. The Group takes into account significant climate-related risks, including physical and transitional risks, in its future cash flow projections.

2.4 Material accounting policies (cont'd)

An impairment loss is recognized in profit or loss if the carrying amount of an asset or a CGU exceeds its recoverable amount. When reversing the impairment loss in prior periods, the carrying amount of an asset shall be lower of the modified recoverable amount and the carrying amount that would have been determined had no impairment loss been recognized for the asset in prior periods. Reversed amount should be accounted as profit or loss immediately.

(r) Inventories

Inventories are measured at the lower of cost and net realizable value. The cost of inventories is based on the moving-weighted average method, and includes expenditures for acquiring the inventories, production or conversion costs and other costs incurred in bringing them to their existing location and condition. Net realizable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and selling expenses.

The amount of any write-down of inventories to net realizable value and all losses of inventories are recognized as an expense in the period the write-down or loss occurs. The amount of any reversal of any write-down of inventories, arising from an increase in net realizable value, are recognized as a reduction in the amount of inventories recognized as an expense in the period in which the reversal occurs.

(s) Provisions

Provisions are recognized when the Group has a present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

The risks and uncertainties that inevitably surround many events and circumstances are taken into account in reaching the best estimate of a provision. Where the effect of the time value of money is material, provisions are determined at the present value of the expected future cash flows.

Where some or all of the expenditures required to settle a provision are expected to be reimbursed by another party, the reimbursement shall be recognized when, and only when, it is virtually certain that reimbursement will be received if the entity settles the obligation. The reimbursement shall be treated as a separated asset.

Provisions are reviewed at the end of each reporting period and adjusted to reflect the current best estimates. If it is no longer probable that an outflow of resources embodying economic benefits will be required to settle the obligation, the provision is reversed.

- Restoration costs

When there is a legal or contractual obligation for dismantling, removing facilities and restoring sites on which they are located to their original condition at the end of the useful lives of the facilities, the present value of the estimated future restoration costs is capitalized at the acquisition date as additions to the cost of oil and gas

2.4 Material accounting policies (cont'd)

properties and are accounted for as a provision. The Group subsequently depreciates the restoration costs using the unit-of-production method and the difference between estimated restoration costs and their present value is charged to current operations by applying the effective-interest-rate method.

- Employee incentive

Based on the annual management performance, the Ministry of Strategy and Finance conducts an institutional evaluation and pays incentive based on the evaluation. Performance incentives are reasonably estimated in accordance with KIFRS 1037 and presented as provisions for employee benefits.

(t) Financial assets

i) Classification

The Group classifies its financial assets in the following measurement categories:

· those to be measured at fair value through profit or loss;
· those to be measured at fair value through other comprehensive income; and
· those to be measured at amortized cost.

The classification depends on the Group's business model for managing the financial assets and the contractual terms of the cash flows.

For financial assets measured at fair value, gains and losses will either be recorded in profit or loss or other comprehensive income. For investments in debt instruments, this will depend on the business model in which the investment is held. The Group reclassifies debt investments when, and only when its business model for managing those assets changes.

For investments in equity instruments that are not held for trading, this will depend on whether the Group has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income.

ii) Measurement

At initial recognition, the Group measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss.

Financial assets with embedded derivatives are considered in their entirety when determining whether their cash flows are solely payment of principal and interest.

2.4 Material accounting policies (cont'd)

A. Debt instruments

Subsequent measurement of debt instruments depends on the Group's business model for managing the asset and the cash flow characteristics of the asset. The Group classifies its debt instruments into one of the following three measurement categories:

- Amortized cost: Assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortized cost. A gain or loss on a debt investment that is subsequently measured at amortized cost and is not part of a hedging relationship is recognized in profit or loss when the asset is derecognized or impaired. Interest income from these financial assets is included in 'finance income' using the effective interest rate method.
- Fair value through other comprehensive income: Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely payments of principal and interest, are measured at fair value through other comprehensive income. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment loss (reversal of impairment loss), interest income and foreign exchange gains and losses which are recognized in profit or loss. When the financial asset is derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss. Interest income from these financial assets is included in 'finance income' using the effective interest rate method. Foreign exchange gains and losses are presented in 'finance income or cost' and impairment losses are presented in 'finance cost'.
- Fair value through profit or loss: Assets that do not meet the criteria for amortized cost or fair value through other comprehensive income are measured at fair value through profit or loss. A gain or loss on a debt investment that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognized in profit or loss and presented net in the statement of comprehensive loss within 'finance income or cost' in the year in which it arises.

B. Equity instruments

The Group subsequently measures all equity investments at fair value. Where the Group's management has elected to present fair value gains and losses on equity investments, which held for long-term investment or strategic purpose, in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividend income from such investments continue to be recognized in profit or loss as 'finance income' when the right to receive payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'finance income or cost' in the statement of profit or loss as applicable. Impairment loss (reversal of impairment loss) on equity investments measured at fair value through other comprehensive income are not reported separately from other changes in fair value.

2.4 Material accounting policies (cont'd)

(iii) Impairment

In respect of the impairment of financial assets, the Group accounts for expected credit losses at each reporting date, and changes in those expected credit losses to reflect changes in credit risk since initial recognition. That is, it is not necessary for a credit event to have occurred before credit losses are recognized.

The Group shall recognize expected credit losses as an allowance for bad debts on i) debt instruments subsequently measured at amortized cost or at fair value through other comprehensive income; ii) lease receivables; iii) contract assets and iv) loan commitments and financial guarantee contracts under KIFRS 1109.

At each reporting date, the Group measures the loss allowance for a financial instrument at an amount equal to the lifetime expected credit losses if the credit risk on that financial instrument has increased significantly or the credit has been impaired upon the acquisition of assets since initial recognition. If, at the reporting date, the credit risk on a financial instrument has not increased significantly since initial recognition (except for financial assets whose credit has been impaired upon the acquisition), the Group measures the loss allowance for that financial instrument at an amount equal to 12-month expected credit losses.

Under KIFRS 1109, for trade receivables, contract assets and lease receivables that contain a significant financing component, the Group measures the loss allowance using the simplified approach at an amount equal to lifetime expected credit losses.

- Trade receivables

The Group applies the simplified approach to measure the loss allowance at an amount equal to lifetime expected credit losses for trade receivables.

- Debt investments

Debt investments at amortized cost and those at fair value through other comprehensive income are considered to be low risk, and thus the provision for impairment is determined as 12 months expected credit losses.

(iv) Derecognition

The Group derecognizes a financial asset only when the contractual rights to the cash flows from the asset expire or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity. If the Group neither transfers nor retains substantially all the risks and rewards of ownership and continues to control the transferred asset, the Group recognizes its retained interest in the asset and an associated liability for amounts it may have to pay. If the Group retains substantially all the risks and rewards of ownership of a transferred financial asset, the Group continues to recognize the financial asset and also recognizes a collateralized borrowing for the proceeds received.

2.4 Material accounting policies (cont'd)

(u) Financial liabilities and equity instruments

The Group classifies non-derivative financial liabilities into financial liabilities at fair value through profit or loss or other financial liabilities in accordance with the substance of the contractual arrangement and the definitions of financial liabilities. The Group recognizes financial liabilities in the consolidated statement of financial position when the Group becomes a party to the contractual provisions of the financial liability.

i) Financial liabilities at fair value through profit or loss

The Group requires the effect of changes in the credit risk on financial liabilities designated at fair value through profit or loss attributable to changes in the credit risk to be recognized in other comprehensive income, unless this treatment of the credit risk component creates or enlarges a measurement mismatch. Amounts presented in other comprehensive income are not subsequently transferred to profit or loss. When financial liabilities are derecognized, they are recognized as retained earnings.

ii) Other financial liabilities

At the date of initial recognition, other financial liabilities are measured at fair value minus transaction costs. Subsequent to initial recognition, other financial liabilities are measured at amortized cost using the effective interest method. The effective interest method is a method of calculating the amortized cost of a financial liability and of allocating the interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments through the expected life of the financial instrument or, when appropriate, a shorter period to the net carrying amount of the financial asset or financial liability at the date of initial recognition.

iii) Derecognition of financial liabilities

The Group derecognizes a financial liability from the consolidated statement of financial position when it is extinguished (i.e. when the obligation specified in the contract is discharged, cancelled or expires). The difference between carrying amount and consideration paid is recognized through profit or loss when derecognizing a financial liability.

(v) Derivative financial instruments

The Group entered into a variety of derivative financial instruments to manage its exposure to interest rate and foreign exchange rate risk, including foreign exchange forward contracts, interest swap and currency swap. Derivatives are initially recognized at fair value at the date the derivative contract is entered into and are subsequently remeasured to their fair value at the end of each reporting period. The resulting gain or loss is recognized in profit or loss immediately, unless the derivative is designated and effective as a hedging instrument, in which case, the timing of the recognition in profit or loss depends on the nature of the hedge relationship.

2.4 Material accounting policies (cont'd)

i) Embedded derivative

In case of which the embedded derivative instrument is not closely related to the economic characteristics and risks of the host contract and a separated instrument with the same terms as the embedded derivative meets the definition of a derivative, if a hybrid contract contains a host that is not an asset at fair value through profit or loss, an embedded derivative is accounted for separately from the host. Changes of an embedded derivative separated from the host are recognized in profit or loss.

ii) Hedge accounting

The Group holds forward exchange contracts, currency swaps and commodity future contracts to manage foreign exchange risk and commodity fair value risk. The Group designated derivative as hedging instruments to hedge the risk of changes in the fair value of assets, liabilities or firm commitments (a fair value hedge) and foreign currency risk of highly probable forecasted transactions or firm commitments (a cash flow hedge).

On initial designation of the hedge, the Group formally documents the relationship between the hedging instruments and hedged items, including the risk management objectives and strategy in undertaking the hedge transaction, together with the methods that will be used to assess the effectiveness of the hedging relationship.

iii) Fair value hedge

Changes in the fair value of a derivative hedging instrument designated as a fair value hedge are recognized in profit or loss. The gain or loss from remeasuring the hedging instrument at fair value for a derivative hedging instrument and the gain or loss on the hedged item attributable to the hedged risk are recognized in profit or loss in the same line item of the consolidated statement of comprehensive income. However, the Group elected to present the changes in the fair value as other comprehensive income at the date of initial recognition, the gain or loss from remeasuring the hedging instrument at fair value for a derivative hedging instrument and the gain or loss on the hedged item attributable to the hedged risk are recognized in other comprehensive income.

The Group discontinues fair value hedge accounting if the hedging instrument expires or is sold, terminated or exercised or even after considering re-adjustments, or if the hedge no longer meets the criteria for hedge accounting. Any adjustment arising from gain or loss on the hedged item attributable to the hedged risk is amortized to profit or loss from the date the hedge accounting is discontinued. If the hedge relationship no longer meets the requirements for hedge effectiveness related to the hedge ratio, but the objectives of risk management for the designated hedge relationship remain the same, the hedging ratio of the hedge relationship should be adjusted ('re-adjustments').

2.4 Material accounting policies (cont'd)

iv) Cash flow hedge

When a derivative is designated to hedge the variability in cash flows attributable to a particular risk associated with a recognized asset or liability or a highly probable forecasted transaction that could affect profit or loss, the effective portion of changes in the fair value of the derivative is recognized in other comprehensive income, and accumulated in the hedging reserve. Any ineffective portion of changes in the fair value of the derivative is recognized immediately in profit or loss and is recognized as 'finance income and cost' in the consolidated statement of comprehensive loss.

Amounts previously recognized in other comprehensive income and accumulated in equity are reclassified to profit or loss in the periods when the hedged item is recognized in profit or loss, in the same line of the consolidated statement of comprehensive loss as the recognized hedged item. However, when the forecast transaction that is hedged results in the recognition of a non-financial asset or a non-financial liability, the gains and losses previously accumulated in equity are transferred from equity and included in the initial measurement of the cost of the non-financial asset or non-financial liability.

If the hedging instrument no longer meets the criteria for hedge accounting, expires or is sold, terminated or exercised, then hedge accounting is discontinued prospectively. The cumulative gain or loss on the hedging instrument that has been recognized in other comprehensive income and accumulated in equity remains in equity. Any gains or losses is reclassified to profit or loss when the forecast transaction is ultimately recognized in profit or loss. If the forecasted transaction is no longer expected to occur, the gains or losses accumulated in equity is reclassified immediately to profit or loss.

v) Hedges of net investments in foreign operations

Hedges of net investments in foreign operations are accounted for similarly to cash flow hedges. Any gains or losses on the hedging instrument relating to the effective portion of the hedge are recognized in foreign currency translation reserve in other comprehensive income. The gains or losses relating to the ineffective portion is recognized immediately in profit or loss, and is included in the 'finance income and cost'. When a foreign operation is disposed of, gains and losses on the hedging instrument relating to the effective portion of the hedge accumulated in the foreign currency translation reserve are reclassified to profit or loss.

vi) Other derivatives

Changes in the fair value of a derivative that is not designated as a hedging instrument are recognized immediately in profit or loss.

(w) Other accounting policies

i) Discontinued operations

The Group classifies its business segment or subsidiary as discontinued operation when it disposes a

2.4 Material accounting policies (cont'd)

separated line of business or a segment, meets the criteria for assets held for sale, or acquires a subsidiary for sole purpose of sale. The consolidated statements of comprehensive loss should be restated as if the operations have been discontinued from the beginning of the comparative fiscal period.

ii) Cash and cash equivalents

Cash and cash equivalents comprise cash on hand, demand deposits, and short-term investments in highly liquid securities that are readily convertible to known amounts of cash with maturities of three months or less from the acquisition date and which are subject to an insignificant risk of changes in value. Equity investments are excluded from cash and cash equivalents unless they are, in substance, cash equivalents, for example in the case of preferred shares when it has a short maturity with a specified redemption date.

iii) Share capital

Common stock is classified as equity and the incremental costs arising directly attributable to the issuance of common stock less their tax effects are deducted from equity.

iv) Finance income and costs

The Group's finance income and finance costs include:

- interest income;
- interest expense;
- dividend income;
- the foreign currency gain or loss on financial assets and financial liabilities;
- the net gain or loss on financial assets measured at fair value through profit or loss;
- hedge ineffectiveness recognized in profit or loss; and
- the net gain or loss on the disposal of investments in debt securities measured at fair value through other comprehensive income.

Interest income or expense is recognized using the effective interest method. Dividend income is recognized in profit or loss on the date on which the Group's right to receive payment is established. The 'effective interest rate' is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument to:

- the gross carrying amount of the financial asset; or
- the amortized cost of the financial liability.

In calculating interest income and expense, the effective interest rate is applied to the gross carrying amount of the asset (when the asset is not credit-impaired) or to the amortized cost of the liability. However, for financial assets that have become credit-impaired subsequent to initial recognition, interest income is calculated by applying the effective interest rate to the amortized cost of the financial asset. If the asset is no

2.4 Material accounting policies (cont'd)

longer credit-impaired, then the calculation of interest income reverts to the gross basis.

3. Critical Accounting Estimates and Assumptions

The preparation of consolidated financial statements requires the Group to make estimates and assumptions concerning the future. Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities after the end of the reporting period are discussed below.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

(a) Estimated goodwill impairment

The Group assesses annually whether there is any indication of impairment in accordance with the accounting policy stated in Note 2.4 *(e).* The recoverable amounts of cash-generating units have been determined based on value-in-use calculations. These calculations require the use of estimates.

(b) Impairment of non-financial assets

The Group assesses whether there is any indication of impairment at the end of the reporting period in accordance with the accounting policy stated in Note 2.4 *(q)*. If any such indication exists, then the asset's recoverable amount is estimated to determine the impairment amount. The recoverable amounts of cash-generating units have been determined based on value-in-use calculations. These calculations have been performed based on the estimates with regards to the inputs, discount rate and forecasted long-term oil price including valuation techniques.

(c) Income taxes

The Group is operating in numerous countries and the income generated from these operations is subject to income taxes based on tax laws and interpretations of tax authorities in numerous jurisdictions. Judgement is required as there are many transactions and calculations for which the ultimate tax determination is uncertain. The Group recognizes assets and liabilities for anticipated tax audit issues based on the best estimates of whether additional taxes will be due as a result of operation activities up to present. Where the final tax outcome of these matters is different from the amounts that were initially recorded, such differences will impact the current and deferred income tax assets and liabilities in the period in which such determination is made.

3. Critical Accounting Estimates and Assumptions (cont'd)

(d) Fair value of financial instruments

The fair value of financial instruments that are not traded in an active market is determined by using valuation techniques. The Group uses its judgment to select a variety of methods and make assumptions that are mainly based on market conditions existing at the end of each reporting period.

(e) Provisions

As of the end of each reporting period, the Group recognizes provisions for estimated restoration costs of mining as explained in Note 2.4 *(s)*. These provisions are estimated based on past experience, taking into account environmental laws and regulations. Based on the annual management performance, the Ministry of Strategy and Finance conducts an institutional evaluation. Performance incentives are reasonably estimated and presented as provisions for employee benefits as explained in Note 2.4 *(g)*.

(f) Defined benefit obligations

The present value of the defined benefit obligations depends on a number of factors that are determined on an actuarial basis using a number of assumptions. The assumptions used in determining the net cost (income) for pensions include the discount rate. Any changes in these assumptions will impact the carrying amount of the defined benefit obligations. The Group determines the appropriate discount rate at the end of each year. This is the interest rate that is used to determine the present value of estimated future cash outflows expected to be required to settle the defined benefit obligations. In determining the appropriate discount rate, the Group considers the interest rates of high-quality corporate bonds that are denominated in the currency in which the pension benefits will be paid, and that have terms to maturity approximating to the terms of the related pension liability. Other key assumptions for defined benefit liability are based in part on current market conditions. Additional information is disclosed in Note 24.

(g) Revaluation of property, plant and equipment and investment properties

The land is periodically revaluated and measured at fair value. Increases in the carrying amount arising on revaluation of land are credited to other comprehensive income Decreases that offset previous increases of the same asset are charged to other comprehensive income and debited against other reserves directly in equity; all other decreases are charged to the statement of profit or loss. If an asset's carrying amount is decreased as a result of a revaluation, the decrease shall be recognized in profit or loss. However, the decrease recognized in other comprehensive income reduces the amount accumulated in equity under the heading of revaluation surplus. The Group has entered into a contract with an independent valuation expert to assess fair value as of December 31, 2024.

3. Critical Accounting Estimates and Assumptions (cont'd)

(h) Management's judgment

Information about critical judgments in applying accounting policies that have the most significant effect on the amounts recognized in the consolidated financial statements is included in the following notes:

Note 16: Investments in Associates and Joint Ventures – classification of a joint arrangement.

(i) Assumptions and estimation uncertainties

Information about assumptions and estimation uncertainties that have a significant risk of resulting in a material adjustment within the next financial year are included in the following notes:

Note 7: Financial Assets Measured at Fair Value through Profit or Loss and Derivative Instruments – main assumptions for fair value;
Note 9: Financial Assets Measured at Fair Value through Other Comprehensive Income – main assumptions for fair value;
Note 15: Investments in Subsidiaries – main assumptions for recoverable amounts;
Note 16: Investments in Associates and Joint Ventures – main assumptions for recoverable amounts;
Note 17: Property, Plant and Equipment – main assumptions for estimating recoverable amounts and fair value
Note 18: Goodwill – main assumptions for recoverable amounts;
Note 19: Intangible assets other than goodwill – main assumptions for recoverable amounts;
Note 21: Trade and Other Payables – main assumptions for special charges of success repayable loans under the Act on the Special Accounts for Energy and Resources-Related Projects;
Note 24: Employee Benefits – main actuarial assumptions;
Notes 25 and 47 : Provisions and Contingencies – assumptions for possibility of cash outflows and their amounts; and
Note 39: Income tax expense (benefit) – possibility of realization of deferred tax assets.

(j) Climate-related risks

The Group considers climate-related matters in its estimates and assumptions. This assessment includes a wide range of possible impacts on the Group due to both physical and transition risks. Even though the Group believes its business model and products will still be viable after the transition to a low-carbon economy, climate-related matters increase the uncertainty in estimates and assumptions underpinning several items in the financial statements. Even though climate-related risks might not currently have a significant impact on measurement, the Group is closely monitoring relevant changes and developments, such as new climate-related legislation. The items and considerations that are most directly impacted by climate-related matters are:

3. Critical Accounting Estimates and Assumptions (cont'd)

- useful life of property, plant and equipment: When reviewing the residual values and expected useful lives of assets, the Group considers climate-related matters, such as climate-related legislation and regulations that may restrict the use of assets or require significant capital expenditures;
- impairment of non-financial assets: Even though the Group has concluded that no single climate-related assumption is a key assumption for the impairment test, the Group considered expectations for transitional risks such as climate-related legislation and regulations and changes in demand for goods in assessing value-in-use amounts; and
- decommissioning liability: The impact of climate-related legislation and regulations is considered in estimating the timing and future costs of decommissioning one of the Group's manufacturing facilities.

4. Segment and Other Information

For management purposes, the Group is organized into business units based on their goods and services. The Group's operating segments are 1) oil and gas, 2) petroleum distribution, 3) oil stockpiling, 4) others.

Segments	Goods and services	Location of business
Oil and gas	Exploration, development and production of domestic and overseas resources and sales of crude oil	Domestic and overseas
Petroleum distribution	Distribution business of gasoline and gas oil and oil trading	Domestic and overseas
Oil stockpiling	Trading of crude oil and petroleum product, lending and sales of oil stockpiles, management, operation and lending of oil stockpiling facilities	Domestic
Others	Oil information services, other research services, etc.	Domestic and overseas

4. Segment and Other Information (cont'd)

(a) Financial performance by segment for the year ended December 31, 2024

(in Korean won)	2024						
	Oil and gas	Petroleum distribution	Oil stockpiling	Others	Reportable segment total	Reconciling items[1]	Group total
Revenue	₩ 3,140,902,787,293	₩ 34,038,980,999	₩ 343,390,064,531	₩ 6,101,520,390	₩ 3,524,433,353,213	₩ -	₩ 3,524,433,353,213
Cost of sales	1,615,022,516,412	34,655,636,234	226,298,067,296	3,409,061,790	1,879,385,281,732	-	1,879,385,281,732
Gross profit (loss)	1,525,880,270,881	(616,655,235)	117,091,997,235	2,692,458,600	1,645,048,071,481	-	1,645,048,071,481
Selling and administrative expenses	294,459,323,733	-	-	837,992,498	295,297,316,231	76,313,636,232	371,610,952,463
Reportable segment operating profit (loss)[2]	1,231,420,947,148	(616,655,235)	117,091,997,235	1,854,466,102	1,349,750,755,250	(76,313,636,232)	1,273,437,119,018
Other income	-	-	-	-	98,267,437,304	-	98,267,437,304
Other expenses	-	-	-	-	108,800,396,328	-	108,800,396,328
Other profit, net	-	-	-	-	47,143,296,241	-	47,143,296,241
Finance income	-	-	-	-	234,506,122,096	-	234,506,122,096
Finance costs	-	-	-	-	890,720,387,983	-	890,720,387,983
Gains on investments in associates and joint ventures, net	-	-	-	-	213,390,577,409	-	213,390,577,409
Profit (loss) before income tax	₩ -	₩ -	₩ -	₩ -	₩ 943,537,403,989	₩ (76,313,636,232)	₩ 867,223,767,757
Depreciation and amortization of intangible assets other than goodwill	₩ 660,677,143,778	₩ 125,925,866	₩ 110,998,491,482	₩ 232,104,221	₩ 772,033,665,347	₩ 9,821,045,880	₩ 781,854,711,227
Impairment losses on property, plant and equipment	63,316,741,849	-	-	-	63,316,741,849	-	63,316,741,849
Reversal of impairment losses on property, plant and equipment	17,422,906,353	-	-	-	17,422,906,353	-	17,422,906,353
Impairment losses on intangible assets							-
Impairment losses on intangible assets other than goodwill	5,998,281,263	-	-	-	5,998,281,263	-	5,998,281,263
Impairment losses on goodwill	141,619,406,636	-	-	-	141,619,406,636	-	141,619,406,636

[1] Primarily consists of operating profit (loss) including depreciation and amortization of intangible assets other than goodwill that are not allocated to the segments.

[2] Segment profit (loss) reported to the Group's CEO is operating profit.

4. Segment and Other Information (cont'd)

(b) Financial performance by segment for the year ended December 31, 2023

(in Korean won)	2023						
	Oil and gas	**Petroleum distribution**	**Oil stockpiling**	**Others**	**Reportable segment total**	**Reconciling items[1]**	**Group total**
Revenue	₩ 2,951,114,506,059	₩ 49,875,374,306	₩ 261,592,892,202	₩ 4,499,369,661	₩ 3,267,082,142,228	₩ -	₩ 3,267,082,142,228
Cost of sales	1,805,667,040,401	53,968,865,930	215,382,775,879	2,779,254,872	2,077,797,937,082	-	2,077,797,937,082
Gross profit (loss)	1,145,447,465,658	(4,093,491,624)	46,210,116,323	1,720,114,789	1,189,284,205,146	-	1,189,284,205,146
Selling and administrative expenses	268,233,702,484	736,644,495	-	-	268,970,346,979	73,859,143,545	342,829,490,524
Reportable segment operating profit (loss)[2]	877,213,763,174	(4,830,136,119)	46,210,116,323	1,720,114,789	920,313,858,167	(73,859,143,545)	846,454,714,622
Other income	-	-	-	-	68,921,308,465	-	68,921,308,465
Other expenses	-	-	-	-	143,179,098,051	-	143,179,098,051
Other profit, net	-	-	-	-	310,486,772,580	-	310,486,772,580
Finance income	-	-	-	-	237,933,619,601	-	237,933,619,601
Finance costs	-	-	-	-	700,735,299,329	-	700,735,299,329
Gains on investments in associates and joint ventures, net	-	-	-	-	15,450,327,514	-	15,450,327,514
Profit (loss) before income tax	₩ -	₩ -	₩ -	₩ -	₩ 709,191,488,947	₩ (73,859,143,545)	₩ 635,332,345,402
Depreciation and amortization of intangible assets other than goodwill	₩ 1,010,565,035,490	₩ 378,656,062	₩ 107,487,468,538	₩ 754,527	₩ 1,118,431,914,617	₩ 7,562,639,585	₩ 1,125,994,554,202
Impairment losses on property, plant and equipment	37,667,515,268	-	-	-	37,667,515,268	-	37,667,515,268
Reversal of impairment losses on property, plant and equipment	87,116,450,337	-	-	-	87,116,450,337	-	87,116,450,337
Impairment losses on intangible assets							
Impairment losses on intangible assets other than goodwill	98,838,023,354	-	-	-	98,838,023,354	-	98,838,023,354
Impairment losses on goodwill	9,415,497,563	-	-	-	9,415,497,563	-	9,415,497,563
Reversal of impairment losses on intangible assets							
Reversal of impairment losses on intangible assets other than goodwill	48,035,120,076	-	-	-	48,035,120,076	-	48,035,120,076

[1] Primarily consists of operating profit (loss) including depreciation and amortization of intangible assets other than goodwill that are not allocated to the segments.

[2] Segment profit (loss) reported to the Group's CEO is operating profit (loss).

4. Segment and Other Information (cont'd)

Revenue by geographic area for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Domestic	₩	136,774,422,483	₩	175,303,929,921
Vietnam		187,182,378,136		223,056,180,090
Canada		340,164,851,601		309,474,006,024
United Kingdom		1,235,523,894,344		1,152,828,325,909
United States		372,967,277,780		324,054,292,485
Kazakhstan		395,370,543,789		363,117,302,387
Arab Emirates		581,354,562,704		558,599,983,589
Others		275,095,422,376		160,648,121,823
	₩	3,524,433,353,213	₩	3,267,082,142,228

The above revenue information is based on the region where the customer entity is located.

Customers from which revenue accounts for 10% or more of consolidated revenue of the Group for the year ended December 31, 2024 are Crescent Energy Operaing LLC and PetroChina Ltd. Revenue from Crescent Energy Operaing LLC is ₩ 363,614 million. Revenue from PetroChina Ltd. is ₩ 542,870 million. Furthermore, revenues from these customers for the year ended December 31, 2024 are attributable to oil and gas segment.

5. Cash and Cash Equivalents

Cash and cash equivalents in the consolidated statements of cash flows include cash and bank deposit and exclude government grants. Cash and cash equivalents in the consolidated statements of cash flows as of December 31, 2024 and 2023 are comprised of the following items:

(in Korean won)		As of December 31, 2024		As of December 31, 2023
Cash in hands	₩	56,339,720	₩	49,581,053
Other on demand deposits		102,924,655,751		121,815,395,479
Short-term deposits classified as cash equivalents		99,182,173,182		259,193,557,128
Short-term investments classified as cash equivalents		134,497,101,749		231,254,219,648
Government grants		(22,387,336)		(542,873,129)
	₩	336,637,883,066	₩	611,769,880,179

6. Restricted Cash and Cash Equivalents

Details of restricted cash and cash equivalents and financial assets provided as collateral for liabilities or contingent liabilities as of December 31, 2024 and 2023 are as follows.

(in Korean won)	Description		As of December 31, 2024		As of December 31, 2023
Long-term financial instruments	Provision for restoration	₩	7,984,478,357	₩	7,960,422,148
Long-term guarantee deposit	Provision for restoration		4,277,699,118		3,570,815,208
		₩	12,262,177,475	₩	11,531,237,356

7. Financial Assets Measured at Fair Value through Profit or Loss and Derivative Instruments

Details of financial assets measured at fair value through profit or loss as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024				As of December 31, 2023			
	Current		Non-current		Current		Non-current	
Debt securities	₩	128,295,761,013	₩	556,816,048,160	₩	116,761,131,115	₩	494,292,695,163

The amounts recognized in profit or loss in relation to financial assets measured at fair value through profit or loss for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024		For the year ended December 31, 2023	
Gain on valuation of financial asset measured at fair value through profit or loss	₩	-	₩	68,127,304,959
Loss on valuation of financial asset measured at fair value through profit or loss		(10,973,309,968)		(72,830,989,432)
	₩	(10,973,309,968)	₩	(4,703,684,473)

Details of derivatives as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024				As of December 31, 2023			
	Current		Non-current		Current		Non-current	
Derivative assets								
Currency swap	₩	26,843,140,021	₩	31,117,297,409	₩	92,600,137,116	₩	90,523,720,764
Other derivatives		201,797,543		-		16,900,409,638		-
	₩	27,044,937,564	₩	31,117,297,409	₩	109,500,546,754	₩	90,523,720,764
Derivative liabilities								
Currency swap	₩	28,984,811,701	₩	-	₩	-	₩	16,820,019,571
Other derivatives		378,988,064		2,916,640,847		44,828,402		-
	₩	29,363,799,765	₩	2,916,640,847	₩	44,828,402	₩	16,820,019,571

7. Financial Assets Measured at Fair Value through Profit or Loss and Derivative Instruments (cont'd)

Details of currency swap contracts as of December 31, 2024 are as follows:

(in foreign currencies)

			Contract amount		Contract interest rate per annum (%)	
Type	**Counter party**	**Maturity**	**Sell**	**Buy**	**Sell**	**Buy**
Cash flow hedge	HSBC	Jun. 24, 2025	EUR 60,000,000	USD 80,070,000	3.00	4.06
	HSBC	Mar. 26, 2025	HKD 160,000,000	USD 20,626,531	2.50	2.33
	HSBC	Apr. 21, 2025	CHF 200,000,000	USD 204,880,000	0.89	2.34
	Standard Chartered Bank	Jul. 30, 2027	CHF 100,000,000	USD 105,970,000	0.27	1.55
	BNP Paribas	Jul. 30, 2027	CHF 100,000,000	USD 20,626,531	0.27	1.46

7. Financial Assets Measured at Fair Value through Profit or Loss and Derivative Instruments (cont'd)

Details of other derivatives (zero cost collar options) as of December 31, 2024 are as follows:

(in BBL, MMBTU, US dollar)

Type	Counterparty	Terms	Contract amount	Exercise Price	
				Call	Put
	Bank of America	Mar. 31, 2025	25,000	62.00	82.65
	Bank of America	Jun. 30, 2025	25,000	62.00	82.65
	Macquarie	May 31, 2025	91,020	2.70	3.55
	Macquarie	Jun. 30, 2025	91,020	2.70	3.40
	Goldman Sachs	Jun. 30, 2025	91,020	2.90	3.37
	Goldman Sachs	Mar. 31, 2025	182,040	2.70	3.79
	Goldman Sachs	Jun. 30, 2025	182,040	2.80	3.52
	Goldman Sachs	Sep. 30, 2025	303,400	2.80	3.68
	Goldman Sachs	Dec. 31, 2025	303,400	3.50	4.35
	Goldman Sachs	Sep. 30, 2025	60,680	3.20	3.73
	Goldman Sachs	Dec. 31, 2025	60,680	3.90	4.52
Cash flow	Goldman Sachs	Jun. 30, 2025	60,680	3.10	3.69
Hedge	Standard Chartered Bank	Jun. 30, 2025	150,000	67.00	86.15
	Macquarie	Mar. 31, 2025	3,480,000	0.80	1.65
	Standard Chartered Bank	Jun. 30, 2025	3,480,000	0.70	1.57
	Aron	Mar. 31, 2025	1,740,000	0.90	1.66
	Aron	Jun. 30, 2025	1,740,000	0.80	1.60
	Standard Chartered Bank	Mar. 31, 2025	3,480,000	0.75	1.41
	Aron	Jun. 30, 2025	3,480,000	0.65	1.44
	Aron	Sep. 30, 2025	3,480,000	0.75	1.43
	Macquarie	Dec. 31, 2025	3,480,000	0.80	1.49
	Aron	Mar. 31, 2025	580,000	0.90	1.47
	Standard Chartered Bank	Jun. 30, 2025	580,000	0.85	1.50
	Macquarie	Mar. 31, 2025	580,000	1.05	1.49
	Macquarie	Jun. 30, 2025	580,000	0.95	1.53

7. Financial Assets Measured at Fair Value through Profit or Loss and Derivative Instruments (cont'd)

Gains and losses on valuation and transaction of derivative for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	Gains (losses) on valuation of derivative instruments		Gains (losses) on transaction of derivative instruments		Gains (losses) on valuation of derivative instruments (other comprehensive income (loss))[1]	
	For the year ended December 31, 2024	For the year ended December 31, 2023	For the year ended December 31, 2024	For the year ended December 31, 2023	For the year ended December 31, 2024	For the year ended December 31, 2023
Currency forwards	₩ -	₩ -	₩ (2,587,366,288)	₩ (5,684,022,227)	₩ (1,343,113,261)	₩ -
Currency swaps	-	-	(2,799,247,351)	5,131,257,785	(5,539,274,577)	(10,405,798,885)
Interest rate swaps	-	-	-	-	-	(1,005,495,577)
Other derivatives	-	523,260,544	-	-	(12,871,564,331)	46,508,367,797
	₩ -	₩ 523,260,544	₩ (5,386,613,639)	₩ (552,764,442)	₩ (19,753,952,169)	₩ 35,097,073,335

[1] Changes in accumulated other comprehensive income (loss) are net of tax effect amounting to ₩ 15,825 million and ₩ 91,604 million for the years ended December 31, 2024 and 2023, respectively.

8. Trade and Other Receivables

Details of trade and other receivables as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024			
	Gross amounts	Allowance for doubtful accounts	Present value discount	Book value
Current				
Trade receivables	₩ 374,938,104,377	₩ (33,432,959,421)	₩ -	₩ 341,505,144,956
Other receivables	229,244,626,353	-	-	229,244,626,353
Accrued income	383,649,861	-	-	383,649,861
Other current receivables	37,321,725,013	-	-	37,321,725,013
	641,888,105,604	(33,432,959,421)	-	608,455,146,183
Non-current				
Other receivables	28,954,400,076	(28,954,400,076)	-	-
Deposit provided	35,660,209,517	-	(16,615,561,190)	19,044,648,327
	64,614,609,593	(28,954,400,076)	(16,615,561,190)	19,044,648,327
	₩ 706,502,715,197	₩ (62,387,359,497)	₩ (16,615,561,190)	₩ 627,499,794,510

8. Trade and Other Receivables (cont'd)

(in Korean won)	As of December 31, 2023			
	Gross amounts	Allowance for doubtful accounts	Present value discount	Book value
Current				
Trade receivables	₩ 285,941,476,978	₩ (12,055,686,623)	₩ -	₩ 273,885,790,355
Other receivables	302,189,849,015	(1,109,458,892)	(3,755,971)	301,076,634,152
Accrued income	811,528,271	-	-	811,528,271
Finance lease receivables	3,334,002,689	-	(412,548,365)	2,921,454,324
Other current receivables	36,742,928,228	-	-	36,742,928,228
	629,019,785,181	(13,165,145,515)	(416,304,336)	615,438,335,330
Non-current				
Other receivables	29,224,424,166	(25,397,145,210)	-	3,827,278,956
Deposit provided	38,887,300,653	-	(16,853,335,450)	22,033,965,203
Finance lease receivables	9,609,518,369	-	(523,742,701)	9,085,775,668
	77,721,243,188	(25,397,145,210)	(17,377,078,151)	34,947,019,827
	₩ 706,741,028,369	₩ (38,562,290,725)	₩ (17,793,382,487)	₩ 650,385,355,157

Details of other current receivables as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024	
	Gross amounts	Book value
Prepaid value added tax	₩ 5,153,116,508	₩ 5,153,116,508
Overseas prepaid value added tax	7,200,837,210	7,200,837,210
Due from financial institutions	607,496,334	607,496,334
Other current assets	24,360,274,961	24,360,274,961
	₩ 37,321,725,013	₩ 37,321,725,013

(in Korean won)	As of December 31, 2023	
	Gross amounts	Book value
Prepaid value added tax	₩ 14,294,571,599	₩ 14,294,571,599
Overseas prepaid value added tax	571,664,433	571,664,433
Due from financial institutions	593,425,753	593,425,753
Other current assets	21,283,266,443	21,283,266,443
	₩ 36,742,928,228	₩ 36,742,928,228

8. Trade and Other Receivables (cont'd)

Above trade and other receivables are classified as loans and receivables and measured at amortized cost. If trade receivables are past due, based on the Group's past experience of collecting payments as well as observable changes in national or local economic conditions that correlate with default on receivables, an allowance account is recognized. Above trade and other receivables include those receivables without allowance provision as they are considered collectible, including accrued interest on the receivables and have no significant changes in their credit rating as of December 31, 2024. The Group has no right to offset such receivables against any related liabilities with the counterparties and does not pledge any asset nor hold credit enhancement for such receivables.

The aging analysis of trade receivables as of December 31, 2024 and 2023 is as follows:

(in Korean won)		As of December 31, 2024		As of December 31, 2023
Receivables not past due and impaired	₩	171,533,513,826	₩	126,474,552,957
Past due but not impaired		169,971,631,130		147,411,237,533
- Within 60 days		49,298,377,237		83,603,076,175
- 60 days~12 months		100,180,542,341		48,387,737,108
- More than 12 months		20,492,711,552		15,420,424,250
Impaired		33,432,959,421		12,055,686,488
- Within 60 days		725,050,996		-
- 60 days~12 months		835,310,868		-
- More than 12 months		31,872,597,557		12,055,686,488
		374,938,104,377		285,941,476,978
Less: allowance for doubtful accounts		(33,432,959,421)		(12,055,686,623)
	₩	341,505,144,956	₩	273,885,790,355

The aging analysis of other receivables as of December 31, 2024 and 2023 is as follows:

(in Korean won)		As of December 31, 2024		As of December 31, 2023
Receivables not past due and impaired	₩	288,027,871,788	₩	379,424,035,075
Past due but not impaired		14,582,338,956		14,868,910,797
- Within 60 days		3,606,370,620		2,858,435,449
- 60 days~12 months		5,327,264,843		7,443,406,105
- More than 12 months		5,648,703,493		4,567,069,243
Impaired		28,954,400,076		26,506,605,519
- Within 60 days		-		-
- 60 days~12 months		-		-
- More than 12 months		28,954,400,076		26,506,605,519
		331,564,610,820		420,799,551,391
Less: allowance for doubtful accounts		(28,954,400,076)		(26,506,604,102)
Less: present value discounts		(16,615,561,190)		(17,793,382,487)
	₩	285,994,649,554	₩	376,499,564,802

8. Trade and Other Receivables (cont'd)

Movements in the allowance for doubtful accounts of trade and other receivables for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024		For the year ended December 31, 2023	
	Trade receivables	Other receivables	Trade receivables	Other receivables
Beginning balance	₩ 12,055,686,623	₩ 26,506,604,102	₩ 8,760,691,950	₩ 35,794,269,880
Amount recognized in profit or loss	19,672,656,738	11,153,228,519	-	(9,842,942,828)
Reversal of impairment loss	-	3,759,491,671	-	-
Others[1]	1,704,616,060	(12,464,924,216)	3,294,994,673	555,277,050
Ending balance	₩ 33,432,959,421	₩ 28,954,400,076	₩ 12,055,686,623	₩ 26,506,604,102

[1] Include the effect of write off.

9. Financial Assets Measured at Fair Value Through Other Comprehensive Income

Movements in the financial assets at fair value through other comprehensive income for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024			
	Beginning balance	Valuation[1]	Others[2]	Ending balance
Non-marketable	₩ 30,300,785,308	₩ (31,009,889,781)	₩ 1,833,734,323	₩ 1,124,629,850

[1] The Group recognized other comprehensive loss of ₩ 31,010 million from Yemen LNG Company Ltd. in accordance with changes in the fair value of financial asset measured at fair value through other comprehensive income.
[2] Include the effect of changes in exchange rates.

(in Korean won)	For the year ended December 31, 2023			
	Beginning balance	Valuation[1]	Others[2]	Ending balance
Non-marketable	₩ 11,887,370,695	₩ 18,432,173,481	₩ (18,758,868)	₩ 30,300,785,308

[1] The Group recognized other comprehensive income of ₩ 18,432 million from Yemen LNG Company Ltd. in accordance with changes in the fair value of financial asset measured at fair value through other comprehensive income.
[2] Include the effect of changes in exchange rates.

9. Financial Assets Measured at Fair Value Through Other Comprehensive Income (cont'd)

Details of financial assets measured at fair value through other comprehensive income as of December 31, 2024 and 2023 are as follows:

(in Korean won)	Number of shares	Ownership interest (%)	Acquisition cost	As of December 31, 2024 Carrying amount	As of December 31, 2024 Fair value
Non-marketable					
Yemen LNG Company Limited	265	1.06	₩ 390,050	₩ -	₩ -
Petronado S.A.	5,640	5.64	24,119,547,365	-	-
Micronic Korea[1]	20,000	16.70	1,124,630,556	1,124,629,850	1,124,629,850
			₩ 25,244,567,971	₩ 1,124,629,850	₩ 1,124,629,850

[1] The dividend income associated with Micronic Korea for the year ended December 31, 2024 is ₩ 6 million.

(in Korean won)	Number of shares	Ownership interest (%)	Acquisition cost	As of December 31, 2023 Carrying amount	As of December 31, 2023 Fair value
Non-marketable					
Yemen LNG Company Limited	265	1.06	₩ 342,129	₩ 29,314,323,649	₩ 29,314,323,649
Petronado S.A.	5,640	5.64	21,156,288,688	-	-
Micronic Korea[1]	20,000	16.70	986,461,659	986,461,659	986,461,659
			₩ 22,143,092,476	₩ 30,300,785,308	₩ 30,300,785,308

[1] The dividend income associated with Micronic Korea for the year ended December 31, 2023 is ₩ 6 million.

10. Loans

Details of loans as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024					
		Face value		Provision for loans		Carrying amount
Non-current loans						
Loans for tuitions[1]	₩	10,713,860	₩	-	₩	10,713,860
Loans for housing[2]		64,837,021,048		-		64,837,021,048
Loans for vehicle[3]		323,400,000		-		323,400,000
General loans[4]		16,580,164,354		(16,580,164,354)		-
Loans to related parties[5]		238,840,191,341		(238,840,191,341)		-
	₩	320,591,490,603	₩	(255,420,355,695)	₩	65,171,134,908

[1] The Group provides employees who worked over a year with interest-free loans for their children's tuitions. The loans are repaid from their monthly wages.

[2] The Group provides employees without housing with loans for housing at market interest rates. The loans are due 5~10 years and repaid by lump sum at maturity.

[3] The Group provides non-interest bearing loans to overseas secondees who newly purchase or lease a vehicle. The loans are due when the secondees return to the Headquarters.

[4] The Group recognized ₩ 12,580 million of allowance for doubtful accounts of loan by assessing loans to Yemen LNG Company Ltd.

[5] The Group provided KNOC Inam Ltd. and 3 other related parties with loans at interest rates of 4.6~10.04%. Loans for exploration and development projects are due until the start of commercial production.

(in Korean won)	As of December 31, 2023					
		Face value		Provision for loans		Carrying amount
Current loans						
General loans	₩	13,062	₩	-	₩	13,062
Non-current loans						
Loans for tuitions[1]		186,271,998		-		186,271,998
Loans for housing[2]		69,373,809,500		-		69,373,809,500
Loans for vehicle[3]		257,880,000		-		257,880,000
General loans[4]		13,516,654,393		(3,999,782,909)		9,516,871,484
Loans to related parties[5]		213,050,896,994		(213,050,896,994)		-
	₩	296,385,525,947	₩	(217,050,679,903)	₩	79,334,846,044

[1] The Group provides employees who worked over a year with interest-free loans for their children's tuitions. The loans are repaid from their monthly wages.

[2] The Group provides employees without housing with loans for housing at market interest rates. The loans are due 5~10 years and repaid by lump sum at maturity.

[3] The Group provides non-interest bearing loans to overseas secondees who newly purchase or lease a vehicle. The loans are due when the secondees return to the Headquarters.

[4] The Group recognized ₩ 320 million of reversal of allowance for doubtful accounts of loan by assessing loans to Yemen LNG Company Ltd.

[5] The Group provided KNOC Inam Ltd. and 3 other related parties with loans at interest rates of 4.6~10.04%. Loans for exploration and development projects are due until the start of commercial production.

11. Financial Instruments

Details of financial instruments as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024		As of December 31, 2023	
	Current	Non-current	Current	Non-current
Time deposits	₩ 690,112,800	₩ -	₩ 474,341,339	₩ -
Asset retirement obligation	-	7,984,478,357	-	7,960,422,148
	₩ 690,112,800	₩ 7,984,478,357	₩ 474,341,339	₩ 7,960,422,148

12. Other Financial Assets

Details of other current financial assets as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024	As of December 31, 2023
Overseas field operations quick assets	₩ -	₩ 876,568,070

13. Inventories

Details of inventories as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024					
	Acquisition cost		Provision for losses on valuation		Carrying amount	
Raw materials	₩	5,504,556,267	₩	(562,354,571)	₩	4,942,201,696
Merchandises		11,647,166,166		(2,143,928,306)		9,503,237,860
Work-in-progress		477,946,657		-		477,946,657
Finished goods		26,180,162,921		(6,571,573,877)		19,608,589,044
Supplies		51,841,058,308		-		51,841,058,308
Goods in-transit		15		-		15
	₩	95,650,890,334	₩	(9,277,856,754)	₩	86,373,033,580

(in Korean won)	As of December 31, 2023					
	Acquisition cost		Provision for losses on valuation		Carrying amount	
Raw materials	₩	7,125,267,891	₩	(1,021,555,066)	₩	6,103,712,825
Merchandises		15,440,362,977		(2,135,942,985)		13,304,419,992
Work-in-progress		433,439,340		-		433,439,340
Finished goods		26,180,790,696		(5,764,209,087)		20,416,581,609
Supplies		50,573,353,844		-		50,573,353,844
Goods in-transit		39,885,694		-		39,885,694
	₩	99,793,100,442	₩	(8,921,707,138)	₩	90,871,393,304

The reversal of losses on the valuation of inventories recognized in cost of sales for the year ended December 31, 2024 is ₩ 270 million (₩ 117 million of losses on the valuation of inventories for the year ended December 31, 2023).

14. Non-financial Assets

Details of non-financial assets as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024				As of December 31, 2023			
	Current		Non-current		Current		Non-current	
Advance payments	₩	88,147,222,311	₩	-	₩	82,067,807,855	₩	-
Prepaid expenses		39,322,473,849		3,461,073,722		31,472,989,537		3,008,613,264
Oil stockpiles[1]		-		6,044,148,742,802		-		4,796,240,093,228
	₩	127,469,696,160	₩	6,047,609,816,524	₩	113,540,797,392	₩	4,799,248,706,492

[1] The Group recognized gains on disposal of other non-current assets due to the sale of oil stockpiles of ₩ 230,432 million for the year ended December 31, 2024 (₩ 307,014 million for the year ended December 31, 2023) (see Note 36).

15. Subsidiaries

Details of the subsidiaries as of December 31, 2024 and 2023 are as follows:

Subsidiary name[1]	Principal activity	Country of incorporation	Ownership (%) As of December 31, 2024	Ownership (%) As of December 31, 2023
ANKOR E&P Holdings Corp.[2]	Exploration and production (“E&P”)	United States	100.00	100.00
ANKOR Energy LLC[2]	E&P	United States	100.00	100.00
Dana Petroleum Limited.(referred to as Dana)	E&P	United Kingdom	100.00	100.00
Dana Petroleum (E&P) Limited	E&P	United Kingdom	100.00	100.00
Dana Petroleum (BVUK) Limited	E&P	United Kingdom	100.00	100.00
Dana Petroleum (Holdings) B.V.	E&P	Netherlands	100.00	100.00
Dana Petroleum East Zeit Limited	E&P	Egypt	100.00	100.00
Dana Petroleum East Beni Suef Limited	E&P	Egypt	100.00	100.00
Dana Petroleum Qarun Limited	E&P	Egypt	100.00	100.00
Dana Petroleum WAG Limited	E&P	Egypt	100.00	100.00
Dana Petroleum North Zeit Bay Limited	E&P	Egypt	100.00	100.00
Dana Petroleum South October Limited	E&P	Egypt	100.00	100.00
Dana Petroleum (North Sea) Limited	E&P	United Kingdom	100.00	100.00
Dana Petroleum Netherlands B.V.	E&P	Netherlands	100.00	100.00
Dana Petroleum Denmark B.V.	E&P	Netherlands	100.00	100.00
KNOC Eagleford Corp.(referred to as EagleFord)	E&P	United States	100.00	100.00
Eagle Ford MS LLC	Crude oil and natural gas transportation and processing	United States	100.00	100.00
Eagle Ford Energy LLC	E&P	United States	100.00	100.00
Eagle Ford Energy LP LLC	E&P	United States	100.00	100.00
Eagle Ford Energy GP LLC	E&P	United States	100.00	100.00
Eagle Ford TX LP	E&P	United States	100.00	100.00
KOA Energy LLP	E&P	United States	100.00	100.00
Harvest Operations Corp. (referred to as Harvest)	E&P	Canada	100.00	100.00
Harvest Operations (USA) Inc.	E&P	Canada	100.00	100.00
1057533 Alberta Ltd.	E&P	Canada	100.00	100.00
Harvest Breeze Trust 1	E&P	Canada	100.00	100.00
Harvest Breeze Trust 2	E&P	Canada	100.00	100.00
Viking Managemet Ltd	E&P	Canada	100.00	100.00
Pathfinder Partnership	E&P	Canada	100.00	100.00
Harvest Breeze Corp.	E&P	Canada	100.00	100.00
Breeze Resources Partnership	E&P	Canada	100.00	100.00
Hay River Partnership	E&P	Canada	100.00	100.00
Deep Basin Partnership [4]	E&P	Canada	100.00	84.27
HKMS Partnership [4]	E&P	Canada	100.00	69.76
KNOC Kaz B.V. (referred to as Kaz)	E&P	Netherlands	100.00	100.00
KNOC Whitehill B.V.	E&P	Netherlands	100.00	100.00
KNOC Blackhill Ltd	E&P	Canada	100.00	100.00
Altius Holdings Inc.	E&P	Canada	100.00	100.00
KNOC Caspian LLP	E&P	Kazakhstan	100.00	100.00
Altius Petroleum Int’l B.V.	E&P	Netherlands	100.00	100.00
KenSary LLP	E&P	Kazakhstan	100.00	100.00
MeerBusch LLP	E&P	Kazakhstan	100.00	100.00
AEKK Munai LLP[5]	E&P	Kazakhstan	-	100.00
KADOC Ltd	E&P	Malaysia	75.00	75.00
KNOC Sumatra Ltd.[3]	E&P	Indonesia	100.00	100.00
KNOC Yemen Ltd.[3]	E&P	Yemen	60.00	60.00
KNOC Trading Singapore Pte. Ltd	Trading and Marketing	Singapore	100.00	100.00
KNOC Service	Facility maintenance	Republic of Korea	100.00	100.00

[1] In the case of subsidiaries with sub-subsidiaries, the consolidated financial information includes the subsidiary and its sub-subsidiaries.
[2] The major assets held by the entities have been sold or transferred, and the process of business dissolution is in progress.
[3] The entities are scheduled for liquidation as of December 31, 2024.
[4] The option was exercised as the expiration date for the option under the shareholder agreement with KERR arrived for the year ended December 31, 2024, resulting in a reclassification from investments in joint ventures to subsidiaries.
[5] Excluded from subsidiaries as the assets held by the entity is sold in entirety for the year ended December 31, 2024.

15. Subsidiaries (cont'd)

The financial information for subsidiaries as of and for the years ended December 31, 2024 and 2023 is as follows:

(in Korean won)	For the year ended December 31, 2024			
Subsidiary name[4]	**Assets**	**Liabilities**	**Revenue**	**Profit (loss) for the year**
ANKOR E&P Holdings Corp.[1]	₩ 20,770,223,586	₩ 26,126,000,036	₩ 9,809,308	₩ (9,192,884,260)
Dana Petroleum Limited[2]	2,509,605,437,201	2,243,091,342,087	1,231,114,300,220	142,410,840,972
KNOC Eagleford Corp.	2,102,534,270,869	582,219,845,634	372,957,468,472	(27,303,574,240)
Harvest Operations Corp.	2,309,926,986,572	1,599,782,698,324	340,164,851,601	(143,705,309,183)
KNOC Kaz B.V.	396,379,797,356	106,883,381,451	395,370,543,789	47,910,459,262
KADOC Ltd[2]	1,527,654,815,551	366,600,348,887	583,267,577,567	176,711,873,682
KNOC Sumatra Ltd.[3]	1,011,779,656	24,109,470	-	(3,614,403,591)
KNOC Yemen Ltd.[3]	17,816,606	-	-	-
KNOC Trading Singapore Pte. Ltd	27,076,900,406	24,265,907,562	2,055,622,559	1,277,532,939
KNOC Service	1,649,497,599	1,001,334,086	6,373,641,098	162,874,748

[1] The major assets held by the entities have been sold or transferred, and the process of business dissolution is in progress.

[2] The amounts presented reflect the difference between the fair value and the book value resulted from the business combination.

[3] The entities are scheduled for liquidation as of December 31, 2024.

[4] In the case of subsidiaries with sub-subsidiaries, the consolidated financial information includes the subsidiary and its subsidiaries.

15. Subsidiaries (cont'd)

(in Korean won)	For the year ended December 31, 2023			
Subsidiary name[4]	Assets	Liabilities	Revenue	Profit (loss) for the year
ANKOR E&P Holdings Corp.[1]	₩ 23,545,586,640	₩ 19,553,133,983	₩ 104,198,649	₩ 35,387,723,120
Dana Petroleum Limited[2]	2,165,910,409,623	2,048,128,486,161	1,152,828,325,909	(167,955,873,579)
KNOC Eagleford Corp.	2,033,938,787,223	673,022,266,161	323,950,093,837	107,702,927,920
Harvest Operations Corp.	2,039,958,891,278	3,215,505,069,523	309,474,006,024	(74,768,485,415)
KNOC Kaz B.V.	381,353,583,891	98,734,356,617	363,117,302,387	143,141,976,315
KADOC Ltd[2]	1,255,239,277,219	300,726,227,814	564,984,964,422	178,488,218,361
KNOC Sumatra Ltd.[3]	4,295,100,702	7,905,311	-	63,743,118
KNOC Yemen Ltd.[3]	15,627,709	-	-	-
KNOC Trading Singapore Pte. Ltd	55,705,422,486	54,388,199,645	1,280,743,860	508,188,803
KNOC Service	1,258,946,525	773,657,755	5,902,784,231	181,814,907

[1] The major assets held by the entities have been sold or transferred, and the process of business dissolution is in progress.

[2] The amounts presented reflect the difference between the fair value and the book value resulted from the business combination.

[3] The entities are scheduled for liquidation as of December 31, 2023.

[4] In the case of subsidiaries with subsidiaries, the consolidated financial information includes subsidiaries and their subsidiaries.

16. Investments in Associates and Joint Ventures

Details of investments in associates and joint ventures as of December 31, 2024 and 2023 are as follows:

(in Korean won)

Entity	Principal activity	Country	As of December 31, 2024 Equity interest (%)	As of December 31, 2024 Acquisition cost	As of December 31, 2024 Book value	As of December 31, 2023 Equity interest (%)	As of December 31, 2023 Acquisition cost	As of December 31, 2023 Book value
<Investments in associates>								
Oilhub Korea Yeosue Co., Ltd.	Storing of oil	Republic of Korea	29.00	₩ 49,696,028,340	₩ 64,921,744,654	29.00	₩ 43,590,516,287	₩ 61,649,274,771
Parallel Holdings LLC [1,2]	E&P	United States	10.00	79,894,500,000	-	10.00	70,078,890,000	-
KOREA GS E&P Pte. Ltd.	E&P	Singapore	30.00	419,408,435,258	465,482,856,195	30.00	367,881,113,573	402,104,796,384
KNOC Nigerian East Oil Company Ltd.[3,6]	Exploration	Nigeria	75.00	88,200,000	-	75.00	77,364,000	-
KNOC Nigerian West Oil Company Ltd.[3, 6]	Exploration	Nigeria	75.00	88,200,000	-	75.00	77,364,000	-
KNOC Ferghana2 Ltd.[3,5]	Exploration	Malaysia	65.00	95,550	-	65.00	83,811	-
				549,175,459,148	530,404,600,849		481,705,331,671	463,754,071,155
<Joint ventures>								
KNOC Inam Ltd. [6]	Exploration	Malaysia	40.00	58,800	-	40.00	51,576	-
K. K. Korea kamchatka Co., Ltd. [5]	Exploration	Cyprus	50.00	9,990,634,500	-	50.00	8,763,213,690	-
KNOC Ferghana Ltd. [5]	Exploration	Malaysia	50.00	735,000	-	50.00	644,700	-
Korea Energy Terminal Co., Ltd.[3]	Storing of oil	Republic of Korea	52.42	173,316,410,988	124,873,849,159	52.42	101,747,613,887	78,350,745,852
Donghae Floating Offshore Wind Power Co.,Ltd.	Developing offshore wind power	Republic of Korea	50.00	4,804,135,253	4,643,377,087	-	-	-
Deep Basin Partnership[3,4]	Exploration	Canada	-	-	-	84.27	318,238,599,819	-
HKMS Partnership[3,4]	Gas processing plant operation	Canada	-	-	-	69.76	74,216,435,345	24,086,865,766
				188,111,974,541	129,517,226,246		502,966,559,017	102,437,611,618
				₩ 737,287,433,689	₩ 659,921,827,095		₩ 984,671,890,688	₩ 566,191,682,773

[1] Despite the percentage of ownership is below 20%, the investment is classified as an investment in associate as the Group can exercise significant influence over the entity by indirectly participating in the decision making process of the entity.

[2] Parallel Holdings LLC is an associate held by KNOC Eagleford Corp.

[3] Despite the percentage of ownership is over 50%, the investment is classified as an investment in joint ventures as the Group is unable to exercise control over investees solely.

[4] Harvest Operations Corp. acquired control over Deep Basin Partnership and HKMS Partnership due to changes in the scope of consolidation, resulting in the reclassification of the entities as subsidiaries of Harvest Operations Corp. for the year ended December 31, 2024.

[5] The entity is in the process of liquidation as of December 31, 2024.

[6] The entities are scheduled for liquidation as of December 31, 2024.

16. Investments in Associates and Joint Ventures (cont'd)

Changes in carrying values of investments in associates and joint ventures for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)

	For the year ended December 31, 2024							
	Beginning balance	Acquisition	Dividends received	Share of profit or loss in equity method	Changes in equity adjustments	Changes in scope of consolidation	Other changes[2]	Ending balance
Investments in associates								
Oilhub Korea Yeosue Co., Ltd.	₩ 61,649,274,771	₩ -	₩ -	₩ 3,290,078,691	₩ (8,265,771,054)	₩ -	₩ 8,248,162,246	₩ 64,921,744,654
KOREA GSE&P Pte.Ltd.[3]	402,104,796,384	-	(28,643,580,000)	35,191,790,747	-	-	56,829,849,064	465,482,856,195
Parallel Holdings LLC[1]	-	-	-	-	-	-	-	-
	463,754,071,155	-	(28,643,580,000)	38,481,869,438	(8,265,771,054)	-	65,078,011,310	530,404,600,849
Investments in joint ventures								
Korea Energy Terminal Ltd.	78,350,745,852	53,183,623,565	-	(6,766,857,914)	(13,431,745,170)	-	13,538,082,826	124,873,849,159
Donghae Floating Offshore Wind Power Co.,Ltd.	-	4,457,649,254	-	-	(149,164,175)	-	334,892,008	4,643,377,087
Deep Basin Partnership[4]	-	165,617,103,832	-	(17,825,558,241)	-	(140,382,841,477)	(7,408,704,114)	-
HKMS Partnership[4]	24,086,865,766	406,986,603	(12,329,340,038)	4,595,569,905	-	(23,672,941,224)	6,912,858,988	-
	102,437,611,618	223,665,363,254	(12,329,340,038)	(19,996,846,250)	(13,580,909,345)	(164,055,782,701)	13,377,129,708	129,517,226,246
	₩ 566,191,682,773	₩ 223,665,363,254	₩ (40,972,920,038)	₩ 18,485,023,188	₩ (21,846,680,399)	₩ (164,055,782,701)	₩ 78,455,141,018	₩ 659,921,827,095

[1] The Group does not apply the equity method as the book value of the investment in associates and joint ventures is less than zero due to the cumulative equity method loss. Gains and losses on investments that are not recognized due to the discontinuation of the use of the equity method are as follows:

(in Korean won)

CGU	Holding company	Gains and losses on investments not recognized (current)	Gains and losses on investments not recognized (cumulative)
Parallel Holdings LLC	KNOC Eagleford Corp.	₩ (2,094,281,927)	₩ (23,554,686,453)

[2] Other changes include the effect of changes in exchange rates that were not recognized as the book value of Deep Basin Partners, an investment in joint ventures, until the previous year was less than zero.

[3] The basis difference adjustment is ₩ 33,984 million as of December 31, 2024.

[4] By acquiring control over Deep Basin Partnership and HKMS Partnership, ₩ 194,906 million of gain on disposal of investments in joint ventures was recognized.

16. Investments in Associates and Joint Ventures (cont'd)

(in Korean won)

	For the year ended December 31, 2023						
	Beginning balance	Acquisition	Dividends received	Share of profit or loss in equity method	Changes in equity adjustments	Other changes[2]	Ending balance
Investments in associates							
Oilhub Korea Yeosue Co., Ltd.	₩ 61,337,175,224	₩ -	₩ -	₩ 5,011,674,736	₩ (5,778,619,284)	₩ 1,079,044,095	₩ 61,649,274,771
KOREA GSE&P Pte.Ltd.[3]	396,885,618,126	-	(33,287,955,000)	31,564,851,657	-	6,942,281,601	402,104,796,384
Parallel Holdings LLC[1]	-	-	-	-	-	-	-
	458,222,793,350	-	(33,287,955,000)	36,576,526,393	(5,778,619,284)	8,021,325,696	463,754,071,155
Investments in joint ventures							
Korea Energy Terminal Ltd.	82,057,791,778	-	-	(3,726,323,248)	(1,475,496,634)	1,494,773,956	78,350,745,852
Deep Basin Partnership	-	4,877,431,384	-	(30,299,550,850)	-	25,422,119,466	-
HKMS Partnership	27,444,136,041	475,097,377	(17,851,224,258)	12,899,675,219	-	1,119,181,387	24,086,865,766
Al Dhafra Petroleum	506,920,000	-	-	-	-	(506,920,000)	-
	110,008,847,819	5,352,528,761	(17,851,224,258)	(21,126,198,879)	(1,475,496,634)	27,529,154,809	102,437,611,618
	₩ 568,231,641,169	₩ 5,352,528,761	₩ (51,139,179,258)	₩ 15,450,327,514	₩ (7,254,115,918)	₩ 35,550,480,505	₩ 566,191,682,773

[1] The Group does not apply the equity method as the book value of the investment in associates and joint ventures is less than zero due to the cumulative equity method loss. Gains and losses on investments that are not recognized due to the discontinuation of the use of the equity method are as follows:

(in Korean won)

CGU	Holding company	Gains and losses on investments not recognized (current)	Gains and losses on investments not recognized (cumulative)
Parallel Holdings LLC	KNOC Eagleford Corp.	₩ 4,240,854,137	₩ (21,460,404,526)

[2] Other changes include the effect of changes in exchange rates and the book value of investments in Deep Basin Partner previously unrecognized as having being negative.

[3] The basis difference adjustment is ₩ 30,787 million as of December 31, 2023.

16. Investments in Associates and Joint Ventures (cont'd)

The Summarized financial information of major associates and joint ventures for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024			
	Total assets	**Total liabilities**	**Revenue**	**Profit (loss) for the year**
<Associates>				
Oilhub Korea Yeosu Co., Ltd.	₩ 443,185,526,322	₩ 219,317,440,050	₩ 64,222,690,963	₩ 11,229,887,452
Parallel Holdings LLC	-	-	-	(12,770,011,750)
KOREA GS E&P Pte. Ltd.	2,583,202,881,340	1,311,796,761,765	2,444,938,356,937	116,270,673,582
<Joint ventures>				
Korea Energy Terminal Co., Ltd.	1,229,081,526,530	993,292,377,340	28,485,284,459	(12,908,923,941)
Donghae Floating Offshore Wind Power Co.,Ltd.	9,286,736,525	-	-	-
Deep Basin Partnership	143,968,816,423	24,573,110,149	32,885,598,160	(17,696,755,209)
HKMS Partnership	80,314,938,561	12,313,273,841	13,453,665,342	5,149,572,629

(in Korean won)	For the year ended December 31, 2023			
	Total assets	**Total liabilities**	**Revenue**	**Profit (loss) for the year**
<Associates>				
Oilhub Korea Yeosu Co., Ltd.	₩ 433,682,188,679	₩ 221,098,480,809	₩ 52,956,360,093	₩ 1,926,578,320
Parallel Holdings LLC	-	-	93,591,369,950	52,551,157,291
KOREA GS E&P Pte. Ltd.	2,182,570,443,922	1,087,020,847,593	2,357,439,314,282	104,225,413,288
<Joint ventures>				
Korea Energy Terminal Co., Ltd.	1,049,998,136,642	902,667,425,985	-	(7,093,604,804)
Deep Basin Partnership	147,363,651,362	193,823,484,723	34,597,460,750	(30,299,550,366)
HKMS Partnership	82,309,720,158	22,624,941,942	28,863,759,357	14,709,649,642

17. Property, Plant and Equipment

Details of property, plant and equipment as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024					
	Acquisition cost	Contributions for construction	Government grants	Accumulated depreciation	Accumulated impairment losses	Book value
Land	₩ 1,309,306,652,648	₩ -	₩ -	₩ -	₩ -	₩ 1,309,306,652,648
Buildings	103,413,265,009	-	-	(46,192,680,167)	-	57,220,584,842
Structures	2,793,604,979,191	(120,848,230)	-	(1,333,679,465,769)	-	1,459,804,665,192
Machinery	1,106,012,510,434	(1,885,158,091)	(14,631,601)	(768,284,098,048)	-	335,828,622,694
Vehicles	12,326,065,366	-	(2,878,980)	(8,091,479,084)	-	4,231,707,302
Tools & fixtures	76,575,544,775	-	-	(65,859,760,569)	(367,271,636)	10,348,512,570
Construction-in-progress	106,581,949,969	-	-	-	-	106,581,949,969
Right-of-use assets	619,959,865,335	-	-	(286,304,943,989)	-	333,654,921,346
Others	45,046,576,174	-	-	(32,184,985,442)	(2,377,126,431)	10,484,464,301
Oil & gas properties[1]	26,961,126,697,873	-	(1,155,388,175)	(16,626,159,325,108)	(5,259,973,355,887)	5,073,838,628,703
	₩ 33,133,954,106,774	₩ (2,006,006,321)	₩ (1,172,898,756)	₩ (19,166,756,738,176)	₩ (5,262,717,753,954)	₩ 8,701,300,709,567

[1] Classified as others in the consolidated statements of financial position.

(in Korean won)	As of December 31, 2023					
	Acquisition cost	Contributions for construction	Government grants	Accumulated depreciation	Accumulated impairment losses	Book value
Land	₩ 1,148,563,440,023	₩ -	₩ -	₩ -	₩ -	₩ 1,148,563,440,023
Buildings	90,536,047,209	-	-	(38,429,645,208)	-	52,106,402,001
Structures	2,446,822,805,960	(110,241,211)	-	(1,107,816,378,850)	-	1,338,896,185,899
Machinery	963,168,081,828	(2,014,107,940)	-	(639,154,217,414)	-	321,999,756,474
Vehicles	10,319,006,902	-	(2,913,773)	(6,844,908,144)	-	3,471,184,985
Tools & fixtures	68,426,359,347	-	-	(57,849,368,300)	(349,573,566)	10,227,417,481
Construction-in-progress	50,632,711,553	-	-	-	-	50,632,711,553
Right-of-use assets	451,490,067,056	-	-	(127,587,174,543)	-	323,902,892,513
Others	43,041,797,327	-	-	(31,326,263,798)	(2,356,766,571)	9,358,766,958
Oil & gas properties[1]	23,508,569,927,089	-	(1,132,083,310)	(14,227,180,509,106)	(4,789,846,713,184)	4,490,410,621,489
	₩ 28,781,570,244,294	₩ (2,124,349,151)	₩ (1,134,997,083)	₩ (16,236,188,465,363)	₩ (4,792,553,053,321)	₩ 7,749,569,379,376

[1] Classified as others in the consolidated statements of financial position.

17. Property, Plant and Equipment (cont'd)

Changes in property, plant and equipment for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024							
	Beginning balance	Acquisition / Capital expenditures	Disposal	Depreciation	Impairment losses (reversal) [1]	Replacement[2]	Others[3,4]	Ending balance
Land	₩ 1,148,563,440,023	₩ -	₩ (121,081,869)	₩ -	₩ -	₩ -	₩ 160,864,294,494	₩ 1,309,306,652,648
Buildings	52,106,402,001	454,175,332	(77,163,077)	(2,379,526,191)	-	204,597	7,116,492,180	57,220,584,842
Structures	1,339,006,427,110	3,166,052,644	-	(65,597,599,612)	-	843,837,139	182,506,796,141	1,459,925,513,422
(Contributions to construction)	(110,241,211)	-	-	4,485,298	-	-	(15,092,317)	(120,848,230)
Machinery	324,013,864,414	5,338,650,456	(5,529,575)	(37,040,738,733)	-	2,095,112,835	43,327,052,989	337,728,412,386
(Contributions to construction)	(2,014,107,940)	-	-	381,409,796	-	-	(252,459,947)	(1,885,158,091)
(Government grants)	-	(13,728,882)	-	152,548	-	-	(1,055,267)	(14,631,601)
Vehicles	3,474,098,758	1,360,784,940	(6,820)	(891,576,105)	-	-	291,285,509	4,234,586,282
(Government grants)	(2,913,773)	-	-	410,967	-	-	(376,174)	(2,878,980)
Tools & fixtures	10,227,417,481	1,448,204,814	(2,467,460)	(2,766,602,934)	-	188,718,909	1,253,241,760	10,348,512,570
Construction-in-progress	50,632,711,553	52,808,392,033	-	-	-	(7,310,019,072)	10,450,865,455	106,581,949,969
Right-of-use assets	323,902,892,513	424,030,780	(6,373,223,830)	(21,247,617,555)	-	-	36,948,839,438	333,654,921,346
Others	9,358,766,958	1,567,676,152	-	(2,008,094,607)	-	69,753	1,566,046,045	10,484,464,301
Oil & gas properties	4,491,542,704,799	590,143,370,748	(30,252,407)	(580,247,294,691)	(45,893,835,496)	(19,758,574,899)	639,237,898,824	5,074,994,016,878
(Government grants)	(1,132,083,310)	-	-	125,505,228	-	-	(148,810,093)	(1,155,388,175)
	₩ 7,749,569,379,376	₩ 656,697,609,017	₩ (6,609,725,038)	₩ (711,667,086,591)	₩ (45,893,835,496)	₩ (23,940,650,738)	₩ 1,083,145,019,037	₩ 8,701,300,709,567

[1] Impairment loss presents the amount net of reversals.

[2] During the year ended December 31, 2024, construction-in-progress of ₩ 16,631 million was transferred to property, plant and equipment, and ₩ 23,941 million was transferred to intangible assets other than goodwill.

[3] During the year ended December 31, 2024, property, plant, and equipment increased by ₩ 195,939 million due to the business combination with Harvest, and decreased by ₩12,629 million due to the change in the scope of consolidation following the disposal of a subsidiary.

[4] Include the effect exchange rates and others

17. Property, Plant and Equipment (cont'd)

(in Korean won)	For the year ended December 31, 2023							
	Beginning balance	Acquisition / Capital expenditures	Disposal	Depreciation	Impairment losses[1]	Replacement[2]	Others[3,4]	Ending balance
Land	₩ 1,129,036,525,441	₩ 367,898,361	₩ (531,723,047)	₩ -	₩ -	₩ (143,478)	₩ 19,690,882,746	₩ 1,148,563,440,023
Buildings	52,241,576,298	1,642,925,439	(373,597,899)	(2,326,421,941)	-	(8,882,010)	930,802,114	52,106,402,001
Structures	1,376,056,749,691	1,010,385,852	-	(62,688,098,776)	-	33,549,037	24,593,841,306	1,339,006,427,110
(Contributions to construction)	(112,519,081)	-	-	4,292,697	-	-	(2,014,827)	(110,241,211)
Machinery	350,230,272,714	3,497,888,507	(2,193,480)	(36,587,085,319)	-	366,083,385	6,508,898,607	324,013,864,414
(Contributions to construction)	(2,333,961,812)	-	-	365,031,890	-	-	(45,178,018)	(2,014,107,940)
Vehicles	3,318,028,677	732,663,173	(6,527)	(698,584,147)	-	-	121,997,582	3,474,098,758
(Government grants)	(3,245,669)	-	-	393,320	-	-	(61,424)	(2,913,773)
Tools & fixtures	7,809,803,873	4,563,242,350	(17,548,658)	(2,380,955,569)	-	133,573,467	119,302,018	10,227,417,481
Construction-in-progress	20,559,647,851	36,967,996,980	(531,444,160)	-	-	(6,802,946,669)	439,457,551	50,632,711,553
Right-of-use assets	307,062,345,846	6,730,977,531	(839,419,098)	(20,294,323,153)	-	-	31,243,311,387	323,902,892,513
Others	5,811,743,006	1,883,734,357	(47,490,608)	(2,349,450,130)	-	361,231,754	3,698,998,579	9,358,766,958
Oil & gas properties	4,532,954,872,327	456,241,429,973	(1,461,879,475)	(932,958,566,766)	49,448,935,069	4,280,353,936	383,037,559,735	4,491,542,704,799
(Government grants)	(1,254,526,110)	-	-	146,112,009	-	-	(23,669,209)	(1,132,083,310)
	₩ 7,781,377,313,052	₩ 513,639,142,523	₩ (3,805,302,952)	₩ (1,059,767,655,885)	₩ 49,448,935,069	₩ (1,637,180,578)	₩ 470,314,128,147	₩ 7,749,569,379,376

[1] Impairment loss presents the amount net of reversals.

[2] During the year ended December 31, 2023, construction-in-progress of ₩ 5,166 million was transferred to property, plant and equipment, and ₩ 1,637 million was transferred to intangible assets other than goodwill.

[3] As the reason for classification of assets held for sale as of December 31, 2022 has been resolved, the related assets are transferred to other accounts.

[4] Include the effect exchange rates and others.

17. Property, Plant and Equipment (cont'd)

Details of impairments recognized by segments for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024	For the year ended December 31, 2023
	Oil and Gas[1]	Oil and Gas[1]
General information		
Type of assets	Oil and gas properties	Oil and gas properties
Valuation method	Net fair value	Net fair value
Assumptions		
Discount rate after tax[2]	7.62%~13.97%	12%
Oil prices[3]	International indices	International indices
Production quantities	Estimated production quantities based on reserve reports	Estimated production quantities based on reserve reports
Impairment losses	63,316,741,849	37,667,515,268
Reason for impairment	Decrease in value-in-use due to decline in forecasted oil price and changes in reserves	Decrease in value-in-use due to decrease in reserves and increase in discount rate

[1] The CGUs of the oil and gas segment are fields or areas.

[2] Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

[3] The oil prices are based on the long-term forecasts from globally recognized research institutions.

Details of reversal of impairment losses recognized by segments for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024	For the year ended December 31, 2023
	Oil and Gas[1]	Oil and Gas[1]
General information		
Type of assets	Oil and gas properties	Oil and gas properties
Valuation method	Net fair value	Net fair value
Assumptions		
Discount rate after tax[2]	9.82%~11%	6.91%~9.46%
Oil prices[3]	International indices	International indices
Production quantities	Estimated production quantities based on reserve reports	Estimated production quantities based on reserve reports
Reversal of impairment losses	₩ 17,422,906,353	₩ 87,116,450,337
Reason for impairment	Increase in value-in-use due to increase in forecasted production	Increase in value-in-use due to increase in reserves and decrease in discount rate

[1] The CGUs of the oil and gas segment are fields or areas.

[2] Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

[3] The oil prices are based on the long-term forecasts from globally recognized research institutions.

17. Property, Plant and Equipment (cont'd)

Revaluation of property, plant and equipment (land).

(a) As of December 31, 2024, the Group engages an independent valuation specialist to assess fair values for the land. However, the Group did not perform any revaluation due to the insignificant fluctuations in the land's price during the current year.

(b) Changes in accumulated other comprehensive income due to revaluation for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	*For the year ended December 31, 2024*		For the year ended December 31, 2023	
Beginning balance	₩	429,838,181,103	₩	429,550,580,130
Income tax effect of accumulated other comprehensive income due to revaluation		-		623,460,409
Transfer of accumulated other comprehensive income to retained earnings		(76,004,812)		(335,859,436)
Ending balance	₩	429,762,176,291	₩	429,838,181,103

(c) As of December 31, 2024 and 2023, the carrying amount of land measured based on the revaluation model and the cost model is as follows:

(in Korean won)	**As of December 31, 2024**				**As of December 31, 2023**			
	Revaluation model		**Cost model**		**Revaluation model**		**Cost model**	
Land	₩	1,309,306,652,648	₩	610,986,300,212	₩	1,148,563,440,023	₩	535,943,299,157

(d) As of December 31, 2024, and 2023, the fair value of land is ₩ 1,309,307 million and ₩ 1,148,563 million, respectively, and is classified as Level 3 fair value hierarchy.

17. Property, Plant and Equipment (cont'd)

(e) Description of valuation techniques used and key inputs to valuation of land:

Valuation techniques	Significant unobservable inputs	Relationship between unobservable inputs and fair value measurements
(Act on Publicly Announced Land Price) Determined on the basis of publicly announced price of the standard land for the land subject to measurement and the neighboring land, yet fair values are measured by adjusting based on the time, individual factors and others	Adjustment based on time (rate of change in land price)	If the rate of change in land price rises (falls), the fair value increases (decreases).
	Regional factors	If regional factors increase (decrease), fair value increases (decreases)
	Individual factors (conditions of a portion of land, etc.)	If adjustments such as conditions of a portion of land increase (decrease), fair values increase (decrease)
	Others (land price etc.)	If adjustments increase (decrease) by comparing publicly announced standard land price and other similar cases, fair values increase (decrease)

18. Goodwill

Details of goodwill as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024	As of December 31, 2023
Acquisition cost	₩ 1,743,601,502,370	₩ 1,409,930,831,528
Accumulated impairment losses	(1,496,963,928,069)	(1,179,902,054,649)
Book value	₩ 246,637,574,301	₩ 230,028,776,879

Changes in goodwill for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024	For the year ended December 31, 2023
Beginning balance	₩ 230,028,776,879	₩ 226,145,026,278
Acquisitions[1]	135,530,721,595	-
Impairment losses[2]	(141,619,406,636)	(9,415,497,563)
Other changes[3]	22,697,482,463	13,299,248,164
Ending balance	₩ 246,637,574,301	₩ 230,028,776,879

[1] The amount of goodwill recognized in relation to the business combination in which Harvest Operation Corp., a subsidiary, acquired control over Deep Basin Partnership, which had been classified as a joint venture for the year ended December 31, 2024 (see Note 48).
[2] Include impairment losses of goodwill acquired from business combination explained in above sub-note 1.
[3] Include the effect of exchange rate changes.

18. Goodwill (cont'd)

Changes in accumulated impairment losses for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Beginning balance	₩	(1,179,902,054,649)	₩	(1,101,229,442,413)
Impairment losses		(141,619,406,636)		(9,415,497,563)
Other changes[1]		(175,442,466,784)		(69,257,114,673)
Ending balance	₩	(1,496,963,928,069)	₩	(1,179,902,054,649)

[1] Include the effect of exchange rate changes.

The Group recognized goodwill for the acquisition of Dana Petroleum Limited, Altius Holdings Inc., KADOC Ltd., and Deep Basin Partnership and allocated the goodwill to each of the Group's cash-generating unit that is expected to benefit from the synergies of the acquisition.

The carrying amounts of goodwill allocated to the Group's CGUs and groups of CGUs as of December 31, 2024 and 2023 are as follows:

(in Korean won)		As of December 31, 2024		As of December 31, 2023
Dana Petroleum Limited[1]	₩	156,832,833,704	₩	139,659,750,965
Altius Holdings Inc. (a subsidiary of KNOC Kaz B.V.)[2]		23,284,415,213		23,827,340,668
KADOC Ltd.[3]		66,520,325,384		66,541,685,246
	₩	246,637,574,301	₩	230,028,776,879

[1] Dana Petroleum Limited's recoverable amount is estimated based on the value-in-use. The value-in-use is estimated from the cash inflows, which are discounted at 7.62% and 13.97% derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is no impairment loss on goodwill recognized based on the value-in-use estimated for each CGU for the year ended December 31, 2024.

[2] Altius Holding Inc.'s recoverable amount is estimated based on the value-in-use. The value-in-use is estimated from the cash inflows, which are discounted at 9.19%, derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is no impairment loss on goodwill recognized based on the value-in-use estimated for each CGU for the year ended December 31, 2024.

[3] KADOC Ltd.'s recoverable amount is estimated based on the value-in-use. The value-in-use is estimated from the cash inflows, which are discounted at 7.62%, derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is no loss of damages to goodwill based on the recoverable amount calculated based on the cash-generating unit during the year ended December 31, 2024, but impairment to goodwill were recognized as the deferred tax liability have decreased, which is an indication of the goodwill.

19. Intangible Assets Other Than Goodwill

Details of intangible assets other than goodwill as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024				
	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment losses	Book value
Exploration and evaluation assets	₩ 4,728,610,952,342	₩ -	₩ -	₩ (3,713,764,060,098)	₩ 1,014,846,892,244
Software	56,374,997,448	(944,843)	(49,828,010,482)	-	6,546,042,123
Mining rights	2,924,398,844,165	-	(1,793,680,974,404)	(209,069,029,659)	921,648,840,102
Copyright, patents and other industrial property rights	26,396,922	(4,733,341)	(3,310,748)	-	18,352,833
Development cost	66,343,829,084	-	(60,129,950,425)	-	6,213,878,659
Land use right	5,468,481,409	-	(149,780,035)	-	5,318,701,374
Others	117,106,569,554	-	(1,600,325,525)	(113,126,542,540)	2,379,701,489
	₩ 7,898,330,070,924	₩ (5,678,184)	₩ (1,905,392,351,619)	₩ (4,035,959,632,297)	₩ 1,956,972,408,824

(in Korean won)	As of December 31, 2023				
	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment losses	Book value
Exploration and evaluation assets	₩ 4,017,860,086,590	₩ -	₩ -	₩ (3,288,778,588,787)	₩ 729,081,497,803
Software	47,682,356,940	(10,773,917)	(40,526,438,090)	-	7,145,144,933
Mining rights	2,584,346,123,813	-	(1,556,720,890,340)	(173,561,999,397)	854,063,234,076
Copyright, patents and other industrial property rights	10,563,448	(4,391,954)	(657,392)	-	5,514,102
Development cost	56,352,790,591	-	(50,451,934,720)	-	5,900,855,871
Land use right	270,001,727	-	(124,624,675)	-	145,377,052
Others	102,685,864,755	-	(1,414,385,823)	(99,249,708,109)	2,021,770,823
	₩ 6,809,207,787,864	₩ (15,165,871)	₩ (1,649,238,931,040)	₩ (3,561,590,296,293)	₩ 1,598,363,394,660

19. Intangible Assets Other Than Goodwill (cont'd)

Changes in intangible assets other than goodwill for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024							
	Beginning balance	Acquisition / Capital expenditures	Disposal	Amortization	Impairment losses (reversal)[1]	Replacement[2]	Others[3]	Ending balance
Exploration and evaluation assets	₩ 729,081,497,803	₩ 183,602,521,497	₩ -	₩ -	₩ (5,998,281,263)	₩ 5,650,778,156	₩ 102,510,376,051	₩ 1,014,846,892,244
Software	7,145,144,933	1,901,971,658	(4,092)	(3,390,121,001)	-	6,662,292	882,388,333	6,546,042,123
Mining rights	854,063,234,076	-	-	(64,327,728,686)	-	16,838,892,004	115,074,442,708	921,648,840,102
Copyright, patents and other industrial property rights	5,514,102	9,115,478	-	(2,122,748)	-	4,201,364	1,644,637	18,352,833
Development cost	5,900,855,871	509,396,540	-	(2,425,959,374)	-	1,440,116,922	789,468,700	6,213,878,659
Land use right	145,377,052	5,060,219,545	-	(48,619,887)	-	-	161,724,664	5,318,701,374
Others	2,021,770,823	273,722,558	(44,049,038)	(85,308,981)	-	-	213,566,127	2,379,701,489
	₩ 1,598,363,394,660	₩ 191,356,947,276	₩ (44,053,130)	₩ (70,279,860,677)	₩ (5,998,281,263)	₩ 23,940,650,738	₩ 219,633,611,220	₩ 1,956,972,408,824

[1] Impairment loss is the amount net of reversals. The amount is the sum of impairment loss related to suspension of exploration activities by Dana Petroleum Limited amounting to ₩ 5,998 million.

[2] For the year ended December 31, 2024, computer software and development costs were transferred from construction in progress.

[3] Others include the effect of changes in exchange rates and others.

(in Korean won)	For the year ended December 31, 2023							
	Beginning balance	Acquisition / Capital expenditures	Disposal	Amortization	Impairment losses (reversal)[1]	Replacement[2]	Others[3,4]	Ending balance
Exploration and evaluation assets	₩ 470,447,063,735	₩ 195,735,652,820	₩ -	₩ -	₩ (90,879,240,591)	₩ -	₩ 153,778,021,839	₩ 729,081,497,803
Software	7,990,751,641	2,004,087,976	(2,611)	(3,012,211,066)	-	10,331,328	152,187,665	7,145,144,933
Mining rights	860,559,791,389	7,451,548	-	(61,664,382,272)	40,076,337,313	-	15,084,036,098	854,063,234,076
Copyright, patents and other industrial property rights	5,853,659	-	-	(448,278)	-	-	108,721	5,514,102
Development cost	4,639,209,812	1,352,416,235	(1,305)	(1,783,858,808)	-	1,626,849,250	66,240,687	5,900,855,871
Land use right	149,523,379	-	-	(6,837,672)	-	-	2,691,345	145,377,052
Others	2,026,746,861	233,228,807	(224,928,579)	(53,431,989)	-	-	40,155,723	2,021,770,823
	₩ 1,345,818,940,476	₩ 199,332,837,386	₩ (224,932,495)	₩ (66,521,170,085)	₩ (50,802,903,278)	₩ 1,637,180,578	₩ 169,123,442,078	₩ 1,598,363,394,660

[1] Impairment loss is the amount net of reversals. The amount is the sum of impairment loss due to the business withdrawal of Senegal UDO mine amounting to ₩ 13,662 million, impairment loss related to suspension of exploration activities by Dana Petroleum Limited amounting to ₩ 85,176 million, and reversal of impairment amounting to ₩ 48,035 million due to revaluation of remaining reserves and changes in discount rates.

[2] For the year ended December 31, 2023, computer software and development costs were transferred from construction in progress.

[3] As the reason for classification of assets held for sale as of December 31, 2022 has been resolved, the related assets are transferred to other accounts.

[4] Others include the effect of changes in exchange rates and others.

20. Financial Liabilities Measured at Fair Value through Profit or Loss

Details of financial liabilities measured at fair value through profit or loss as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024				As of December 31, 2023			
	Current		Non-current		Current		Non-current	
Financial liabilities measured at fair value profit or loss	₩	-	₩	-	₩	55,616,639,843	₩	2,334,754,927

The amounts recognized in profit or loss in relation to financial liabilities measured at fair value through profit or loss for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024		For the year ended December 31, 2023	
Gains on valuation of financial liabilities measured at fair value through profit or loss	₩	2,469,799,151	₩	15,266,004,732
Losses on valuation of financial liabilities measured at fair value through profit or loss		-		(10,541,611,079)
Gains on transaction of financial liabilities measured at fair value through profit or loss		56,825,476,544		-
	₩	59,295,275,695	₩	4,724,393,653

21. Trade and Other Payables

Details of trade and other payables as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024		As of December 31, 2023	
	Current	Non-current	Current	Non-current
Trade account payables	₩ 80,533,115,408	₩ -	₩ 99,558,522,323	₩ -
Other account payables	442,598,240,463	-	385,063,365,215	21,928,117
Accrued expenses[1]	193,034,408,618	53,735,363,606	158,823,369,109	43,572,836,550
Deposit received	-	4,903,499,095	-	4,984,061,575
Other deposits received	-	17,409,578	-	15,270,687
Lease liabilities	19,691,676,677	274,176,440,803	26,240,275,733	301,729,717,638
Other payables	33,834,690,855	44	44,253,694,291	3,004,441,603
	₩ 769,692,132,021	₩ 332,832,713,126	₩ 713,939,226,671	₩ 353,328,256,170

[1] It includes changes in special charges relating to success repayable loans prescribed in the *Act on the Special Accounts for Energy and Resources-Related Projects ("SAER")* or due to changes in circumstances such as the sale of shares and others.

Details of other payables as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024		As of December 31, 2023	
	Current	Non-current	Current	Non-current
Advances from value added tax	₩ 10,463,610,734	₩ -	₩ 3,036,454,723	₩ -
Liabilities from overseas oil fields	21,183,707,376	-	17,265,866,305	-
Other than payables	2,187,372,745	44	23,951,373,263	3,004,441,603
	₩ 33,834,690,855	₩ 44	₩ 44,253,694,291	₩ 3,004,441,603

22. Borrowings and Bond Payables

Details of borrowings and bond payables as of December 31, 2024 and 2023 are as follows:

(in Korean won)		As of December 31, 2024		As of December 31, 2023
Current Liabilities				
Short-term borrowings	₩	633,900,000,035	₩	386,929,787,691
Current portion of long-term borrowings		47,499,999,985		497,629,232,529
Less: current portion of present value discount		-		(145,921,733)
Current portion of bond payables		2,953,637,800,006		3,155,020,483,552
Less: current portion of discount on bond payables		(1,404,564,405)		(953,812,646)
		3,633,633,235,621		4,038,479,769,393
Non-current Liabilities				
Long-term borrowings		799,747,266,891		640,241,245,465
Less: present discounted value		(287,711,384)		(413,493,418)
Bond payables		12,711,826,000,012		10,444,551,000,002
Less: discount on bond payables		(44,281,893,581)		(32,705,829,490)
Add: premium on bond payables		662,759,334		1,531,836,276
		13,467,666,421,272		11,053,204,758,835
	₩	17,101,299,656,893	₩	15,091,684,528,228

Details of payment schedule as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024				As of December 31, 2023			
	Borrowings		Bond payables		Borrowings		Bond payables	
Within a year	₩	681,400,000,020	₩	2,953,637,800,006	₩	884,559,020,220	₩	3,155,020,483,552
1~5 years		559,175,000,481		10,791,675,999,712		429,225,000,357		8,749,247,999,916
More than 5 years		240,572,266,410		1,920,150,000,300		211,016,245,108		1,695,303,000,086
	₩	1,481,147,266,911	₩	15,665,463,800,018	₩	1,524,800,265,685	₩	13,599,571,483,554

22. Borrowings and Bond Payables (cont'd)

Details of short-term borrowings as of December 31, 2024 and 2023 are as follows:

(in Korean won)

Type	Financial Institutions	Interest rate (%)	Maturity	As of December 31, 2024
Short-term borrowings	ING	4.60	Mar. 21, 2025	₩ 249,900,000,035
	ING	4.60	Mar. 21, 2025	147,000,000,000
	Nonghyup Bank	4.66	Jan. 22, 2025	147,000,000,000
	iM Bank	4.58	Jan. 13, 2025	1,000,000,000
	iM Bank	4.58	Jan. 18, 2025	5,000,000,000
	iM Bank	4.59	Jan. 24, 2025	3,000,000,000
	iM Bank	4.57	Jan. 27, 2025	2,000,000,000
	iM Bank	4.37	Jan. 16, 2025	27,000,000,000
	iM Bank	4.37	Jan. 17, 2025	12,000,000,000
	KEB Hana Bank	4.70	Mar. 26, 2025	4,000,000,000
	KEB Hana Bank	4.70	Mar. 27, 2025	11,000,000,000
	KEB Hana Bank	4.70	Mar. 30, 2025	24,000,000,000
	KEB Hana Bank	4.70	Mar. 27, 2025	1,000,000,000
				₩ 633,900,000,035

(in Korean won)

Type	Financial Institutions	Interest rate (%)	Maturity	As of December 31, 2023
Short-term borrowings	Nonghyup Bank	6.02	Mar. 25, 2024	₩ 193,410,000,000
	Citi, JP, SMBC, Nova Scotia, CIBC	6.61	Jan. 25, 2024	105,840,587,691
	Bank Of America	6.47	Feb. 10, 2024	32,235,000,000
	SCB	6.63	Feb. 13, 2024	55,444,200,000
				₩ 386,929,787,691

22. Borrowings and Bond Payables (cont'd)

Details of long-term borrowings as of December 31, 2024 and 2023 are as follows:

(in Korean won and foreign currencies)

Type	Financial institution	Interest rate (%)	Maturity	As of December 31, 2024 Amount	As of December 31, 2024 Korean won equivalent	As of December 31, 2023 Amount	As of December 31, 2023 Korean won equivalent
Long- term borrowings	The Export-Import Bank of Korea	-	Nov 26, 2024	-	₩ -	USD 250,000,000	₩ 322,350,000,000
	The Export-Import Bank of Korea	3M SOFR +1.03	Jul 24, 2026	USD 250,000,000	367,500,000,000	USD 250,000,000	322,350,000,000
	Korea Development Bank	CD3M + 0.58%	Apr 20, 2024~Jan 20, 2027 (Repayment in equal installments of principal 4 times in a year)	USD 72,704,081	106,875,000,000	USD 119,726,229	154,374,999,956
	SAER	Treasury 3Y -1.25	- [1]	USD 95,026,813	139,689,415,433	USD 95,026,813	122,527,572,682
	SAER	Treasury 3Y -2.25	- [1]	USD 68,627,791	100,882,851,385	USD 68,627,791	88,488,672,814
	Citi, JP, SMBC, Nova Scotia, CIBC	-	Jun 23, 2024	-	-	USD 9,099,761	11,733,232,542
	The Export-Import Bank of Korea	5.49	Nov 18, 2027	USD 90,000,000	132,300,000,058	USD 90,000,000	116,046,000,000
				USD 576,358,685	847,247,266,876	USD 882,480,594	1,137,870,477,994
	Less: present value discount			USD (195,722)	(287,711,384)	USD (433,857)	(559,415,151)
				USD 576,162,963	846,959,555,492	USD 882,046,737	1,137,311,062,843
	Less: current portion			USD (32,312,925)	(47,499,999,985)	USD (385,938,601)	(497,629,232,529)
	Less: current portion of present value discount			-	-	USD 113,170	145,921,733
				USD 543,850,038	₩ 799,459,555,507	USD 496,221,306	₩ 639,827,752,047

[1] As the loan is a success repayable loan, there is no maturity specified for the loan, but if the exploration is successful, it must be repaid from the start date of commercial production according to the agreement, and if the exploration project fails to reach commercial production and ends, the repayment obligation will be exempted.

22. Borrowings and Bond Payables (cont'd)

Details of bond payables as of December 31, 2024 and 2023 are as follows:

(in Korean won and foreign currencies)

Type	Interest rate (%)	Maturity	As of December 31, 2024 Amount	As of December 31, 2024 Equivalent to Korean won	As of December 31, 2023 Amount	As of December 31, 2023 Equivalent to Korean won
Floating interest rate bond payables	SOFR+1.08	Nov. 14, 2026	USD 500,000,000	₩ 735,000,000,000	USD 500,000,000	₩ 644,700,000,000
	SOFR+0.83	Apr. 3, 2027	USD 300,000,000	441,000,000,000	-	-
	SOFR+0.90	Sep. 30, 2027	USD 300,000,000	441,000,000,000	-	-
Fixed interest rate bond payables	3.00	Jun. 24, 2025	EUR 60,000,000	91,723,800,004	EUR 60,000,000	85,595,400,003
	-	Jan. 23, 2024	-	-	USD 500,000,000	644,700,000,000
	-	Jul. 10, 2024	-	-	USD 550,000,000	709,170,000,000
	3.10	Jan. 21, 2027	USD 50,000,000	73,500,000,000	USD 50,000,000	64,470,000,000
	3.10	Jan. 21, 2027	USD 70,000,000	102,900,000,000	USD 70,000,000	90,258,000,000
	3.21	Mar. 19, 2030	USD 85,000,000	124,950,000,000	USD 85,000,000	109,599,000,000
	2.99	Mar. 19, 2025	USD 90,000,000	132,300,000,000	USD 90,000,000	116,046,000,000
	2.82	Apr. 29, 2025	USD 65,000,000	95,550,000,000	USD 65,000,000	83,811,000,000
	3.02	Apr. 29, 2030	USD 60,000,000	88,200,000,000	USD 60,000,000	77,364,000,000
	3.25	Oct. 1, 2025	USD 600,000,000	882,000,000,000	USD 600,000,000	773,640,000,000
	3.22	Nov. 10, 2030	USD 100,000,000	147,000,000,000	USD 100,000,000	128,940,000,000
	2.63	Apr. 14, 2026	USD 500,000,000	735,000,000,000	USD 500,000,000	644,700,000,000
	2.50	Oct. 24, 2026	USD 650,000,000	955,500,000,000	USD 650,000,000	838,110,000,000
	3.38	Mar. 27, 2027	USD 500,000,000	735,000,000,000	USD 500,000,000	644,700,000,000
	-	Oct. 4, 2024	-	-	CHF 300,000,000	458,046,000,004
	2.50	Mar. 26, 2025	HKD 160,000,000	30,287,999,996	HKD 160,000,000	26,409,599,999
	0.88	Apr. 21, 2025	CHF 200,000,000	325,276,000,006	CHF 200,000,000	305,364,000,002
	0.26	Jul. 30, 2027	CHF 100,000,000	162,638,000,003	CHF 100,000,000	152,682,000,001
	0.26	Jul. 30, 2027	CHF 100,000,000	162,638,000,003	CHF 100,000,000	152,682,000,001
	0.88	Oct. 5, 2025	USD 400,000,000	588,000,000,000	USD 400,000,000	515,760,000,000
	1.63	Oct. 5, 2030	USD 300,000,000	441,000,000,000	USD 300,000,000	386,820,000,000
	-	Oct. 28, 2024	-	-	SGD 400,000,000	390,743,999,997
	1.95	Feb. 17, 2031	KRW 90,000,000,000	90,000,000,006	KRW 90,000,000,000	89,999,999,996
	1.25	Apr. 7, 2026	USD 400,000,000	588,000,000,000	USD 400,000,000	515,760,000,000
	2.38	Apr. 7, 2031	USD 300,000,000	441,000,000,000	USD 300,000,000	386,820,000,000
	-	Dec. 28, 2024	-	-	USD 120,000,000	154,728,000,000
	2.13	Apr. 18, 2027	USD 550,000,000	808,500,000,000	USD 550,000,000	709,170,000,000
	1.75	Apr. 18, 2025	USD 550,000,000	808,500,000,000	USD 550,000,000	709,170,000,000
	2.63	Apr. 18, 2032	USD 400,000,000	588,000,000,000	USD 400,000,000	515,760,000,000
	-	Dec. 19, 2024	-	-	CHF 100,000,000	152,682,000,001
	4.75	Apr. 3, 2026	USD 550,000,000	808,500,000,000	USD 550,000,000	709,170,000,000
	4.88	Apr. 3, 2028	USD 450,000,000	661,500,000,000	USD 450,000,000	580,230,000,000
	5.25	Nov. 14, 2026	USD 300,000,000	441,000,000,000	USD 300,000,000	386,820,000,000
	4.88	Apr. 3, 2027	USD 500,000,000	735,000,000,000	-	-
	4.88	Apr. 3, 2029	USD 600,000,000	882,000,000,000	-	-
	4.13	Sep. 30, 2027	USD 400,000,000	588,000,000,000	-	-
	4.25	Sep. 30, 2029	USD 500,000,000	735,000,000,000	-	-
	-	Apr. 26, 2024	-	-	USD 500,194,264	644,950,483,550
				15,665,463,800,018		13,599,571,483,554
Less: discount on bond payables				(45,686,457,986)		(33,659,642,136)
Add: premium on bond payables				662,759,334		1,531,836,276
				15,620,440,101,366		13,567,443,677,694
Less: current portion				(2,953,637,800,006)		(3,155,020,483,552)
Add: current portion of discount of bond payables				1,404,564,405		953,812,646
				₩ 12,668,206,865,765		₩ 10,413,377,006,788

23. Leases

(a) The Group as a lessee

The Group recognized as an expense for the lease contract with a lease term of 12 months or less as a short-term lease of ₩ 198 million in 2024 and of ₩ 1,042 million in 2023, and as a low value contract with underlying assets below $ 5,000 of ₩ 88 million for the year ended December 31, 2024 and of ₩ 44 million for the year ended December 31, 2023.

Details of right-of-use assets as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024					
		Acquisition cost		Accumulated depreciation		Book value
Land	₩	9,968,449,745	₩	(4,682,520,713)	₩	5,285,929,032
Buildings[1]		346,554,887,853		(93,528,079,901)		253,026,807,952
Vessels		13,079,697,924		(9,150,424,175)		3,929,273,749
Vehicles		13,315,605,597		(11,218,129,570)		2,097,476,027
Others		237,041,224,216		(167,725,789,630)		69,315,434,586
	₩	619,959,865,335	₩	(286,304,943,989)	₩	333,654,921,346

[1] The Group has the pre-emptive right that can be exercised from 2026 in relation to the lease contract carried at ₩ 242,569 million of book value.

(in Korean won)	As of December 31, 2023					
		Acquisition cost		Accumulated depreciation		Book value
Land	₩	8,961,470,519	₩	(3,236,368,230)	₩	5,725,102,289
Buildings[1]		307,936,853,419		(74,606,908,679)		233,329,944,740
Vessels		23,838,692,417		(11,561,628,553)		12,277,063,864
Vehicles		12,095,158,406		(9,111,800,066)		2,983,358,340
Others		98,657,892,295		(29,070,469,015)		69,587,423,280
	₩	451,490,067,056	₩	(127,587,174,543)	₩	323,902,892,513

[1] The Group has the pre-emptive right that can be exercised from 2026 in relation to the lease contract carried at ₩ 219,339 million of book value.

23. Leases (cont'd)

Changes in right-of-use assets for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024					
	Beginning balance	Increase	Depreciation	Decrease[1]	Others[2]	Ending balance
Land	₩ 5,725,102,289	₩ -	₩ (921,242,595)	₩ -	₩ 482,069,338	₩ 5,285,929,032
Buildings	233,329,944,740	225,951,839	(10,593,002,350)	(868,473,383)	30,932,387,106	253,026,807,952
Vessels	12,277,063,864	-	(3,964,655,760)	(5,504,750,447)	1,121,616,092	3,929,273,749
Vehicles	2,983,358,340	154,432,216	(1,059,940,879)	-	19,626,350	2,097,476,027
Others	69,587,423,280	43,646,725	(4,708,775,971)	-	4,393,140,552	69,315,434,586
	₩ 323,902,892,513	₩ 424,030,780	₩ (21,247,617,555)	₩ (6,373,223,830)	₩ 36,948,839,438	₩ 333,654,921,346

[1] The right-of-use asset recognized in relation to Vietnam Mine 11-2 Block was derecognized due to the sale of the asset during the year ended December 31, 2024.
[2] Others include the effect of lease modification, changes in exchange rates and others.

(in Korean won)	For the year ended December 31, 2023					
	Beginning balance	Increase	Depreciation	Decrease	Others[1]	Ending balance
Land	₩ 2,839,092,803	₩ -	₩ (976,888,339)	₩ (93,061,373)	₩ 3,955,959,198	₩ 5,725,102,289
Buildings	229,256,923,782	5,139,836,665	(10,165,047,275)	(206,484,532)	9,304,716,100	233,329,944,740
Vessels	4,959,811,441	1,350,245,612	(3,352,059,081)	(539,873,193)	9,858,939,085	12,277,063,864
Vehicles	282,754,007	240,895,254	(1,055,175,565)	-	3,514,884,644	2,983,358,340
Others	69,723,763,813	-	(4,745,152,893)	-	4,608,812,360	69,587,423,280
	₩ 307,062,345,846	₩ 6,730,977,531	₩ (20,294,323,153)	₩ (839,419,098)	₩ 31,243,311,387	₩ 323,902,892,513

[1] Others include the effect of lease modification, transfer of financial lease receivables due to sub-lease, changes in exchange rates and others.

23. Leases (cont'd)

Details of maturity analysis for lease liabilities as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024		As of December 31, 2023	
	Contractual undiscounted cash flows	Present value of contractual cash flows	Contractual undiscounted cash flows	Present value of contractual cash flows
Lease of main office building				
Within 1 year	₩ 8,868,079,996	₩ 8,657,498,688	₩ 8,868,079,986	₩ 8,660,388,179
1-5 years	41,088,879,533	35,880,950,333	39,164,975,148	34,166,109,391
More than 5 years	411,929,507,365	180,855,667,902	422,721,491,744	182,197,280,418
	461,886,466,894	225,394,116,923	470,754,546,878	225,023,777,988
Lease excluding main office building				
Within 1 year	11,648,992,186	11,034,177,989	18,547,048,004	17,579,887,554
1-5 years	26,274,963,662	23,560,360,320	50,701,795,439	46,044,368,192
More than 5 years	45,038,026,198	33,879,462,248	52,819,156,030	39,321,959,637
	82,961,982,046	68,474,000,557	122,067,999,473	102,946,215,383
Total				
Within 1 year	20,517,072,182	19,691,676,677	27,415,127,990	26,240,275,733
1-5 years	67,363,843,195	59,441,310,653	89,866,770,587	80,210,477,583
More than 5 years	456,967,533,563	214,735,130,150	475,540,647,774	221,519,240,055
	₩ 544,848,448,940	₩ 293,868,117,480	₩ 592,822,546,351	₩ 327,969,993,371

The liquidity classification of lease liabilities as of December 31, 2024 and 2023 is as follows:

(in Korean won)	As of December 31, 2024	As of December 31, 2023
Current	₩ 19,691,676,677	₩ 26,240,275,733
Non-current	274,176,440,803	301,729,717,638
	₩ 293,868,117,480	₩ 327,969,993,371

Changes in lease liabilities in relation to lease contracts for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024					
	Beginning balance	Increase	Interest expense	Decrease	Others[1,2]	Ending balance
Lease liabilities	₩ 327,969,993,371	₩ 424,031,061	₩ 12,750,316,534	₩ (26,387,120,811)	₩ (20,889,102,675)	₩ 293,868,117,480

[1] The right-of-use asset recognized in relation to Vietnam Mine 11-2 Block was derecognized due to the sale of the asset during the year ended December 31, 2024.
[2] Include the effect of lease modification, changes in exchange rates and others.

23. Leases (cont'd)

(in Korean won)	For the year ended December 31, 2023					
	Beginning balance	Increase	Interest expense	Decrease	Others[1]	Ending balance
Lease liabilities	₩ 303,363,198,326	₩ 5,614,575,198	₩ 12,880,210,328	₩ (24,923,297,971)	₩ 31,035,307,490	₩ 327,969,993,371

[1] Others include the effect of lease modification, changes in exchange rates and others.

The amounts recognized in profit or loss relating to leases for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024	For the year ended December 31, 2023
Depreciation of right-of-use assets[1]		
Land	₩ (921,242,595)	₩ (976,888,339)
Buildings	(10,593,002,350)	(10,165,047,275)
Vessels	(3,964,655,760)	(3,352,059,081)
Vehicles	(1,059,940,879)	(1,055,175,565)
Others	(4,708,775,971)	(4,745,153,442)
	₩ (21,247,617,555)	₩ (20,294,323,702)
Interest expense relating to lease liabilities, included in finance cost	₩ (12,750,316,534)	₩ (12,880,210,328)
Commitments relating to short-term leases	(197,733,030)	(1,042,609,924)
Commitments relating to leases of low value assets	(87,896,167)	(43,518,453)
Deferred revenue recognized sale and leaseback transaction	1,119,377,453	1,071,310,825
Interest income from leasehold deposits provided	2,410,940,577	528,781,123
	₩ (30,753,245,256)	₩ (32,660,570,459)

(b) The Group as a lessor

The Group has entered into operating leases on its certain property, plant and equipment. The lease terms are between 1 and 40 years.

Lease income from operating leases where the Group is a lessor is as follows:

(in Korean won)	For the year ended December 31, 2024	For the year ended December 31, 2023
Lease income	₩ 79,883,492,387	₩ 63,081,746,467
Related to variable lease payment that does not depend on an index or a rate	23,029,441,048	35,831,072,521
	₩ 102,912,933,435	₩ 98,912,818,988

23. Leases (cont'd)

The maturity analysis for operating lease payments expected to be received (in undiscounted) as of December 31, 2024 and 2023 is as follows:

(in Korean won)	As of December 31, 2024	As of December 31, 2023
Within 1 year	₩ 78,684,869,340	₩ 61,016,455,567
1~5 years	59,074,146,180	57,496,817,780
More than 5 years	41,766,685,170	37,219,647,620
	₩ 179,525,700,690	₩ 155,732,920,967

Lease income from finance leases where the Group is a lessor is as follows:

(in Korean won)	For the year ended December 31, 2024	For the year ended December 31, 2023
Finance income on the net investment in the lease	₩ 349,884,058	₩ 273,501,671

The maturity analysis for undiscounted finance lease payments expected to be received subsequent to the reporting period and reconciliation to the net investment in the lease as of December 31, 2024 and 2023 is as follows:

(in Korean won)	As of December 31, 2024[1]	As of December 31, 2023
Within 1 year	₩ -	₩ 3,334,002,689
1~5 years	-	9,249,805,425
More than 5 years	-	359,712,944
	-	12,943,521,058
Unrealized finance income	-	(936,291,066)
Net investment in the lease	₩ -	₩ 12,007,229,992

[1] The finance lease payment receivables recognized in relation to Vietnam Mine 11-2 Block were derecognized due to the sale of the asset for the year ended December 31, 2024.

24. Employee Benefits

Defined contribution pension plan

The Group operates both defined contribution and defined benefit pension plans based on choice of directors and employees. Contributions to the DC plan are separately managed by the plan's administrator. When employees terminate their employment before the benefits have vested, the Group's obligation to make contribution to the plan decreases on a pro rata basis.

Details of expenses relating to defined contribution plans for each of the two years in the period ended December 31, 2024 are as follows

(in Korean won)		For the year ended December 31, 2024[1]		For the year ended December 31, 2023[1]
Cost of sales	₩	1,668,690,431	₩	1,085,823,107
Selling and administrative expenses[2]		1,852,499,790		1,568,523,035
	₩	3,521,190,221	₩	2,654,346,142

[1] Among the amount recognized in profit or loss for defined contribution plan, ₩ 79 million and ₩ 51 million is excluded for the years ended December 31, 2024 and 2023, respectively, as it is capitalized as other construction costs (property, plant and equipment).

[2] The total expenses of ₩ 3,600 million and ₩ 2,654 million for the years ended December 31, 2024 and 2023, respectively, are contributions paid by the Group based on the payment rate as defined in retirement benefits plan. There are no unpaid amounts as of December 31, 2024.

Defined benefit pension plan

The latest actuarial calculation on both plan assets and defined benefit obligation was performed as of December 31, 2024. The Group uses the projected unit credit method to determine the present value of its defined benefit obligations, the related current service costs and past service cost.

The components of defined benefits liabilities as of December 31, 2024 and 2023 are as follows:

(in Korean won)		As of December 31, 2024		As of December 31, 2023
Present value of defined benefit obligation from funded plans	₩	93,944,915,566	₩	112,366,092,088
Fair value of plan assets		(113,591,596,969)		(119,084,891,999)
	₩	(19,646,681,403)	₩	(6,718,799,911)

24. Employee Benefits (cont'd)

Changes in the present value of defined benefit obligations for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Beginning balance	₩	112,366,092,088	₩	93,707,582,217
Current service cost		9,014,846,395		7,224,495,357
Interest cost		5,588,992,228		5,388,659,821
Remeasurement components		(13,199,720,158)		24,723,522,411
Actual payments		(19,825,294,987)		(18,678,167,718)
Ending balance	₩	93,944,915,566	₩	112,366,092,088

Changes in the fair value of plan assets for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Beginning balance	₩	119,084,891,999	₩	126,610,193,883
Expected return on plan assets		5,654,418,554		7,100,945,572
Remeasurement components		(1,856,432,483)		(1,459,065,229)
Benefit paid by the plan		(20,036,281,101)		(18,467,182,227)
Contributions paid into the plan		10,745,000,000		5,300,000,000
Ending balance	₩	113,591,596,969	₩	119,084,891,999

Details of the fair value of plan assets as of December 31, 2024 and 2023 are as follows:

(in Korean won)	Expected rate of return[2]		Fair value of plan assets			
	As of December 31, 2024	As of December 31, 2023		As of December 31, 2024		As of December 31, 2023
Others[1]	5.05%	5.95%	₩	113,591,596,969	₩	119,084,891,999

[1] Others are comprised of 19% of deposit and 81% of local and overseas securities, and debt securities as of December 31, 2024.

[2] The expected rate of return is calculated based on the weighted average of expected rate of returns for each type of assets. The management evaluates the expected rate of returns based on the historical rate of return trends and the analysis of the predicted market during the period when the defined benefits liabilities exist.

24. Employee Benefits (cont'd)

Principal actuarial assumptions as of December 31, 2024 and 2023 are as follows:

(in percentage, %)	**As of December 31, 2024**	**As of December 31, 2023**
Discount rate	4.54	5.27
Expected rate of return on plan assets	5.05	5.95
Future salary growth	4.65	5.26

Details of expenses relating to defined benefit plans for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		**For the year ended December 31, 2024**		**For the year ended December 31, 2023**
Current service cost	₩	9,014,846,395	₩	7,224,495,357
Interest cost		5,588,992,228		5,388,659,821
Expected return on plan assets		(5,654,418,554)		(7,100,945,572)
Transfer to other account		(219,236,613)		(97,969,154)
	₩	8,730,183,456	₩	5,414,240,452

Expenses described above are recognized as the following items in the financial statements.

(in Korean won)		**For the year ended December 31, 2024**		**For the year ended December 31, 2023**
Cost of sales	₩	3,296,512,871	₩	2,019,045,664
Selling and administrative expenses		5,433,670,585		3,395,194,788
Others[1]		219,236,613		97,969,154
	₩	8,949,420,069	₩	5,512,209,606

[1] The amount is attributed to reclassification and it was reflected in the consolidated statement of financial position as other construction expenses (property, plant and equipment).

Remeasurement components recognized in other comprehensive income for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		**For the year ended December 31, 2024**		**For the year ended December 31, 2023**
Defined benefit obligations	₩	13,199,720,158	₩	(24,723,522,411)
Return on plan assets		(1,856,432,483)		(1,459,065,229)
Income tax effect		(1,122,986,558)		2,592,075,618
	₩	10,220,301,117	₩	(23,590,512,022)

24. Employee Benefits (cont'd)

A sensitivity analysis for changes in key assumptions as of December 31, 2024 is as follows:

(in Korean won)		1% decrease		1% increase
Future salary increases rate	₩	(5,782,612,489)	₩	6,387,350,130
Discount rate		6,278,900,138		(5,591,682,350)

The sensitivity analysis is based on a change in key assumptions, keeping all other assumptions constant. The sensitivity of the defined benefit obligation to changes in key actuarial assumptions was calculated by using the same projected unit credit method used to calculate the defined benefit obligation recognized in the consolidated statement of financial position. The methods and assumptions used for the sensitivity analysis are the same as those of 2023.

The estimated cost to be recognized in profit or loss for the next period in relation to the defined benefit plan is ₩ 6,863 million.

The weighted-average duration of the defined benefit obligation is 6.6182 years.

25. Provisions

Details of provisions as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024			As of December 31, 2023		
	Current	Non-current	Total	Current	Non-current	Total
Decommissioning cost[1,2]	₩ 317,439,955,619	₩ 2,042,364,874,244	₩ 2,359,804,829,863	₩ 86,087,599,235	₩ 2,154,912,603,081	₩ 2,241,000,202,316
Provision for employee benefits	9,632,997,539	-	9,632,997,539	6,435,943,576	-	6,435,943,576
Provision for litigations[3]	-	1,078,546,982	1,078,546,982	3,834,905,552	2,402,920,515	6,237,826,067
Onerous contract[2,4]	-	-	-	17,851,162,009	-	17,851,162,009
Others	6,405,910,993	-	6,405,910,993	1,113,301,110	24,086,866,200	25,200,167,310
	₩ 333,478,864,151	₩ 2,043,443,421,226	₩ 2,376,922,285,377	₩ 115,322,911,482	₩ 2,181,402,389,796	₩ 2,296,725,301,278

[1] The Group recognized provisions for future dismantling, removing and restoring obligations of wells and related facilities. Most of the costs incur at or after the completion of production and the management recognized its best estimations as provisions.

[2] The amount reclassified to current portion is ₩ 233,939 million for provision for decommissioning cost for the year ended December 31, 2024. The amount reclassified to current portion is ₩ 9,345 million for provision for decommissioning cost and ₩ 17,851 million for provision for onerous contract for the year ended December 31, 2023.

[3] The Group recognized a provision for a claim amount and interest arising from the third lawsuit related to ordinary wages as provisions for the year ended December 31, 2024.

[4] The provisions recognized in relation to Vietnam Mine 11-2 Block were derecognized due to the sale of the asset for the year ended December 31, 2024.

25. Provisions (cont'd)

Changes in provisions for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024						
	Beginning balance	Provision	Transfer	Payment	Reversal	Others[1]	Ending balance
Decommissioning cost[3,4,6]	₩ 2,241,000,202,316	₩ 179,165,407,399	₩ 92,817,142,523	₩ (208,960,284,725)	₩ (163,189,832,568)	₩ 218,972,194,918	₩ 2,359,804,829,863
Provision for employee benefits[2]	6,435,943,576	2,130,038,103	-	-	-	1,067,015,860	9,632,997,539
Provision for litigations	6,237,826,067	-	-	(5,567,803,187)	-	408,524,102	1,078,546,982
Onerous contract[5]	17,851,162,009	-	258,936,599	(12,739,504,633)	-	(5,370,593,975)	-
Others	25,200,167,310	-	-	-	-	(18,794,256,317)	6,405,910,993
	₩ 2,296,725,301,278	₩ 181,295,445,502	₩ 93,076,079,122	₩ (227,267,592,545)	₩ (163,189,832,568)	₩ 196,282,884,588	₩ 2,376,922,285,377

[1] Others include the effect of changes in scope of consolidation, sale of Vietnam Mine 11-2 Block and changes in exchange rates.

[2] The provision amount of ₩ 2,130 million is reflected in salaries.

[3] The estimated decommissioning cost of ₩ 84,392 million has been deposited to the third party, and it is not allowed to be withdrawn except for decommissioning.

[4] The provision of ₩ 97,700 million is reflected in property, plant and equipment and of ₩ 81,465 million is reflected in other non-operating expenses.

[5] ₩ 259 million of the amount transferred in is reflected in transfer of other provision.

[6] The reversal of ₩ 92,875 million is reflected in property, plant and equipment and of ₩ 70,315 million is reflected in reversal of other provision.

25. Provisions (cont'd)

(in Korean won)	For the year ended December 31, 2023						
	Beginning balance	Provision	Transfer	Payment	Reversal	Others[1]	Ending balance
Decommissioning cost[4,5,6]	₩ 1,724,757,290,885	₩ 233,222,334,014	₩ 83,625,196,418	₩ (132,245,697,062)	₩ (30,826,776,759)	₩ 362,467,854,820	₩ 2,241,000,202,316
Social Overhead Capital	68,654,710	-	-	-	(70,720,587)	2,065,877	-
Allowance for salaries[3]	5,824,577,283	516,123,868	-	-	-	95,242,425	6,435,943,576
Provision for litigations	10,815,137,718	3,643,399,310	-	(6,549,009,607)	(1,919,480,086)	247,778,732	6,237,826,067
Onerous contract[2]	32,996,942,875	343,425,957	741,553,815	(16,991,262,249)	-	760,501,611	17,851,162,009
Others	19,050,472,557	-	-	-	-	6,149,694,753	25,200,167,310
	₩ 1,793,513,076,028	₩ 237,725,283,149	₩ 84,366,750,233	₩ (155,785,968,918)	₩ (32,816,977,432)	₩ 369,723,138,218	₩ 2,296,725,301,278

[1] Others include the effect of changes in exchange rates and others, and the transferred amount as a result of resolution of the reason that the related assets were classified as assets held for sale as of December 31, 2022.

[2] The provision of ₩ 343 million is reflected in sales commission.

[3] The provision of ₩ 516 million is reflected in salaries.

[4] The estimated decommissioning cost of ₩ 103,295 million has been deposited to the third party, and it is not allowed to be withdrawn except for decommissioning.

[5] The reversal of ₩ 4,334 million is reflected in property, plant and equipment and of ₩ 26,493 million is reflected in reversal of other provision.

[6] The provision of ₩ 226,308 million is reflected in property, plant and equipment and of ₩ 6,914 million is reflected in other non-operating expenses.

26. Government Grants

In accordance with the accounting standards and the provisions in the standard for public enterprise and quasi-government, government grants relating to property, plant and equipment are presented as the deduction from related assets.

Details of assets and liabilities of government grants as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024	
	Assets	Liabilities
Cash	₩ 22,387,336	₩ -
Machinery	14,631,601	-
Vehicles	2,878,980	-
Oil & gas properties	1,155,388,175	-
Software	944,843	-
Patent rights	4,733,341	-
	₩ 1,200,964,276	₩ -

(in Korean won)	As of December 31, 2023	
	Assets	Liabilities
Cash	₩ 542,873,129	₩ -
Vehicles	2,913,773	-
Oil & gas properties	1,132,083,310	-
Software	10,773,917	-
Patent rights	4,391,954	-
	₩ 1,693,036,083	₩ -

26. Government Grants (cont'd)

Changes in assets and liabilities of government grants for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024					
	Beginning balance	Additional grants	Offset with depreciation	Revenue recognized	Others[1]	Ending balance
Cash	₩ 542,873,129	₩ 2,120,308,780	₩ -	₩ (2,399,909,388)	₩ (240,885,185)	₩ 22,387,336
Machinery	-	13,728,882	(152,548)	-	1,055,267	14,631,601
Vehicles	2,913,773	-	(410,967)	-	376,174	2,878,980
Oil & gas properties	1,132,083,310	-	(125,505,228)	-	148,810,093	1,155,388,175
Software	10,773,917	-	(10,520,391)	-	691,317	944,843
Patent rights	4,391,954	-	253,973	-	87,414	4,733,341
	₩ 1,693,036,083	₩ 2,134,037,662	₩ (136,335,161)	₩ (2,399,909,388)	₩ (89,864,920)	₩ 1,200,964,276

[1] Include the effect of changes in exchange rates.

(in Korean won)	For the year ended December 31, 2023					
	Beginning balance	Additional grants	Offset with depreciation	Revenue recognized	Others[1]	Ending balance
Cash	₩ 252,231,353	₩ 2,256,520,180	₩ -	₩ (1,743,827,105)	₩ (222,051,299)	₩ 542,873,129
Vehicles	3,245,669	2,949,952	(393,320)	-	(2,888,528)	2,913,773
Oil & gas properties	1,254,526,110	-	(146,112,009)	-	23,669,209	1,132,083,310
Software	20,363,952	-	(10,068,640)	-	478,605	10,773,917
Patent rights	-	4,554,575	(108,362)	-	(54,259)	4,391,954
	₩ 1,530,367,084	₩ 2,264,024,707	₩ (156,682,331)	₩ (1,743,827,105)	₩ (200,846,272)	₩ 1,693,036,083

[1] Include the effect of changes in exchange rates.

Details of government grants income recognized for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024	For the year ended December 31, 2023
Government grants income	₩ 2,399,909,388	₩ 1,743,827,105
Offset with depreciation	136,335,161	156,682,331
	₩ 2,536,244,549	₩ 1,900,509,436

26. Government Grants (cont'd)

Details of the government grants business by category and changes in government grants for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)

For the year ended December 31, 2024

						Increase		Decrease			
						Issuance		Return			
	Business	Details	Period	Budget	Carried over from prior year	Paid by the Company	Government grants	Paid by the Company	Government grants	Others[1]	Carried forward to subsequent year
Ministry of Trade, Industry and Energy		Opinet operation and improvement	Jan. 1, 2024~ Dec. 31, 2024	₩ 576,000,000	₩ -	₩ 2,050	₩ 576,000,000	₩ -	₩ 576,000,000	₩ -	₩ 2,050
	Oil distribution structure improvement	Oil distribution information advancement project support	Jan. 1, 2024~ Dec. 31, 2024	160,000,000	-	-	160,000,000	-	160,000,000	-	-
		Thrifty gas station facility improvement support	Jan. 1, 2024~ Dec. 31, 2024	278,000,000	-	-	278,000,000	-	278,000,000	-	-
	Project for fostering large-scale CO2 storage	Secure large-scale commercial CO2 storage through comprehensive 2D/3D physical surveys and computational reprocessing in the Korean Peninsula region	Jan. 1, 2024~ Dec. 31, 2024	845,265,917	-	-	845,265,917	-	845,265,917	-	-
	Establishment of institutional foundation including revision and acceptance of CCUS legislation	Investigate CCS project policy support system and prepare support plan	Jan. 1, 2024~ Jun. 30, 2024	23,190,563	-	-	23,190,563	-	23,190,563	-	-
	CO2 storage efficiency improvement technology development research project	CO2 injection hole optimization design and injection scenario optimization technology development	Jan. 1, 2024~ Dec. 31, 2024	74,676,000	-	4,597,216	14,000,000	-	18,597,216	-	-
	CO2 underground storage stability securing technology development research project	CO2 injection well drilling design	Jan. 1, 2024~ Oct. 31, 2024	50,700	-	-	29,100	-	29,100	-	-
	International joint research project to advance CCUS commercial technology and secure overseas storage	Selection of CO2 storage candidate for depleted oil and gas fields in Southeast Asia and development of business model	Jan. 1, 2024~ Dec. 31, 2024	82,870,000	-	2,570,000	8,300,000	-	10,870,000	-	-
Ministry of Land, Infrastructure and Transport	Research on prior technologies for local application of energy resource plants in the Arctic Circle	Arctic heavy oil production model conceptual design	Jan. 1, 2024~ Dec. 31, 2024	113,000,000	177,037,905	-	-	-	177,037,905	-	-

26. Government Grants (cont'd)

(in Korean won)

For the year ended December 31, 2024

	Business	Details	Period	Budget	Carried over from prior year	Increase: Issuance		Decrease: Return		Others[1]	Carried forward to subsequent year
	Development of core technologies for non-traditional oil production plant construction and support for demonstration	Non-traditional oil eco-friendly, high-yield recovery and circulation system technology development	Jan. 1, 2024~ Dec. 31, 2028	150,000,000	128,815,274	-	-	-	106,429,988	-	22,385,286
Ulsan City	Future Growth Energy Hub	Research on the establishment of a strategic plan for the Ulsan South Port Project	Jan. 1, 2024~ Feb. 19, 2024	236,942,500	237,019,950	-	-	-	237,019,950	-	-
Ministry of Employment and Labor	Support for installation cost of daycare center	Support for school teaching materials at workplace daycare centers	Jan. 1, 2024~ Dec. 31, 2024	215,523,200	-	-	215,523,200	-	215,523,200	-	-

[1] Others include the effect of changes in exchange rates.

(in Korean won)

For the year ended December 31, 2023

	Business	Details	Period	Budget	Carried over from prior year	Increase: Issuance: Paid by the Company	Increase: Issuance: Government grants	Decrease: Return: Paid by the Company	Decrease: Return: Government grants	Others[1]	Carried forward to subsequent year
Ministry of Trade, Industry and Energy		Opinet operation and improvement	Jan. 1, 2023~ Dec. 31, 2023	₩ 576,000,000	₩ -	₩ -	₩ 576,000,000	₩ -	₩ 576,000,000	₩ -	₩ -
	Oil distribution structure improvement	Oil distribution information advancement project support	Jan. 1, 2023~ Dec. 31, 2023	300,000,000	-	-	300,000,000	-	300,000,000	-	-
		thrifty gas station Facility improvement support	Jan. 1, 2023~ Dec. 31, 2023	320,000,000	-	-	320,000,000	-	320,000,000	-	-
	Offshore wind power transportation installation national research project	Development of optimal transportation and installation technology of offshore wind power systems	Jan. 1, 2023~ Oct. 30, 2023	9,500,000	-	9,000,000	19,564,353	9,000,000	19,564,353	-	-
	Large-scale CO2 through deep ocean exploration and drilling geologic storage secure	Derivation of promising structures for geological storage of large-scale CO2 promising structures in the East Sea region and evaluation of their potential	Jan. 1, 2023~ Dec. 31, 2023	50,000,000	-	-	6,144,058	-	6,144,058	-	-
	Medium-scale CCS using Donghae gas field Integrated empirical model development	Derivation of conceptual design plan for integrated demonstration storage of CCS using Donghae gas field	Jan. 1, 2023~ Dec. 31, 2023	200,000,000	-	-	159,853,604	-	159,853,604	-	-
	Establishment of institutional foundation including revision and acceptance of CCUS legislation	Investigate CCS project policy support system and prepare support plan	Jan. 1, 2023~ Jun. 30, 2024	115,500,000	-	-	103,144,840	-	103,144,840	-	-

(in Korean won)

For the year ended December 31, 2024

	Business	Details	Period	Budget	Carried over from prior year	Increase		Decrease		Others[1]	Carried forward to subsequent year
						Issuance		Return			
	CO2 storage efficiency improvement technology development research project	CO2 injection hole optimization design and injection scenario optimization technology development	Jan. 1, 2023~ Oct. 31, 2025	124,460,000	-	47,460,000	1,047,390	47,460,000	1,047,390	-	-
	CO2 underground storage stability securing technology development research project	CO2 injection well drilling design	Jan. 1, 2023~ Oct. 31, 2024	126,000,000	-	71,000,000	56,222	71,000,000	56,222	-	-
	International joint research project to advance CCUS commercial technology and secure overseas storage	Selection of CO2 storage candidate for depleted oil and gas fields in Southeast Asia and development of business model	Jan. 1, 2023~ Dec. 31, 2024	57,500,000	-	7,500,000	50,059,363	7,500,000	50,059,363	-	-
Ministry of Land, Infrastructure and Transport	Research on prior technologies for local application of energy resource plants in the Arctic Circle	Arctic heavy oil production model conceptual design	Jan. 1, 2023~ Dec. 31, 2023	113,000,000	132,281,292	-	113,000,000	-	71,483,113	3,239,726	177,037,905
	Development of core technologies for non-traditional oil production plant construction and support for demonstration	Non-traditional oil eco-friendly, high-yield recovery and circulation system technology development	Jan. 1, 2023~ Dec. 31, 2023	150,000,000	69,943,901	-	150,000,000	-	90,810,725	(317,902)	128,815,274
Ulsan City	Future Growth Energy Hub	A study on the establishment of future growth energy hub construction plans	Jan. 1, 2023~ Oct. 31, 2023	-	50,006,150	-	-	-	42,453,760	(7,552,390)	-
	Future Growth Energy Hub	Research on the establishment of a strategic plan for the Ulsan South Port Project	Jun. 30, 2023~ Dec. 31, 2023	236,942,500	-	-	237,019,950	-	-	-	237,019,950
Ministry of Employment and Labor	Support for installation cost of daycare center	Support for school teaching materials at workplace daycare centers	Jan. 1, 2023~ Dec. 31, 2023	220,630,400	-		220,630,400	-	220,630,400	-	-

[1] Others include the effect of changes in exchange rates.

27. Contributions for Construction

Details of contributions for construction as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024	As of December 31, 2023
Others[1]	₩ 385,895,094	₩ 369,324,587

[1] The amounts were offset against the depreciation of the related assets for each of the two years in the period ended December 31, 2024 and 2023, from cash equivalents transferred from SK Energy in accordance with the expansion construction of connecting line between the Group (Ulsan branch) and SK Energy.

28. Non-Financial Liabilities

Details of non-financial liabilities as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024		As of December 31, 2023	
	Current	Non-current	Current	Non-current
Advance received	₩ 27,288,018,557	₩ -	₩ 17,686,982,462	₩ -
Unearned revenue	117,977,666,594	13,631,775,946	55,280,496,822	13,516,013,948
Withholdings	62,828,748,900	-	60,026,528,117	-
Others	1,206,384,959	37,498,463,054	1,058,171,950	33,949,680,907
	₩ 209,300,819,010	₩ 51,130,239,000	₩ 134,052,179,351	₩ 47,465,694,855

29. Share Capital

Details of share capital as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024			As of December 31, 2023		
	Government	Non-government	Total	Government	Non-government	Total
Share capital	₩ 10,908,901,085,075	₩ -	₩ 10,908,901,085,075	₩ 10,787,741,780,075	₩ -	₩ 10,787,741,780,075

29. Share Capital (cont'd)

Changes in share capital for the year ended December 31, 2024 are as follows:

(in Korean won)	Description		Amount
Beginning balance		₩	10,787,741,780,075
2024.02.27	Contribution for oil field development		148,000,000
2024.03.26	Contribution for oil stockpiling business		7,631,000,000
2024.03.28	Contribution for oil field development		179,000,000
2024.04.30	Contribution for oil stockpiling business		28,914,000,000
2024.05.22	Contribution for oil stockpiling business		7,000,000,000
2024.05.27	Contribution for oil field development		1,000,000,000
2024.06.20	Contribution for oil stockpiling business		8,072,000,000
2024.06.26	Contribution for oil stockpiling business		2,978,000,000
2024.06.27	Contribution for oil field development		2,747,000,000
2024.08.29	Contribution for oil stockpiling business		12,000,000,000
2024.09.26	Contribution for oil field development		14,914,000,000
2024.10.24	Contribution for oil field development		9,000,000,000
2024.11.28	Contribution for oil field development		20,152,000,000
2024.12.18	Contribution for ammonia business		5,024,305,000
2024.12.30	Contribution for ammonia business		1,400,000,000
Ending balance		₩	10,908,901,085,075

30. Accumulated Deficit

Details of accumulated deficit as of December 31, 2024 and 2023 are as follows:

(in Korean won)		As of December 31, 2024		As of December 31, 2023
Undisposed accumulated deficit	₩	(14,336,474,019,814)	₩	(13,885,339,103,408)

Changes in accumulated deficit for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Beginning balance	₩	(13,885,339,103,408)	₩	(13,599,606,712,074)
Loss for the year		(461,431,221,217)		(262,477,738,748)
Transfer of gain on revaluation to retained earnings		76,003,694		335,859,436
Remeasurement of defined benefits plan		10,220,301,117		(23,590,512,022)
Ending balance	₩	(14,336,474,019,814)	₩	(13,885,339,103,408)

30. Accumulated Deficit (cont'd)

Changes in remeasurement components for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Beginning balance	₩	(27,151,613,811)	₩	(3,561,101,789)
Changes during the current year		11,343,286,675		(26,182,587,640)
Income tax effects		(1,122,985,558)		2,592,075,618
Ending balance	₩	(16,931,312,694)	₩	(27,151,613,811)

31. Statements of Disposition of Accumulated Deficit

The statements of disposition of accumulated deficit for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
I. Undisposed deficit	₩	(14,336,474,019,814)	₩	(13,885,339,103,408)
Undisposed accumulated deficit carried over from prior years		(13,885,339,103,408)		(13,599,606,712,074)
Loss for the year		(461,431,221,217)		(262,477,738,748)
Transfer of gain on revaluation to retained earnings		76,003,694		335,859,436
Remeasurement of defined benefit plan		10,220,301,117		(23,590,512,022)
II. Undisposed deficit to be carried forward to the subsequent year	₩	(14,336,474,019,814)	₩	(13,885,339,103,408)

The accumulated deficit for the year ended December 31, 2024 is expected to be disposed on February 28, 2025 and the accumulated deficit for the year ended December 31, 2023 was disposed on February 23, 2024.

32. Other Components of Equity

Details of other components of equity as of December 31, 2024 and 2023 are as follows:

(in Korean won)		As of December 31, 2024		As of December 31, 2023
Other capital surpluses	₩	188,817,918,884	₩	188,817,918,884
Accumulated other comprehensive loss		(609,184,593,902)		(306,717,339,358)
	₩	(420,366,675,018)	₩	(117,899,420,474)

Details of other capital surpluses as of December 31, 2024 and 2023 are as follows:

(in Korean won)		As of December 31, 2024		As of December 31, 2023
Assets contributed	₩	24,954,221,211	₩	24,954,221,211
Loss on capital reduction		(19,958,342)		(19,958,342)
Changes in interests in subsidiaries		163,883,656,015		163,883,656,015
	₩	188,817,918,884	₩	188,817,918,884

Details of accumulated other comprehensive loss as of December 31, 2024 and 2023 are as follows:

(in Korean won)		As of December 31, 2024		As of December 31, 2023
Revaluation surplus	₩	429,762,175,370	₩	429,838,180,182
Gains on valuation of equity instruments measured at fair value through other comprehensive income		20,768,614,537		48,708,561,148
Equity adjustments in equity method		(14,011,160,057)		7,835,520,342
Foreign currency translation differences for foreign operations		(1,097,777,267,844)		(864,926,597,291)
Gains on valuation of derivative instruments		52,073,044,092		71,826,996,261
	₩	(609,184,593,902)	₩	(306,717,339,358)

33. Revenue

Details of revenues divided on the basis of customer locations except for other income, other profit and finance income (see Notes 35, 36, and 37, respectively) for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024			For the year ended December 31, 2023		
	Domestic	**Overseas**	**Total**	**Domestic**	**Overseas**	**Total**
Sales of goods and finished goods	₩ 34,038,980,999	₩ 3,113,912,712,780	₩ 3,147,951,693,779	₩ 49,875,374,306	₩ 2,928,909,331,693	₩ 2,978,784,705,999
Revenues from services provided	98,904,377,905	244,485,686,626	343,390,064,531	122,444,454,252	139,148,437,950	261,592,892,202
Income on government grants	2,399,909,388	-	2,399,909,388	1,743,827,105	-	1,743,827,105
Others	3,831,063,574	29,260,531,329	33,091,594,903	2,984,101,062	23,720,442,965	26,704,544,027
	₩ 136,774,422,478	₩ 3,387,658,930,735	₩ 3,524,433,353,213	₩ 175,303,929,620	₩ 3,091,778,212,608	₩ 3,267,082,142,228

34. Selling and Administrative Expenses

Details of selling and administrative expenses or each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Salaries	₩	108,800,733,545	₩	106,028,110,192
Post-employment benefits		7,377,731,047		5,747,948,703
Employee benefits		10,826,687,151		12,006,079,583
Insurance		2,267,246,457		3,447,276,574
Depreciation		17,569,699,190		16,102,889,428
Amortization		3,932,655,589		3,328,364,884
Bad debt expenses		19,672,656,738		-
Commission expense		24,418,623,647		21,716,359,388
Advertising expense		1,132,219,147		470,593,752
Training		1,969,117,952		2,409,754,943
Vehicle		705,578,684		499,467,802
Publication		243,806,065		233,714,771
Promotional expense		237,420,810		202,572,075
Rental expense		1,991,785,717		2,371,691,158
Communication		576,741,307		544,601,635
Taxes and dues		13,475,919,644		22,695,037,131
Supplies expense		1,853,942,076		1,355,497,903
Utilities expense		1,330,372,188		1,341,026,402
Repairs		4,256,629,960		3,960,604,515
Ordinary research and development expense		3,381,506,202		3,182,563,459
Travel expense		1,742,379,233		1,793,964,314
Clothing expense		12,794,937		239,364,951
Association expense		435,716,277		405,006,285
Sales promotional expense		71,857,249		51,963,033
Sales commissions		128,046,503,198		121,602,871,985
Other selling and administrative expenses		15,280,628,453		11,092,165,658
	₩	371,610,952,463	₩	342,829,490,524

Details of other selling and administrative expenses for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Rewards expense	₩	61,477,934	₩	59,327,725
Litigation expense		2,074,411,643		1,319,792,981
Promotion expense		241,307,703		193,376,950
Overhead expense for production		11,140,305,954		7,518,328,866
Other administrative expenses		96,559,227		54,878,797
Miscellaneous expense		1,666,565,992		1,946,460,339
	₩	15,280,628,453	₩	11,092,165,658

35. Other Income and Expenses

Details of other for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Reversal of other provisions	₩	70,315,023,235	₩	28,483,294,623
Reversal of other allowance for doubtful accounts		3,759,491,671		12,818,074,079
Gains on assets contributed		339,639,681		-
Compensation and indemnity		24,255,861		2,390,219,325
Rental income		401,328,186		478,633,694
Others		23,427,698,670		24,751,085,778
	₩	98,267,437,304	₩	68,921,307,499

Details others in other income for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Gains resulting from inventory inspection	₩	1,961,854,977	₩	-
Other income from overseas fields		596,710,110		1,519,140,328
Other non-operating income		20,869,133,583		23,231,945,450
	₩	23,427,698,670	₩	24,751,085,778

Details of other expenses for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Transfer to other provision	₩	77,508,254,000	₩	110,269,880,061
Other bad debt expense		11,153,228,519		-
Donations		877,475,436		1,537,103,540
Others		19,261,438,373		31,372,114,450
	₩	108,800,396,328	₩	143,179,098,051

Details of others in other expenses for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Adjusted expense resulting from inventory inspection	₩	1,863,770,479	₩	390,496,000
Other expenses from overseas fields		38,332,285		4,036,002
Other non-operating expenses		17,359,335,609		30,977,582,448
	₩	19,261,438,373	₩	31,372,114,450

36. Other Profit and Loss

Details of other profit and loss for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Gains on disposal of property, plant and equipment	₩	20,286,387,995	₩	1,700,452,300
Gains on disposal of intangible assets other than goodwill		-		39,380,747
Gains on disposal of non-current non-financial asset		230,432,152,696		307,013,975,774
Reversal of impairment losses on property, plant and equipment		17,422,906,353		87,116,450,337
Reversal of impairment losses on intangible assets other than goodwill		-		48,035,120,076
Gains on foreign currency translation (other than finance income)		28,407,823,750		17,519,749,616
Gains on foreign currency transactions (other than finance income)		54,525,942,621		66,218,243,247
Gains on insurance		1,198,118,177		-
Other gains		6,504,462,780		31,549,962,607
Losses on disposal of property, plant and equipment		(26,004,320)		(1,545,096,030)
Losses on disposal of intangible assets other than goodwill		(28,401,405)		(58,016,545)
Impairment losses on property, plant and equipment		(63,316,741,849)		(37,667,515,268)
Impairment losses on intangible assets other than goodwill		(5,998,281,263)		(98,838,023,354)
Impairment losses on goodwill		(141,619,406,636)		(9,415,497,563)
Losses on foreign currency translation (other than finance cost)		(45,327,936,262)		(20,950,310,937)
Losses on foreign currency transactions (other than finance cost)		(48,077,989,983)		(70,319,039,227)
Other losses		(7,239,736,413)		(9,913,063,200)
	₩	47,143,296,241	₩	310,486,772,580

Details of accumulated other gains for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Gains on stockpile oil quantity adjustment	₩	3,453,165,538	₩	12,200,964,620
Gains on duty from stockpile lease		1,123,624,655		11,737,367,827
Miscellaneous gains		1,927,672,587		7,611,630,160
	₩	6,504,462,780	₩	31,549,962,607

Details of accumulated other losses for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Losses on duty from stockpile lease	₩	3,252,083,582	₩	2,737,881,169
Losses on disposal of stored items		136,304,745		268,317,261
Losses on cancellation of debt exemption		297,804,137		5,765,640,716
Miscellaneous losses		3,553,543,949		1,141,224,054
	₩	7,239,736,413	₩	9,913,063,200

37. Finance income

Details of finance income for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024	For the year ended December 31, 2023
Interest income	₩ 42,148,486,879	₩ 45,088,065,805
Dividend income	6,076,531	5,933,676
Gains on valuation of financial assets measured at fair value through profit or loss	-	68,127,304,959
Gains on valuation of financial liabilities measured at fair value through profit or loss	2,469,799,151	15,266,004,732
Gains on transactions of financial liabilities measured at fair value through profit or loss	56,825,476,544	-
Gains on valuation of derivative financial instruments	-	523,260,544
Gains on transactions of derivative financial instruments	1,951,771,986	10,649,970,474
Gains on foreign currency translation	115,253,543,508	83,231,553,244
Gains on foreign currency transactions	15,850,967,497	15,041,526,167
	₩ 234,506,122,096	₩ 237,933,619,601

Details of interest income by sources included in finance income for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024	For the year ended December 31, 2023
Cash and cash equivalents	₩ 40,657,849,879	₩ 39,518,952,998
Loans and receivables	1,490,637,000	5,569,112,807
	₩ 42,148,486,879	₩ 45,088,065,805

38. Finance costs

Details of finance costs for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024	For the year ended December 31, 2023
Interest expenses	₩ 566,041,136,125	₩ 489,822,132,008
Losses on valuation of financial assets measured at fair value through profit or loss	10,973,309,968	72,830,989,432
Losses on valuation of financial liabilities measured at fair value through profit or loss	-	10,541,611,079
Losses on transactions of derivative financial instruments	7,338,385,625	11,202,734,916
Losses on foreign currency translation	156,847,222,997	19,123,102,753
Losses on foreign currency transactions	56,444,254,146	12,847,977,615
Other financial costs	93,076,079,122	84,366,751,526
	₩ 890,720,387,983	₩ 700,735,299,329

Details of interest expenses by sources included in finance costs for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024	For the year ended December 31, 2023
Short-term borrowings	₩ 24,407,001,297	₩ 47,803,659,917
Long-term borrowings	45,379,523,541	46,133,873,357
Bond payables	456,208,359,320	348,622,373,005
Derivative liabilities	27,182,251,383	34,303,456,936
Lease liability	12,750,322,099	12,880,209,937
Other financial liabilities	113,678,485	78,558,856
	₩ 566,041,136,125	₩ 489,822,132,008

39. Income Tax Expense from Continuing Operations

The components of income tax expense for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Current income tax	₩	529,956,308,308	₩	549,237,692,149
Deferred tax directly charged to equity		18,265,413,815		(88,717,465,066)
Changes in deferred taxes arising from temporary differences		144,862,049,328		13,410,574,499
Adjustment for prior periods		(17,390,914,495)		(17,360,390,087)
Effect of exchange rate fluctuations and changes in statutory tax rates		(15,282,871,220)		(16,656,721,137)
Refunds due to correction and cancellation of the charge for prior periods income tax		(2,108,043,275)		(703,668,950)
Income tax expense	₩	675,692,856,956	₩	456,570,411,495

Reconciliations of profit before income tax to income tax expense for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Profit before income tax	₩	867,223,767,757	₩	635,332,345,402
Income tax expense computed at the statutory rate	₩	200,328,690,352	₩	146,761,770,493
Adjustments:				
Non-taxable income		(30,191,636,903)		(55,353,395,264)
Non-deductible expenses		42,151,627,770		270,851,064,676
Tax credits and reduction		(106,955,578)		(22,403,765,123)
Temporary differences not recognized in deferred tax assets		158,443,130,210		83,952,864,741
Differences in tax rates in overseas entities		348,901,524,886		132,303,450,031
Effect of changes in tax rates		(26,442,609,286)		(82,884,856,922)
		693,083,771,451		473,227,132,632
Adjustment for prior periods		(17,390,914,495)		(16,656,721,137)
Income tax expense[1]	₩	675,692,856,956	₩	456,570,411,495
Effective tax rate		77.91%		71.86%

The expected applicable statutory tax rate for each of the two years in the period ended December 31, 2024 is 23.1% and 23.1%, respectively, which is the statutory income tax rate in Korea where the Group is domiciled.

39. Income Tax Expense from Continuing Operations (cont'd)

Income tax recognized as accumulated other comprehensive income for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Revaluation of financial assets measured at fair value through other comprehensive income	₩	3,069,943,886	₩	(329,096,472)
Net change in the unrealized fair value of derivative using cash flow hedge accounting		16,318,456,487		(91,603,904,112)
Revaluation gain		-		623,459,900
Remeasurement components		(1,122,986,558)		2,592,075,618
	₩	18,265,413,815	₩	(88,717,465,066)

Changes in deferred income tax assets (liabilities) recognized in the consolidated statements of financial position for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024									
		Beginning balance		Amounts recognized in profit or loss		Amounts recognized in other comprehensive income		Others		Ending balance
Deferred income tax on temporary differences										
Investment in associates and others	₩	(11,960,567,237)	₩	-	₩	-	₩	(1,675,258,603)	₩	(13,635,825,840)
Financial guarantee liabilities		(1,630,680,971)		-		-		(228,401,569)		(1,859,082,540)
Bad debt allowance		(9,625,814,554)		2,891,799,914		-		(1,123,466,110)		(7,857,480,750)
Financial assets measured at fair value through other comprehensive income		(2,902,084,815)		-		3,069,943,886		(167,859,071)		-
Intangible assets other than goodwill		(1,355,159)		(261,884)		-		(210,167)		(1,827,210)
Accrued expenses		4,285,987,520		386,010,432		-		630,321,448		5,302,319,400
Asset retirement obligation		2,261,773,933		(475,619,826)		-		279,826,523		2,065,980,630
Property, plant and equipment		(8,281,816)		151,402		-		(1,148,226)		(9,278,640)
Land		(212,729,978,912)		22,830,297		-		(29,794,281,115)		(242,501,429,730)
Gain (loss) on valuation of derivative		(3,510,422,446)		177,033,692		608,421,011		(430,634,398)		(3,155,602,141)
Defined benefit obligations		-		712,916,883		(1,122,986,558)		(31,874,065)		(441,943,740)
Others		11,387,788,682		(3,439,699,768)		-		1,327,668,599		9,275,757,513
		(224,433,635,775)		275,161,142		2,555,378,339		(31,215,316,754)		(252,818,413,048)
Deferred tax assets of subsidiaries		880,266,894,589		(148,345,591,109)		15,710,035,476		112,985,161,147		860,616,500,103
Deferred tax liabilities of subsidiaries		(525,112,599,696)		(15,057,033,176)		-		(74,720,332,870)		(614,889,965,742)
		355,154,294,893		(163,402,624,285)		15,710,035,476		38,264,828,277		245,726,534,361
	₩	130,720,659,118	₩	(163,127,463,143)	₩	18,265,413,815	₩	7,049,511,523	₩	(7,091,878,687)

Based on the estimated future taxable income, there is no expected amount available from the current tax losses that can be utilized as of December 31, 2024.

Temporary differences not recognized in deferred tax assets are ₩ 17,171,423 million and unused tax losses are ₩ 5,002,891 million as of December 31, 2024.

39. Income Tax Expense from Continuing Operations (cont'd)

(in Korean won)	For the year ended December 31, 2023				
	Beginning balance	Amounts recognized in profit or loss	Amounts recognized in other comprehensive income	Others	Ending balance
Deferred income tax on temporary differences					
Investment in associates and others	₩ (27,548,398,849)	₩ 16,267,750,506	₩ -	₩ (679,918,894)	₩ (11,960,567,237)
Financial guarantee liabilities	(4,640,265,840)	3,128,877,180	-	(119,292,311)	(1,630,680,971)
Bad debt allowance	(34,514,541,647)	25,807,121,543	-	(918,394,450)	(9,625,814,554)
Financial assets measured at fair value through other comprehensive income	(2,532,854,928)	-	(329,096,472)	(40,133,415)	(2,902,084,815)
Intangible assets other than goodwill	(5,477,271)	4,269,996	-	(147,884)	(1,355,159)
Accrued expenses	8,945,600,765	(4,875,406,106)	-	215,792,861	4,285,987,520
Asset retirement obligation	5,418,410,852	(3,291,494,715)	-	134,857,796	2,261,773,933
Property, plant and equipment	(19,118,488)	11,308,767	-	(472,095)	(8,281,816)
Land	(210,087,331,704)	410,209,428	623,459,900	(3,676,316,536)	(212,729,978,912)
Gain (loss) on valuation of derivative	(9,859,904,489)	(1,189,321,194)	7,791,719,459	(252,916,222)	(3,510,422,446)
Defined benefit obligations	(5,296,949,018)	2,864,162,224	2,592,075,618	(159,288,824)	-
Others	45,389,679,815	(35,225,439,543)	-	1,223,548,410	11,387,788,682
	(234,751,150,802)	3,912,038,086	10,678,158,505	(4,272,681,564)	(224,433,635,775)
Deferred tax assets of subsidiaries	739,517,115,910	228,836,733,645	(99,395,623,571)	11,308,668,605	880,266,894,589
Deferred tax liabilities of subsidiaries	(363,266,758,535)	(157,441,881,164)	-	(4,403,959,997)	(525,112,599,696)
	376,250,357,375	71,394,852,481	(99,395,623,571)	6,904,708,608	355,154,294,893
	₩ 141,499,206,573	₩ 75,306,890,567	₩ (88,717,465,066)	₩ 2,632,027,044	₩ 130,720,659,118

Based on the estimated future taxable income, there is no expected amount available from the current tax losses that can be utilized as of December 31, 2023.

Temporary differences not recognized in deferred tax assets are ₩ 15,676,849 million and unused tax losses are ₩ 4,996,008 million as of December 31, 2023.

Details of deferred income tax assets (liabilities) recognized in the consolidated statements of financial position as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024	As of December 31, 2023
Deferred income tax assets	₩ 860,616,499,132	₩ 880,266,894,589
Deferred income tax liabilities	(867,708,377,819)	(749,546,235,471)
	₩ (7,091,878,687)	₩ 130,720,659,118

39. Income Tax Expense from Continuing Operations (cont'd)

Pillar Two Model Rules

The Organization for Economic Co-operation and Development (OECD)/G20 Inclusive Framework on Base Erosion and Profit Shifting (BEPS) addresses the tax challenges arising from the digitalization of the global economy. The Global Anti-Base Erosion Model Rules (Pillar Two Model Rules) apply to multinational enterprises (MNEs) with annual revenue in excess of EUR 750 million per their consolidated financial statements.
The Pillar Two Model Rules introduce four new taxing mechanisms under which MNEs would pay a minimum level of tax (the Minimum Tax):

- the Qualified Domestic Minimum Top-Up Tax (QDMTT);
- the Income Inclusion Rule (IIR); and
- the Undertaxed Payment Rule (UTPR).

The Subject to Tax Rule is a tax treaty-based rule that generally imposes a Minimum Tax on cross-border intercompany transactions that would otherwise not be subject to a minimum level of tax.

The new taxing mechanisms can impose a minimum tax on the income arising in each jurisdiction in which an MNE operates. The IIR, UTPR and QDMTT do so by imposing a top-up tax in a jurisdiction whenever the effective tax rate (ETR), determined on a jurisdictional basis under the Pillar Two rules, is below a 15% minimum rate.

The International Accounting Standards Board issued Amendments to KIFRS 1012 -*International Tax Reform—Pillar Two Model Rules*. The Amendments clarify that KIFRS 1012 applies to income taxes arising from tax law enacted or substantively enacted to implement the Pillar Two Model Rules published by the OECD, including tax law that implements a QDMTT. The Group has adopted these amendments, which introduce:

- a mandatory temporary exception to the accounting for deferred taxes arising from the jurisdictional implementation of the Pillar Two Model Rules; and
- disclosure requirements for affected entities to help users of the financial statements better understand an entity's exposure to Pillar Two income taxes arising from that legislation.

The Pillar Two Model Rules were adopted in the Republic of Korea at the end of 2023 and are applicable starting from January 1, 2024. According to these rules, the Group is considered a multinational enterprise to which the Pillar Two Model Rules shall be applied. At the same time, Pillar Two legislation has been enacted or substantively enacted in several other jurisdictions in which the Group operates for the financial year beginning January 1, 2024.
The Group assessed its potential exposure to Pillar Two income taxes based on the country-by-country report for 2023 and financial information for 2024 for the constituent entities in the Group. The Group did not recognize income tax expenses as the Pillar Two effective tax rate is above 15% in most jurisdictions where the Group operates and safe harbor relief is applied. The Group continues to follow Pillar Two legislative developments, as further countries enact the Pillar Two Model Rules, to evaluate the potential future impact on its consolidated results of operations, financial position and cash flows beginning.

40. Expenses Classified by Nature

Expenses classified by nature for the year ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024			
	Changes in inventories	Selling and administrative expenses	Cost of sales	Total
Changes in inventories - merchandise	₩ 5,256,118,754	₩ -	₩ -	₩ 5,256,118,754
Changes in inventories - finished goods	3,403,124,058	-	-	3,403,124,058
Changes in inventories - others	25,522,722,974	-	-	25,522,722,974
Purchases of inventories	-	-	15,770,474,522	15,770,474,522
Salaries	-	108,800,733,545	183,118,693,226	291,919,426,771
Severance and retirement benefits	-	7,377,731,047	4,965,203,643	12,342,934,690
Other employee benefits	-	10,826,687,151	5,267,624,648	16,094,311,799
Insurance	-	2,267,246,457	11,407,893,542	13,675,139,999
Depreciation	-	17,569,699,190	694,005,151,360	711,574,850,550
Amortization	-	3,932,655,589	66,347,205,088	70,279,860,677
Bad debt expenses	-	19,672,656,738	-	19,672,656,738
Commissions and fees	-	24,418,623,647	86,423,356,926	110,841,980,573
Advertising expense	-	1,132,219,147	250,175,756	1,382,394,903
Education and training	-	1,969,117,952	1,502,340,235	3,471,458,187
Vehicle maintenance	-	705,578,684	2,528,079,970	3,233,658,654
Books and printing	-	243,806,065	26,596,246	270,402,311
Business development	-	237,420,810	54,073,623	291,494,433
Rental expense	-	1,991,785,717	28,210,298,809	30,202,084,526
Communications	-	576,741,307	871,410,295	1,448,151,602
Transport	-	-	94,055,831,439	94,055,831,439
Taxes and dues	-	13,475,919,644	70,671,866,605	84,147,786,249
Supplies	-	1,853,942,076	5,061,941,606	6,915,883,682
Utilities	-	1,330,372,188	66,899,498,881	68,229,871,069
Repairs	-	4,256,629,960	183,770,411,995	188,027,041,955
Research and development	-	3,381,506,202	3,257,285,679	6,638,791,881
Travel	-	1,742,379,233	655,685,646	2,398,064,879
Clothing expenses	-	12,794,937	149,942,321	162,737,258
Association fee	-	435,716,277	1,021,517,999	1,457,234,276
Sales promotion	-	71,857,249	-	71,857,249
Sales commissions	-	128,046,503,198	11,849,745,711	139,896,248,909
Others	-	15,280,628,453	307,061,010,175	322,341,638,628
	₩ 34,181,965,786	₩ 371,610,952,463	₩ 1,845,203,315,946	₩ 2,250,996,234,195

40. Expenses Classified by Nature (cont'd)

Expenses classified by nature for the year ended December 31, 2023 are as follows:

(in Korean won)	For the year ended December 31, 2023			
	Changes in inventories	**Selling and administrative expenses**	**Cost of sales**	**Total**
Changes in inventories - merchandise	₩ 1,617,255,479	₩ -	₩ -	₩ 1,617,255,479
Changes in inventories - finished goods	(16,387,099,612)	-	-	(16,387,099,612)
Changes in inventories - others	5,046,753,074	-	-	5,046,753,074
Purchases of inventories	-	-	59,752,903,059	59,752,903,059
Salaries	-	106,028,110,192	184,202,144,190	290,230,254,382
Severance and retirement benefits	-	5,747,948,703	3,650,255,323	9,398,204,026
Other employee benefits	-	12,006,079,583	5,577,920,330	17,583,999,913
Insurance	-	3,447,276,574	16,230,613,575	19,677,890,149
Depreciation	-	16,102,889,428	1,043,370,494,689	1,059,473,384,117
Amortization	-	3,328,364,884	63,192,805,201	66,521,170,085
Commissions and fees	-	21,716,359,388	91,109,835,668	112,826,195,056
Advertising expense	-	470,593,752	240,523,098	711,116,850
Education and training	-	2,409,754,943	1,315,286,575	3,725,041,518
Vehicle maintenance	-	499,467,802	1,913,345,546	2,412,813,348
Books and printing	-	233,714,771	16,305,876	250,020,647
Business development	-	202,572,075	57,877,989	260,450,064
Rental expense	-	2,371,691,158	29,473,569,851	31,845,261,009
Communications	-	544,601,635	584,505,552	1,129,107,187
Transport	-	-	98,952,172,687	98,952,172,687
Taxes and dues	-	22,695,037,131	47,119,638,353	69,814,675,484
Supplies	-	1,355,497,903	2,299,736,254	3,655,234,157
Utilities	-	1,341,026,402	69,806,302,467	71,147,328,869
Repairs	-	3,960,604,515	175,838,110,860	179,798,715,375
Research and development	-	3,182,563,459	14,593,761,047	17,776,324,506
Travel	-	1,793,964,314	826,947,863	2,620,912,177
Clothing expenses	-	239,364,951	256,573,114	495,938,065
Association fee	-	405,006,285	291,309,265	696,315,550
Sales promotion		51,963,033	-	51,963,033
Sales commissions	-	121,602,871,985	3,479,478,389	125,082,350,374
Others	-	11,092,165,658	173,368,611,320	184,460,776,978
	₩ (9,723,091,059)	₩ 342,829,490,524	₩ 2,087,521,028,141	₩ 2,420,627,427,606

41. Categories of Financial Instruments

Details of current financial assets by category as of December 31, 2024 are as follows:

(in Korean won)	As of December 31, 2024			
	Fair value through profit or loss	Amortized costs[1]	Fair value – hedging instruments	Total
Cash and cash equivalents	₩ -	₩ 336,637,883,066	₩ -	₩ 336,637,883,066
Current portion of financial assets at fair value through profit or loss	128,295,761,013	-	-	128,295,761,013
Short-term financial instruments	-	690,112,800	-	690,112,800
Current derivative assets	-	-	27,044,937,564	27,044,937,564
Trade and other receivables	-	608,455,146,183	-	608,455,146,183
	₩ 128,295,761,013	₩ 945,783,142,049	₩ 27,044,937,564	₩ 1,101,123,840,626

[1] The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

Details of non-current financial assets by category as of December 31, 2024 are as follows:

(in Korean won)	As of December 31, 2024				
	Fair value through profit or loss	Fair value through other comprehensive income	Amortized costs[1]	Fair value – hedging instruments	Total
Non-current financial assets at fair value through profit or loss[2]	₩ 556,816,048,160	₩ -	₩ -	₩ -	₩ 556,816,048,160
Non-current financial assets at fair value through other comprehensive income	-	1,124,629,850	-	-	1,124,629,850
Long-term loans	-	-	65,171,134,908	-	65,171,134,908
Long-term financial instruments	-	-	7,984,478,357	-	7,984,478,357
Non-current derivative assets	-	-	-	31,117,297,409	31,117,297,409
Long-term trade and other receivables	-	-	19,044,648,327	-	19,044,648,327
	₩ 556,816,048,160	₩ 1,124,629,850	₩ 92,200,261,592	₩ 31,117,297,409	₩ 681,258,237,011

[1] The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

[2] Loans to related parties and accrued income from related parties are included.

41. Categories of Financial Instruments (cont'd)

Details of current financial liabilities by category as of December 31, 2024 are as follows:

(in Korean won)	As of December 31, 2024		
	Amortized costs[1]	Fair value – hedging instruments	Total
Short-term borrowings	₩ 633,900,000,035	₩ -	₩ 633,900,000,035
Current portion of long-term borrowings	47,499,999,985	-	47,499,999,985
Current portion of bond payables	2,952,233,235,601	-	2,952,233,235,601
Current derivative liabilities	-	29,363,799,765	29,363,799,765
Trade and other payables	769,692,132,021	-	769,692,132,021
	₩ 4,403,325,367,642	₩ 29,363,799,765	₩ 4,432,689,167,407

[1] The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

Details of non-current financial liabilities by category as of December 31, 2024 are as follows:

(in Korean won)	As of December 31, 2024		
	Amortized costs[1]	Fair value – hedging instruments	Total
Long-term borrowings	₩ 799,459,555,507	₩ -	₩ 799,459,555,507
Bond payables	12,668,206,865,765	-	12,668,206,865,765
Non-current derivative liabilities	-	2,916,640,847	2,916,640,847
Long-term trade and other payables	332,832,713,126	-	332,832,713,126
	₩ 13,800,499,134,398	₩ 2,916,640,847	₩ 13,803,415,775,245

[1] The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values

41. Categories of Financial Instruments (cont'd)

Details of current financial assets by category as of December 31, 2023 are as follows:

(in Korean won)	As of December 31, 2023			
	Fair value through profit or loss	Amortized costs[1]	Fair value – hedging instruments	Total
Cash and cash equivalents	₩ -	₩ 611,769,880,179	₩ -	₩ 611,769,880,179
Current portion of financial assets at fair value through profit or loss	116,761,131,115	-	-	116,761,131,115
Short-term loans	-	13,062	-	13,062
Short-term financial instruments	-	474,341,339	-	474,341,339
Current derivative assets	-	-	109,500,546,754	109,500,546,754
Other current financial assets	-	876,568,070	-	876,568,070
Trade and other receivables	-	615,438,335,330	-	615,438,335,330
	₩ 116,761,131,115	₩ 1,228,559,137,980	₩ 109,500,546,754	₩ 1,454,820,815,849

[1] The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

Details of non-current financial assets by category as of December 31, 2023 are as follows:

(in Korean won)	As of December 31, 2023				
	Fair value through profit or loss	Fair value through other comprehensive income	Amortized costs[1]	Fair value – Hedging instruments	Total
Non-current financial assets at fair value through profit or loss [2]	₩ 494,292,695,163	₩ -	₩ -	₩ -	₩ 494,292,695,163
Non-current financial assets at fair value through other comprehensive income	-	30,300,785,308	-	-	30,300,785,308
Long-term loans	-	-	79,334,832,982	-	79,334,832,982
Long-term financial instruments	-	-	7,960,422,148	-	7,960,422,148
Non-current derivative assets	-	-	-	90,523,720,764	90,523,720,764
Long-term trade and other receivables	-	-	34,947,019,827	-	34,947,019,827
	₩ 494,292,695,163	₩ 30,300,785,308	₩ 122,242,274,957	₩ 90,523,720,764	₩ 737,359,476,192

[1] The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

[2] Loans to related parties and accrued income from related parties are included.

41. Categories of Financial Instruments (cont'd)

Details of current financial liabilities by category as of December 31, 2023 are as follows:

(in Korean won)	As of December 31, 2023			
	Fair value through profit or loss	Amortized costs[1]	Fair value – hedging instruments	Total
Current financial liabilities at fair value through profit or loss	₩ 55,616,639,843	₩ -	₩ -	₩ 55,616,639,843
Short-term borrowings	-	386,929,787,691	-	386,929,787,691
Current portion of long-term borrowings	-	497,483,310,796	-	497,483,310,796
Current portion of bond payables	-	3,154,066,670,906	-	3,154,066,670,906
Current derivative liabilities	-	-	44,828,402	44,828,402
Trade and other payables	-	713,939,226,671	-	713,939,226,671
	₩ 55,616,639,843	₩ 4,752,418,996,064	₩ 44,828,402	₩ 4,808,080,464,309

[1] The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

Details of non-current financial liabilities by category as of December 31, 2023 are as follows:

(in Korean won)	As of December 31, 2023			
	Fair value through profit or loss	Amortized costs[1]	Fair value – hedging instruments	Total
Non-current financial liabilities at fair value through profit or loss	₩ 2,334,754,927	₩ -	₩ -	₩ 2,334,754,927
Long-term borrowings	-	639,827,752,047	-	639,827,752,047
Bond payables	-	10,413,377,006,788	-	10,413,377,006,788
Non-current derivative liabilities	-	-	16,820,019,571	16,820,019,571
Long-term trade and other payables	-	353,328,256,170	-	353,328,256,170
	₩ 2,334,754,927	₩ 11,406,533,015,005	₩ 16,820,019,571	₩ 11,425,687,789,503

[1] The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

41. Categories of Financial Instruments (cont'd)

Net gains or losses by financial instruments for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024	For the year ended December 31, 2023
Financial assets measured at fair value through profit of loss		
Losses on valuation, net	₩ (10,973,309,968)	₩ (4,703,684,473)
Financial assets measured at amortized costs		
Interest income	42,148,486,879	45,088,065,805
Gains (losses) on foreign currency transactions, net	873,733,930	(163,701,508)
Losses on foreign currency translation, net	(56,265,928,628)	(20,390,103,739)
Other bad debt expenses	(11,153,228,519)	-
Reversal of other bad debt allowance	3,759,491,671	12,818,074,079
Financial assets measured at fair value through other comprehensive income		
Dividend income	6,076,531	5,933,676
Other comprehensive gain (loss), net of tax	(27,939,946,611)	18,103,077,832
Financial assets designated as hedging instruments		
Gains on transactions of derivatives	389,921,208	-
Gains (losses) on foreign currency translation, net	(47,691,889,419)	112,253,345,210
Other comprehensive gain (loss), net of tax	(7,761,195,269)	5,537,032,860
Financial liabilities measured at fair value through profit or loss		
Gains on valuation	2,469,799,151	4,724,393,653
Gains on transaction	56,825,476,544	-
Gains on transactions of derivatives	-	10,649,970,474
Gains on valuation of derivatives	-	523,260,544
Financial liabilities measured at amortized cost		
Interest expense	(538,858,883,728)	(482,829,460,583)
Losses on foreign currency transactions, net	(35,019,067,941)	(1,743,543,309)
Gains (losses) on foreign currency translation, net	45,444,026,046	(34,333,578,371)
Financial liabilities designated as hedging instruments		
Losses on transactions, net	(5,776,534,847)	(11,202,734,916)
Interest expense	(27,182,252,397)	(6,992,671,425)
Gains on foreign currency translation, net	-	3,148,224,766
Other comprehensive gain (loss), net of tax	(11,992,756,900)	29,560,040,475
	₩ (628,697,982,267)	₩ (319,948,058,950)

42. Netting Agreements

Offsetting of financial assets and financial liabilities

As of December 31, 2024 and 2023, financial assets and financial liabilities subject to offsetting, enforceable master netting arrangements and similar agreements are as follows:

(in Korean won)

	As of December 31, 2024					
	Gross amounts recognized as financial instruments	Gross amounts of recognized financial instruments set off in the statement of financial position	Net amounts of financial instruments presented in the statement of financial position	Related amounts not set off in the statement of financial position		Net amount[2]
				Financial instruments	Collateral received or pledged	
Financial assets						
Derivative[1]	₩ 58,162,234,973	₩ -	₩ 58,162,234,973	₩ (32,280,440,612)	₩ -	₩ 25,881,794,361
Financial liabilities						
Derivative[1]	₩ 32,280,440,612	-	₩ 32,280,440,612	₩ (32,280,440,612)	₩ -	₩ -

[1] Some of derivative contracts are made under International Swaps and Derivative Association (ISDA) master netting agreements.

[2] In general, under such agreements the amounts owed by each counter party on a single day in respect of all transactions outstanding in the same currency are aggregated into a single net amount that is payable by one party to the other. In certain circumstances (i.e. when a default occurs), all standing transactions under the agreement are terminated, the termination value is assessed and only a single amount is payable in settlement of all transactions.

(in Korean won)

	As of December 31, 2023					
	Gross amounts recognized as financial instruments	Gross amounts of recognized financial instruments set off in the statement of financial position	Net amounts of financial instruments presented in the statement of financial position	Related amounts not set off in the statement of financial position		Net amount[2]
				Financial instruments	Collateral received or pledged	
Financial assets						
Derivative[1]	₩ 200,024,267,518	₩ -	₩ 200,024,267,518	₩ (16,864,847,960)	₩ -	₩ 183,159,419,558
Financial liabilities						
Derivative[1]	₩ 16,864,847,986	-	₩ 16,864,847,986	₩ (16,864,847,986)	₩ -	₩ -

[1] Some of derivative contracts are made under International Swaps and Derivative Association (ISDA) master netting agreements.

[2] In general, under such agreements the amounts owed by each counter party on a single day in respect of all transactions outstanding in the same currency are aggregated into a single net amount that is payable by one party to the other. In certain circumstances (i.e. when a default occurs), all standing transactions under the agreement are terminated, the termination value is assessed and only a single amount is payable in settlement of all transactions.

43. Risk Management

(a) Capital management

The primary objective of the Group's capital management is to ensure that it maintains a strong credit rating and healthy capital ratios in order to support its business and maximize the owners' value. To maintain the sound capital structure, management periodically reviews the Group's capital structure through short- and long-term borrowings and issuance of share capital. The Group's capital structure consists of equity and net debt, net of cash and cash equivalents and borrowing. No changes were made in the objectives, policies or processes for managing capital for the year ended December 31, 2024.

The Group's debt-to-equity ratios as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024	As of December 31, 2023
Total borrowings and debt securities (A)	₩ 17,101,299,656,893	₩ 15,091,684,528,228
Cash and cash equivalents (B)	336,637,883,066	611,769,880,179
Net borrowings and debt securities (A – B = C)	16,764,661,773,827	14,479,914,648,049
Total equity (D)	(1,321,613,713,140)	(1,348,663,665,732)
Total invested capital (C + D = E)	₩ 15,443,048,060,687	₩ 13,131,250,982,317
Net borrowings and debt securities-to-total invested capital ratio (C/E)	108.56%	110.27%

(b) Financial risk management

The Group is exposed to various risks related to its financial instruments such as credit risk, market risk (currency risk, interest rate risk and price risk) and liquidity risk.

(i) Risk management structure

The board of directors is responsible for implementing and monitoring the Group's risk management structure and the management regularly updates the policies for each risk and confirms the validity of the policies. The purpose of the risk management policies is to identify the risks that could potentially affect the Group's financial results and reduce, to an acceptable level, avoid or eliminate those risks. The policies are reviewed regularly to reflect the current market conditions and the Group's activities. The Group makes constant efforts to improve the policies by monitoring on real time basis and with support from the outside experts. The audit committee oversees the Group's compliance to the risk management policies and procedures and reviews the effectiveness of the structure.

43. Risk Management (cont'd)

(ii) Credit risk

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations, and arises principally from the Group's receivables from customers, investment securities, derivatives and financial guarantee contracts.

Credit risk also arises from transactions with financial institutions, and such transactions include transactions of cash and cash equivalents, various deposits, and financial instruments such as derivative contracts. The Group manages its exposure to this credit risk by only entering into transactions with banks that have high international credit ratings. The Group implements a credit risk management policy under which the Group only transacts business with counterparties that have a certain level of credit rate evaluated based on financial condition, historical experience, and other factors.

Book values of the financial assets and guarantee amounts by the contract represent the maximum amounts exposed to the credit risk. Details of the Group's level of maximum exposure to credit risk as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024	As of December 31, 2023
Cash and cash equivalents	₩ 336,637,883,066	₩ 611,769,880,179
Derivative assets	58,162,234,973	200,024,267,518
Financial assets at amortized costs	701,345,520,575	739,031,532,758
Financial assets measured at fair value through profit or loss	685,111,809,173	611,053,826,278
Financial assets measured at fair value through other comprehensive income	1,124,629,850	30,300,785,308
Financial guarantee contracts[1]	118,629,000,000	104,054,580,000

[1] It represents the maximum amount of financial guarantee provided by the Group.

The Group recognizes allowance for bad debt to record impairment losses until it is convinced that the amount of the asset amount cannot be recovered. After the Group decides that the asset amount cannot be recovered, the allowance for bad debt is offset against that asset. Further disclosures relating to impairment of assets are provided as follows:

Impairment losses of accounts receivable and other receivables: *Note 8*

Impairment losses of long-term loans: *Note 10*

43. Risk Management (cont'd)

(iii) Market risk

① Crude oil price risk

Crude oil price risk is the risk that the profit or cash flows will fluctuate due to changes in the international market prices of crude oil. The Group entered into derivative contracts according to the expected fluctuations of changes in the international market prices of crude oil to avoid the crude oil price risk and secure the product margin. With all other variables held constant, changes in Group's profit before tax due to crude oil price fluctuations for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024		For the year ended December 31, 2023	
	Increase by 10%	Decrease by 10%	Increase by 10%	Decrease by 10%
Increase (decrease) of profit before tax	₩ 269,778,690,720	₩ (269,778,690,720)	₩ 243,095,824,267	₩ (243,095,824,267)

② Interest rate risk

The Group is exposed to interest rate risk due to its borrowings with floating interest rates. Assuming a 100 basis points increase or decrease in interest rates for the year ended December 31, 2024, the Group's total equity and its profit or loss will also increase or decrease. The Group mitigates risks from fluctuation in interest rate through interest rate swap contracts.

Except for the effect of derivative transactions, this analysis considers the Group's total exposed risks associated with the fluctuation in interest rate. This analysis assumes that all other variables are held constant and the same method is applied as the method used in the prior periods. Changes in the total equity and profit or loss are as follows:

(in Korean won)	For the year ended December 31, 2024		For the year ended December 31, 2023	
	Increase by 100bp	Decrease by 100bp	Increase by 100bp	Decrease by 100bp
Increase (decrease) of profit before tax	₩ (16,716,435,612)	₩ 16,716,435,612	₩ (4,146,230,249)	₩ 4,146,230,249

③ Foreign currency risk

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates (the "functional currency"). The Group is exposed to currency risk from the sales, purchases and borrowings not in United States dollar. The Group reduces currency risk from fluctuations in foreign exchange rates by carrying out and interest rate swap and currency swaps.

43. Risk Management (cont'd)

Without considering the effect of the derivative aforementioned, the Group's exposures to foreign currency risk as of December 31, 2024 and 2023 are as follows:

(in foreign currencies and Korean won)

		As of December 31, 2024			As of December 31, 2023		
	Currency unit	Foreign currencies		Korean won equivalent	Foreign currencies		Korean won equivalent
Financial assets							
Denominated in foreign currencies	KRW	165,802,728,840	₩	165,802,728,840	182,296,542,775	₩	182,296,542,775
	VND	60,891,282,100		3,490,897,203	120,632,170,732		6,377,267,959
	NOK	14,124,548		1,831,304,171	27,920,656		3,528,087,548
			₩	171,124,930,214		₩	192,201,898,282
Financial liabilities							
Denominated in foreign currencies	KRW	652,626,684,570	₩	652,626,684,570	847,061,914,801	₩	847,061,914,801
	EUR	60,905,575		93,112,443,060	349,250,990		498,238,723,954
	SGD	-		-	400,196,345		390,931,575,539
	HKD	159,138,758		30,130,695,884	160,000,000		26,406,912,000
	CHF	396,772,382		645,313,776,257	800,000,000		1,221,422,832,000
	VND	4,058,435,900		232,670,130	218,034,048,780		11,526,457,202
	GBP	14,871,823		27,418,793,094	1,698,199,313		2,788,091,778,623
			₩	1,448,835,062,995		₩	5,783,680,194,119

The exchange rates applied by the Group for the years ended and as of December 31, 2024 and 2023 are as follows:

(in US dollar per one foreign currency)	Average rates		Reporting date spot rate	
	For the year ended December 31, 2024	For the year ended December 31, 2023	As of December 31, 2024	As of December 31, 2023
KRW	0.0007	0.0008	0.0007	0.0008
EUR	1.0818	1.0820	1.0400	1.1064
SGD	0.7482	0.7449	0.7354	0.7576
HKD	0.1282	0.1277	0.1288	0.1280
CHF	1.1360	1.1137	1.1064	1.1841
VND(100)	0.0040	0.0042	0.0039	0.0041
NOK	0.0930	0.0948	0.0882	0.0980
GBP	1.2778	1.2441	1.2542	1.2733

43. Risk Management (cont'd)

As of December 31, 2024 and 2023, the effect of a 5% increase or decrease in each functional currency exchange rate on profit before tax assuming all other variables held constant is as follows:

(in Korean won)		As of December 31, 2024		As of December 31, 2023	
		Increase by 5%	Decrease by 5%	Increase by 5%	Decrease by 5%
Increase (decrease) of profit before tax	KRW	₩ (22,585,650,991)	₩ 22,585,650,991	(33,650,975,814)	₩ 33,650,975,814
	EUR	(18,667,937,224)	18,667,937,224	(25,221,258,439)	25,221,258,439
	SGD	-	-	(19,789,281,372)	19,789,281,372
	HKD	(1,397,879,815)	1,397,879,815	(1,336,739,840)	1,336,739,840
	CHF	(29,938,608,318)	29,938,608,318	(61,829,439,240)	61,829,439,240
	GBP	(66,493,183,712)	66,493,183,712	(141,135,523,838)	141,135,523,838
	VND	151,161,788	(151,161,788)	(260,656,241)	260,656,241
	NOK	126,577,330	(126,577,330)	178,594,725	(178,594,725)

43. Risk Management (cont'd)

(iv) Liquidity risk

Details of contractual maturities of financial liabilities and other contractual obligations as of December 31, 2024 are as follows:

(in Korean won)	As of December 31, 2024					
	Book value	Contractual cash flows[1]	Less than 1 year	1 ~ 2 years	2 ~ 5 years	More than 5 years
Short-term borrowings	₩ 633,900,000,035	₩ 650,616,014,160	₩ 650,616,014,160	₩ -	₩ -	₩ -
Bond payables	15,620,440,101,366	17,048,556,332,430	3,448,723,854,030	4,663,863,168,510	6,953,710,518,930	1,982,258,790,960
Long-term borrowings[2]	846,959,555,492	892,137,587,519	72,705,826,679	429,420,244,050	149,439,250,380	240,572,266,410
Lease liabilities	293,868,117,480	544,897,028,764	20,549,918,155	18,759,019,875	48,620,456,814	456,967,633,920
Trade and other payables	808,656,727,667	876,689,592,235	808,415,515,205	22,667,806,470	-	45,606,270,560
Derivative liabilities	32,280,440,612	32,280,442,141	29,363,799,824	2,916,642,317	-	-
Financial guarantee liabilities[3]	-	118,629,000,000	118,629,000,000	-	-	-
	₩ 18,236,104,942,652	₩ 20,163,805,997,249	₩ 5,149,003,928,053	₩ 5,137,626,881,222	₩ 7,151,770,226,124	₩ 2,725,404,961,850

[1] Contractual cash flows include the estimated interest payments but exclude the effects of offsetting contracts.

[2] Borrowings and trade and other payables include accrued interest related to success repayable loans prescribed in the Act on the Special Accounts for Energy and Resources-Related Projects ("SAER") for which cash flows are not fixed.

[3] Financial guarantee is allocated at the earliest period that the maximum amount could be requested.

The Group had a working capital (current assets minus current liabilities) deficit of ₩ 3,729,880 million as of December 31, 2024. The Group's management currently anticipates that raising capital in the money market using credit sources, borrowing agreements held by the Group, expected cash flows that the Group generates from its operations, expected future capital contributions from the Government, and existing cash and cash equivalents as of December 31, 2024 will be sufficient to meet its currently anticipated needs for working capital, capital expenditures and business expansion throughout the foreseeable future.

43. Risk Management (cont'd)

(v) Other price risk

Other price risk is the risk that the fair value or cash flows of financial instruments will fluctuate because of changes in market prices other than interest rate risk and foreign currency risk. The Group's marketable equity securities are exposed to market price risk arising from the fluctuation in the price of the securities. However, the Group's management believes that the effect of the fluctuation in the price of the securities on the financial statements is not significant.

(c) Fair value measurement

A number of the Group's accounting policies and disclosures require the measurement of fair values, for both financial and non-financial assets and liabilities. The Group has performed all significant fair value measurements, including fair values classified at Level 3 in the fair value hierarchy. These assessments are performed by each relevant department, and material assessment results are reported directly to the responsible executives.

The valuation team regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as broker quotes or pricing services, is used to measure fair values, then the valuation team assesses the evidence obtained from the third parties to support the conclusion that such valuations meet the requirements of KIFRS, including the level in the fair value hierarchy in which such valuations should be classified.

When measuring the fair value of an asset or a liability, the Group uses market observable data as far as possible. Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows.

· Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities
· Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices)
· Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs)

If the inputs used to measure the fair value of an asset or a liability fall into different levels of the fair value hierarchy, then the fair value measurement is categorized in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement.

43. Risk Management (cont'd)

(i) Fair value and book value of financial assets and liabilities as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024				As of December 31, 2023			
	Book value		Fair value		Book value		Fair value	
Assets recognized at fair value								
Financial assets measured at fair value through other comprehensive income	₩	1,124,629,850	₩	1,124,629,850	₩	30,300,785,308	₩	30,300,785,308
Financial assets measured at fair value through profit or loss		685,111,809,173		685,111,809,173		611,053,826,278		611,053,826,278
Currency swap		57,960,437,430		57,960,437,430		183,123,857,918		183,123,857,918
Other derivative assets		201,797,543		201,797,543		16,900,409,600		16,900,409,600
	₩	744,398,673,996	₩	744,398,673,996	₩	841,378,879,104	₩	841,378,879,104
Assets recognized at amortized costs[1]								
Cash and cash equivalent	₩	336,637,883,066	₩	336,637,883,066	₩	611,769,880,179	₩	611,769,880,179
Short-term financial instruments		690,112,800		690,112,800		474,341,339		474,341,339
Loans		65,171,134,908		65,171,134,908		79,334,846,044		79,334,846,044
Long-term financial instruments		7,984,478,357		7,984,478,357		7,960,422,148		7,960,422,148
Other financial assets		-		-		876,568,070		876,568,070
Trade receivables and other receivables		627,499,794,510		627,499,794,510		650,385,355,157		650,385,355,157
	₩	1,037,983,403,641	₩	1,037,983,403,641	₩	1,350,801,412,937	₩	1,350,801,412,937
Liabilities recognized at fair value								
Currency swap	₩	28,984,811,701	₩	28,984,811,701	₩	16,820,019,275	₩	16,820,019,275
Financial liabilities measured at fair value through profit or loss		-		-		57,951,394,770		57,951,394,770
Other derivative liabilities		3,295,628,911		3,295,628,911		44,828,698		44,828,698
	₩	32,280,440,612	₩	32,280,440,612	₩	74,816,242,743	₩	74,816,242,743
Liabilities recognized at amortized costs								
Bond payables without collateral	₩	15,620,440,101,366	₩	15,620,440,101,366	₩	13,567,443,677,694	₩	13,567,443,677,694
Bank borrowings		1,480,859,555,527		1,480,859,555,527		1,524,240,850,534		1,524,240,850,534
Trade and payables		1,102,524,845,147		1,102,524,845,147		1,067,267,482,841		1,067,267,482,841
	₩	18,203,824,502,040	₩	18,203,824,502,040	₩	16,158,952,011,069	₩	16,158,952,011,069

[1] The fair values of the financial assets and liabilities measured at amortized costs do not significantly differ from their book values.

43. Risk Management (cont'd)

(ii) Fair value hierarchy

The following table provides an analysis of financial instruments that are measured subsequent to initial recognition at fair value, classified as Level 1, 2, or 3, based on the degree to which the fair value is observable:

Level 1: Unadjusted quoted prices in active markets for identical assets or liabilities;
Level 2: Inputs other than quoted prices that are observable for the asset or liability either directly or indirectly; and
Level 3: Inputs that are not based on observable market data.

Fair values of financial instruments by hierarchy level as of December 31, 2024 are as follows:

(in Korean won)	As of December 31, 2024			
	Level 1	**Level 2**	**Level 3**	**Total**
Financial assets at fair value				
Through other comprehensive income	₩ -	₩ -	₩ 1,124,629,850	₩ 1,124,629,850
Through profit or loss	-	-	685,111,809,173	685,111,809,173
Derivative assets	201,797,499	57,960,437,474	-	58,162,234,973
	₩ 201,797,499	₩ 57,960,437,474	₩ 686,236,439,023	₩ 744,398,673,996
Financial liabilities at fair value				
Derivative liabilities	₩ 6,289,668,038	₩ 25,990,772,574	₩ -	₩ 32,280,440,612
	₩ 6,289,668,038	₩ 25,990,772,574	₩ -	₩ 32,280,440,612

There were no changes in level for the financial instruments for the year ended December 31, 2024.

43. Risk Management (cont'd)

Fair values of financial instruments by hierarchy level as of December 31, 2023 are as follows:

(in Korean won)	As of December 31, 2023			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value				
Through other comprehensive income	₩ -	₩ -	₩ 30,300,785,308	₩ 30,300,785,308
Through profit or loss	-	-	611,053,826,278	611,053,826,278
Derivative assets	14,602,663,986	185,421,603,532	-	200,024,267,518
	₩ 14,602,663,986	₩ 185,421,603,532	₩ 641,354,611,586	₩ 841,378,879,104
Financial liabilities at fair value				
Derivative liabilities	₩ -	₩ -	₩ 57,951,394,770	₩ 57,951,394,770
Through profit or loss	-	16,864,847,973	-	16,864,847,973
	₩ -	₩ 16,864,847,973	₩ 57,951,394,770	₩ 74,816,242,743

There were no changes in level for the financial instruments for the year ended December 31, 2023.

43. Risk Management (cont'd)

The valuation method and significant unobservable input variables used for the fair value measurement of financial assets and liabilities classified as level 3 as of December 31, 2024 are as follows.

(in Korean won)

As of December 31, 2024					
Classification	**Methods**	**Type**	**Book value**	**Significant, unobservable input variable**	**Range**
Financial assets measured at fair value through other comprehensive income[1]	Discounted Cash Flow Method	Private Equity Fund	–	Weighted average cost of capital	31.69%
				LNG selling price	4.26~9.26/MMBtu
Financial assets measured at fair value through other comprehensive income	Net book value	Private Equity Fund	₩ 1,124,629,850	[3]	[3]
Financial liabilities measured at fair value through profit or loss[2]	Discounted Cash Flow Method	Debt securities	685,111,809,173	Weighted average cost of capital	14.58%[4]
Financial liabilities measured at fair value through profit or loss[2]	Net book value	Debt securities	-	[3]	[3]

[1] The financial instruments were fully written down for the year ended December 31, 2024.

[2] The financial instruments were fully revalued for the year ended December 31, 2024.

[3] The financial instruments were measured at net book value based on a reasonable approximation of their fair values.

[4] The fair value of the bond was discounted to 14.58%. If the discount rate changes by 50bp to 14.08% or 15.08%, the measured value increases by ₩ 10,829 million or decreases by ₩ 10,543 million.

43. Risk Management (cont'd)

The valuation method and significant unobservable input variables used for the fair value measurement of financial assets and liabilities classified as level 3 as of December 31, 2023 are as follows.

(in Korean won)

As of December 31, 2023					
Classification	**Methods**	**Type**	**Book value**	**Significant, unobservable input variable**	**Range**
Financial assets measured at fair value through other comprehensive income	Discounted Cash Flow Method	Private Equity Fund	₩ 29,314,324,680	Weighted average cost of capital	22.83%
				LNG selling price	4.26~9.26/MMBtu
	Net book value	Private Equity Fund	986,460,628	[1]	[1]
Financial assets measured at fair value through profit or loss	Discounted Cash Flow Method	Debt securities	611,053,826,278	Weighted average cost of capital	10.00%[2]
Financial liabilities measured at fair value through profit or loss	Discounted Cash Flow Method	Debt securities	55,616,639,508	Weighted average cost of capital	20.00%
	Net book value	Debt securities	2,334,755,262	[1]	[1]

[1] The financial instruments were measured at net book value based on a reasonable approximation of their fair values.

[2] The fair value of the bond was discounted to 10.00%. If the discount rate changes by 50bp to 9.50% or 10.50%, the measured value increases by ₩ 11,096 million or decreases by ₩ 10,783 million.

Changes in financial instruments classified as fair value level 3 for the year ended December 31, 2024 are as follows:

(in Korean won)

	For the year ended December 31, 2024							
Classification[1]	**Beginning balance**	**Acquisition**	**Profit or loss**	**Other comprehensive income**	**Disposal**	**Others**	**Exchange rate effect**	**Ending balance**
Financial assets measured at fair value through profit or loss	₩ 611,053,826,278	₩ 275,474,857	₩ (10,973,309,968)	₩ -	₩ -	-	₩ 84,755,818,006	₩ 685,111,809,173
Financial assets measured at fair value through other comprehensive income	30,300,785,308	-	-	(31,009,890,319)	-	-	1,833,734,861	1,124,629,850
Financial liabilities measured at fair value through profit or loss	57,951,394,770	-	(2,469,799,151)	-	(59,409,982,001)	2,722,093,750	1,206,292,632	-

43. Risk Management (cont'd)

Changes in financial instruments classified as fair value level 3 for the year ended December 31, 2023 are as follows:

(in Korean won)

	For the year ended December 31, 2023						
Classification[1]	Beginning balance	Acquisition	Profit or loss	Other comprehensive income	Disposal	Exchange rate effect	Ending balance
Financial assets measured at fair value through profit or loss	₩ 709,310,513,594	₩ 97,905,750	₩ (4,673,928,970)	₩ -	₩ (11,661,916,786)	₩ (82,018,747,310)	₩ 611,053,826,278
Financial assets measured at fair value through other comprehensive income	11,887,370,695	-	-	18,432,173,481	-	(18,758,868)	30,300,785,308
Financial liabilities measured at fair value through profit or loss	43,185,107,823	-	4,724,393,653	-	-	10,041,893,294	57,951,394,770

44. Transaction with Government and Public Institution

Transactions with government and public institution for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)

		Income		Expenses	
Counter party	**Transaction**	**For the year ended December 31, 2024**	**For the year ended December 31, 2023**	**For the year ended December 31, 2024**	**For the year ended December 31, 2023**
Ministry of Trade, Industry and Energy	Loss on cancellation of debt exemption	₩ -	₩ -	₩ 297,804,137	₩ 5,765,640,716
Ministry of Trade, Industry and Energy	Government grants income	2,399,909,388	1,743,827,105	-	-
Ministry of Trade, Industry and Energy	Assets contributed	339,639,681	-	-	-
		₩ 2,739,549,069	₩ 1,743,827,105	₩ 297,804,137	₩ 5,765,640,716

The outstanding assets and liabilities, arising from the transactions with government and public institution as of December 31, 2024 and 2023 are as follows:

(in Korean won)

		Receivables		Payables	
Counter party	**Transaction**	**As of December 31, 2024**	**As of December 31, 2023**	**As of December 31, 2024**	**As of December 31, 2023**
Ministry of Trade, Industry and Energy.	Borrowings based on SAER	₩ -	₩ -	₩ 240,572,266,818	₩ 211,016,246,733
Ministry of Trade, Industry and Energy	Government grants for others	-	-	1,155,388,175	1,132,083,310
Ministry of Trade, Industry and Energy	Government grants for software	-	-	944,843	10,773,917
		₩ -	₩ -	₩ 241,728,599,836	₩ 212,159,103,960

45. Related Parties

The Group's major related parties as of December 31, 2024 are as follows:

Type	Related parties
Ultimate parent company	Government of the Republic of Korea
Associates	Oilhub Korea Yeosu Co., Ltd.
	Korea GS E&P Pte. Ltd.
	Parallel Holdings LLC
	KNOC Nigerian East Oil Company Ltd.[2]
	KNOC Nigerian West Oil Company Ltd.[2]
	KNOC Ferghana2 Ltd.[1]
Joint ventures	KNOC Inam Ltd.[2]
	K.K. Korea Kamchatka Co., Ltd.[1]
	KNOC Ferghana Ltd.[1]
	Korea Energy Terminal Co., Ltd.
	Donghae Floating Offshore Wind Power Co.,Ltd.[3]

[1] As of December 31, 2024, the entities are in the process of liquidation.

[2] The entities are scheduled for liquidation as of December 31, 2024.

[3] Equity was acquired for the year ended December 31, 2024.

45. Related Parties (cont'd)

Transactions between the Parent Company and its subsidiaries have been removed at the time of consolidation and are not disclosed in the notes. Significant transactions with related parties for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		Sales and others		Purchases and others	
	Transaction	For the year ended December 31, 2024	For the year ended December 31, 2023	For the year ended December 31, 2024	For the year ended December 31, 2023
Oilhub Korea Yeosu Co., Ltd.[1]	Revenues from rental services	₩ 2,066,899,728	₩ 1,907,937,650	₩ -	₩ -
KNOC Nigerian West Oil Company Ltd.	Other income	14,293,487	14,873,646	-	-
	Loss on valuation of financial asset measured at fair value through profit or loss	-	-	-	39,162,300
KNOC Nigerian East Oil Company Ltd.	Other income	14,293,487	14,873,646	-	-
	Loss on valuation of financial asset measured at fair value through profit or loss	-	-	-	58,743,450
K.K. Korea Kamchatka Co. Ltd.	Reversal of bad debt allowance	3,759,491,671	-	-	-
KC kazakh B.V. [2]	Reversal of bad debt allowance	-	2,654,760,101	-	-
KNOC Ferghana Ltd.	Other income	-	78,677,283	-	-
KNOC Ferghana2 Ltd.	Loss on valuation of financial asset measured at fair value through profit or loss	-	-	275,474,857	-
	Other income	335,319,479	677,864,454	-	-
Korea Energy Terminal Co., Ltd.	Other income	1,485,158,984	1,276,700,105	-	-
Parallel Holdings LLC	Reversal of bad debt allowance	-	9,842,942,828	-	-
Deep Basin Partnership[3]	Other expenses	-	-	311,308,113	143,886,370
	Other income	661,471,981	358,480,900	-	-
HKMS Partnership[3]	Other income	113,421,402	324,405,921	-	-
		₩ 8,450,350,219	₩ 17,151,516,534	₩ 586,782,970	₩ 241,792,120

[1] This is the amount for the lease contract for land in Yeosu branch office.

[2] For the year ended December 31, 2023, the entity was completely liquidated, and the amount disclosed above presents the related party transaction details incurred before the completion of liquidation.

[3] For the year ended December 31, 2024, as the option maturity date prescribed in the shareholder agreement with KERR arrived, the option was exercised. As a result, the entities were reclassified from joint ventures to subsidiaries and the amounts disclosed above present the transaction details incurred before the acquisition of control over the entities.

45. Related Parties (cont'd)

The receivables and payables arising from the transactions with related parties as of December 31, 2024 and 2023 are as follows:

(in Korean won)		Receivables[1]		Payables	
	Transaction	As of December 31, 2024	As of December 31, 2023	As of December 31, 2024	As of December 31, 2023
Parallel Holdings LLC	Long-term account receivables[2]	₩ 16,519,689,480	₩ 14,490,127,630	₩ -	₩ -
		₩ 16,519,689,480	₩ 14,490,127,630	₩ -	₩ -

[1] The above loan is the amount before the allowance for doubtful accounts is reflected.

[2] As of December 31, 2024, the Group recognizes 100% of allowance for doubtful accounts in respect to such loans.

The Group recognized no other bad debt expenses and reversal of other bad debt expenses of ₩ 3,759 million on receivables arising from the transaction with the related parties for the year ended December 31, 2024.

Loans to related parties as of December 31, 2024 and 2023 are as follows:

(in Korean won)	As of December 31, 2024	As of December 31, 2023
Associates		
KNOC Nigerian East Oil Company Ltd.[1,2]	₩ 35,497,778,898	₩ 31,136,623,205
KNOC Nigerian West Oil Company Ltd.[1,2]	37,393,894,383	32,799,787,359
KNOC Ferghana2 Ltd.[1,2]	27,106,228,508	23,515,622,338
Joint ventures		
KNOC INAM Ltd.[2]	34,763,979,785	30,492,976,554
K.K. Korea Kamchatka Co. Ltd[2]	165,643,736,507	148,847,149,662
KNOC Ferghana Ltd.[2]	38,432,474,829	33,710,770,779
	₩ 338,838,092,909	₩ 300,502,929,897

[1] As of December 31, 2024, it has been classified into a financial asset measured at fair value through profit or loss on the consolidated statement of financial position. The above loans are the contractual amount before the accumulated valuation gains (losses) is reflected.

[2] As of December 31, 2024, the Group recognizes 100% of allowance for doubtful accounts in respect to such loans. The above loans are the amount before the allowance for doubtful account is reflected.

The above loan is the amount before the allowance for doubtful accounts is reflected.

45. Related Parties (cont'd)

Changes in loans to related parties for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024	For the year ended December 31, 2023
Beginning Balance	₩ -	₩ -
Loans[1]	275,474,857	97,905,750
Impairment[2]	(3,759,491,671)	-
Reversal of bad debt allowance	3,759,491,671	-
Gain (loss) on valuation	(275,474,857)	(97,905,750)
Ending balance	₩ -	₩ -

[1] The loans for the year ended December 31, 2024 only consists of loans to KNOC Ferghana2 Ltd., an associate, and the Group provided loans of ₩ 58 million and ₩ 39 million to KNOC Nigerian East Oil Company Ltd. and KNOC Nigerian West Oil Company Ltd., associates of the Group, respectively.

[2] The redemption amount for the year ended December 31, 2024 only consists of the repayment from K.K. Korea Kamchatka Co. Ltd., a joint venture.

There are no borrowings from the related parties as of December 31, 2024.

There are no lease contracts with related parties as of December 31, 2024.

As of December 31, 2024, details of the payment guarantee provided by the Group to the related parties are as follows:

(in US dollar)

provider	Beneficiary	Description	Amount	Maturity
Korea National Oil Corporation	Korea GS E&P Pte. Ltd.[1]	Bank Loan Payment Guarantee	USD 10,800,000	Jul. 5, 2025
		Bank Loan Payment Guarantee	USD 18,000,000	Jul. 5, 2025
		Bank Loan Payment Guarantee	USD 13,500,000	Jul. 3, 2025
		Bank Loan Payment Guarantee	USD 9,900,000	Jul. 5, 2025
		Bank Loan Payment Guarantee	USD 13,500,000	Jul. 5, 2025
		Bank Loan Payment Guarantee	USD 15,000,000	Jul. 5, 2025

[1] This is the payment guarantee provided indirectly through GS Energy Corporation (see Note 47).

As of December 31, 2024, the Group is not provided with any guarantees from the related parties.

As of December 31, 2024, there is no loans agreement with the related parties.

As of December 31, 2024, the Group is invested ₩ 121,159 million (₩ 87,977 million as of December 31, 2023) by Government of the Republic of Korea, the Ultimate Parent Company.

45. Related Parties (cont'd)

The Parent Company invested ₩ 1,979,135 million and ₩ 4,458 million in Korea Energy Terminal Co., Ltd., a joint venture, and Donghae Floating Offshore Wind Power Co.,Ltd., respectively for the year ended December 31, 2024.

The compensations to the Parent Company's key management personnel for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Salaries	₩	621,317,860	₩	624,396,360
Severance and retirement benefits		39,063,660		37,101,626
	₩	660,381,520	₩	661,497,986

Dividends received from related parties for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean Won)		For the year ended December 31, 2024		For the year ended December 31, 2023
Associate				
Korea GS E&P Pte. Ltd.	₩	28,643,580,000	₩	33,287,955,000
Joint venture				
HKMS Partnership[1]		12,329,339,847		17,851,224,258
	₩	40,972,919,847	₩	51,139,179,258

[1] For the year ended December 31, 2024, as the option maturity date prescribed in the shareholder agreement with KERR arrived, the option was exercised. As a result, the entity was reclassified from a joint venture to a subsidiary.

46. Additional Cash Flow Statement Information

Non-Cash Transactions

Significant non-cash investment and finance transactions excluded from the statements of cash flows for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024	For the year ended December 31, 2023
Revaluation of land classified as property, plant and equipment	₩ -	₩ 623,460,409
Bond payables transferred to current portion	2,726,517,315,626	3,191,860,189,131
Long-term borrowings transferred to current portion	41,135,294,846	459,279,975,352
Construction in progress transferred to other accounts	7,310,019,072	6,802,946,669
Other account payables in relation to the acquisition of the property, plant and equipment	68,125,809	12,149,684,773
Provisions transferred to current portion	211,757,587,431	21,495,917,777
Changes in right-of-use assets due to the modification of leases	(5,271,900,261)	21,914,864,638
Changes in right-of-use assets due to new leases	424,030,780	1,886,391,898
Changes in restoration assets due to the revaluation of provisions	4,016,615,042	1,347,875,760
Assets held for sale transferred to intangible assets[1]	-	124,878,622,158
Assets held for sale transferred to property, plant and equipment[1]	-	85,756,594,883
Assets held for sale transferred to trade receivables[1]	-	83,819,086,742
Liabilities included in asset group held for sale transferred to provisions[1]	-	221,527,335,359
Liabilities included in asset group held for sale transferred to Deferred tax liabilities[1]	-	80,911,809,298

[1] As the reason for classification of assets held for sale and liabilities included in asset group held for sale as of December 31, 2023 has been resolved, the related assets and liabilities are transferred to other accounts.

46. Additional Cash Flow Statement Information (cont'd)

Change in liabilities from financing activities for each of the two years in the period ended December 31, 2024 are as follows:

(in Korean won)	For the year ended December 31, 2024					
			Changes in non-cash			
	Beginning balance	Cash flow	Change in exchange rate	Change in fair value	Others[1]	Ending balance
Lease liability	₩ 327,969,993,371	₩ (26,387,120,811)	₩ (37,930,642,114)	₩ -	₩ 30,215,887,034	₩ 293,868,117,480
Short-term borrowings	386,929,787,691	173,137,135,823	(124,287,981,837)	-	198,121,058,358	633,900,000,035
Long term borrowings	639,827,752,047	-	(16,828,717,041)	-	176,460,520,501	799,459,555,507
Current portion of long-term borrowings	497,483,310,796	(388,303,552,156)	(423,636,504)	-	(61,256,122,151)	47,499,999,985
Bond payables	10,413,377,006,788	3,521,704,935,817	(73,485,478,889)	-	(1,193,389,597,951)	12,668,206,865,765
Current portion of bond payables[2]	3,154,066,670,906	(3,321,865,367,088)	(23,286,384,795)	-	3,143,318,316,578	2,952,233,235,601
Assets held to hedge risk of bond payable[2]	200,024,267,518	-	(47,691,889,419)	5,146,861,228	(99,317,004,354)	58,162,234,973
Liabilities held to hedge risk of bond payable[2]	16,864,847,973	-	(2,008,077,386)	5,380,497,362	12,043,172,663	32,280,440,612

[1] Others include transfer to current portions and amortization to present value.

[2] The assets and liabilities above are comprised of currency swap and interest swap derivative and included in the cash flow of related bond payables.

(in Korean won)	For the year ended December 31, 2023					
			Changes in non-cash			
	Beginning balance	Cash flow	Change in exchange rate	Change in fair value	Others[1]	Ending balance
Lease liability	₩ 303,363,198,326	₩ (24,923,298,861)	₩ (5,177,429,680)	₩ -	₩ 54,707,523,586	₩ 327,969,993,371
Short-term borrowings	257,956,348,084	124,779,157,893	2,718,090,670	-	1,476,191,044	386,929,787,691
Long term borrowings	755,016,015,336	470,073,024,211	(1,868,435,483)	-	(583,392,852,017)	639,827,752,047
Current portion of long-term borrowings	757,618,998,921	(855,487,159,104)	1,346,261,092	-	594,005,209,887	497,483,310,796
Bond payables	10,945,175,844,902	2,334,616,131,174	116,547,890,186	-	(2,982,962,859,474)	10,413,377,006,788
Current portion of bond payables[2]	2,479,633,405,933	(2,545,003,535,582)	8,240,858,829	-	3,211,195,941,726	3,154,066,670,906
Assets held to hedge risk of bond payable[2]	137,240,264,789	2,033,295,879	52,649,310,507	15,607,936,243	(7,506,539,900)	200,024,267,518
Liabilities held to hedge risk of bond payable[2]	177,807,542,365	(83,560,334,711)	1,528,148,482	(4,646,398,029)	(74,264,110,134)	16,864,847,973

[1] Others include transfer to current portion and amortization to present value.

[2] The assets and liabilities above are comprised of currency swap and interest swap derivative and included in the cash flow of related bond payables.

47. Contingencies and Commitments

Details of significant litigations pending against the Group as of December 31, 2024 are as follows:

(in US dollar, Korean won)

Court	Plaintiff	Defendant	Description[1]		Amount	Status
Seoul Central District Court[2]	Private litigant	The Parent Company	Claims for additional wages (overtime pay, severance pay) according to the ordinary wage calculation method	₩	130,985,410	In second trial
Nigeria Lagos State Court[3]	AAA company and Dr. Owolabi	The Parent Company	Claims for damages equivalent to brokerage fees, claims for contribution to acquisition of a mining site	$	100,000,000	In second trial

[1] As of December 31, 2024, in addition to the above lawsuits, three cases of lawsuit have been filed against the Group, with the total litigation value of ₩ 627 million, and seven cases were filed by the Group, with the total litigation value of ₩ 1,201 million equivalent to $ 7 million.

[2] The amount charged and interest under the third lawsuit related to ordinary wage were recognized as provisions (see Note 12).

[3] Dr. Owolabi and others are engaged in a lawsuit demanding that the Group pays for the cooperation to acquire Nigerian mining rights. The Group currently believes that it has no obligations, and as of December 31, 2024, it has not recognized any provisions for these litigations.

For Peru Block 8 project, an international arbitration is in progress from April, 2021 to determine whether it is right to automatically terminate the mining right contract after the operator notified the liquidation due to the Peruvian government's excessive demand for environmental restoration and fines. Although the obligation of decommissioning and fine to be borne by the Group has yet to be determined, under the Joint Operation Agreement (JOA), the Group fulfills its obligation to pay as much as the participating interest of the Group for the responsibilities and expenses incurred by the joint operation until the end of the project.

The Company has provided loan guarantees to non-related parties as of December 31, 2024 and 2023 as follows:

(in US dollar)

Description of guarantee	Guaranteed Party	Guarantee period		As of December 31, 2024		As of December 31, 2023
Payment guarantees for Korea GS E&P	GS Energy	Jul. 5, 2024~Jul. 5, 2025	$	28,800,000	$	28,800,000
		Jul. 3, 2024~Jul. 2, 2025		13,500,000		13,500,000
		Jul. 5, 2024~Jul. 3, 2025		9,900,000		9,900,000
		Jul. 5, 2024~Jul. 5, 2025		13,500,000		13,500,000
		Jul. 5, 2024~Jul. 5, 2025		15,000,000		15,000,000

47. Contingencies and Commitments (cont'd)

As of December 31, 2024, the payment guarantees provided by the Company to others are as follows:

(in thousands of US dollar, millions of Korean won)

Details of contract[1]	Financial institutions		Credit line		Current Balance
Trade finance	Development Bank of Singapore[2]	$	240,000,000	$	-
	Bank of America[2]	$	190,000,000	$	-
	ING Bank[2]	$	400,000,000	$	270,000,000
	Standard Chartered Bank[2]	$	10,000,000	$	-
	Credit Agricole[2]	$	100,000,000	$	-
		$	940,000,000	$	270,000,000
Credit line	Development Bank of Singapore[2]	$	240,000,000		-
	Mizuho Bank	$	400,000,000	$	-
	Bank of America[2]	$	190,000,000	$	-
	ING Bank[2]	$	400,000,000	$	270,000,000
	Credit Agricole[2]	$	100,000,000	$	-
	Standard Chartered Bank[2]	$	10,000,000	$	-
	Export-Import Bank of Korea	$	550,000,000	$	250,000,000
	Nonghyup Bank	$	300,000,000	$	100,000,000
		$	2,190,000,000	$	620,000,000
Credit line	Korea Development Bank	₩	106,875,000,000	₩	106,875,000,000
Bank overdraft	Hana Bank	₩	100,000,000,000	₩	40,000,000,000
	iM Bank	₩	50,000,000,000	₩	50,000,000,000

[1] The above arrangement does not include an arrangement on the borrowing contingent to the Group's successfu completion of oil exploration.

[2] A portion of or all of lines of credit for trade finance and financial loans have been integrated.

47. Contingencies and Commitments (cont'd)

As of December 31, 2024, details of guarantees the Group received from others are as follows:

(in foreign currencies, Korean won)

Provider	Beneficiary	Description	Guarantee amount		Details
			Currency	2024	
Gibsons Energy Inc.	Harvest Operations Corp.	Foreign currency payment	CAD	15,000,000	Oil/Gas/NGL Sales Payment Guarantee
Plains All American Pipeline LLP	Harvest Operations Corp.	Foreign currency payment	USD	50,000,000	Oil/NGL Sales Payment Guarantee
Tidal Energy Marketing Inc.	Harvest Operations Corp.	Foreign currency payment	CAD	20,000,000	Oil/Gas/NGL Sales Payment Guarantee
Trafigura Beheer BV	Harvest Operations Corp.	Foreign currency payment	CAD	25,000,000	Oil/Gas/NGL Sales Payment Guarantee
Societe Generale	Dana Petroleum Limited	Performance Bond	EUR	129,878,074	Restoration performance guarantee
DNB	Dana Petroleum Limited	Performance Bond	GBP	40,219,941	Restoration performance guarantee
DNB	Dana Petroleum Limited	Performance Bond	EUR	33,967,206	Restoration performance guarantee
Standard Chartered	Dana Petroleum Limited	Performance Bond	GBP	37,941,535	Restoration performance guarantee
DNB	Dana Petroleum Limited	Performance Bond[1]	USD	750,000	Project participation guarantee

[1] Provided 100% of cash assets as collateral in the guarantee details.

Regarding the investment agreement for Korea Energy Terminal, on November 13, 2019, the Parent Company signed a Joint Venture Agreement with SK Gas Co., Ltd. to promote the Ulsan North Port project. According to this agreement, the total investment cost is ₩ 144,676 million up to now, and for the amounts that are not financed through external borrowings, each participant promised to invest in the amounts equivalent to the participant's share which is remainder of ₩ 85,549 million is obliged by the Parent Company. The amounts that are not financed through external borrowings should change in accordance with the total investment costs and the related legislation.

As of December 31, 2024, other significant contingencies and commitments related to the Group's subsidiaries are as follows:

(i) Dana Petroleum Limited ("Dana") and its subsidiaries

The Parent Company provided a payment guarantee of borrowings of Dana Petroleum Limited, a subsidiary, entered into with the Export-Import Bank of Korea and others, up to USD 300 million. As of December 31, 2024, the Group provided a performance guarantee of GBP 241 million to participating companies for the expenses that will incur for restoration of the sites, decommissioning, dismantling, removal and disposal of the facilities and structures after the completion of Dana Petroleum Limited's oil field.

47. Contingencies and Commitments (cont'd)

The Group provided a restoration performance guarantee of EUR 164 million and GBP 40 million to banks that issue letter of credit for the expenses that will incur for restoration of the sites, decommissioning, dismantling, removal and disposal of the facilities and structures which is required for issuance of letter of credit.

(ii) Harvest Operations Corp. and its subsidiaries

The opened Harvest Operations Corp.'s performance guarantee L/C is CAD 16 million, and the processing and transportation contractual arrangements are CAD 35 million as of December 31, 2024.

(iii) ANKOR E&P Holdings Corp. ("ANKOR") and its subsidiaries

The Group provided a guarantee of USD 90 million to Chubb Limited and others for the future restoration of oil and gas sites held by ANKOR.

(iv) KNOC Yemen Ltd.

The Group discussed business acquisition with local acquirer YICOM regarding the withdrawal of business of its subsidiary, KNOC Yemen Ltd., but the negotiation is suspended due to civil war occurred in Yemen. Depending on the acquisition agreement, there may be settlement to be paid or received between the Group and YICOM, but the amounts are not reasonably estimable.

(v) KNOC Eagle Ford and its subsidiaries

Details of agreements with financial institutions of KNOC Eagle Ford Corporation and its subsidiaries are as follows:

(in US dollar)

Agreement	Financial Institution	Credit line amount	Executed amount
Credit line	Standard Chartered Bank	$ 100,000,000	$ -
	Sumitomo Mitsui Banking Corporation	70,000,000	-
	Bank of America	25,000,000	-
	Mizuho	30,000,000	-
		$ 225,000,000	$ -

The Parent Company provided a payment guarantee of USD 90 million for loans signed with the Export-Import Bank of Korea by its subsidiary, KNOC Eagle Ford Corporation, and the executed amount is USD 90 million. Furthermore, the Parent Company provided a guarantee of USD 48 million to Chubb Limited and others for the future restoration of oil and gas sites.

47. Contingencies and Commitments (cont'd)

(vi) KNOC Caspian LLP and its subsidiaries

KNOC Caspian LLP's Mining rights (production) contract stipulates annual mandatory investment. In addition, under Kazakhstan's Underground Resources Act, 1% of production costs must be invested in the R&D funds, and 1% of the annual investment must be invested in the training funds. In addition, there are many other arrangements to be implemented in Kazakhstan, such as the liquidation fund, etc. If the agreement is not performed, the Group might have to pay a levy to the Kazakhstan government. In this regard, the Group estimates that KZT 20,515 million will be used as a mandatory investment in 2024.

(vii) Altuis Holding Inc. and subsidiaries

Altius Holding Inc.'s Mining rights (production) contract stipulates annual mandatory investment. In addition, under Kazakhstan's Underground Resources Act, 1% of production costs must be invested in the R&D funds, and 1% of the annual investment must be invested in the training funds. In addition, there are many other arrangements to be implemented in Kazakhstan, such as the liquidation fund, etc. If the agreement is not performed, the Group might have to pay a levy to the Kazakhstan government. In this regard, the Group estimates that KZT 576 million will be used as a mandatory investment in 2024.

48. Business Combinations

Business combinations having incurred for the year ended December 31, 2024 are as follows:

(a) HKMS Partnership

As of October 9, 2024, the Group additionally acquired 30.18% of shares (30,378,034 shares) in HKMS Partnership, a joint venture, for ₩ 9,882 and control over the entity, as the option maturity date prescribed in the shareholder agreement with KERR of Harvest Operations Corp., a subsidiary, arrived.

(b) Deep Basin Partnership

As of December 27, 2024, the Group additionally acquired 15.50% of shares (133,281,506 shares) in Deep Basin Partnership, a joint venture, for ₩ 149,984 million and control over the entity, as the option maturity date prescribed in the shareholder agreement with KERR of Harvest Operations Corp., a subsidiary, arrived.

48. Business Combinations (cont'd)

The fair values of the consideration transferred for the year ended December 31, 2024 are as follows:

(in Korean won)		HKMS Partnership		Deep Basin Partnership
Acquisition amount (consideration transferred)				
Cash	₩	9,882	₩	149,984,103,377
Fair value of existing shares		62,535,512,965		78,794,250,209
	₩	62,535,522,847	₩	228,778,353,586

The fair values of the assets acquired and liabilities assumed due to the business combinations having incurred in the year ended December 31, 2024 are as follows:

(in Korean won)		HKMS Partnership		Deep Basin Partnership
Fair value of the identifiable assets				
Assets				
Cash	₩	52,599,676	₩	206,086,038
Trade receivables		2,750,212,785		10,581,044,520
Short-term loans		4,508,141,246		-
Property, plant and equipment		89,117,679,699		106,821,430,517
Intangible assets		5,021,490,332		-
		101,450,123,738		117,608,561,075
Liabilities				
Trade payables and other payables		559,222,994		7,890,866,508
Short-term borrowings		7,323,688,904		9,300,290,199
Provisions for restoration		4,000,094,678		7,169,772,377
		11,883,006,576		24,360,929,084
Fair value of the identifiable assets, net	₩	89,567,117,162	₩	93,247,631,991

48. Business Combinations (cont'd)

The goodwill arising from the business combinations (bargain purchase gain) having incurred for the year ended December 31, 2024 is as follows:

(in Korean won)	HKMS Partnership	Deep Basin Partnership
Acquisition amount (consideration transferred)	₩ 62,535,522,847	₩ 228,778,353,586
Fair value of the identifiable assets, net	89,567,117,162	93,247,631,991
Goodwill (bargain purchase gain)	₩ (27,031,594,315)	₩ 135,530,721,595

Net cash inflows (outflows) due to the business combinations occurred for the year ended December 31, 2024 are as follows:

(in Korean won)	HKMS Partnership	Deep Basin Partnership
Payment in cash	₩ 9,882	₩ 149,984,103,377
Less: cash and cash equivalents acquired	52,599,676	206,086,038
Net cash outflow (inflow)	₩ (52,589,794)	₩ 149,778,017,339

49. Date of Authorization of Issue

The consolidated financial statements as of and for the year ended December 31, 2024 were approved for issue by the Board of Directors on February 28, 2025.

EY 한영
Building a better working world

Ernst & Young Han Young
2-4F, 6-8F, 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

(English Translation of a Report Originally Issued in Korean)

The Shareholders and Board of Directors
Korea National Oil Corporation

Opinion

We have audited the accompanying consolidated financial statements of Korea National Oil Corporation and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statements of financial position as at December 31, 2023 and 2022, and the consolidated statements of comprehensive income, consolidated statements of changes in equity and consolidated statements of cash flows for each of the two years in the period ended December 31, 2023, and the notes to the consolidated financial statements, including a summary of material accounting policy information.

In our opinion, the consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2023 and 2022, and its consolidated financial performance and its consolidated cash flows for each of the two years in the period ended December 31, 2023 in accordance with Accounting Rules for Public Corporations and Quasi-governmental Institutions in the Republic of Korea.

Basis of Opinion

We conducted our audits in accordance with Korean Standards on Auditing ("KSA"). 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 of the Republic of Korea that are relevant to our audit of the consolidated financial statements and we have fulfilled our other ethical responsibilities in accordance with the ethical requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Emphasis of matter

We draw attention to Note 2 to the consolidated financial statements, which describes that the Group has prepared the consolidated financial statements in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions. Pursuant to its Article 2-5, the Group applies International Financial Reporting Standards as adopted by the Republic of Korea ("KIFRS") where specific accounting treatments are not prescribed by the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions. There are no accounts of which accounting treatment is materially different compared to KIFRS in order for the Group to be in full compliance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions. Our conclusion is not modified in respect of this matter.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with the Accounting Rules for Public Corporations and Quasi-governmental Institutions in the Republic of Korea, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with KSA 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 KSA, 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 entity'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

EY 한영
Building a better working world

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.

Ernst & Young Han Young

February 29, 2024

This report is effective as of February 29, 2024, the audit report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the date of the independent auditor's report to the time this report is used. Such events and circumstances could significantly affect the accompanying consolidated financial statements and may result in modifications to this report.

Korea National Oil Corporation and its subsidiaries
Consolidated statements of financial position
as of December 31, 2023 and 2022

(in Korean won)	Notes		2023		2022
Assets					
Current assets					
Cash and cash equivalents	5,6,26,40,42	₩	611,769,880,179	₩	679,626,569,037
Current financial assets	7,10,11,12,42,43,44		227,612,600,340		224,774,980,920
Trade and other receivables, net	8,23,40,42,44		615,438,335,330		969,408,847,437
Inventories, net	13		90,871,393,304		79,874,644,283
Current tax assets			2,480,110,459		672,194,600
Current non-financial assets	14		113,540,797,392		106,532,812,014
Assets held for sale	17,19,40		-		300,851,578,594
			1,661,713,117,004		2,361,741,626,885
Non-current assets					
Non-current financial assets, net	6,7,9,10,11,42,43,44		702,412,456,365		736,254,288,531
Long-term trade and other receivables, net	6,8,23,42,44		34,947,019,827		38,883,818,092
Property, plant and equipment, net	17,23,26,27,45		7,749,569,379,376		7,781,377,313,052
Goodwill	18		230,028,776,879		226,145,026,278
Intangible assets other than goodwill, net	19,26,45		1,598,363,394,660		1,345,818,940,476
Investments in associates and joint ventures	16		566,191,682,773		568,231,641,169
Defined benefit assets, net	24		6,718,799,911		32,902,611,666
Deferred tax assets	39		880,266,894,589		739,517,115,634
Non-current non-financial assets	14		4,799,248,706,492		4,468,222,261,060
			16,567,747,110,872		15,937,353,015,958
Total assets		₩	18,229,460,227,876	₩	18,299,094,642,843
Liabilities					
Current liabilities					
Trade and other payables	21,23,40,42,44,47	₩	713,939,226,671	₩	920,679,720,566
Current financial liabilities	7,20,22,42,44,47		4,094,141,237,638		3,670,448,400,202
Current tax liabilities			116,566,228,841		190,358,896,900
Current non-financial liabilities	28		134,052,179,351		148,422,467,640
Current provisions	25,47		115,322,911,482		88,573,956,016
Liabilities included in the asset group held for sale	25,40		-		325,389,005,089
			5,174,021,783,983		5,343,872,446,413
Non-current liabilities					
Long-term trade and other payables	21,23,42,44,47		353,328,256,170		336,304,089,664
Non-current financial liabilities	7,20,22,42,44,45,47		11,072,359,533,333		11,763,059,931,580
Non-current non-financial liabilities	28		47,465,694,855		48,879,841,346
Deferred tax liabilities	39,40		749,546,235,471		598,017,909,061
Non-current provisions	25,47		2,181,402,389,796		1,704,939,120,012
			14,404,102,109,625		14,451,200,891,663
Total liabilities			19,578,123,893,608		19,795,073,338,076
Equity					
Equity attributable to owner of the Company					
Share capital	1,29		10,787,741,780,075		10,699,764,780,075
Accumulated deficit	30,31		(12,248,914,702,647)		(12,351,266,133,955)
Other components of equity	32		(117,899,420,474)		(63,563,819,300)
			(1,579,072,343,046)		(1,715,065,173,180)
Non-controlling interests			230,408,677,314		219,086,477,947
Total equity			(1,348,663,665,732)		(1,495,978,695,233)
Total liabilities and equity		₩	18,229,460,227,876	₩	18,299,094,642,843

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

Korea National Oil Corporation and its subsidiaries
Consolidated statements of comprehensive income or loss
for each of the two years in the period ended December 31, 2023 and 2022

(in Korean won)	Notes	2023	2022
Revenue	4,26,33,45,46	₩ 3,267,082,142,228	₩ 3,932,782,443,483
Cost of sales	4,41	(2,077,797,937,082)	(1,678,118,645,615)
Gross profit	4	1,189,284,205,146	2,254,663,797,868
Selling and administrative expenses	4,8,24,25,34,41	(342,829,490,524)	(264,786,166,971)
Operating profit	4	846,454,714,622	1,989,877,630,897
Other income	4,8,25,35,42,46	68,921,308,465	120,456,334,345
Other expenses	4,8,25,35,42	(143,179,098,051)	(166,191,685,090)
Other gains, net	4,14,17,18,19,36,42	310,486,772,580	216,497,546,683
Finance income	4,7,9,20,37,42,46	237,933,619,601	183,028,549,780
Finance costs	4,7,20,38,42,46	(700,735,299,329)	(901,892,297,038)
Gains on investments in associates and joint ventures, net	4,16	15,450,327,514	50,472,048,588
Profit before income tax	4	635,332,345,402	1,492,248,128,165
Income tax expense	39	(456,570,411,495)	(1,191,021,010,688)
Profit from continuing operations		178,761,933,907	301,227,117,477
Profit from discontinued operations	48	-	11,723,989,060
Profit for the year	30,31	178,761,933,907	312,951,106,537
Other comprehensive loss			
Items that will not be reclassified subsequently to profit or loss			
Gains (losses) on revaluation of property, plant and equipment, net of tax	17	623,459,900	(29,685,008,436)
Actuarial gains (losses) on defined benefit plans, net of tax	24,30	(23,590,512,022)	5,289,667,809
Net change in fair value of financial assets measured at fair value through other comprehensive income, net of tax	9,42	18,103,077,832	(4,183,547,672)
Items that are or may be reclassified subsequently to profit or loss			
Equity adjustments arising from investments in equity-method investees, net of tax	16	(7,254,115,918)	(10,287,690,618)
Net changes in valuation of derivatives using cash flow hedge accounting, net of tax	7,42	35,097,073,335	316,892,300,823
Foreign currency translation differences for foreign operations, net of tax		(42,176,279,149)	(318,894,339,359)
Other comprehensive loss for the year, net of tax		(19,197,296,022)	(40,868,617,453)
Total comprehensive income for the year		₩ 159,564,637,885	₩ 272,082,489,084
Profit attributable to:			
Owner of the Company		₩ 125,606,083,894	₩ 221,028,002,346
Non-controlling interests		53,155,850,013	91,923,104,191
Profit for the year		₩ 178,761,933,907	₩ 312,951,106,537
Total comprehensive income attributable to:			
Owner of the Company		₩ 102,095,357,824	₩ 372,926,220,145
Non-controlling interests		57,469,280,061	(100,843,731,061)
Total comprehensive income for the year		₩ 159,564,637,885	₩ 272,082,489,084

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

Korea National Oil Corporation and its subsidiaries
Consolidated statements of changes in equity
for each of the two years in the period ended December 31, 2023 and 2022

(in Korean won)	Attributable to owner of the Company				Non-controlling interests	Total equity
	Share capital	Accumulated deficit	Other components of equity	Sub total		
Balance as of January 1, 2022	₩ 10,623,419,780,075	₩ (12,303,772,021,010)	₩ (481,301,411,141)	₩ (2,161,653,652,076)	₩ 609,401,819,701	₩ (1,552,251,832,375)
Total comprehensive income (loss) for the year						
Profit for the year	-	221,028,002,346	-	221,028,002,346	91,923,104,191	312,951,106,537
Other comprehensive income (loss)						
Items that will not be reclassified subsequently to profit or loss						
Losses on revaluation of property, plant and equipment, net of tax	-	-	(29,685,008,436)	(29,685,008,436)	-	(29,685,008,436)
Revaluation surplus - Transfer from surplus	-	14,137,191,298	(14,137,191,298)	-	-	-
Actuarial gains on defined benefit plans, net of tax	-	5,289,667,809	-	5,289,667,809	-	5,289,667,809
Net change in fair value of financial assets measured at fair value through other comprehensive income, net of tax	-	-	(4,183,547,672)	(4,183,547,672)	-	(4,183,547,672)
Reclassification adjustments of financial assets measured at fair value through other comprehensive income	-	(67,303,049,444)	67,303,049,444	-	-	-
Items that may be reclassified subsequently to profit or loss						
Equity adjustments arising from investments in equity-method investees, net of tax	-	-	(10,287,690,618)	(10,287,690,618)	-	(10,287,690,618)
Net changes in valuation of derivatives using cash flow hedge accounting, net of tax	-	-	316,892,300,823	316,892,300,823	-	316,892,300,823
Foreign currency translation differences for foreign operations, net of tax	-	-	(126,127,504,107)	(126,127,504,107)	(192,766,835,252)	(318,894,339,359)
Total comprehensive income (loss) for the year	-	173,151,812,009	199,774,408,136	372,926,220,145	(100,843,731,061)	272,082,489,084
Transactions with owner of the Company, recognized directly in equity						
Issuance of share capital	76,345,000,000	-	-	76,345,000,000	-	76,345,000,000
Dividends paid	-	-	-	-	115,353,400,000	115,353,400,000
Distribution to non-controlling interests	-	(220,645,924,954)	-	(220,645,924,954)	(36,169,804,209)	(256,815,729,163)
Changes in the scope of consolidation	-	-	217,963,183,705	217,963,183,705	(368,655,206,484)	(150,692,022,779)
Total transactions with owner of the Company	76,345,000,000	(220,645,924,954)	217,963,183,705	73,662,258,751	(289,471,610,693)	(215,809,351,942)
Balance as of December 31, 2022	₩ 10,699,764,780,075	₩ (12,351,266,133,955)	₩ (63,563,819,300)	₩ (1,715,065,173,180)	₩ 219,086,477,947	₩ (1,495,978,695,233)
Balance as of January 1, 2023	₩ 10,699,764,780,075	₩ (12,351,266,133,955)	₩ (63,563,819,300)	₩ (1,715,065,173,180)	₩ 219,086,477,947	₩ (1,495,978,695,233)
Total comprehensive income (loss) for the year						
Profit for the year	-	125,606,083,894	-	125,606,083,894	53,155,850,013	178,761,933,907
Other comprehensive income (loss)						
Items that will not be reclassified subsequently to profit or loss						
Gains on revaluation of property, plant and equipment, net of tax	-	-	623,459,900	623,459,900	-	623,459,900
Transfer of revaluationa gain or loss of property, plant and equipment to retained earnings	-	335,859,436	(335,859,436)	-	-	-
Actuarial losses on defined benefit plans, net of tax	-	(23,590,512,022)	-	(23,590,512,022)	-	(23,590,512,022)
Net change in fair value of financial assets measured at fair value through other comprehensive income, net of tax	-	-	18,103,077,832	18,103,077,832	-	18,103,077,832
Items that may be reclassified subsequently to profit or loss						
Equity adjustments arising from investments in equity-method investees, net of tax	-	-	(7,254,115,918)	(7,254,115,918)	-	(7,254,115,918)
Net changes in valuation of derivatives using cash flow hedge accounting, net of tax	-	-	35,097,073,335	35,097,073,335	-	35,097,073,335
Foreign currency translation differences for foreign operations, net of tax	-	-	(46,489,709,197)	(46,489,709,197)	4,313,430,048	(42,176,279,149)
Total comprehensive income (loss) for the year	-	102,351,431,308	(256,073,484)	102,095,357,824	57,469,280,061	159,564,637,885
Transactions with owner of the Company, recognized directly in equity						
Issuance of share capital	87,977,000,000	-	-	87,977,000,000	-	87,977,000,000
Dividends paid	-	-	-	-	(33,055,000,000)	(33,055,000,000)
Additional acquisition of subsidairy share	-	-	(54,079,527,690)	(54,079,527,690)	(13,092,080,694)	- 67,171,608,384
Total transactions with owner of the Company	87,977,000,000	-	(54,079,527,690)	33,897,472,310	(46,147,080,694)	(12,249,608,384)
Balance as of December 31, 2023	₩ 10,787,741,780,075	₩ (12,248,914,702,647)	₩ (117,899,420,474)	₩ (1,579,072,343,046)	₩ 230,408,677,314	₩ (1,348,663,665,732)

Additional acquisition of subsidairy share

The accompanying notes are an integrated part of the consolidated financial statements.

Korea National Oil Corporation and its subsidiaries
Consolidated statements of cash flows
for each of the two years in the period ended December 31, 2023 and 2022

(in Korean won)		2023		2022
Cash flows from operating activities				
Profit for the year	₩	178,761,933,907	₩	312,951,106,537
Profit from continuing operations		178,761,933,907		301,227,117,477
Profit from discontinued operations		-		11,723,989,060
Adjustment for:				
Severance and retirement benefits		5,512,209,606		8,041,698,306
Depreciation		1,059,767,655,885		608,045,716,655
Amortization of intangible assets other than goodwill		66,521,170,085		63,171,087,488
Bad debt expenses		-		40,152,411,198
Reversal of bad debt allowances		(12,818,074,079)		(26,183,519,139)
Gains on exemption of debts		-		(3,836,574,798)
Losses on cancellation of debt exemption		5,765,640,716		2,080,448,312
Transfer to provisions		176,710,772,784		93,036,530,446
Gains on disposal of property, plant and equipment		(1,700,452,300)		(2,619,258,940)
Gains on disposal of intangible assets other than goodwill		(39,380,747)		(58,886,254)
Gains on disposal of non-current non-financial assets		(307,013,975,774)		(301,754,174,829)
Losses on disposal of property, plant and equipment		1,545,096,030		28,660,362,180
Losses on disposal of intangible assets other than goodwill		58,016,545		20,671
Impairment losses on property, plant and equipment		37,667,515,268		79,521,222,461
Impairment losses on goodwill		9,415,497,563		6,810,518,740
Impairment losses on intangible assets other than goodwill		98,838,023,354		60,561,411,307
Reversal of impairment losses on property, plant and equipment		(87,116,450,337)		(53,928,203,242)
Reversal of impairment losses on intangible assets other than goodwill		(48,035,120,076)		-
Interest income		(45,088,065,805)		(19,383,509,572)
Interest expense		489,822,132,008		454,720,297,551
Dividends income		(5,933,676)		(14,836,599)
Gains on valuation of financial assets measured at fair value through profit or loss		(68,127,304,959)		(4,599,672,972)
Losses on valuation of financial assets measured at fair value through profit or loss		72,830,989,432		177,623,641,451
Gains on valuation of financial liabilities measured at fair value through profit or loss		(15,266,004,732)		(11,536,771,715)
Losses on valuation of financial liabilities measured at fair value through profit or loss		10,541,611,079		9,861,648,388
Losses on transaction of derivative		552,764,442		30,070,252,474
Losses (gains) on valuation of derivative		(523,260,544)		517,865,238
Losses (gains) on foreign currency translation		(62,871,437,722)		85,931,057,492
Share of profit of associates and joint ventures		(49,476,201,585)		(47,373,488,406)
Share of loss of associates and joint ventures		34,025,874,071		6,681,845,804
Reversal of impairment losses on investments in associates and joint ventures		-		(3,445,199,785)
Gains on disposal of investments in associates and joint ventures		-		(6,335,206,201)
Income tax expense		456,570,411,495		1,191,021,010,688
Others		34,590,118,936		(47,747,834,919)
		1,862,653,836,963		2,417,691,909,479
Changes in:				
Inventories		(6,775,632,183)		(2,824,147,343)
Trade and other receivables		472,668,079,729		(365,687,474,285)
Other receivables from operating activities		(248,859,579,561)		578,674,015,653
Trade and other payables		(317,286,472,797)		(104,016,010,886)
Other payables from operating activities		(83,490,937,176)		(660,023,448,003)
Payment of severance and retirement benefits		(212,023,636)		-
Payment of plan assets		(5,343,842,589)		(26,915,624,996)
Other provisions		(23,540,271,856)		(15,834,512,574)
Provisions for decommissioning cost		(132,245,697,062)		(108,059,443,455)
		(345,086,377,131)		(704,686,645,889)
Cash generated from operating activities		1,696,329,393,739		2,025,956,370,127
Dividend received		51,145,112,935		17,051,000,042
Interest paid		(425,743,941,926)		(449,957,214,081)
Interest received		41,804,753,818		12,801,988,276
Income tax paid		(540,777,385,640)		(703,936,933,008)
Net cash provided by operating activities	₩	822,757,932,926	₩	901,915,211,356

(continued)

Korea National Oil Corporation and its subsidiaries
Consolidated statements of cash flows (cont'd)
for each of the two years in the period ended December 31, 2023 and 2022

(in Korean won)	2023	2022
Cash flows from investing activities		
Capital decrease with consideration of investments in associates and joint ventures	₩ -	₩ 50,386,050,000
Acquisition of investments in associates and joint ventures	(5,352,528,768)	(21,323,579,662)
Proceeds from disposal of investments in associates and joint ventures	-	7,860,951,878
Proceeds from disposal of property, plant and equipment	2,467,622,373	1,292,427,602
Acquisition of property, plant and equipment	(506,908,164,992)	(463,336,340,351)
Proceeds from disposal of intangible assets other than goodwill	206,296,697	327,250,948
Acquisition of intangible assets other than goodwill	(199,332,837,386)	(103,771,072,251)
Proceeds from disposal of the asset group held for sale	-	42,544,003,678
Proceeds from disposal of financial assets measured at fair value through profit or loss	392	50,092,443,949
Acquisition of financial assets measured at fair value through profit or loss	(97,905,750)	(174,154,860)
Proceeds from disposal of financial assets measured at fair value through other comprehensive income	-	460,607,073
Increase in deposits provied	(50,976,261)	(187,253,625)
Decrease in deposits provided	7,636,107,055	1,385,138,201
Increase in long-term and short-term financial assets	(5,612,245,218)	-
Decrease in long-term and short-term financial assets	4,950,000,000	74,080,490
Increase in loans	(7,044,252,372)	(45,928,370,731)
Decrease in loans	9,786,864,732	50,942,308,039
Cash inflows (outflows) from futures contracts, forward contracts, options contracts and swap contracts	829,475,491	(79,547,231,533)
Proceeds from disposal of non-current non-financial assets	709,538,106,100	414,060,485,382
Acquisition of non-current non-financial assets	(373,196,428,294)	(65,969,793,890)
Net cash inflow due to changes in the scope of consolidation	-	2,264,720,975
Net cash used in investing activities	(362,180,866,201)	(158,547,328,688)
Cash flows from financing activities		
Proceeds from issuance of share capital	87,977,000,000	76,345,000,000
Proceeds from short-term borrowings	2,353,395,321,817	959,011,721,519
Repayments of short-term borrowings	(2,228,616,163,924)	(948,362,136,275)
Repayments of current portion of long-term borrowings	(855,487,159,104)	(278,116,235,167)
Repayments of current portion of bond payables	(2,545,003,535,582)	(2,374,149,590,249)
Proceeds from issuance of bond payables	2,334,616,131,174	2,064,083,408,162
Proceeds from long-term borrowings	470,073,024,211	54,201,627,794
Repayments of long-term borrowings	-	(58,749,358,608)
Repayments of lease liabilities	(24,923,298,861)	(28,410,308,512)
Dividends paid	(33,055,000,000)	(118,859,400,000)
Net cash outflow due to other distribution to non-controlling interests	(152,994,052,000)	(257,467,615,566)
Net cash used in financing activities	(594,017,732,269)	(910,472,886,902)
Net decrease in cash and cash equivalents before net effect of foreign exchange differences	(133,440,665,544)	(167,105,004,234)
Net effect of foreign exchange differences	65,874,618,462	52,998,595,429
Net decrease in cash and cash equivalents	(67,566,047,082)	(114,106,408,805)
Cash and cash equivalents as of January 1 before deduction of government grants	679,878,800,390	793,985,209,195
Cash and cash equivalents as of December 31 before deduction of government grants	612,312,753,308	679,878,800,390
Government grants	(542,873,129)	(252,231,353)
Cash and cash equivalents as of December 31 after deduction of gorvernment grants	₩ 611,769,880,179	₩ 679,626,569,037

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

1. Corporate information

Korea National Oil Corporation (the “Parent Company” or the “Company”) was incorporated on March 3, 1979 to engage in the development of oil fields, distribution of crude oil, maintenance of petroleum reserve stock, improvement of the petroleum distribution infrastructure and carbon neutralization and reduction of greenhouse gas under the Korea National Oil Corporation Act. The Parent Company’s head office is located at 305, Jongga-Ro, Jung-Gu, Ulsan in Republic of Korea. The Parent Company also has 9 petroleum stockpile sites, 1 domestic gas field management office, and overseas subsidiaries and affiliates (Dana Petroleum Limited etc.) in other countries.

As of December 31, 2023, the Parent Company’s share capital is ₩ 10,787,700 million, which is wholly owned by the government of the Republic of Korea.

The list of subsidiaries as of December 31, 2023 and 2022 are disclosed in Note 15.

2. Basis of Preparation and Material Accounting Policies

2.1 Statement of compliance

The consolidated financial statements of the Korea National Oil Corporation (the “Parent Company”) and its subsidiaries (collectively referred to as the “Group”) have been prepared in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions in the Republic of Korea. Pursuant to its Article 2-5, the Group applies Korean International Financial Reporting Standards (“KIFRS”), a standard adopted in accordance with International Financial Reporting Standards by the Korean Accounting Standards Board, for specific accounting treatments that are not prescribed by the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions in the Republic of Korea. There are no accounts of which accounting treatment is materially different compared to KIFRS in order for the Group to be in full compliance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions in the Republic of Korea.

The accompanying consolidated financial statements have been translated into English from Korean consolidated financial statements. In the event of any differences in interpreting the consolidated financial statements or the independent auditor’s report thereon, Korean version, which is used for regulatory reporting purposes, shall prevail.

2.1 Statement of compliance (cont'd)

(a) Basis of measurement

The consolidated financial statements have been prepared on the historical cost basis, except for the following material items in the statement of financial position:

- ✓ derivative financial instruments measured at fair value;
- ✓ financial assets measured at fair value through profit or loss;
- ✓ financial assets measured at fair value through other comprehensive income;
- ✓ financial liabilities measured at fair value through profit or loss;
- ✓ liabilities for defined benefit plans recognized at the net of the total present value of defined benefit obligations less the fair value of plan assets; and
- ✓ land classified as property, plant and equipment measured at fair value according to the revaluation model.

(b) Functional and presentation currency

Items included in the consolidated financial statements of the Group are measured using the currency of the primary economic environment in which the entity operates (the "functional currency"). The accompanying consolidated financial statements are prepared in the Group's functional currency, the United States dollar, and presented in Korean won, the Group's presentation currency, for the financial performance and financial position.

Assets and liabilities for each statement of financial position presented (i.e. including comparatives) were translated at the closing rate at the date of that statement of financial position, income and expenses for each statement presenting profit or loss and other comprehensive income (i.e. including comparatives) were translated at the average exchange rates of the period and all resulting exchange differences were recognized in other comprehensive income.

2.2 New standards and interpretations not yet adopted by the Group

There are no certain new accounting standards and interpretations that have been published that are not mandatory for annual reporting period commencing January 1, 2024 and have not been early adopted by the Group.

2.3 New and amended standards adopted by the Group

The Group has applied the following standards and amendments for the first time for their annual reporting period commencing January 1, 2023.

(a) KIFRS 1117 Insurance Contract

The amendments provide a comprehensive new accounting standard for insurance contracts covering recognition and measurement, presentation, and disclosure. KIFRS 1117 replaces KIFRS 1104 *Insurance Contracts* (KIFRS 1104). KIFRS 1117 applies to all types of insurance contracts (i.e., life, non-life, direct insurance and re-insurance), regardless of the type of entities that issue them, as well as to certain guarantees and financial instruments with discretionary participation features. A few scope exceptions will apply. The overall objective of KIFRS 1117 is to provide an accounting model for insurance contracts that is more useful and consistent for insurers. KIFRS 1117 provides a comprehensive model for insurance contracts, covering all relevant accounting aspects. The core of KIFRS 1117 is the general model, supplemented by:

• a specific adaptation for contracts with direct participation features (the variable fee approach); and
• a simplified approach (the premium allocation approach) mainly for short-duration contracts.

The amendments do not have a significant impact on the consolidated financial statements.

(b) Amendments to KIFRS 1008 Accounting Policies, Changes in Accounting Estimates and Errors - Definition of Accounting Estimates

The amendments clarify the distinction between changes in accounting estimates and changes in accounting policies and the correction of errors. Also, they clarify how entities use measurement techniques and inputs to develop accounting estimates. The amendments do not have a significant impact on the consolidated financial statements.

(c) Amendments to KIFRS 1001 Presentation of Financial Statements - Disclosure of Accounting Policies

The amendments provide guidance and examples to help entities apply materiality judgements to accounting policy disclosures. The amendments aim to help entities provide accounting policy disclosures that are more useful by replacing the requirement for entities to disclose their ‘significant’ accounting policies with a requirement to disclose their ‘material’ accounting policies and adding guidance on how entities apply the concept of materiality in making decisions about accounting policy disclosures. The amendments have an impact on the disclosure of the Group’s accounting policies. However, they do not have an impact on the measurement, recognition and presentation of items in the consolidated financial statements.

2.3 New and amended standards adopted by the Group (cont'd)

(d) Amendments to KIFRS 1012 Income Taxes - Deferred Tax related to Assets and Liabilities arising from a Single Transaction

The amendments narrow the scope of the initial recognition exception under KIFRS 1012, so that it no longer applies to transactions that give rise to equal taxable and deductible temporary differences, such as leases and decommissioning, restoration and similar liabilities. The amendments do not have a significant impact on the consolidated financial statements.

(e) Amendments to KIFRS 1012 Income Taxes - International Tax Reform – Pillar Two Model Rules

The amendments to KIFRS 1012 have been introduced in response to the OECD's BEPS Pillar Two rules and include:

• A mandatory temporary exception to the recognition and disclosure of deferred taxes arising from the jurisdictional implementation of the Pillar Two model rules; and
• Disclosure requirements for affected entities to help users of the financial statements better understand an entity's exposure to Pillar Two income taxes arising from that legislation, particularly before its effective date.

Once the legislation is effective, additional disclosures are required for the current tax expense related to Pillar Two income taxes. The requirements apply for annual reporting periods beginning on or after January 1, 2023, but not for any interim periods ending on or before December 31, 2023. The impact of these amendments on the consolidated financial statements is unknown as of 31,December 2023.. The impact analysis of the Pillar Two income taxes is described in Note 39.

2.4 Material accounting policies

The material accounting policies applied by the Group in preparation of its consolidated financial statements are included below. The accounting policies set out below have been applied consistently to all periods presented in these consolidated financial statements, except for new and amended standards adopted by the Group as explained in Note 2.3.

(a) Basis of consolidation

(i) Non-controlling interests

Non-controlling interests are measured at their proportionate share of the acquiree's identifiable net assets at the date of acquisition. Changes in the Group's interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

2.4 Material accounting policies (cont'd)

(ii) Subsidiaries

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

(iii) Loss of control

When the Group loses control over a subsidiary, it derecognizes the assets and liabilities of the subsidiary, and any related non-controlling interests and other components of equity. Any resulting gain or loss is recognized in profit or loss. Any interest retained in the former subsidiary is measured at fair value when control is lost.

(iv) Interests in equity-accounted investees

The Group's interests in equity-accounted investees comprise interests in associates and a joint venture. Associates are those entities in which the Group has significant influence, but not control or joint control, over the financial and operating policies. A joint venture is an arrangement in which the Group has joint control, whereby the Group has rights to the net assets of the arrangement, rather than rights to its assets and obligations for its liabilities.

Interests in associates and the joint venture are accounted for using the equity method. They are initially recognized at cost, which includes transaction costs. Subsequent to initial recognition, the consolidated financial statements include the Group's share of the profit or loss and OCI of equity-accounted investees, until the date on which significant influence or joint control ceases.

(v) Transactions eliminated on consolidation

Intra-group balances and transactions, and any unrealized income and expenses arising from intra-group transactions, are eliminated. Unrealized gains arising from transactions with equity-accounted investees are eliminated against the investment to the extent of the Group's interest in the investee. Unrealized losses are eliminated in the same way as unrealized gains, but only to the extent that there is no evidence of impairment.

(b) Business combination

The acquisition method of accounting is used to account for business combinations by the Group. The consideration transferred in a business combination is measured at the fair values, at the acquisition date (transfer date), of the assets transferred with controlling interest in the acquired entity, liabilities issued or borne by the Group to the former owners of the acquired entity and equity interests issued by the Group in exchange for control of the acquired entity. Acquisition-related costs are generally recognized in profit or loss as incurred.

2.4 Material accounting policies

The identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date except that:

- deferred tax assets and liabilities and assets and liabilities related to employ benefit arrangements are recognized and measured in accordance with KIFRS 1012 *Income Tax* and KIFRS 1019 *Employee Benefits*, respectively;
- liabilities and equity instruments incurred due to replacing the share-based payment of the acquired entity with the share-based payment of the Group are measured in accordance with KIFRS 1102 *Share-based Payment*; and
- non-current assets (or disposal groups comprising assets and liabilities) classified as available-for-sale assets pursuant to KIFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations* are measured in accordance with KIFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations*.

Goodwill is measured as the excess of the sum of the consideration transferred, the amount of any non-controlling interests in the acquired entity, and the fair value of the Group's previously held equity interest in the acquired entity (if any) over the net of the acquisition-date amounts of the identifiable assets acquired and the liabilities assumed. If, after reassessment, the net of the acquisition-date amounts of the identifiable assets acquired and liabilities assumed exceeds the sum of the consideration transferred, the amount of any non-controlling interest in the acquired entity and the fair value of the Group's previously held interest in the acquire (if any), the excess is recognized immediately in profit or loss as a bargain purchase gain.

Non-controlling interests that present ownership interests and entitle their holders to a proportionate share of the entity's net assets in the event of liquidation may be initially measured either at fair value or at the non-controlling interests' proportionate share of the recognized amounts of the acquired entity's identifiable net assets. The choice of measurement basis is made on a transaction-by-transaction basis. Other types of non-controlling interests are measured at fair value or, when applicable, on other basis specified in KIFRS.

The Group’s consideration transferred includes the assets and liabilities on a contingent consideration agreement. The contingent consideration is measured at its fair value at the acquisition date and is included as a part of the consideration transferred in a business combination. Changes in the fair value of the contingent consideration that qualify as measurement period adjustments are adjusted retrospectively, with corresponding adjustments against goodwill. Measurement period adjustments are the adjustments resulted from obtaining additional information on any fact and circumstance that existed at the acquisition date during the ‘adjustment period (which cannot exceed one year from the acquisition date)’.

The subsequent accounting for changes in fair value of the contingent consideration, which does qualify as measurement period adjustments, depends on how the contingent consideration is classified. Contingent consideration that is classified as equity is not remeasured at the subsequent reporting dates and its subsequent settlement is accounted for within equity. Contingent consideration that is classified as an asset or a liability is remeasured at the subsequent reporting dates in accordance with KIFRS 1109 *Financial*

2.4 Material accounting policies (cont'd)

Instruments or KIFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets*, as appropriate, with the corresponding gain or loss being recognized in profit or loss.

When a business combination is achieved in stages, the Group's previously held equity interest in the acquired entity is remeasured at fair value at the acquisition date (i.e., the date when the Group obtains control) and the resulting gain or loss, if any, is recognized in profit or loss. The amounts arising from interests in the acquisition prior to the acquisition date that have previously been recognized in other comprehensive income are reclassified to profit or loss where such treatment would be appropriate if that interests were disposed of.

If the initial recognition of the business combination has not been completed until the end of the reporting period in which the combination occurs, the Group reports provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted during the measurement period (see above), or additional assets or liabilities are recognized, to reflect new information obtained on the facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognized at that date.

(c) Investments in associates

An associate is an entity that is not a subsidiary or joint venture of the Group, and over which the Group has significant influence. The Group has a significant influence over an associate when:

- the Group participates in the Board of Directors or such decision-making bodies of the investee;
- the Group participates in making decisions on policies including decisions on dividend payment and other distribution;
- the Group has a material transaction with the investee;
- the Group has a mutual interaction of management with the investee; and
- the Group shares essential information on technology with the investee.

The results and assets and liabilities of associates are incorporated in these consolidated financial statements using the equity method of accounting, except when the investment is classified as held for sale, in which case it is accounted for in accordance with KIFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations*. Under the equity method, an investment in an associate is initially recognized in the consolidated statement of financial position at cost and adjusted thereafter to recognize the Parent Company's share of the profit or loss and other comprehensive income of the associate. When the Parent Company's share of losses of an associate exceeds the Parent Company's interest in that associate (which includes any long-term interests that, in substance, form part of the Parent Company's net investment in the associate), the Parent Company discontinues recognizing its share of further losses. Additional losses are recognized only to the extent that the Parent Company has incurred legal or constructive obligations or made payments on behalf of the associate.

2.4 Material accounting policies (cont'd)

Any excess of the cost of acquisition over the Parent Company's share of the net fair value of the identifiable assets, liabilities and contingent liabilities of an associate recognized at the date of acquisition is recognized as goodwill, which is included within the carrying amount of the investment. Any excess of the Parent Company's share of the net fair value of the identifiable assets, liabilities and contingent liabilities over the cost of acquisition, after reassessment, is recognized immediately in profit or loss.

The requirements of KIFRS 1109 *Financial Instruments* are applied to determine whether it is necessary to recognize any impairment loss with respect to the Group's investment in an associate. When necessary, the entire carrying amount of the investment as a single asset (including goodwill) is tested for impairment in accordance with KIFRS 1036 *Impairment of Assets* by comparing its recoverable amount (higher of value in use and fair value less costs to sell) with its carrying amount, and any impairment loss recognized forms part of the carrying amount of the investment. Any reversal of that impairment loss is recognized in accordance with KIFRS 1036 to the extent that the recoverable amount of the investment subsequently increases.

When an entity has transactions with an associate of the Group, profits and losses resulting from the transactions with the associate are recognized in the Parent Company's consolidated financial statements only to the extent of interests in the associate that are not related to the Group.

(d) Investments in joint ventures

A joint arrangement is an arrangement for the Group and other parties to perform economic activities that are subject to a joint control. A joint control requires a unanimous consent of the parties sharing the control on the decisions related to the major financial and operational policies on the joint arrangement.

In case of that the Group performs the economic activities in accordance with the joint arrangement, the Group's share of a joint venture and the Group's share of the liabilities that the Group incurred jointly with other parties are recognized in the joint venture's financial statement and classified by nature. The liabilities and expenses incurred directly in relation to the Group's share of a joint venture are recognized on accrual basis. The Group recognizes its share of revenues incurred due to sales or use of its share of the joint venture's business results and the its share of costs incurred by the joint venture when it is highly possible that the economic benefits related to such transactions will flow into or out and the amounts can be measured reliably.

Meanwhile, the Group recognizes in the consolidated financial statements the Group's share of a joint operation's assets, liabilities, profits and expenses according to the joint agreement. A joint operation is a joint arrangement in which the parties who hold joint control according to the agreement hold the rights to the assets and obligations to the liabilities corresponding to their respective shares, and it exists only when decisions on relevant activities require the consent of all parties sharing control.

The Group's share of a joint venture is incorporated in the consolidated financial statements using the equity method of accounting, except when the investment share is classified as held for sale, in which case it is accounted for in accordance with KIFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations*.

2.4 Material accounting policies (cont'd)

Goodwill arising from acquiring a share of a joint venture is recognized in accordance with the Group's accounting policies on goodwill arising from a business combination. When the Group has a transaction with a joint venture, a gain or loss incurred from the transaction is recognized on the Group's financial statement only for the amounts that are the share of the joint venture not related to the Group.

(e) Goodwill

Goodwill arising on an acquisition of a business is carried at cost as established at the date of acquisition of the business, less accumulated impairment losses, if any. For impairment testing, goodwill is allocated to cash-generating units (or groups of cash-generating units) of the Group that were expected, at the date of acquisition, to benefit from the synergies of the combination giving rise to the goodwill.

A cash-generating unit to which goodwill has been allocated is tested for impairment annually or more frequently when there is an indication that the unit may be impaired. If the recoverable amount of the cash-generating unit is less than its carrying amount, the impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the unit and then to the other assets of the unit on a pro rata basis based on the carrying amount of each asset in the unit. Any impairment loss for goodwill is recognized directly in profit or loss in the consolidated statement of comprehensive loss. An impairment loss recognized for goodwill is not reversed in subsequent periods.

On disposal of the relevant cash-generating unit, the allocated amount of goodwill is included in the determination of the profit or loss on disposal. The Group's accounting policies with respect to the goodwill arising from acquisition of an affiliate are stated in the Note 2.4 (b).

(f) Non-current assets held for sale

The Group classifies non-current assets or disposal groups as held for sale if their carrying amounts will be recovered principally through a sale rather than through continuing use. These conditions are considered met only when the non-current asset (or disposal group) must be available for immediate sale in its present condition and it is highly probable that it will be sold. Management should commit to a plan for the sale of the asset and should be expected to meet the sale completion requirements within one year from the time of classification.

In the event that the Group commits to a sale plan that results in loss of control over a subsidiary, the Group has all of the above-mentioned conditions, regardless of whether the Group holds a non-controlling interest in the previous subsidiary after the sale. Assets and liabilities are classified as held for sale.

Such non-current assets and disposal groups classified as held for sale are measured at the lower of their carrying amount and fair value less costs to sell or to distribute.

2.4 Material accounting policies (cont'd)

(g) Revenue

Under the new standard, KIFRS 1115, the Group recognizes revenue base on the five-step approach (Step 1: Identify the contract(s) with a customer, Step 2: Identify the performance obligations in the contract, Step 3: Determine the transaction price, Step 4: Allocate the transaction price to the performance obligations in the contract, Step 5: Recognize revenue when the entity satisfied a performance obligation) is applied for all types of contracts or agreements. Revenue is measured based on the consideration defined by the contracts with customers, and the amount collected as an agent of a third party is excluded. In addition, the Group recognizes revenue when the control over the goods or service is transferred to the customer. Among the consideration received from customers, the amount of contract liabilities relates to performance obligations in the next period is equal to the amount of unearned revenue, and the unearned revenue at the end of the 2022 was fully recognized as revenue during the current period.

i) Sale of goods

The contracts which the Group entered with customers for the sale of crude oil and others contain a single performance obligation. Depending on sales contract with customers, performance obligation can be distinguished as 'performance obligation satisfied at a point in time' and 'performance obligation satisfied over time'. In the case of 'performance obligation satisfied at a point in time', the Group has concluded that revenue to be recognized at the time of delivery because control of goods is transferred at a point in time of delivery. Also, in the case of 'performance obligation satisfied over time', although revenue should be recognized by measuring progress towards complete satisfaction of a performance obligation, the Group has applied practical expedient allowed under KIFRS 1115 in relation to measuring progress.

ii) Rendering of services

The Group provides services such as lending stockpile oil resources, storing oil resources, and leasing related facilities. Service contract contains a large number of performance obligations whose promises with customers are distinct within the context of the contract and separately identifiable. The Group has determined that service contract contains 'performance obligation satisfied over time', and applied practical expedient of measuring progress allowed under KIFRS 1115.

(h) Leases

The lessor classifies the lease contract as an operating lease or a financial lease depending on the substance of the transaction, and accounting treatment differs according to the classification.

In accordance with the amendment of the standard, lessee applies a single lease model and recognizes assets and liabilities for all lease which lease term is over 12 months and underlying assets are not low value assets. A lessee is required to recognize a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments.

2.4 Material accounting policies (cont'd)

For a contract that is, or contains, a lease, the Group shall account for each lease component within the contract as a lease separately from non-lease components of the contract. However, the Group accounts for each lease components and non-lease components as a single lease components without separating the non-lease components from the lease components as a lessee applying the practical expedients.

i) The Group as a lessor

A lease in which the risks and rewards of ownership of the underlying asset are not transferred to the Group is classified as a finance lease, and leases in which the risks and rewards of ownership of the underlying asset are not transferred to the Group are classified as an operating lease.

The Group recognizes the amount equivalent to the net investment in the leases as finance lease receivables. Uncollected part of net investment is recognized as interest income applying the effective interest rate.

Lease income from operating leases is recognized in income on a straight-line basis over the lease term. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the lease asset and recognized as expense over the lease term on the same basis as lease income.

ii) The Group as a lessee

Lessee applies a single lease model and recognizes assets and liabilities for all lease which lease term is over 12 months and underlying assets are not low value assets. A lessee is required to recognize a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments.

- Right-of-use asset

At the commencement date, the Group recognizes right-of-use assets at cost. After the commencement date, the Group measures the right-of-use assets at their costs: (a) less accumulated depreciation and any accumulated impairment losses; and (b) adjusted for any remeasurement of the lease liability. For land, the Group applies the revaluation model, but land-related right-of-use assets are measured at cost.

The cost of the right-of-use assets comprises (a) the amount of the initial measurement of the lease liability, (b) any initial direct costs incurred by the lessee, (c) any lease payments made at or before the commencement date, less any lease incentives received, and (d) an estimate of costs to be incurred by the lessee in dismantling and removing the underlying asset. If the lease does not transfer ownership of the underlying asset to the Group by the end of the lease term, the Group shall depreciate the right-of-use asset from the commencement date to the earlier of the end of the useful life of the right-of-use asset or the end of the lease term. The Group shall apply KIFRS 1036 *Impairment of Assets* to determine whether the right-of-use asset is impaired and to account for any impairment loss identified.

2.4 Material accounting policies (cont'd)

- Lease liability

The Group measures the lease liability at the present value of the lease payments for the right to use the underlying asset during the lease term that are not paid at the commencement date. Lease payments comprise the following payments:

- fixed payments (including in-substance fixed payments), less any lease incentives receivable
- variable lease payment that are based on an index or a rate, initially measured using the index or rate as at the commencement date
- amounts expected to be payable by the Group (the lessee) under residual value guarantees
- the exercise price of a purchase option if the Group (the lessee) is reasonably certain to exercise that option; and
- payments of penalties for terminating the lease, if the lease term reflects the Group (the lessee) exercising that option.

Variable lease payments, which do not depend on the index or a rate, are recognized as an expense as incurred.

When measuring the lease liability at the present value of the lease payments, the lease payments shall be discounted using the lessee's incremental borrowing rate if the interest rate implicit in the lease cannot be readily determined. After the commencement date, the Group increases the carrying amount of the lease liability by reflecting the interest on the lease liability and reduces the carrying amount of the lease liability by reflecting the lease payments. In addition, the Group remeasures the lease liability to reflect any reassessment or lease modifications, or to reflect revised in-substance fixed lease payments.

- Short-term leases and leases of low-value assets

The Group elects to apply recognition exemptions to short-term leases (leases that, at the commencement date, have a lease term of 12 months or less and do not contain a purchase option) and leases for which the underlying asset is of low value (i.e., below $ 5,000). Payments of short-term leases and leases for which the underlying asset is of low-value are recognized as an expense on a straight-line basis over the lease term.

The carrying amounts of the right-of-use assets and lease liabilities as of the reporting date and their changes during the reporting period are explained in Note 23.

(i) Foreign currencies

Transactions in foreign currencies are translated to the respective functional currencies of the Group entities at exchange rates at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are retranslated to the functional currency using the reporting date's exchange rate. Non-monetary assets and liabilities denominated in foreign currencies that are measured at fair value are retranslated to the

2.4 Material accounting policies (cont'd)

functional currency at the exchange rate at the date that the fair value was determined. Non-monetary assets and liabilities denominated in foreign currencies that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the dates of the transactions.

Foreign currency differences arising on retranslation are recognized in profit or loss, except for differences arising on the retranslation of available-for-sale equity instruments, a financial liability designated as a hedge of the net investment in a foreign operation, or qualifying cash flow hedges, which are recognized in other comprehensive income. When gains or losses on non-monetary items are recognized in other comprehensive income, exchange components of those gains or losses are recognized in other comprehensive income. Conversely, when gains or losses on non-monetary items are recognized in profit or loss, exchange components of those gains or losses are recognized in profit or loss.

(j) Borrowing costs

The Group capitalizes borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset as part of the cost of that asset. Other borrowing costs are recognized in expense as incurred. A qualifying asset is an asset that requires a substantial period of time to get ready for its intended use or sale. Financial assets and inventories that are manufactured or otherwise produced over a short period of time are not qualifying assets. Assets that are ready for their intended use or sale when acquired are not qualifying assets.

To the extent that the Group borrows funds specifically for the purpose of obtaining a qualifying asset, the Group determines the amount of borrowing costs eligible for capitalization as the actual borrowing costs incurred on that borrowing during the period less any investment income on the temporary investment of those borrowings. To the extent that the Group borrows funds generally and uses them for the purpose of obtaining a qualifying asset, the Group shall determine the amount of borrowing costs eligible for capitalization by applying a capitalization rate to the expenditures on that asset. The capitalization rate shall be the weighted average of the borrowing costs applicable to the borrowings of the Group that are outstanding during the period, other than borrowings made specifically for the purpose of obtaining a qualifying asset. The amount of borrowing costs that the Group capitalizes during a period shall not exceed the amount of borrowing costs incurred during that period.

(k) Government grants

Government grants are not recognized until there is reasonable assurance that the Group complies with the conditions relating to the grants and that the grants will be received. The benefits of government grants with interest rates lower than the market interest rate are treated as government grants. The difference between the fair value of government grants based on the market interest rate and the consideration received are accounted for as government grants.

2.4 Material accounting policies (cont'd)

Government grants related to assets are presented as a deduction of related assets. The related government grants are recognized as profit or loss in a way that decreases the depreciation over the expected lives of the related assets.

Government grants related to income are recognized in profit or loss on a systematic basis over the period to match with the related subsidized expenses. Government grants that are receivable as compensation for expenses or losses already incurred or for the purpose of giving immediate financial support to the Group with no future related costs are recognized in profit or loss in the period in which they become receivable.

(l) Employee benefits

i) Short-term employee benefits

Short-term employee benefits are employee benefits that are due to be settled within 12 months after the end of the period in which the employees render the related service. When an employee has rendered service to the Group during an accounting period, the Group recognizes the undiscounted amount of short-term employee benefits expected to be paid in exchange for that service.

ii) Retirement benefits: defined contribution plans

When an employee has rendered service to the Group during a period, the Group recognizes the contribution payable to a defined contribution plan in exchange for that service as a liability (accrued expense), after deducting any contribution already paid. If the contribution already paid exceeds the contribution due for service before the end of the reporting period, the Group recognizes that excess as an asset (prepaid expense) to the extent that the prepayment will lead to a reduction in future payments or a cash refund.

A defined benefit plan is a post-employment benefit plan other than a defined contribution plan. The Group's net obligation in respect of defined benefit plans is calculated by estimating the amount of future benefit that employees have earned in return for their service in the current and prior periods; that benefit is discounted to determine its present value. The fair value of plan assets is deducted. The calculation is performed annually by an independent actuary using the projected unit credit method.

The discount rate is the yield at the reporting date on high-quality corporate bonds that have maturity dates approximating the terms of the Group's obligations and that are denominated in the same currency in which the benefits are expected to be paid. The Group recognizes all actuarial gains and losses arising from actuarial assumption changes and experiential adjustments in other comprehensive income when incurred.

Re-measurements of net defined benefit liabilities, which comprise actuarial gains and losses, the return on plan assets (excluding interest) and the effect of the asset ceiling (if any, excluding interest), are recognized immediately in other comprehensive income. The Group determines the net interest expense (income) on the net defined benefit liability (asset) for the period by applying the discount rate used to measure the defined benefit obligation at the beginning of the annual period to the then-net defined benefit liability (asset), taking

2.4 Material accounting policies (cont'd)

into account any changes in the net defined benefit liability (asset) during the period as a result of contributions and benefit payments, net interest expense and other expenses related to defined benefit plans are recognized in profit or loss.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss in curtailment is recognized immediately in profit or loss. The Group recognizes gains and losses on the settlement of a defined benefit plan when the settlement occurs.

(m) Income taxes

Income tax expense comprises current and deferred tax. Current tax and deferred tax are recognized in profit or loss except to the extent that it relates to a business combination, or items recognized directly in equity or in other comprehensive income.

i) Current tax

Current tax is the expected tax payable or receivable on the taxable profit or loss for the year, using tax rates enacted or substantively enacted at the end of the reporting period and any adjustment to tax payable in respect of previous years. The taxable profit is different from the accounting profit for the period since the taxable profit is calculated excluding the temporary differences, which will be taxable or deductible in determining taxable profit (tax loss) of future periods, and non-taxable or non-deductible items from the accounting profit.

ii) Deferred tax

The measurement of deferred tax assets and deferred tax liabilities reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities. The Group recognizes a deferred tax liability for all taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures, except to the extent that the Group is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, the Group recognizes a deferred tax asset for all deductible temporary differences to the extent that it is probable that the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

The carrying amount of a deferred tax asset is reviewed at the end of each reporting period and reduces the carrying amount to the extent that it is no longer probable that sufficient taxable profit will be available to allow the benefit of part or all of that deferred tax asset to be utilized. Deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the period when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period. 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

2.4 Material accounting policies (cont'd)

settle the carrying amount of its assets and liabilities.

Deferred tax assets and liabilities are offset only if there is a legally enforceable right to offset the related current tax liabilities and assets, and they relate to income taxes levied by the same tax authority and they intend to settle current tax liabilities and assets on a net basis.

(n) Property, plant and equipment

Property, plant and equipment, except for land, are initially measured at cost and after initial recognition, are carried at cost less accumulated depreciation and accumulated impairment losses.

Land is carried at a revalued amount, being its fair value at the date of the revaluation less subsequent accumulated impairment losses. Revaluations shall be made with sufficient regularity to ensure that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.

If an asset's carrying amount is increased as a result of a revaluation, the increase shall be recognized in other comprehensive income and accumulated in equity under the heading of revaluation surplus. However, the increase shall be recognized in profit or loss to the extent that it reverses a revaluation decrease of the same asset previously recognized in profit or loss. A revaluation deficit is recognized in the statement of comprehensive loss to the extent that it offsets an existing surplus on the same asset recognized in the asset revaluation reserve.

The cost of property, plant and equipment includes expenditures arising directly from the construction or acquisition of the asset, any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management and the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

The following costs are capitalized as oil and gas properties.

- the costs incurred in development stage for constructing facilities and drilling wells for production;
- the costs of acquiring production areas or fields with proved reserves;
- the construction costs and other expenditures for initiating production; and
- the estimated costs for decommissioning.

Additionally, the Group depreciates the acquisition costs of oil and gas properties which are aggregated on an area-by-area basis or field-by-field basis. For the costs of oil and gas properties which are aggregated on an area-by-area basis, the Group depreciates the acquisition costs using proved reserves as the total estimated production when applying the unit-of-production depreciation method.

2.4 Material accounting policies (cont'd)

For the costs of oil and gas properties which are aggregated on a field-by-field basis, the Group depreciates the acquisition costs using proved developed reserves as the total estimated production when applying the unit-of-production depreciation method.

Costs related to undeveloped oil and gas properties are not immediately included in the depletable pool of developed assets but are transferred to the depletable pool as the reserves become proved (for area-by-area basis) or developed (for field-by-filed basis) through drilling activities.

Subsequent costs are recognized in the carrying amount of property, plant and equipment at cost or, if appropriate, as separated items if it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognized. The costs of the day-to-day servicing are recognized in profit or loss as incurred.

Property, plant and equipment, except for land and oil and gas properties, are depreciated on a straight-line basis over estimated useful lives that appropriately reflect the pattern in which the asset's future economic benefits are expected to be consumed.

	Useful lives
Buildings	20 - 40 years
Structures	20 - 40
Machinery	5 - 20
Tools and fixtures	5 - 12
Vehicles	7 - 12
Right-of-use assets	1 - 40
Others	5 - 10

Gains and losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of property, plant and equipment and are recognized in profit or loss. Depreciation methods, useful lives and residual values are reviewed at the end of each reporting date and adjusted, if appropriate. The change is accounted for as a change in an accounting estimate. The Group has taken into account the related hygiene, safety and environmental laws and regulations when estimating residual values and useful lives.

(o) Intangible assets other than goodwill

Intangible assets other than goodwill with finite useful lives acquired separately are carried at cost. Intangible assets other than goodwill acquired in a business combination are initially recognized at their fair value at the acquisition date (which is regarded as their cost). Subsequent to initial recognition, intangible assets acquired in a business combination are reported at cost less accumulated amortization and accumulated impairment losses.

2.4 Material accounting policies (cont'd)

Prior to acquiring the legal rights to explore an area, all costs related to exploration and evaluation of an area are charged directly to the statement of comprehensive loss. Once the legal rights to explore are acquired, all costs associated with acquisition of exploration rights, geological, geophysical and geographical research, drilling costs and evaluation of technical and commercial viability of economic production are capitalized as exploration and evaluation assets. All such costs are subject to review for impairment when facts and circumstances suggest that the carrying amount of the assets exceeds their recoverable amount. When technical feasibility and commercial viability are established, the relevant expenditure is transferred to oil and gas properties after impairment is assessed and any resulting impairment loss is recognized. If no potentially commercial petroleum is discovered from exploration drilling, the relating exploration and evaluation assets are written off through the statement of comprehensive loss.

The useful lives of intangible assets other than goodwill are assessed as either finite or indefinite. Intangible assets other than goodwill with finite lives are amortized over the useful economic life and assessed for impairment whenever there is an indication that the intangible asset other than goodwill may be impaired. The amortization period and the amortization method for intangible assets other than goodwill with a finite useful lives are reviewed at least each financial year end. Changes in the expected useful life or the expected pattern of consumption of future economic benefits embodied in the asset is accounted for by changing the amortization period or method, as appropriate, and are treated as changes in accounting estimates. The amortization expense on intangible assets other than goodwill with finite lives is recognized in the statement of comprehensive loss in the expense category consistent with the function of the intangible asset other than goodwill.

When future economic benefits are not expected through the use or disposition of intangible assets other than goodwill, the Group removes the book value of the assets from the consolidated statements of financial position. The difference between the amounts received from the disposal and the book values of assets is recognized in profit or loss when the assets are removed.

(p) Oil stockpiles

The Group stockpiles crude oil and petroleum products to stabilize domestic demand and market prices and classifies those assets as oil stockpiles (non-current non-financial assets) of which the cost is determined using the moving-average method. The Group performs annual impairment test for oil stockpiles.

(q) Impairment of non-financial assets

The carrying amounts of the Group's non-financial assets, other than assets arising from employee benefits, inventories, deferred tax assets and non-current assets held for sale, are reviewed at the end of the reporting period to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. Intangible assets other than goodwill that have indefinite useful lives or that are not yet available for use, irrespective of whether there is any indication of impairment, are tested for impairment annually by comparing their recoverable amount to their carrying amount.

2.4 Material accounting policies (cont'd)

For impairment testing, assets are grouped together into the smallest group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets ("CGUs"). The recoverable amount of an asset or CGU is the greater of its value in use and its fair value less costs to sell. The value in use is estimated by applying a pre-tax discount rate that reflect current market assessments of the time value of money and the risks specific to the asset or CGU for which estimated future cash flows have not been adjusted, to the estimated future cash flows expected to be generated by the asset or CGU. The Group takes into account significant climate-related risks, including physical and transitional risks, in its future cash flow projections.

An impairment loss is recognized in profit or loss if the carrying amount of an asset or a CGU exceeds its recoverable amount. When reversing the impairment loss in prior periods, the carrying amount of an asset shall be lower of the modified recoverable amount and the carrying amount that would have been determined had no impairment loss been recognized for the asset in prior periods. Reversed amount should be accounted as profit or loss immediately.

(r) Inventories

Inventories are measured at the lower of cost and net realizable value. The cost of inventories is based on the moving-weighted average method, and includes expenditures for acquiring the inventories, production or conversion costs and other costs incurred in bringing them to their existing location and condition. Net realizable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and selling expenses.

The amount of any write-down of inventories to net realizable value and all losses of inventories are recognized as an expense in the period the write-down or loss occurs. The amount of any reversal of any write-down of inventories, arising from an increase in net realizable value, are recognized as a reduction in the amount of inventories recognized as an expense in the period in which the reversal occurs.

(s) Provisions

Provisions are recognized when the Group has a present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

The risks and uncertainties that inevitably surround many events and circumstances are taken into account in reaching the best estimate of a provision. Where the effect of the time value of money is material, provisions are determined at the present value of the expected future cash flows.

Where some or all of the expenditures required to settle a provision are expected to be reimbursed by another party, the reimbursement shall be recognized when, and only when, it is virtually certain that reimbursement will be received if the entity settles the obligation. The reimbursement shall be treated as a separated asset.

2.4 Material accounting policies (cont'd)

Provisions are reviewed at the end of each reporting period and adjusted to reflect the current best estimates. If it is no longer probable that an outflow of resources embodying economic benefits will be required to settle the obligation, the provision is reversed.

- Restoration costs

When there is a legal or contractual obligation for dismantling, removing facilities and restoring sites on which they are located to their original condition at the end of the useful lives of the facilities, the present value of the estimated future restoration costs is capitalized at the acquisition date as additions to the cost of oil and gas properties and are accounted for as a provision. The Group subsequently depreciates the restoration costs using the unit-of-production method and the difference between estimated restoration costs and their present value is charged to current operations by applying the effective-interest-rate method.

- Employee incentive

Based on the annual management performance, the Ministry of Strategy and Finance conducts an institutional evaluation and pays incentive based on the evaluation. Performance incentives are reasonably estimated in accordance with KIFRS 1037 and presented as provisions for employee benefits.

(t) Financial assets

i) Classification

The Group classifies its financial assets in the following measurement categories:

- those to be measured at fair value through profit or loss;
- those to be measured at fair value through other comprehensive income; and
- those to be measured at amortized cost.

The classification depends on the Group's business model for managing the financial assets and the contractual terms of the cash flows.

For financial assets measured at fair value, gains and losses will either be recorded in profit or loss or other comprehensive income. For investments in debt instruments, this will depend on the business model in which the investment is held. The Group reclassifies debt investments when, and only when its business model for managing those assets changes.

For investments in equity instruments that are not held for trading, this will depend on whether the Group has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income.

2.4 Material accounting policies (cont'd)

ii) Measurement

At initial recognition, the Group measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss.

Financial assets with embedded derivatives are considered in their entirety when determining whether their cash flows are solely payment of principal and interest.

A. Debt instruments

Subsequent measurement of debt instruments depends on the Group's business model for managing the asset and the cash flow characteristics of the asset. The Group classifies its debt instruments into one of the following three measurement categories:

- Amortized cost: Assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortized cost. A gain or loss on a debt investment that is subsequently measured at amortized cost and is not part of a hedging relationship is recognized in profit or loss when the asset is derecognized or impaired. Interest income from these financial assets is included in 'finance income' using the effective interest rate method.
- Fair value through other comprehensive income: Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely payments of principal and interest, are measured at fair value through other comprehensive income. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment loss (reversal of impairment loss), interest income and foreign exchange gains and losses which are recognized in profit or loss. When the financial asset is derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss. Interest income from these financial assets is included in 'finance income' using the effective interest rate method. Foreign exchange gains and losses are presented in 'finance income or cost' and impairment losses are presented in 'finance cost'.
- Fair value through profit or loss: Assets that do not meet the criteria for amortized cost or fair value through other comprehensive income are measured at fair value through profit or loss. A gain or loss on a debt investment that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognized in profit or loss and presented net in the statement of comprehensive loss within 'finance income or cost' in the year in which it arises.

2.4 Material accounting policies (cont'd)

B. Equity instruments

The Group subsequently measures all equity investments at fair value. Where the Group's management has elected to present fair value gains and losses on equity investments, which held for long-term investment or strategic purpose, in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividend income from such investments continue to be recognized in profit or loss as 'finance income' when the right to receive payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'finance income or cost' in the statement of profit or loss as applicable. Impairment loss (reversal of impairment loss) on equity investments measured at fair value through other comprehensive income are not reported separately from other changes in fair value.

(iii) Impairment

In respect of the impairment of financial assets, the Group accounts for expected credit losses at each reporting date, and changes in those expected credit losses to reflect changes in credit risk since initial recognition. That is, it is not necessary for a credit event to have occurred before credit losses are recognized.

The Group shall recognize expected credit losses as an allowance for bad debts on i) debt instruments subsequently measured at amortized cost or at fair value through other comprehensive income; ii) lease receivables; and iii) loan commitments and financial guarantee contracts under KIFRS 1109.

At each reporting date, the Group measures the loss allowance for a financial instrument at an amount equal to the lifetime expected credit losses if the credit risk on that financial instrument has increased significantly or the credit has been impaired upon the acquisition of assets since initial recognition. If, at the reporting date, the credit risk on a financial instrument has not increased significantly since initial recognition (except for financial assets whose credit has been impaired upon the acquisition), the Group measures the loss allowance for that financial instrument at an amount equal to 12-month expected credit losses.

Under KIFRS 1109, for trade receivables, contract assets and lease receivables that contain a significant financing component, the Group measures the loss allowance using the simplified approach at an amount equal to lifetime expected credit losses.

- Trade receivables

The Group applies the simplified approach to measure the loss allowance at an amount equal to lifetime expected credit losses for trade receivables.

2.4 Material accounting policies (cont'd)

- Debt investments

Debt investments at amortized cost and those at fair value through other comprehensive income are considered to be low risk, and thus the provision for impairment is determined as 12 months expected credit losses.

(iv) Derecognition

The Group derecognizes a financial asset only when the contractual rights to the cash flows from the asset expire or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity. If the Group neither transfers nor retains substantially all the risks and rewards of ownership and continues to control the transferred asset, the Group recognizes its retained interest in the asset and an associated liability for amounts it may have to pay. If the Group retains substantially all the risks and rewards of ownership of a transferred financial asset, the Group continues to recognize the financial asset and also recognizes a collateralized borrowing for the proceeds received.

(u) Financial liabilities and equity instruments

The Group classifies non-derivative financial liabilities into financial liabilities at fair value through profit or loss or other financial liabilities in accordance with the substance of the contractual arrangement and the definitions of financial liabilities. The Group recognizes financial liabilities in the consolidated statement of financial position when the Group becomes a party to the contractual provisions of the financial liability.

i) Financial liabilities at fair value through profit or loss

The Group requires the effect of changes in the credit risk on financial liabilities designated at fair value through profit or loss attributable to changes in the credit risk to be recognized in other comprehensive income, unless this treatment of the credit risk component creates or enlarges a measurement mismatch. Amounts presented in other comprehensive income are not subsequently transferred to profit or loss. When financial liabilities are derecognized, they are recognized as retained earnings.

ii) Other financial liabilities

At the date of initial recognition, other financial liabilities are measured at fair value minus transaction costs. Subsequent to initial recognition, other financial liabilities are measured at amortized cost using the effective interest method. The effective interest method is a method of calculating the amortized cost of a financial liability and of allocating the interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments through the expected life of the financial instrument or, when appropriate, a shorter period to the net carrying amount of the financial asset or financial liability at the date of initial recognition.

2.4 Material accounting policies (cont'd)

iii) Derecognition of financial liabilities

The Group derecognizes a financial liability from the consolidated statement of financial position when it is extinguished (i.e. when the obligation specified in the contract is discharged, cancelled or expires). The difference between carrying amount and consideration paid is recognized through profit or loss when derecognizing a financial liability.

(v) Derivative financial instruments

The Group entered into a variety of derivative financial instruments to manage its exposure to interest rate and foreign exchange rate risk, including foreign exchange forward contracts, interest swap and currency swap. Derivatives are initially recognized at fair value at the date the derivative contract is entered into and are subsequently remeasured to their fair value at the end of each reporting period. The resulting gain or loss is recognized in profit or loss immediately, unless the derivative is designated and effective as a hedging instrument, in which case, the timing of the recognition in profit or loss depends on the nature of the hedge relationship.

i) Embedded derivative

In case of which the embedded derivative instrument is not closely related to the economic characteristics and risks of the host contract and a separated instrument with the same terms as the embedded derivative meets the definition of a derivative, if a hybrid contract contains a host that is not an asset at fair value through profit or loss, an embedded derivative is accounted for separately from the host. Changes of an embedded derivative separated from the host are recognized in profit or loss.

ii) Hedge accounting

The Group holds forward exchange contracts, currency swaps and commodity future contracts to manage foreign exchange risk and commodity fair value risk. The Group designated derivative as hedging instruments to hedge the risk of changes in the fair value of assets, liabilities or firm commitments (a fair value hedge) and foreign currency risk of highly probable forecasted transactions or firm commitments (a cash flow hedge).

On initial designation of the hedge, the Group formally documents the relationship between the hedging instruments and hedged items, including the risk management objectives and strategy in undertaking the hedge transaction, together with the methods that will be used to assess the effectiveness of the hedging relationship.

2.4 Material accounting policies (cont'd)

iii) Fair value hedge

Changes in the fair value of a derivative hedging instrument designated as a fair value hedge are recognized in profit or loss. The gain or loss from remeasuring the hedging instrument at fair value for a derivative hedging instrument and the gain or loss on the hedged item attributable to the hedged risk are recognized in profit or loss in the same line item of the consolidated statement of comprehensive income. However, the Group elected to present the changes in the fair value as other comprehensive income at the date of initial recognition, the gain or loss from remeasuring the hedging instrument at fair value for a derivative hedging instrument and the gain or loss on the hedged item attributable to the hedged risk are recognized in other comprehensive income.

The Group discontinues fair value hedge accounting if the hedging instrument expires or is sold, terminated or exercised or even after considering re-adjustments, or if the hedge no longer meets the criteria for hedge accounting. Any adjustment arising from gain or loss on the hedged item attributable to the hedged risk is amortized to profit or loss from the date the hedge accounting is discontinued. If the hedge relationship no longer meets the requirements for hedge effectiveness related to the hedge ratio, but the objectives of risk management for the designated hedge relationship remain the same, the hedging ratio of the hedge relationship should be adjusted ('re-adjustments').

iv) Cash flow hedge

When a derivative is designated to hedge the variability in cash flows attributable to a particular risk associated with a recognized asset or liability or a highly probable forecasted transaction that could affect profit or loss, the effective portion of changes in the fair value of the derivative is recognized in other comprehensive income, and accumulated in the hedging reserve. Any ineffective portion of changes in the fair value of the derivative is recognized immediately in profit or loss and is recognized as 'finance income and cost' in the consolidated statement of comprehensive loss.

Amounts previously recognized in other comprehensive income and accumulated in equity are reclassified to profit or loss in the periods when the hedged item is recognized in profit or loss, in the same line of the consolidated statement of comprehensive loss as the recognized hedged item. However, when the forecast transaction that is hedged results in the recognition of a non-financial asset or a non-financial liability, the gains and losses previously accumulated in equity are transferred from equity and included in the initial measurement of the cost of the non-financial asset or non-financial liability.

If the hedging instrument no longer meets the criteria for hedge accounting, expires or is sold, terminated or exercised, then hedge accounting is discontinued prospectively. The cumulative gain or loss on the hedging instrument that has been recognized in other comprehensive income and accumulated in equity remains in equity. Any gains or losses is reclassified to profit or loss when the forecast transaction is ultimately recognized in profit or loss. If the forecasted transaction is no longer expected to occur, the gains or losses accumulated in equity is reclassified immediately to profit or loss.

2.4 Material accounting policies (cont'd)

v) Hedges of net investments in foreign operations

Hedges of net investments in foreign operations are accounted for similarly to cash flow hedges. Any gains or losses on the hedging instrument relating to the effective portion of the hedge are recognized in foreign currency translation reserve in other comprehensive income. The gains or losses relating to the ineffective portion is recognized immediately in profit or loss, and is included in the 'finance income and cost'. When a foreign operation is disposed of, gains and losses on the hedging instrument relating to the effective portion of the hedge accumulated in the foreign currency translation reserve are reclassified to profit or loss.

vi) Other derivatives

Changes in the fair value of a derivative that is not designated as a hedging instrument are recognized immediately in profit or loss.

(w) Other accounting policies

i) Discontinued operations

The Group classifies its business segment or subsidiary as discontinued operation when it disposes a separated line of business or a segment, meets the criteria for assets held for sale, or acquires a subsidiary for sole purpose of sale. The consolidated statements of comprehensive loss should be restated as if the operations have been discontinued from the beginning of the comparative fiscal period.

ii) Cash and cash equivalents

Cash and cash equivalents comprise cash on hand, demand deposits, and short-term investments in highly liquid securities that are readily convertible to known amounts of cash with maturities of three months or less from the acquisition date and which are subject to an insignificant risk of changes in value. Equity investments are excluded from cash and cash equivalents unless they are, in substance, cash equivalents, for example in the case of preferred shares when it has a short maturity with a specified redemption date.

iii) Share capital

Common stock is classified as equity and the incremental costs arising directly attributable to the issuance of common stock less their tax effects are deducted from equity.

2.4 Material accounting policies (cont'd)

iv) Finance income and finance costs

The Group's finance income and finance costs include:

- interest income;
- interest expense;
- dividend income;
- the foreign currency gain or loss on financial assets and financial liabilities;
- the net gain or loss on financial assets measured at fair value through profit or loss;
- hedge ineffectiveness recognized in profit or loss; and
- the net gain or loss on the disposal of investments in debt securities measured at fair value through other comprehensive income.

Interest income or expense is recognized using the effective interest method. Dividend income is recognized in profit or loss on the date on which the Group's right to receive payment is established. The 'effective interest rate' is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument to:

- the gross carrying amount of the financial asset; or
- the amortized cost of the financial liability.

In calculating interest income and expense, the effective interest rate is applied to the gross carrying amount of the asset (when the asset is not credit-impaired) or to the amortized cost of the liability. However, for financial assets that have become credit-impaired subsequent to initial recognition, interest income is calculated by applying the effective interest rate to the amortized cost of the financial asset. If the asset is no longer credit-impaired, then the calculation of interest income reverts to the gross basis.

3. Critical Accounting Estimates and Assumptions

The preparation of consolidated financial statements requires the Group to make estimates and assumptions concerning the future. Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities after the end of the reporting period are discussed below.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

(a) Estimated goodwill impairment

The Group assesses annually whether there is any indication of impairment in accordance with the accounting policy stated in Note 2.4 (e). The recoverable amounts of cash-generating units have been determined based on value-in-use calculations. These calculations require the use of estimates.

(b) Impairment of non-financial assets

The Group assesses whether there is any indication of impairment at the end of the reporting period in accordance with the accounting policy stated in Note 2.4 *(q)*. If any such indication exists, then the asset's recoverable amount is estimated to determine the impairment amount. The recoverable amounts of cash-generating units have been determined based on value-in-use calculations. These calculations have been performed based on the estimates with regards to the inputs, discount rate and forecasted long-term oil price including valuation techniques.

(c) Income taxes

The Group is operating in numerous countries and the income generated from these operations is subject to income taxes based on tax laws and interpretations of tax authorities in numerous jurisdictions. Judgement is required as there are many transactions and calculations for which the ultimate tax determination is uncertain. The Group recognizes assets and liabilities for anticipated tax audit issues based on the best estimates of whether additional taxes will be due as a result of operation activities up to present. Where the final tax outcome of these matters is different from the amounts that were initially recorded, such differences will impact the current and deferred income tax assets and liabilities in the period in which such determination is made.

(d) Fair value of financial instruments

The fair value of financial instruments that are not traded in an active market is determined by using valuation techniques. The Group uses its judgment to select a variety of methods and make assumptions that are mainly based on market conditions existing at the end of each reporting period.

3. Critical Accounting Estimates and Assumptions (cont'd)

(e) Provisions

As of the end of each reporting period, the Group recognizes provisions for estimated restoration costs of mining as explained in Note 2.4 *(s)*. These provisions are estimated based on past experience, taking into account environmental laws and regulations. Based on the annual management performance, the Ministry of Strategy and Finance conducts an institutional evaluation. Performance incentives are reasonably estimated and presented as provisions for employee benefits.

(f) Defined benefit obligations

The present value of the defined benefit obligations depends on a number of factors that are determined on an actuarial basis using a number of assumptions. The assumptions used in determining the net cost (income) for pensions include the discount rate. Any changes in these assumptions will impact the carrying amount of the defined benefit obligations. The Group determines the appropriate discount rate at the end of each year. This is the interest rate that is used to determine the present value of estimated future cash outflows expected to be required to settle the defined benefit obligations. In determining the appropriate discount rate, the Group considers the interest rates of high-quality corporate bonds that are denominated in the currency in which the pension benefits will be paid, and that have terms to maturity approximating to the terms of the related pension liability. Other key assumptions for defined benefit liability are based in part on current market conditions. Additional information is disclosed in Note 24.

(g) Revaluation of property, plant and equipment and investment properties

The land is periodically revaluated and measured at fair value. Increases in the carrying amount arising on revaluation of land are credited to other comprehensive income Decreases that offset previous increases of the same asset are charged to other comprehensive income and debited against other reserves directly in equity; all other decreases are charged to the statement of profit or loss. If an asset's carrying amount is decreased as a result of a revaluation, the decrease shall be recognized in profit or loss. However, the decrease recognized in other comprehensive income reduces the amount accumulated in equity under the heading of revaluation surplus.

(h) Management's judgment

Information about critical judgments in applying accounting policies that have the most significant effect on the amounts recognized in the consolidated financial statements is included in the following notes:

Note 15: Investments in Subsidiaries – whether the Group has de facto control
Note 15: Investments in Associates and Joint Ventures – classification of a joint arrangement

3. Critical Accounting Estimates and Assumptions (cont'd)

(i) Assumptions and estimation uncertainties

Information about assumptions and estimation uncertainties that have a significant risk of resulting in a material adjustment within the next financial year are included in the following notes:

Note 15: Investments in Subsidiaries – main assumptions for recoverable amounts
Note 16: Investments in Associates and Joint Ventures – main assumptions for recoverable amounts
Note 17: Property, Plant and Equipment – main assumptions for estimating recoverable amounts and fair value
Note 18: Goodwill – main assumptions for recoverable amounts
Note 19: Intangible assets other than goodwill – main assumptions for recoverable amounts
Note 21: Trade and Other Payables – main assumptions for special charges of successful loans under the Special Accounting Act for Energy and Resource Business.
Note 24: Employee Benefits – main actuarial assumptions
Note 25 and 48 : Provisions and Contingencies – assumptions for possibility of cash outflows and their amounts
Note 39: Income tax expense (benefit) – possibility of realization of deferred tax assets and estimation of future expected average tax rate

(j) Climate-related risks

The Group considers climate-related matters in its estimates and assumptions. This assessment includes a wide range of possible impacts on the Group due to both physical and transition risks. Even though the Group believes its business model and products will still be viable after the transition to a low-carbon economy, climate-related matters increase the uncertainty in estimates and assumptions underpinning several items in the financial statements. Even though climate-related risks might not currently have a significant impact on measurement, the Group is closely monitoring relevant changes and developments, such as new climate-related legislation. The items and considerations that are most directly impacted by climate-related matters are:

- Useful life of property, plant and equipment: When reviewing the residual values and expected useful lives of assets, the Group considers climate-related matters, such as climate-related legislation and regulations that may restrict the use of assets or require significant capital expenditures.
- Impairment of non-financial assets: Even though the Group has concluded that no single climate-related assumption is a key assumption for the impairment test, the Group considered expectations for transitional risks such as climate-related legislation and regulations and changes in demand for goods in assessing value-in-use amounts.
- Decommissioning liability: The impact of climate-related legislation and regulations is considered in estimating the timing and future costs of decommissioning one of the Group's manufacturing facilities.

4. Segment and Other Information

For management purposes, the Group is organized into business units based on their goods and services. The Group's operating segments are 1) oil and gas, 2) petroleum distribution, 3) oil stockpiling, 4) others.

Segments	Goods and services	Location of business
Oil and gas	Exploration, development and production of domestic and overseas resources and sales of crude oil	Domestic and overseas
Petroleum distribution	Distribution business of gasoline and gas oil and oil trading	Domestic and overseas
Oil stockpiling	Trading of crude oil and petroleum product, lending and sales of oil stockpiles, management, operation and lending of oil stockpiling facilities	Domestic
Others	Oil information services, other research services, etc.	Domestic and overseas

4. Segment and Other Information (cont'd)

(a) Segment results for the year ended December 31, 2023

(in Korean won)	2023						
	Oil and gas	Petroleum distribution	Oil stockpiling	Others	Reportable segment total	Reconciling items[1]	Group total
Revenue	₩ 2,951,114,506,059	₩ 49,875,374,306	₩ 261,592,892,202	₩ 4,499,369,661	₩ 3,267,082,142,228	₩ -	₩ 3,267,082,142,228
Cost of sales	1,805,667,040,401	53,968,865,930	215,382,775,879	2,779,254,872	2,077,797,937,082	-	2,077,797,937,082
Gross profit (loss)	1,145,447,465,658	(4,093,491,624)	46,210,116,323	1,720,114,789	1,189,284,205,146	-	1,189,284,205,146
Selling and administrative expenses	268,233,702,484	736,644,495	-	-	268,970,346,979	73,859,143,545	342,829,490,524
Reportable segment operating profit (loss)[2]	877,213,763,174	(4,830,136,119)	46,210,116,323	1,720,114,789	920,313,858,167	(73,859,143,545)	846,454,714,622
Other income	-	-	-	-	68,921,308,465	-	68,921,308,465
Other expenses	-	-	-	-	143,179,098,051	-	143,179,098,051
Other profit, net	-	-	-	-	310,486,772,580	-	310,486,772,580
Finance income	-	-	-	-	237,933,619,601	-	237,933,619,601
Finance costs	-	-	-	-	700,735,299,329	-	700,735,299,329
Gains on investments in associates and joint ventures, net	-	-	-	-	15,450,327,514	-	15,450,327,514
Profit (loss) before income tax	₩ -	₩ -	₩ -	₩ -	₩ 709,191,488,947	₩ (73,859,143,545)	₩ 635,332,345,402
Depreciation and amortization of intangible assets other than goodwill	₩ 1,010,565,035,490	₩ 378,656,062	₩ 107,487,468,538	₩ 754,527	₩ 1,118,431,914,617	₩ 7,562,639,585	₩ 1,125,994,554,202
Impairment losses on property, plant and equipment	37,667,515,268	-	-	-	37,667,515,268	-	37,667,515,268
Reversal of impairment losses on property, plant and equipment	87,116,450,337	-	-	-	87,116,450,337	-	87,116,450,337
Impairment losses on intangible assets							-
Impairment losses on intangible assets other than goodwill	98,838,023,354	-	-	-	98,838,023,354	-	98,838,023,354
Impairment losses on goodwill	9,415,497,563	-	-	-	9,415,497,563	-	9,415,497,563
Reversal of impairment losses on intangible assets							-
Reversal of impairment losses on intangible assets other than goodwill	48,035,120,076	-	-	-	48,035,120,076	-	48,035,120,076

[1] Primarily consists of operating profit (loss) including depreciation and amortization of intangible assets other than goodwill that are not allocated to the segments.

[2] Segment profit (loss) reported to the group CEO is operating profit (loss).

4. Segment and Other Information (cont'd)

(b) Segment results for the year ended December 31, 2022

(in Korean won)	2022						
	Oil and gas	Petroleum distribution	Oil stockpiling	Others	Reportable segment total	Reconciling items[1]	Group total
Revenue	₩ 3,581,887,530,305	₩ 55,359,360,545	₩ 289,084,404,436	₩ 6,451,148,197	₩ 3,932,782,443,483	₩ -	₩ 3,932,782,443,483
Cost of sales	1,405,337,591,879	64,369,196,609	204,640,330,773	3,771,526,354	1,678,118,645,615	-	1,678,118,645,615
Gross profit (loss)	2,176,549,938,426	(9,009,836,064)	84,444,073,663	2,679,621,843	2,254,663,797,868	-	2,254,663,797,868
Selling and administrative expenses	192,493,102,961	653,518,502	-	-	193,146,621,463	71,639,545,508	264,786,166,971
Reportable segment operating profit (loss)[2]	1,984,056,835,465	(9,663,354,566)	84,444,073,663	2,679,621,843	2,061,517,176,405	(71,639,545,508)	1,989,877,630,897
Other income	-	-	-	-	120,456,334,345	-	120,456,334,345
Other expenses	-	-	-	-	166,191,685,090	-	166,191,685,090
Other profit, net	-	-	-	-	216,497,546,683	-	216,497,546,683
Finance income	-	-	-	-	183,028,549,780	-	183,028,549,780
Finance costs	-	-	-	-	901,892,297,038	-	901,892,297,038
Gains on investments in associates and joint ventures, net	-	-	-	-	50,472,048,588	-	50,472,048,588
Profit (loss) before income tax	₩ -	₩ -	₩ -	₩ -	₩ 1,563,887,673,673	₩ (71,639,545,508)	₩ 1,492,248,128,165
Depreciation and amortization of intangible assets other than goodwill	₩ 555,243,825,933	₩ 380,273,739	₩ 109,472,049,635	₩ 968,149	₩ 665,097,117,456	₩ 7,425,670,888	₩ 672,522,788,344
Impairment losses on property, plant and equipment	79,521,222,461	-	-	-	79,521,222,461	-	79,521,222,461
Reversal of impairment losses on property, plant and equipment	53,928,203,242	-	-	-	53,928,203,242	-	53,928,203,242
Impairment losses on intangible assets							
Impairment losses on intangible assets other than goodwill	60,561,411,307	-	-	-	60,561,411,307	-	60,561,411,307
Impairment losses on goodwill	6,810,518,740	-	-	-	6,810,518,740	-	6,810,518,740

[1] Primarily consists of operating profit (loss) including depreciation and amortization of intangible assets other than goodwill that are not allocated to the segments.

[2] Segment profit (loss) reported to the group CEO is operating profit (loss).

4. Segment and Other Information (cont'd)

Revenue by geographic area for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Domestic	₩	175,303,929,921	₩	185,652,754,453
Vietnam		223,056,180,090		269,381,282,778
Canada		309,474,006,024		464,631,430,532
United Kingdom		1,152,828,325,909		1,632,333,556,861
United States		324,054,292,485		413,391,326,223
Kazakhstan		363,117,302,387		227,839,957,941
Arab Emirates		558,599,983,589		548,831,377,207
Others		160,648,121,823		190,720,757,488
	₩	3,267,082,142,228	₩	3,932,782,443,483

In presenting information about geographical areas, segment revenue is based on the geographical location of the Group's entities which recorded the related revenue.

Customers whose revenue accounts for 10% or more of consolidated revenue for the year ended December 31, 2023 are BP P.L.C., British Gas and PetroChina Ltd., and for the year ended December 31, 2022 are BP P.L.C., British Gas and PetroChina Ltd. Revenue of BP P.L.C. is ₩ 356,262 million and ₩ 752,519 million, respectively for each of the two years in the period ended December 31, 2023. Revenue of PetroChina Ltd. is ₩ 501,630 million and ₩ 526,377 million, respectively for each of the two years in the period ended December 31, 2023. Revenue of British Gas is ₩ 460,440 million and ₩ 946,517 million, respectively for each of the two years in the period ended December 31, 2023. Furthermore, revenues from these customers for each of the two years in the period ended December 31, 2023, are related to oil and gas segment.

5. Cash and Cash Equivalents

Cash and cash equivalents in the consolidated statements of cash flows include cash and bank deposit and exclude government grants. Cash and cash equivalents in the consolidated statements of cash for each of the two years in the period ended December 31, 2023, are comprised of the following items in the consolidated statements of financial position.

(in Korean won)		2023		2022
Cash in hands	₩	49,581,053	₩	95,546,613
Other on demand deposits		121,815,395,479		195,775,207,620
Short-term deposits classified as cash equivalents		259,193,557,128		190,850,009,461
Short-term investments classified as cash equivalents		231,254,219,648		293,158,036,696
Government grants		(542,873,129)		(252,231,353)
	₩	611,769,880,179	₩	679,626,569,037

6. Restricted Cash and Cash Equivalents

Details of restricted cash and cash equivalents and financial assets provided as collateral for liabilities or contingent liabilities as of December 31, 2023 and 2022, are as follows.

(in Korean won)	Description		2023		2022
Cash equivalents	Provision for restoration	₩	-	₩	5,502,884,000
Long-term financial instruments	Provision for restoration		7,960,422,148		7,099,281,534
Long-term guarantee deposit	Provision for restoration		3,570,815,208		3,317,930,385
		₩	11,531,237,356	₩	15,920,095,919

7. Financial Assets Measured at Fair Value through Profit or Loss and Derivative Instruments

Details of financial assets measured at fair value through profit or loss as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023		2022	
	Current	Non-current	Current	Non-current
Debt securities	₩ 116,761,131,115	₩ 494,292,695,163	₩ 158,073,711,855	₩ 563,940,096,546

The amounts recognized in profit or loss in relation to financial assets measured at fair value through profit or loss for each of the two years in the period ended December 31, 2023 are as follows:

(in Korean won)	2023	2022
Gain on valuation of financial asset measured at fair value through profit or loss	₩ 68,127,304,959	₩ 4,599,672,972
Loss on valuation of financial asset measured at fair value through profit or loss	(72,830,989,432)	(177,623,641,451)
	₩ (4,703,684,473)	₩ (173,023,968,479)

Details of derivatives as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023		2022	
	Current	Non-current	Current	Non-current
Derivative assets				
Currency swap	₩ 92,600,137,116	₩ 90,523,720,764	₩ 57,265,109,333	₩ 71,650,539,637
Interest swap	-	-	8,324,615,819	-
Other derivatives	16,900,409,638	-	-	-
	₩ 109,500,546,754	₩ 90,523,720,764	₩ 65,589,725,152	₩ 71,650,539,637
Derivative liabilities				
Currency swap	₩ -	₩ 16,820,019,571	₩ 35,660,119,978	₩ 19,682,963,522
Interest swap	-	-	-	-
Other derivatives	44,828,402	-	122,464,458,865	-
	₩ 44,828,402	₩ 16,820,019,571	₩ 158,124,578,843	₩ 19,682,963,522

7. Financial Assets Measured at Fair Value through Profit or Loss and Derivative Instruments (cont'd)

Details of currency swap contracts as of December 31, 2023, are as follows:

(in foreign currencies)

Type	Counter party	Maturity	Contract amount		Contract interest rate per annum (%)	
			Sell	Buy	Sell	Buy
Cash flow Hedge	Korea Development Bank	2024-10-04	CHF 200,000,000	USD 201,940,000	-	2.55
	BNP Paribas	2024-10-04	CHF 100,000,000	USD 100,970,000	-	2.55
	Development Bank of Singapore	2024-10-28	SGD 400,000,000	USD 302,069,174	0.57	0.84
	Korea Development Bank	2024-12-19	CHF 100,000,000	USD 106,270,000	2.15	5.93
	HSBC	2025-03-26	HKD 160,000,000	USD 20,626,531	2.50	2.33
	HSBC	2025-04-22	CHF 200,000,000	USD 204,880,000	0.89	2.34
	HSBC	2025-06-24	EUR 60,000,000	USD 80,070,000	3.00	4.06
	Standard Chartered Bank	2027-07-30	CHF 100,000,000	USD 105,970,000	0.27	1.55
	BNP Paribas	2027-07-30	CHF 100,000,000	USD 109,340,000	0.27	1.46

7. Financial Assets Measured at Fair Value through Profit or Loss and Derivative Instruments (cont'd)

Details of the crude oil swap contracts as of December 31, 2023, are as follows:

(in BBL, MMBTU, US dollar)

Type	Counterparty	Terms	Contract amount	Standard price
Cash flow Hedge	Standard Chartered Bank	2024-03-31	50,000	85.17
	Standard Chartered Bank	2024-06-30	50,000	85.17
	EDF	2024-06-30	100,000	81.46
	Standard Chartered Bank	2024-06-30	100,000	83.41
	Aron	2024-06-30	100,000	85.04

Details of other derivatives (zero cost collar options) as of December 31, 2023, are as follows:

(in BBL, MMBTU, US dollar)

Type	Counterparty	Terms	Contract amount	Exercise Price	
				Call	Put
Cash flow Hedge	ING Bank	2024-03-31	50,000	80.60	74.00
	ING Bank	2024-06-30	50,000	80.60	74.00
	Standard Chartered Bank	2024-09-30	25,000	89.50	58.00
	Standard Chartered Bank	2024-12-31	25,000	89.50	58.00
	Goldman Sachs	2024-06-30	100,000	75.60	70.00
	Goldman Sachs	2024-06-30	100,000	88.92	79.00
	Bank of America	2024-09-30	50,000	84.00	54.00
	Bank of America	2024-12-31	50,000	84.00	54.00
	Macquarie	2024-03-31	182,040	3.95	3.00
	Macquarie	2024-06-30	182,040	3.60	2.80
	Goldman Sachs	2024-06-30	242,720	3.49	2.80
	Goldman Sachs	2024-03-31	242,720	3.87	2.90
	Goldman Sachs	2024-09-30	151,700	3.22	2.30
	Goldman Sachs	2024-12-31	151,700	4.20	3.10
	Standard Chartered Bank	2024-06-30	100,000	81.00	74.00
	Aron	2024-06-30	100,000	81.21	74.00
	Aron	2024-06-30	75,000	96.71	79.00
	Standard Chartered Bank	2024-12-31	150,000	88.10	59.00
	EDF	2024-03-31	2,320,000	1.67	1.20
	EDF	2024-06-30	2,320,000	1.63	1.10
	Aron	2024-03-31	2,320,000	1.66	1.30
	Macquarie	2024-06-30	2,320,000	1.52	1.20
	Standard Chartered Bank	2024-03-31	1,160,000	1.71	1.20
	Standard Chartered Bank	2024-06-30	1,160,000	1.57	1.10
	Aron	2024-03-31	1,160,000	1.73	1.35
	Aron	2024-06-30	1,160,000	1.58	1.25
	EDF	2024-09-30	2,900,000	1.39	0.75
	Macquarie	2024-12-31	2,900,000	1.58	0.85

7. Financial Assets Measured at Fair Value through Profit or Loss and Derivative Instruments (cont'd)

Gains and losses on valuation and transaction of derivative for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	Gains (losses) on valuation of derivative instruments		Gains (losses) on transaction of derivative instruments		Gains (losses) on valuation of derivative instruments (other comprehensive income (loss))[1]	
	2023	2022	2023	2022	2023	2022
Currency forwards	₩ -	₩ -	₩ (5,684,022,227)	₩ -	₩ -	₩ 381,018,212
Currency swaps	-	-	5,131,257,785	(6,888,356,945)	(10,405,798,885)	48,660,758,007
Interest rate swaps	-	-	-	-	(1,005,495,577)	23,413,404,946
Other derivatives	523,260,544	(517,865,238)	-	(23,181,895,529)	46,508,365,187	244,437,119,658
	₩ 523,260,544	₩ (517,865,238)	₩ (552,764,442)	₩ (30,070,252,474)	₩ 35,097,070,725	₩ 316,892,300,823

[1] Changes in accumulated other comprehensive income (loss) are net of tax effect amounting to (+) ₩ 91,604 million and (+) ₩ 81,932 million for each of the two years in the period ended December 31, 2023, respectively.

8. Trade and Other Receivables

Details of trade and other receivables as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023			
	Gross amounts	Allowance for doubtful accounts	Present value discount	Book value
Current				
Trade receivables	₩ 285,941,476,978	₩ (12,055,686,623)	₩ -	₩ 273,885,790,355
Other receivables	302,189,849,015	(1,109,458,892)	(3,755,971)	301,076,634,152
Accrued income	811,528,271	-	-	811,528,271
Finance lease receivables	3,334,002,689	-	(412,548,365)	2,921,454,324
Other current receivables	36,742,928,228	-	-	36,742,928,228
	629,019,785,181	(13,165,145,515)	(416,304,336)	615,438,335,330
Non-current				
Other receivables	29,224,424,166	(25,397,145,210)	-	3,827,278,956
Deposit provided	38,887,300,653	-	(16,853,335,450)	22,033,965,203
Finance lease receivables	9,609,518,369	-	(523,742,701)	9,085,775,668
	77,721,243,188	(25,397,145,210)	(17,377,078,151)	34,947,019,827
	₩ 706,741,028,369	₩ (38,562,290,725)	₩ (17,793,382,487)	₩ 650,385,355,157

8. Trade and Other Receivables (cont'd)

(in Korean won)	2022			
	Gross amounts	Allowance for doubtful accounts	Present value discount	Book value
Current				
Trade receivables	₩ 284,688,002,118	₩ (8,760,691,950)	₩ -	₩ 275,927,310,168
Other receivables	675,185,728,023	(1,090,443,038)	-	674,095,284,985
Accrued income	771,790,642	(186,393,217)	-	585,397,425
Finance lease receivables	1,958,050,799	-	(187,083,109)	1,770,967,690
Other current receivables	17,029,887,169	-	-	17,029,887,169
	979,633,458,751	(10,037,528,205)	(187,083,109)	969,408,847,437
Non-current				
Other receivables	37,293,555,672	(34,517,433,625)	-	2,776,122,047
Deposit provided	46,004,802,543	-	(17,077,816,936)	28,926,985,607
Finance lease receivables	7,641,341,849	-	(460,631,411)	7,180,710,438
	90,939,700,064	(34,517,433,625)	(17,538,448,347)	38,883,818,092
	₩ 1,070,573,158,815	₩ (44,554,961,830)	₩ (17,725,531,456)	₩ 1,008,292,665,529

Details of other current receivables as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023	
	Gross amounts	Book value
Prepaid value added tax	₩ 14,294,571,599	₩ 14,294,571,599
Overseas prepaid value added tax	571,664,433	571,664,433
Due from financial institutions	593,425,753	593,425,753
Other current assets	21,283,266,443	21,283,266,443
	₩ 36,742,928,228	₩ 36,742,928,228

(in Korean won)	2022	
	Gross amounts	Book value
Prepaid value added tax	₩ 2,336,328,266	₩ 2,336,328,266
Overseas prepaid value added tax	175,126,920	175,126,920
Due from financial institutions	526,662,468	526,662,468
Other current assets	13,991,769,515	13,991,769,515
	₩ 17,029,887,169	₩ 17,029,887,169

8. Trade and Other Receivables (cont'd)

The trade and other receivables include those receivables without allowance provision as they are considered collectible, including accrued interest on the receivables and have no significant changes in their credit rating as of December 31, 2023. Above trade and other receivables are classified as loans and receivables and measured at amortized cost. If objective evidence of impairment for a portfolio of receivables has occurred but no loss has been realized, based on the Group's past experience of collecting payments as well as observable changes in national or local economic conditions that correlate with default on receivables, an allowance account is recognized. The Group has no right to offset against any related liabilities with the counterparties.

The aging analysis of trade receivables as of December 31, 2023 and 2022, are as follows:

(in Korean won)		2023		2022
Receivables not past due and impaired	₩	126,474,552,957	₩	163,759,750,061
Past due but not impaired		147,411,237,533		117,376,961,275
- Within 60 days		83,603,076,175		87,990,516,786
- 60 days~12 months		48,387,737,108		26,463,234,669
- More than 12 months		15,420,424,250		2,923,209,820
Impaired		12,055,686,488		3,551,290,782
- Within 60 days		-		164,569,605
- 60 days~12 months		-		3,384,400,256
- More than 12 months		12,055,686,488		2,320,921
		285,941,476,978		284,688,002,118
Less: allowance for doubtful accounts		(12,055,686,623)		(8,760,691,950)
	₩	273,885,790,355	₩	275,927,310,168

The aging analysis of other receivables as of December 31, 2023 and 2022, are as follows:

(in Korean won)		2023		2022
Receivables not past due and impaired	₩	379,424,035,075	₩	685,916,089,943
Past due but not impaired		14,868,910,797		58,266,096,153
- Within 60 days		2,858,435,449		4,940,819,316
- 60 days~12 months		7,443,406,105		1,411,272,050
- More than 12 months		4,567,069,243		51,914,004,787
Impaired		26,506,605,519		41,702,970,601
- Within 60 days		-		24,966,998,943
- 60 days~12 months		-		9,791,853,888
- More than 12 months		26,506,605,519		6,944,117,770
		420,799,551,391		785,885,156,697
Less: allowance for doubtful accounts		(26,506,604,102)		(35,794,269,880)
Less: present value discounts		(17,793,382,487)		(17,725,531,456)
	₩	376,499,564,802	₩	732,365,355,361

8. Trade and Other Receivables (cont'd)

Movements in the allowance for doubtful accounts of trade and other receivables for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023				2022			
	Trade receivables		Other receivables		Trade receivables		Other receivables	
Beginning balance	₩	8,760,691,950	₩	35,794,269,880	₩	9,492,010,981	₩	6,443,946,134
Amount recognized in profit or loss		-		(9,842,942,828)		171,513,895		39,980,897,303
Write-off		-		-		(1,434,513,969)		-
Others[1]		3,294,994,673		555,277,050		531,681,043		(10,630,573,557)
Ending balance	₩	12,055,686,623	₩	26,506,604,102	₩	8,760,691,950	₩	35,794,269,880

[1] Include the effect of changes in exchange rates.

9. Financial Assets Measured at Fair Value Through Other Comprehensive Income

Movements in the financial assets at fair value through other comprehensive income for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023									
	Beginning balance		Disposal		Valuation[1]		Others[2]		Ending balance	
Non-marketable	₩	11,887,370,695	₩	-	₩	18,432,173,481	₩	(18,758,868)	₩	30,300,785,308

[1] The Group recognized other comprehensive income of ₩ 18,432 million from Yemen LNG Company Ltd. in accordance with changes in the fair value of financial asset measured at fair value through other comprehensive income.
[2] Include the effect of changes in exchange rates.

(in Korean won)	2022									
	Beginning balance		Disposal[1]		Valuation[2]		Others[3]		Ending balance	
Non-marketable	₩	12,923,988,432	₩	(460,607,073)	₩	(1,505,279,820)	₩	929,269,156	₩	11,887,370,695

[1] Troika and Global Dynasty Natural Resource PEF were liquidated during the year ended December 31, 2022 and liquidation distributions were recognized as other comprehensive income of ₩ 442 million and ₩ 19 million, respectively.

[2] The Group recognized other comprehensive loss of ₩ 1,966 million from Yemen LNG Company Ltd. in accordance with changes in the fair value of financial asset measured at fair value through other comprehensive income.
[3] Include the effect of changes in exchange rates.

9. Financial Assets Measured at Fair Value Through Other Comprehensive Income (cont'd)

Details of financial assets measured at fair value through other comprehensive income as of December 31, 2023 and 2022, are as follows:

(in Korean won)	Number of shares	Ownership interest (%)		Acquisition cost	2023			
						Carrying amount		Fair value
Non-marketable								
Yemen LNG Company Limited	265	1.06	₩	342,129	₩	29,314,323,649	₩	29,314,323,649
Petronado S.A.	5,640	5.64		21,156,288,688		-		-
Micronic Korea[1]	20,000	16.70		986,461,659		986,461,659		986,461,659
			₩	22,143,092,476	₩	30,300,785,308	₩	30,300,785,308

[1] The dividend income associated with Micronic Korea for the year ended December 31, 2023, is ₩ 6 million.

(in Korean won)	Number of shares	Ownership interest (%)		Acquisition cost	2022			
						Carrying amount		Fair value
Non-marketable								
Yemen LNG Company Limited	265	1.06	₩	336,265	₩	10,917,816,747	₩	10,917,816,747
Petronado S.A.	5,640	5.64		20,793,675,085		-		-
Micronic Korea[1]	20,000	16.70		969,553,948		969,553,948		969,553,948
			₩	21,763,565,298	₩	11,887,370,695	₩	11,887,370,695

[1] The dividend income associated with Micronic Korea for the year ended December 31, 2022, is ₩ 15 million.

10. Loans

Details of loans as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023		
	Face value	**Provision for loans**	**Carrying amount**
Short-term loans			
General loans	₩ 13,062	₩ -	₩ 13,062
Long-term loans			
Loans for tuitions[1]	186,271,998	-	186,271,998
Loans for housing[2]	69,373,809,500	-	69,373,809,500
Loans for vehicle[3]	257,880,000	-	257,880,000
General loans[4]	13,516,654,393	(3,999,782,909)	9,516,871,484
Loans to related parties[5]	213,050,896,994	(213,050,896,994)	-
	296,385,512,885	(217,050,679,903)	79,334,832,982
	₩ 296,385,525,947	₩ (217,050,679,903)	₩ 79,334,846,044

[1] The Group provides employees who worked over a year with interest-free loans for their children's tuitions. The loans are repaid from their monthly wages.

[2] The Group provides employees without housing with loans for housing at market interest rates. The loans are due 5~10 years and repaid by lump sum at maturity.

[3] The Group provides non-interest bearing loans to overseas secondees who newly purchase or lease a vehicle. The loans are due when the secondees return to the Headquarters.

[4] The Group recognized reversal of provision for loans of ₩ 320 million from the loan valuation of Yemen LNG Company Ltd.

[5] The Group provided KNOC Inam Ltd. and 3 other related parties with loans at interest rates of 4.6~10.04%. Loans for exploration and development projects are due until the start of commercial production.

(in Korean won)	2022		
	Face value	**Provision for loans**	**Carrying amount**
Long-term loans			
Loans for tuitions[1]	₩ 254,763,773	₩ -	₩ 254,763,773
Loans for housing[2]	74,110,217,457	-	74,110,217,457
Loans for vehicle[3]	202,768,000	-	202,768,000
General loans[4]	12,142,128,233	(5,032,877,344)	7,109,250,889
Loans to related parties[5]	427,673,142,527	(427,673,142,527)	-
	₩ 514,383,019,990	₩ (432,706,019,871)	₩ 81,677,000,119

[1] The Group provides employees who worked over a year with interest-free loans for their children's tuitions. The loans are repaid from their monthly wages.

[2] The Group provides employees without housing with loans for housing at market interest rates. The loans are due 5~10 years and repaid by lump sum at maturity.

[3] The Group provides non-interest bearing loans to overseas secondees who newly purchase or lease a vehicle. The loans are due when the secondees return to the Headquarters.

[4] The Group recognized provision for loans of ₩ 4,242 million from the loan valuation of Yemen LNG Company Ltd.

[5] The Group provided KC Kazakh B.V. and 4 other related parties with loans at interest rates of 4.6~9.44%. Loans for exploration and development projects are due until the start of commercial production.

11. Financial Instruments

Details of financial instruments as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023				2022			
	Current		Non-current		Current		Non-current	
Time deposits	₩	474,341,339	₩	-	₩	250,000,005	₩	-
Asset retirement obligation		-		7,960,422,148		-		7,099,281,534
	₩	474,341,339	₩	7,960,422,148	₩	250,000,005	₩	7,099,281,534

12. Other Financial Assets

Details of other current financial assets as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023		2022	
Overseas field operations quick assets	₩	876,568,070	₩	861,543,908

13. Inventories

Details of inventories as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023					
		Acquisition cost		**Provision for losses on valuation**		**Carrying amount**
Raw materials	₩	7,125,267,891	₩	(1,021,555,066)	₩	6,103,712,825
Merchandises		15,440,362,977		(2,135,942,985)		13,304,419,992
Work-in-progress		433,439,340		-		433,439,340
Finished goods		26,180,790,696		(5,764,209,087)		20,416,581,609
Supplies		50,573,353,844		-		50,573,353,844
Goods in-transit		39,885,694		-		39,885,694
	₩	99,793,100,442	₩	(8,921,707,138)	₩	90,871,393,304

(in Korean won)	2022					
		Acquisition cost		**Provision for losses on valuation**		**Carrying amount**
Raw materials	₩	9,746,071,116	₩	(834,689,403)	₩	8,911,381,713
Merchandises		16,632,196,161		(1,985,768,970)		14,646,427,191
Work-in-progress		193,824,664		-		193,824,664
Finished goods		9,823,362,311		(5,665,411,956)		4,157,950,355
Supplies		51,957,316,587		-		51,957,316,587
Goods in-transit		7,743,773		-		7,743,773
	₩	88,360,514,612	₩	(8,485,870,329)	₩	79,874,644,283

The losses on the valuation of inventories recognized in cost of sales for the year ended December 31, 2023 is ₩ 117 million (2022: ₩ 2,131 million).

14. Non-financial Assets

Details of non-financial assets as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023				2022			
		Current		**Non-current**		**Current**		**Non-current**
Advance payments	₩	82,067,807,855	₩	-	₩	82,088,619,602	₩	-
Prepaid expenses		31,472,989,537		3,008,613,264		24,444,192,412		201,408,365
Oil stockpiles[1]		-		4,796,240,093,228		-		4,468,020,852,695
	₩	113,540,797,392	₩	4,799,248,706,492	₩	106,532,812,014	₩	4,468,222,261,060

[1] The Group recognized gains on disposal of non-financial assets due to the sale of oil stockpiles of ₩ 307,014 million (2022: ₩ 301,754 million) for the year ended December 31, 2023.

15. Subsidiaries

Details of the subsidiaries as of December 31, 2023 and 2022, are as follows:

Subsidiary name[1]	Principal activity	Country of incorporation	Ownership (%) 2023	Ownership (%) 2022
ANKOR E&P Holdings Corp.[2]	Exploration and production ("E&P")	United States	100.00	100.00
ANKOR Energy LLC	E&P	United States	100.00	100.00
Dana Petroleum Limited.(referred to as Dana)	E&P	United Kingdom	100.00	100.00
Dana Petroleum (E&P) Limited	E&P	United Kingdom	100.00	100.00
Dana Petroleum (BVUK) Limited	E&P	United Kingdom	100.00	100.00
Dana Petroleum (Holdings) B.V.	E&P	Netherlands	100.00	100.00
Dana Petroleum East Zeit Limited	E&P	Egypt	100.00	100.00
Dana Petroleum East Beni Suef Limited	E&P	Egypt	100.00	100.00
Dana Petroleum Qarun Limited	E&P	Egypt	100.00	100.00
Dana Petroleum WAG Limited	E&P	Egypt	100.00	100.00
Dana Petroleum North Zeit Bay Limited	E&P	Egypt	100.00	100.00
Dana Petroleum South October Limited	E&P	Egypt	100.00	100.00
Dana Petroleum (North Sea) Limited	E&P	United Kingdom	100.00	100.00
Dana Petroleum Netherlands B.V.	E&P	Netherlands	100.00	100.00
Dana Petroleum Denmark B.V.	E&P	Netherlands	100.00	100.00
KNOC Eagleford Corp.(referred to as EagleFord)	E&P	United States	100.00	100.00
Eagle Ford MS LLC	Crude oil and natural gas transportation and processing	United States	100.00	100.00
Eagle Ford Energy LLC	E&P	United States	100.00	100.00
Eagle Ford Energy LP LLC	E&P	United States	100.00	100.00
Eagle Ford Energy GP LLC	E&P	United States	100.00	100.00
Eagle Ford TX LP	E&P	United States	100.00	100.00
KOA Energy LLP	E&P	United States	100.00	100.00
Harvest Operations Corp. (referred to as Harvest)	E&P	United States	100.00	100.00
Harvest Operations (USA) Inc.	E&P	Canada	100.00	100.00
1057533 Alberta Ltd.	E&P	Canada	100.00	100.00
Harvest Breeze Trust 1	E&P	Canada	100.00	100.00
Harvest Breeze Trust 2	E&P	Canada	100.00	100.00
Viking Managemet Ltd	E&P	Canada	100.00	100.00
Pathfinder Partnership	E&P	Canada	100.00	100.00
Harvest Breeze Corp.	E&P	Canada	100.00	100.00
Breeze Resources Partnership	E&P	Canada	100.00	100.00
Hay River Partnership	E&P	Canada	100.00	100.00
KNOC Kaz B.V.	E&P	Netherlands	100.00	100.00
KNOC Whitehill B.V.	E&P	Netherlands	100.00	85.00
KNOC Blackhill Ltd	E&P	Canada	100.00	95.00
AEKK Munai LLP	E&P	Kazakhstan	100.00	80.00
Altius Holdings Inc.	E&P	Canada	100.00	100.00
KenSary LLP	E&P	Kazakhstan	100.00	100.00
MeerBusch LLP	E&P	Kazakhstan	100.00	100.00
KADOC Ltd	E&P	Malaysia	75.00	75.00
KNOC Sumatra Ltd.[3]	E&P	Indonesia	100.00	100.00
KNOC Yemen Ltd.[3]	E&P	Yemen	60.00	60.00
KNOC Trading Singapore Pte. Ltd	Trading and Marketing	Singapore	100.00	100.00
KNOC Service	Facility maintenance	Republic of Korea	100.00	100.00

[1] In the case of subsidiaries with subsidiaries, the consolidated financial information includes subsidiaries and their subsidiaries.

[2] The major assets have been sold or transferred, and the process of business dissolution is in progress.

[3] The entities are in the process of liquidation as of December 31, 2023.

15. Subsidiaries (cont'd)

Financial information for subsidiaries as of and for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023			
Subsidiary name	**Assets**	**Liabilities**	**Revenue**	**Profit (loss) for the year**
ANKOR E&P Holdings Corp.[1]	₩ 23,545,586,640	₩ 19,553,133,983	₩ 104,198,649	₩ 35,387,723,120
Dana Petroleum Limited[2]	2,165,910,409,623	2,048,128,486,161	1,152,828,325,909	(167,955,873,579)
KNOC Eagleford Corp.	2,033,938,787,223	673,022,266,161	323,950,093,837	107,702,927,920
Harvest Operations Corp.	2,039,958,891,278	3,215,505,069,523	309,474,006,024	(74,768,485,415)
KNOC Kaz B.V.	381,353,583,891	98,734,356,617	363,117,302,387	143,141,976,315
KADOC Ltd[2]	1,255,239,277,219	300,726,227,814	564,984,964,422	178,488,218,361
KNOC Sumatra Ltd.[3]	4,295,100,702	7,905,311	-	63,743,118
KNOC Yemen Ltd.[3]	15,627,709	-	-	-
KNOC Trading Singapore Pte. Ltd	55,705,422,486	54,388,199,645	1,280,743,860	508,188,803
KNOC Service	1,258,946,525	773,657,755	5,902,784,231	181,814,907

[1] The major assets have been sold or transferred, and the process of business dissolution is in progress.

[2] The amounts presented are after reflecting the difference between the fair value and the book value that arose during the business combination.

[3] The entities are in the process of liquidation as of December 31, 2023.

(in Korean won)	2022			
Subsidiary name	**Assets**	**Liabilities**	**Revenue**	**Profit (loss) for the year**
ANKOR E&P Holdings Corp.	₩ 65,567,156,909	₩ 51,482,269,968	₩ 8,761,214,808	₩ (36,057,130,880)
Dana Petroleum Limited[1]	2,389,821,691,162	1,956,553,303,519	1,339,872,900,440	110,331,733,397
KNOC Eagleford Corp.	1,839,471,752,109	657,088,080,877	404,630,111,415	132,061,391,211
Harvest Operations Corp.	1,962,183,511,186	3,111,821,704,534	464,631,430,532	56,981,377,853
KNOC Kaz B.V.[1]	387,272,540,501	133,943,219,496	238,679,119,355	32,189,014,428
KADOC Ltd[1]	1,215,048,493,849	323,443,016,577	603,739,522,367	170,995,559,435
KNOC Sumatra Ltd.[2]	4,159,601,521	7,769,816	-	2,302,962,643
KNOC Yemen Ltd.[2]	15,359,853	-	-	-
KNOC Trading Singapore Pte. Ltd	40,773,643,479	39,994,785,662	832,831,563	159,717,577
KNOC Service	926,562,887	623,088,993	5,310,695,535	(171,210,958)

[1] The amounts presented are after reflecting the difference between the fair value and the book value that arose during the business combination.

[2] The entities are in the process of liquidation as of December 31, 2022.

16. Investments in Associates and Joint Ventures

Details of investments in associates and joint ventures as of December 31, 2023 and 2022, are as follows:

(in Korean won)

Entity	Principal activity	Country	2023 Equity interest (%)	2023 Acquisition cost	2023 Book value	2022 Equity interest (%)	2022 Acquisition cost	2022 Book value
<Investments in associates>								
Oilhub Korea Yeosue Co., Ltd.	Storing of oil	Republic of Korea	29.00	₩ 43,590,516,287	₩ 61,649,274,771	29.00	₩ 42,843,385,710	₩ 61,337,175,224
Parallel Petroleum LLC [1,2,6]	E&P	United States	10.00	70,078,890,000	-	10.00	68,877,755,000	-
KOREA GS E&P Pte. Ltd.	E&P	Singapore	30.00	367,881,113,573	402,104,796,384	30.00	361,575,721,091	396,885,618,126
KNOC Nigerian East Oil Company Ltd.[3,7]	Exploration	Nigeria	75.00	77,364,000	-	75.00	76,038,000	-
KNOC Nigerian West Oil Company Ltd.[3,7]	Exploration	Nigeria	75.00	77,364,000	-	75.00	76,038,000	-
KNOC Ferghana2 Ltd.[3,7]	Exploration	Malaysia	65.00	83,811	-	65.00	82,919	-
				₩ 481,705,331,671	₩ 463,754,071,155		₩ 473,449,020,720	₩ 458,222,793,350
<Joint ventures>								
KNOC Inam Ltd. [7].	Exploration	Malaysia	40.00	51,576	-	40.00	50,692	-
K. K. Korea kamchatka Co., Ltd. [7]	Exploration	Cyprus	50.00	8,763,213,690	-	50.00	8,613,014,038	-
KC Kazakh B.V.[4]	Exploration	Netherlands	35.00	-	-	35.00	287,000,945	-
KNOC Ferghana Ltd. [7]	Exploration	Malaysia	50.00	644,700	-	50.00	633,650	-
Korea Energy Terminal Co., Ltd.[3]	Storing of oil	Republic of Korea	52.42	101,747,613,887	78,350,745,852	52.42	100,003,685,126	82,057,791,778
Deep Basin Partnership[3,5]	Exploration	Canada	84.27	318,238,599,819	-	83.97	308,049,028,265	-
HKMS Partnership[3,5]	Gas processing plant operation	Canada	69.76	74,216,435,345	24,086,865,766	69.56	72,483,156,358	27,444,136,041
Al Dhafra Petroleum	E&P	UAE	40.00	-	-	40.00	506,920,000	506,920,000
				₩ 502,966,559,017	₩ 102,437,611,618		₩ 489,943,489,074	₩ 110,008,847,819
				₩ 984,671,890,688	₩ 566,191,682,773		₩ 963,392,509,794	₩ 568,231,641,169

[1] Classified as an investment in associate as the Group can designate one director in its board of directors. Despite the percentage of ownership is below 20%, the Group has the ability to exercise significant influence over the entity.

[2] Parallel Petroleum LLC is an investment in associates held by KNOC Eagleford Corp.

[3] Despite the percentage of ownership is over 50%, the investment is classified as an investment in joint ventures as the Group is unable to exercise control over investees solely.

[4] As of December 31, 2023, the relevant equity was removed from the book since the bankruptcy had been finalized and the residual asset value had been determined.

[5] Deep Basin Partnership and HKMS Partnership are investments in joint ventures held by Harvest Operations Corp.

[6] The entity has been sold and is in the process of liquidation as of December 31, 2023.

[7] The entity is in the process of liquidation as of December 31, 2023.

16. Investments in Associates and Joint Ventures (cont'd)

Changes in carrying value of investments in associates and joint ventures for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)

	2023						
	Beginning balance	Acquisition	Dividends received	Share of profit or loss in equity method	Changes in equity adjustments	Other changes[2]	Ending balance
Investments in associates							
Oilhub Korea Yeosue Co., Ltd.	₩ 61,337,175,224	₩ -	₩ -	₩ 5,011,674,736	₩ (5,778,619,284)	₩ 1,079,044,095	₩ 61,649,274,771
KOREA GSE&P Pte.Ltd.[3]	396,885,618,126	-	(33,287,955,000)	31,564,851,657	-	6,942,281,601	402,104,796,384
Parallel Petroleum LLC[1]	-	-	-	-	-	-	-
	₩ 458,222,793,350	₩ -	₩ (33,287,955,000)	₩ 36,576,526,393	₩ (5,778,619,284)	₩ 8,021,325,696	₩ 463,754,071,155
Joint ventures							
Korea Energy Terminal Ltd.	82,057,791,778	-	-	(3,726,323,248)	(1,475,496,634)	1,494,773,956	78,350,745,852
Deep Basin Partnership	-	4,877,431,384	-	(30,299,550,850)	-	25,422,119,466	-
HKMS Partnership	27,444,136,041	475,097,377	(17,851,224,258)	12,899,675,219	-	1,119,181,387	24,086,865,766
Al Dhafra Petroleum	506,920,000	-	-	-	-	(506,920,000)	-
	₩ 110,008,847,819	₩ 5,352,528,761	₩ (17,851,224,258)	₩ (21,126,198,879)	₩ (1,475,496,634)	₩ 27,529,154,809	₩ 102,437,611,618
	₩ 568,231,641,169	₩ 5,352,528,761	₩ (51,139,179,258)	₩ 15,450,327,514	₩ (7,254,115,918)	₩ 35,550,480,505	₩ 566,191,682,773

[1] The Group does not apply the equity method as the book value of the investment in associates and joint ventures is less than zero due to the cumulative equity method loss. Gains and losses on investments that are not recognized due to the discontinuation of the use of the equity method are as follows:

(in Korean won)

CGU	Holding company	Gains and losses on investments not recognized (current)	Gains and losses on investments not recognized (cumulative)
Parallel Petroleum LLC	KNOC Eagleford Corp.	₩ 4,240,854,137	₩ (21,460,404,526)

[2] Other changes include the effect of changes in exchange rates that were not recognized as the book value of Deep Basin Partners, an investment in joint ventures, until the previous year was less than zero.

[3] The investment difference is ₩ 30,787 million as of December 31, 2023.

16. Investments in Associates and Joint Ventures (cont'd)

(in Korean won)

	2022							
	Beginning balance		Acquisition		Disposal[2]		Dividends received	
Investments in associates								
Kernhem B.V.[1,2]	₩	-	₩	-	₩	(2,368,574,570)	₩	-
Oilhub Korea Yeosue Co., Ltd.		61,739,634,204		-		-		-
ADA Oil LLP[1,2]		-		-		(1,076,625,215)		-
KOREA GSE&P Pte.Ltd.[3,8]		390,013,449,409		-		(50,386,050,000)		-
Parallel Petroleum LLC[4]		-		-		-		-
	₩	451,753,083,613	₩	-	₩	(53,831,249,785)	₩	-
Joint ventures								
Korea Energy Terminal Ltd.		84,323,087,385		-		-		-
Deep Basin Partnership		-		19,373,034,609		-		-
HKMS Partnership		30,837,305,594		1,885,947,565		-		(17,503,727,244)
KNOC-VOGO EagleFord LLC[5]		990,205,085		64,597,500		(1,104,841,907)		-
Al Dhafra Petroleum		474,200,000		-		-		-
	₩	116,624,798,064	₩	21,323,579,674	₩	(1,104,841,907)	₩	(17,503,727,244)
	₩	568,377,881,677	₩	21,323,579,674	₩	(54,936,091,692)	₩	(17,503,727,244)

(in Korean won)

	2022									
	Share of profit or loss in equity method		Changes in equity adjustments		Reversal of impairment loss[6]		Other changes[7]		Ending balance	
Investments in associates										
Kernhem B.V.[1,2]	₩	(623,364,622)	₩	623,364,622	₩	2,368,574,570	₩	-	₩	-
Oilhub Korea Yeosue Co., Ltd.		(364,943,266)		(4,388,266,246)		-		4,350,750,532		61,337,175,224
ADA Oil LLP[1,2]		(1,296,089,485)		1,296,089,485		1,076,625,215		-		-
KOREA GSE&P Pte.Ltd.[3]		29,957,353,085		-		-		27,300,865,632		396,885,618,126
Parallel Petroleum LLC[4]		-		-		-		-		-
	₩	27,672,955,712	₩	(2,468,812,139)	₩	3,445,199,785	₩	31,651,616,164	₩	458,222,793,350
Joint ventures										-
Korea Energy Terminal Ltd.		(2,341,432,612)		(5,899,424,372)		-		5,975,561,377		82,057,791,778
Deep Basin Partnership		4,019,896,959		-		-		(23,392,931,568)		-
HKMS Partnership		11,379,097,654		-		-		845,512,472		27,444,136,041
KNOC-VOGO EagleFord LLC[5]		(38,875,111)		-		-		88,914,433		-
Al Dhafra Petroleum		-		-		-		32,720,000		506,920,000
	₩	13,018,686,890	₩	(5,889,424,372)	₩	-	₩	(16,450,223,286)	₩	110,008,847,819
	₩	40,691,642,602	₩	(8,368,236,511)	₩	3,445,199,785	₩	15,201,392,878	₩	568,231,641,169

[1] For the year ended 2022, the Group reversed impairment by the recoverable amount as the Group has entered into a share transfer agreement. The relevant equity was removed after the completion of transaction in November 2022.

[2] As the investment in associates and joint ventures were disposed of for the year ended 2022, the cumulative changes in equity adjustments were reclassified into profit or loss (gains on disposal of investments in associates and joint ventures).

[3] The book value of interests held decreased as proportionate capital reduction was carried out for the year ended 2022.

[4] The Group does not apply the equity method as the book value of the investment in associates and joint ventures is less than zero due to the cumulative equity method loss. Gains and losses on investments that are not recognized due to the discontinuation of the use of the equity method are as follows:

(in Korean won)

CGU	Holding company	Gains and losses on investments not recognized (current)		Gains and losses on investments not recognized (cumulative)	
Parallel Petroleum LLC	KNOC Eagleford Corp.	₩	6,897,693,837	₩	(25,701,258,664)

[5] KNOC-VOGO Eagle Ford LLC is SPC and it was reclassified to subsidiary from joint ventures in which 50% of the shares were owned due to obtaining the control for the year ended 2022.

16. Investments in Associates and Joint Ventures (cont'd)

[6] Key assumptions used in the impairment test and details reversal of impairment losses for the year ended 2022 are as follows. The reversal of impairment loss is limited to the amount of impairment loss already recognized, and the impairment loss is fully reversed up to the limit for the year ended 2022.

(in Korean won)

CGU	Recoverable amounts	Valuation of recoverable method	Primary assumption	Reversal of impairment loss	Reason for reversal of impairment
Kernhem B.V.	₩ 2,368,574,570	Net fair value	Expected sale price	₩ 2,368,574,570	Conclusion of share transfer agreement
ADA Oil LLP	1,076,625,215			1,076,625,215	

[7] Other changes include the effect of changes in exchange rates and impairment losses that were not recognized as the book value of Deep Basin Partners, an investment in joint ventures, until the previous year was less than zero.

[8] The investment difference is ₩ 31,766 million as of December 31, 2022.

The summaries of financial information of major associates and joint ventures for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)

	2023			
	Total assets	Total liabilities	Revenue	Profit (loss) for the year
<Investments in associates>				
Oilhub Korea Yeosu Co., Ltd.	₩ 433,682,188,679	₩ 221,098,480,809	₩ 52,956,360,093	₩ 1,926,578,320
Parallel Petroleum LLC	-	-	93,591,369,950	52,551,157,291
KOREA GS E&P Pte. Ltd.	2,182,570,443,922	1,087,020,847,593	2,357,439,314,282	104,225,413,288
<Joint ventures>				
Korea Energy Terminal Co., Ltd.	1,049,998,136,642	902,667,425,985	-	(7,093,604,804)
Deep Basin Partnership	147,363,651,362	193,823,484,723	34,597,460,750	(30,299,550,366)
HKMS Partnership	82,309,720,158	22,624,941,942	28,863,759,357	14,709,649,642

(in Korean won)

	2022			
	Total assets	Total liabilities	Revenue	Profit (loss) for the year
<Investments in associates>				
Oilhub Korea Yeosu Co., Ltd.	₩ 467,619,917,507	₩ 256,112,416,524	₩ 47,337,959,116	₩ (2,391,295,470)
Parallel Petroleum LLC	180,607,866,319	326,821,335,670	95,170,148,226	39,315,457,772
KOREA GS E&P Pte. Ltd.	2,052,768,393,428	969,458,416,397	2,695,791,712,222	98,894,954,340
<Joint ventures>				
Korea Energy Terminal Co., Ltd.	787,686,152,440	633,247,005,585	-	(4,466,678,001)
Deep Basin Partnership	190,142,887,824	210,154,747,285	49,811,769,091	4,019,896,637
HKMS Partnership	84,816,634,502	41,756,351,284	27,233,938,660	14,346,437,316
Al Dhafra Petroleum	506,920,000	-	-	-

17. Property, Plant and Equipment

Details of property, plant and equipment as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023					
	Acquisition cost	Contributions for construction	Government grants	Accumulated depreciation	Accumulated impairment losses	Book value
Land	₩ 1,148,563,440,023	₩ -	₩ -	₩ -	₩ -	₩ 1,148,563,440,023
Buildings	90,536,047,209	-	-	(38,429,645,208)	-	52,106,402,001
Structures	2,446,822,805,960	(110,241,211)	-	(1,107,816,378,850)	-	1,338,896,185,899
Machinery	963,168,081,828	(2,014,107,940)	-	(639,154,217,414)	-	321,999,756,474
Vehicles	10,319,006,902	-	(2,913,773)	(6,844,908,144)	-	3,471,184,985
Tools & fixtures	68,426,359,347	-	-	(57,849,368,300)	(349,573,566)	10,227,417,481
Construction-in-progress	50,632,711,553	-	-	-	-	50,632,711,553
Right-of-use assets	451,490,067,056	-	-	(127,587,174,543)	-	323,902,892,513
Others	43,041,797,327	-	-	(31,326,263,798)	(2,356,766,571)	9,358,766,958
Oil & gas properties[1]	23,508,569,927,089	-	(1,132,083,310)	(14,227,180,509,106)	(4,789,846,713,184)	4,490,410,621,489
	₩ 28,781,570,244,294	₩ (2,124,349,151)	₩ (1,134,997,083)	₩ (16,236,188,465,363)	₩ (4,792,553,053,321)	₩ 7,749,569,379,376

[1] Classified as others in the consolidated statements of financial position.

17. Property, Plant and Equipment (cont'd)

(in Korean won)	2022					
	Acquisition cost	Contributions for construction	Government grants	Accumulated depreciation	Accumulated impairment losses	Book value
Land	₩ 1,129,036,525,441	₩ -	₩ -	₩ -	₩ -	₩ 1,129,036,525,441
Buildings	88,060,981,008	-	-	(35,819,404,710)	-	52,241,576,298
Structures	2,404,026,785,906	(112,519,081)	-	(1,027,970,036,215)	-	1,375,944,230,610
Machinery	945,415,731,323	(2,333,961,812)	-	(595,185,458,609)	-	347,896,310,902
Vehicles	14,719,444,848	-	(3,245,669)	(11,401,416,171)	-	3,314,783,008
Tools & fixtures	71,602,587,806	-	-	(63,457,292,669)	(335,491,264)	7,809,803,873
Construction-in-progress	20,559,647,851	-	-	-	-	20,559,647,851
Right-of-use assets	412,596,890,974	-	-	(103,971,098,523)	(1,563,446,605)	307,062,345,846
Others	55,607,475,864	-	-	(47,533,344,792)	(2,262,388,066)	5,811,743,006
Oil & gas properties[1]	20,330,023,250,032	-	(1,254,526,110)	(11,243,280,405,083)	(4,553,787,972,622)	4,531,700,346,217
	₩ 25,471,649,321,053	₩ (2,446,480,893)	₩ (1,257,771,779)	₩ (13,128,618,456,772)	₩ (4,557,949,298,557)	₩ 7,781,377,313,052

[1] Classified as others in the consolidated statements of financial position.

Korea National Oil Corporation and its subsidiaries
Notes to the consolidated financial statements
December 31, 2023 and 2022

17. Property, Plant and Equipment (cont'd)

Changes in property, plant and equipment for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023							
	Beginning balance	Acquisition / Capital expenditures	Disposal	Depreciation	Impairment losses[1]	Replacement[2]	Others[3,4]	Ending balance
Land	₩ 1,129,036,525,441	₩ 367,898,361	₩ (531,723,047)	₩ -	₩ -	₩ (143,478)	₩ 19,690,882,746	₩ 1,148,563,440,023
Buildings	52,241,576,298	1,642,925,439	(373,597,899)	(2,326,421,941)	-	(8,882,010)	930,802,114	52,106,402,001
Structures	1,376,056,749,691	1,010,385,852	-	(62,688,098,776)	-	33,549,037	24,593,841,306	1,339,006,427,110
(Contributions to construction)	(112,519,081)	-	-	4,292,697	-	-	(2,014,827)	(110,241,211)
Machinery	350,230,272,714	3,497,888,507	(2,193,480)	(36,587,085,319)	-	366,083,385	6,508,898,607	324,013,864,414
(Contributions to construction)	(2,333,961,812)	-	-	365,031,890	-	-	(45,178,018)	(2,014,107,940)
Vehicles	3,318,028,677	732,663,173	(6,527)	(698,584,147)	-	-	121,997,582	3,474,098,758
(Government grants)	(3,245,669)	-	-	393,320	-	-	(61,424)	(2,913,773)
Tools & fixtures	7,809,803,873	4,563,242,350	(17,548,658)	(2,380,955,569)	-	133,573,467	119,302,018	10,227,417,481
Construction-in-progress	20,559,647,851	36,967,996,980	(531,444,160)	-	-	(6,802,946,669)	439,457,551	50,632,711,553
Right-of-use assets	307,062,345,846	6,730,977,531	(839,419,098)	(20,294,323,153)	-	-	31,243,311,387	323,902,892,513
Others	5,811,743,006	1,883,734,357	(47,490,608)	(2,349,450,130)	-	361,231,754	3,698,998,579	9,358,766,958
Oil & gas properties	4,532,954,872,327	456,241,429,973	(1,461,879,475)	(932,958,566,766)	49,448,935,069	4,280,353,936	383,037,559,735	4,491,542,704,799
(Government grants)	(1,254,526,110)	-	-	146,112,009	-	-	(23,669,209)	(1,132,083,310)
	₩ 7,781,377,313,052	₩ 513,639,142,523	₩ (3,805,302,952)	₩ (1,059,767,655,885)	₩ 49,448,935,069	₩ (1,637,180,578)	₩ 470,314,128,147	₩ 7,749,569,379,376

[1] Impairment loss is a net amount, considering reversal amounts.

[2] During the year ended December 31, 2023, construction-in-progress of ₩ 5,166 million was transferred to property, plant and equipment, and ₩ 1,637 million was transferred to intangible assets other than goodwill.

[3] As the reason for classification of assets held for sale as of December 31, 2022 has been resolved, the related assets are transferred to other accounts (Note 40).

[4] Include the effect exchange rates and others.

17. Property, Plant and Equipment (cont'd)

(in Korean won)	2022								
	Beginning balance	Acquisition / Capital expenditures	Disposal	Depreciation[1]	Impairment losses[2]	Assets held for sale[3]	Replacement[4]	Others[5]	Ending balance
Land[6]	₩ 1,140,071,820,943	₩ 218,020,438	₩ (95,662,438)	₩ -	₩ -	₩ -	₩ (43,822,600,341)	₩ 32,664,946,839	₩ 1,129,036,525,441
Buildings	54,074,883,631	385,028,231	(4,037,121,535)	(2,433,933,700)	-	-	433,688,236	3,819,031,435	52,241,576,298
Structures	1,304,420,670,996	1,328,455,339	(1,662,738,358)	(62,301,592,450)	-	-	45,116,042,544	89,155,911,620	1,376,056,749,691
(Contributions to construction)	(109,154,735)	-	-	4,249,224	-	-	-	(7,613,570)	(112,519,081)
Machinery	338,471,978,329	12,390,822,432	(361,367,459)	(38,431,535,878)	-	-	7,397,418,887	30,762,956,403	350,230,272,714
(Contributions to construction)	(2,514,813,764)	-	-	361,267,979	-	-	-	(180,416,027)	(2,333,961,812)
Vehicles	2,849,977,446	1,105,177,828	(1,132,334)	(895,307,901)	-	-	26,849,305	232,464,333	3,318,028,677
(Government grants)	-	(3,563,198)	-	254,514	-	-	-	63,015	(3,245,669)
Tools & fixtures	7,554,294,800	1,847,932,691	(172,338,307)	(2,028,280,886)	-	-	106,317,149	501,878,426	7,809,803,873
Construction-in-progress	16,417,058,100	18,239,884,463	-	-	-	-	(13,893,461,055)	(203,833,657)	20,559,647,851
Right-of-use assets	308,151,008,879	815,602,867	-	(22,728,388,309)	-	(6,468,348,324)	-	27,292,470,733	307,062,345,846
Others	5,059,634,951	3,380,343,784	-	(919,764,011)	-	(1,448,986,159)	332,233,986	(591,719,545)	5,811,743,006
Oil & gas properties	4,922,257,957,858	424,444,238,343	(4,972,121,580)	(478,848,873,599)	(25,593,019,219)	(77,839,260,400)	2,411,699,860	(228,905,748,936)	4,532,954,872,327
(Government grants)	(1,335,221,715)	-	-	176,188,389	-	-	-	(95,492,784)	(1,254,526,110)
	₩ 8,095,370,095,719	₩ 464,151,943,218	₩ (11,302,482,011)	₩ (608,045,716,628)	₩ (25,593,019,219)	₩ (85,756,594,883)	₩ (1,891,811,429)	₩ (45,555,101,715)	₩ 7,781,377,313,052

[1] Include gains and losses classified as discontinued operations.

[2] Impairment loss is a net amount, considering reversal amounts.

[3] Dana Petroleum Limited's Dutch subsidiary was classified as assets held for sale as of December 31, 2022 (Note 40).

[4] During the year ended December 31, 2022, construction-in-progress of ₩ 11,193 million was transferred to property, plant and equipment, and ₩ 1,764 million was transferred to intangible assets other than goodwill. As a result of transition of the Dana Tolmount's assets from the development stage to the production stage, ₩ 5,423 million within Oil & gas properties of property, plant and equipment was transferred. Due to the contribution, land of ₩ 43,835 million and machinery of ₩ 175 million were transferred to structures.

[5] Include the effect of revaluation, changes in lease and exchange rates and others.

[6] During the year ended December 31, 2022, a decrease in accumulated valuation gains of ₩ 47,545 million and a valuation loss of ₩ 200 million were recognized due to revaluation.

17. Property, Plant and Equipment (cont'd)

Details of impairments recognized by segments for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023		2022	
	Oil and Gas[1]		Oil and Gas[1]	
General information				
Type of assets	Oil and gas properties		Oil and gas properties	
Valuation method	Value in use		Value in use	
Assumptions				
Discount rate after tax[2]	12%		11.62%~12%	
Oil prices[3]	International indices		International indices	
Production quantities	Estimated production quantities based on reserve reports		Estimated production quantities based on reserve reports	
Recoverable amounts	₩	75,448,507,385	₩	400,805,018,681
Impairment losses		37,667,515,268		79,521,222,461
Reason for impairment	Decrease in value in use due to decline in forecasted oil price and changes in reserves		Deterioration of the productivity such as decrease in reserves, and decrease in value in use due to increase in discount rate	

[1] The CGUs of the oil and gas segment are fields or areas.

[2] Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

[3] The oil prices are based on the long-term forecasts from globally recognized research institutions.

Details of reversal of impairment losses recognized by segments for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023		2022	
	Oil and Gas[1]		Oil and Gas[1]	
General information				
Type of assets	Oil and gas properties		Oil and gas properties	
Valuation method	Value in use		Value in use	
Assumptions				
Discount rate after tax[2]	6.91%~9.46%		14.8%	
Oil prices[3]	International indices		International indices	
Production quantities	Estimated production quantities based on reserve reports		Estimated production quantities based on reserve reports	
Reversal of impairment losses	₩	87,116,450,337	₩	53,928,203,242
Reason for impairment	Increase in value in use due to increase in reserves and decrease in discount rate		Increase in value due to increase in forecasted long-term oil price	

[1] The CGUs of the oil and gas segment are fields or areas.

[2] Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

[3] The oil prices are based on the long-term forecasts from globally recognized research institutions.

17. Property, Plant and Equipment (cont'd)

Revaluation of property, plant and equipment (land).

(a) At the end of the reporting period, the Group engages an independent valuation specialist to assess fair values for the land. However, the Group did not perform any revaluation due to the insignificant fluctuations in the land's price during the current year.

(b) For the year ended December 31, 2022, the Group recognized a decrease in cumulative valuation gain of ₩ 45,545 million and valuation loss of ₩ 200 million arising from revaluation in other comprehensive income and in profit or loss, respectively.

(c) Changes in accumulated other comprehensive income due to revaluation during the years ended December 31, 2023 and 2022 are as follows:

(in Korean won)		2023		2022
Beginning balance	₩	429,550,580,130	₩	473,372,779,864
Decrease in accumulated other comprehensive income due to revaluation		-		(47,545,389,942)
Income tax effect of accumulated other comprehensive income due to revaluation[1]		623,460,409		17,860,381,506
Transfer of accumulated other comprehensive income to retained earnings		(335,859,436)		(14,137,191,298)
Ending balance	₩	429,838,181,103	₩	429,550,580,130

[1] During the year ended December 31, 2023, ₩ 623 million (2022: ₩ 6,830 million) were included in the effect of tax rate changes due to the revision of the corporate tax law in 2022.

(d) As of December 31, 2023 and 2022, the carrying amount of land measured based on the revaluation model and the cost model are as follows:

(in Korean won)	2023		2022	
	Revaluation model	Cost model	Revaluation model	Cost model
Land	₩ 1,148,563,440,023	₩ 535,943,299,157	₩ 1,129,036,525,441	₩ 526,492,406,462

(e) As of December 31, 2023, and 2022, the fair value of land is ₩ 1,148,563 million and ₩ 1,129,037, respectively, and is classified as Level 3 fair value hierarchy.

17. Property, Plant and Equipment (cont'd)

(f) Description of valuation techniques used and key inputs to valuation of *land*:

Valuation techniques	Significant unobservable inputs	Relationship between unobservable inputs and fair value measurements
(Act on Publicly Announced Land Price) Determined on the basis of publicly announced price of the standard land for the land subject to measurement and the neighboring land, yet fair values are measured by adjusting based on the time, individual factors and others	Adjustment based on time (rate of change in land price)	If the rate of change in land price rises (falls), the fair value increases (decreases).
	Regional factors	If regional factors increase (decrease), fair value increases (decreases)
	Individual factors (conditions of a portion of land, etc.)	If adjustments such as conditions of a portion of land increase (decrease), fair values increase (decrease)
	Others (land price etc.)	If adjustments increase (decrease) by comparing publicly announced standard land price and other similar cases, fair values increase (decrease)

18. Goodwill

Details of goodwill as of December 31, 2023 and 2022, are as follows:

(in Korean won)		2023		2022
Acquisition cost	₩	1,409,930,831,528	₩	1,327,374,468,691
Accumulated impairment losses		(1,179,902,054,649)		(1,101,229,442,413)
Book value	₩	230,028,776,879	₩	226,145,026,278

Changes in goodwill for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Beginning balance	₩	226,145,026,278	₩	233,657,370,725
Impairment losses		(9,415,497,563)		(6,810,518,740)
Other changes[1]		13,299,248,164		(701,825,707)
Ending balance	₩	230,028,776,879	₩	226,145,026,278

[1] Include the effect of exchange rate changes.

18. Goodwill (cont'd)

Changes in accumulated impairment losses for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Beginning balance	₩	(1,101,229,442,413)	₩	(1,125,679,986,327)
Impairment losses		(9,415,497,563)		(6,810,518,740)
Other changes[1]		(69,257,114,673)		31,261,062,654
Ending balance	₩	(1,179,902,054,649)	₩	(1,101,229,442,413)

[1] Include the effect of exchange rate changes.

The Group recognized goodwill for the acquisition of Dana Petroleum Limited, Altius Holdings Inc. and KADOC Ltd., and allocated the goodwill to each of the Group's cash-generating unit that is expected to benefit from the synergies of the acquisition.

The carrying amounts of goodwill allocated to the Group's CGUs and groups of CGUs as of December 31, 2023 and 2022, are as follows:

(in Korean won)		2023		2022
Dana Petroleum Limited[1]	₩	139,659,750,965	₩	129,956,949,346
Altius Holdings Inc. (a subsidiary of KNOC Kaz B.V.)[2]		23,827,340,668		21,646,277,330
KADOC Ltd.[3]		66,541,685,246		74,541,799,602
	₩	230,028,776,879	₩	226,145,026,278

[1] Dana Petroleum Limited's recoverable amount is estimated based on the value in use. The value in use is estimated from the cash inflows, which are discounted at 8% and 12% derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is no impairment loss on goodwill recognized based on the value in use estimated for each CGU for the year ended December 31, 2023.

[2] Altius Holding Inc.'s recoverable amount is estimated based on the value in use. The value in use is estimated from the cash inflows, which are discounted at 8.25%, derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is no impairment loss on goodwill recognized based on the value in use estimated for each CGU for the year ended December 31, 2023.

[3] KADOC Ltd.'s recoverable amount is estimated based on the value in use. The value in use is estimated from the cash inflows, which are discounted at 6.03%, derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is no loss of damages to goodwill based on the recoverable amount calculated based on the cash-generating unit during the period, but impairment to goodwill were recognized as the deferred tax liability have decreased, which is an indication of the goodwill.

19. Intangible Assets Other Than Goodwill

Details of intangible assets other than goodwill as of December 31, 2023 and 2022, are as follows:

(in Korean won) 2023	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment losses	Book value
Exploration and evaluation assets	₩ 4,017,860,086,590	₩ -	₩ -	₩ (3,288,778,588,787)	₩ 729,081,497,803
Software	47,682,356,940	(10,773,917)	(40,526,438,090)	-	7,145,144,933
Mining rights	2,584,346,123,813	-	(1,556,720,890,340)	(173,561,999,397)	854,063,234,076
Copyright, patents and other industrial property rights	10,563,448	(4,391,954)	(657,392)	-	5,514,102
Development cost	56,352,790,591	-	(50,451,934,720)	-	5,900,855,871
Land use right	270,001,727	-	(124,624,675)	-	145,377,052
Others	102,685,864,755	-	(1,414,385,823)	(99,249,708,109)	2,021,770,823
	₩ 6,809,207,787,864	₩ (15,165,871)	₩ (1,649,238,931,040)	₩ (3,561,590,296,293)	₩ 1,598,363,394,660

(in Korean won) 2022	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment losses	Book value
Exploration and evaluation assets	₩ 3,572,137,492,231	₩ -	₩ -	₩ (3,101,690,428,496)	₩ 470,447,063,735
Software	46,214,852,373	(20,363,952)	(38,203,736,780)	-	7,990,751,641
Mining rights	2,611,970,489,253	-	(1,470,190,893,731)	(281,219,804,133)	860,559,791,389
Copyright, patents and other industrial property rights	5,960,112	-	(106,453)	-	5,853,659
Development cost	52,503,267,894	-	(47,864,058,082)	-	4,639,209,812
Land use right	265,373,963	-	(115,850,584)	-	149,523,379
Others	101,010,280,656	-	(1,328,407,939)	(97,655,125,856)	2,026,746,861
	₩ 6,384,107,716,482	₩ (20,363,952)	₩ (1,557,703,053,569)	₩ (3,480,565,358,485)	₩ 1,345,818,940,476

19. Intangible Assets Other Than Goodwill (cont'd)

Changes in intangible assets other than goodwill for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)

	2023							
	Beginning balance	Acquisition / Capital expenditures	Disposal	Amortization	Impairment losses (reversal)[1]	Replacement[2]	Others[3,4]	Ending balance
Exploration and evaluation assets	₩ 470,447,063,735	₩ 195,735,652,820	₩ -	₩ -	₩ (90,879,240,591)	₩ -	₩ 153,778,021,839	₩ 729,081,497,803
Software	7,990,751,641	2,004,087,976	(2,611)	(3,012,211,066)	-	10,331,328	152,187,665	7,145,144,933
Mining rights	860,559,791,389	7,451,548	-	(61,664,382,272)	40,076,337,313	-	15,084,036,098	854,063,234,076
Copyright, patents and other industrial property rights	5,853,659	-	-	(448,278)	-	-	108,721	5,514,102
Development cost	4,639,209,812	1,352,416,235	(1,305)	(1,783,858,808)	-	1,626,849,250	66,240,687	5,900,855,871
Land use right	149,523,379	-	-	(6,837,672)	-	-	2,691,345	145,377,052
Others	2,026,746,861	233,228,807	(224,928,579)	(53,431,989)	-	-	40,155,723	2,021,770,823
	₩ 1,345,818,940,476	₩ 199,332,837,386	₩ (224,932,495)	₩ (66,521,170,085)	₩ (50,802,903,278)	₩ 1,637,180,578	₩ 169,123,442,078	₩ 1,598,363,394,660

[1] Impairment loss is a net amount, taking into account reversal amounts. The amount is the sum of impairment loss due to the business withdrawal of Senegal UDO mine of ₩ 13,662 million, impairment loss related to suspension of exploration activities by Dana Petroleum Limited of ₩ 85,176 million, and reversal of impairment of ₩ 48,035 million due to revaluation of remaining reserves and changes in discount rates.

[2] For the year ended December 31, 2023, computer software and development costs were transferred from construction in progress.

[3] As the reason for classification of assets held for sale as of December 31, 2022 has been resolved, the related assets are transferred to other accounts (Note 40).

[4] Include the effect of changes in exchange rates and others.

(in Korean won)

	2022								
	Beginning balance	Acquisition / Capital expenditures	Disposal	Amortization	Impairment losses (reversal)[1,5]	Assets held for sale[2]	Replacement[3]	Others[4]	Ending balance
Exploration and evaluation assets	₩ 508,765,005,428	₩ 100,639,608,396	₩ -	₩ -	₩ (59,884,511,424)	₩ (124,878,622,158)	₩ -	₩ 45,805,583,493	₩ 470,447,063,735
Software	7,548,070,913	2,116,055,969	(20,671)	(2,563,380,695)	-	-	370,835,088	519,191,037	7,990,751,641
Mining rights	859,163,121,096	147,017,050	3,264	(58,498,871,981)	(676,899,883)	-	326,323,315	60,099,098,528	860,559,791,389
Copyright, patents and other industrial property rights	-	6,076,454	-	(108,937)	-	-	-	(113,858)	5,853,659
Development cost	4,506,826,354	674,634,004	-	(2,051,350,523)	-	-	1,194,653,312	314,446,665	4,639,209,812
Land use right	146,081,720	-	-	(6,767,157)	-	-	-	10,208,816	149,523,379
Others	2,020,799,755	187,680,378	(268,367,958)	(50,608,195)	-	-	-	137,242,881	2,026,746,861
	₩ 1,382,149,905,266	₩ 103,771,072,251	₩ (268,385,365)	₩ (63,171,087,488)	₩ (60,561,411,307)	₩ (124,878,622,158)	₩ 1,891,811,715	₩ 106,885,657,562	₩ 1,345,818,940,476

[1] Impairment loss is a net amount, taking into account reversal amounts. The amount is the sum of impairment loss related to domestic continental shelf of ₩ 54,477 million, impairment loss due to the business withdrawal of Yemen 70 mine of ₩ 3,636 million, and impairment related to the withdrawal of mines and suspension of exploration activities.

[2] This is the amount equivalent to exploration assets among the asset classified as held for sale (Note 40).

[3] For the year ended December 31, 2022, computer software, mining rights and development costs were transferred from construction in progress.

19. Intangible Assets Other Than Goodwill (cont'd)

[4] Include the effect of changes in exchange rates and others.

[5] Include gains and losses classified as discontinued operations

20. Financial Liabilities Measured at Fair Value through Profit or Loss

Details of financial liabilities measured at fair value through profit or loss as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023				2022			
	Current		Non-current		Current		Non-current	
Non-derivative liabilities	₩	55,616,639,843	₩	2,334,754,927	₩	17,115,068,421	₩	43,185,107,820

The amounts recognized in profit or loss in relation to financial liabilities measured at fair value through profit or loss for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023		2022	
Gains on valuation of financial liabilities measured at fair value through profit or loss	₩	15,266,004,732	₩	11,536,771,715
Losses on valuation of financial liabilities measured at fair value through profit or loss		(10,541,611,079)		(9,861,648,388)
	₩	4,724,393,653	₩	1,675,123,327

21. Trade and Other Payables

Details of trade and other payables as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023		2022	
	Current	Non-current	Current	Non-current
Trade account payables	₩ 99,558,522,323	₩ -	₩ 114,880,598,690	₩ 659,066,969
Other account payables	385,063,365,215	21,928,117	607,683,521,797	-
Accrued expenses[1]	158,823,369,109	43,572,836,550	130,797,035,863	44,455,312,510
Deposit received	-	4,984,061,575	-	5,491,776,686
Other deposits received	-	15,270,687	-	15,008,989
Lease liabilities	26,240,275,733	301,729,717,638	17,680,273,816	285,682,924,510
Other payables	44,253,694,291	3,004,441,603	49,638,290,400	-
	₩ 713,939,226,671	₩ 353,328,256,170	₩ 920,679,720,566	₩ 336,304,089,664

[1] It includes changes in special charges from repayable loans on success under the Energy and Resource Special Account Act due to changes in circumstances such as the sale of shares and others.

Details of other payables are as follows:

(in Korean won)	2023		2022	
	Current	Non-current	Current	Non-current
Advances from value added tax	₩ 3,036,454,723	₩ -	₩ 31,831,123,735	₩ -
Overseas advances from value added tax	-	-	1,091,929,138	-
Liabilities from overseas oil fields	17,265,866,305	-	13,193,172,080	-
Other than payables	23,951,373,263	3,004,441,603	3,522,065,447	-
	₩ 44,253,694,291	₩ 3,004,441,603	₩ 49,638,290,400	₩ -

22. Borrowings and Bond Payables

Details of borrowings and bond payables as of December 31, 2023 and 2022, are as follows:

(in Korean won)		2023		2022
Current Liabilities				
Short-term borrowings	₩	386,929,787,691	₩	257,956,348,084
Current portion of long-term borrowings		497,629,232,529		757,618,998,921
Less: current portion of present discounted value		(145,921,733)		-
Current portion of bond payables		3,155,020,483,552		2,479,931,295,317
Less: current portion of discount on bond payables		(953,812,646)		(297,889,384)
		4,038,479,769,393		3,495,208,752,938
Non-current Liabilities				
Long-term borrowings		640,241,245,465		755,317,856,022
Less: present discounted value		(413,493,418)		(301,840,686)
Bond payables		10,444,551,000,002		10,973,201,887,638
Less: discount on bond payables		(32,705,829,490)		(30,688,405,459)
Add: premium on bond payables		1,531,836,276		2,662,362,723
		11,053,204,758,835		11,700,191,860,238
	₩	15,091,684,528,228	₩	15,195,400,613,176

Details of payment schedule as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023		2022	
	Borrowings	Bond payables	Borrowings	Bond payables
Within a year	₩ 884,559,020,220	₩ 3,155,020,483,552	₩ 1,015,575,347,005	₩ 2,479,931,295,317
1~5 years	429,225,000,357	8,749,247,999,916	526,785,882,740	9,305,413,387,635
More than 5 years	211,016,245,108	1,695,303,000,086	228,531,973,282	1,667,788,500,003
	₩ 1,524,800,265,685	₩ 13,599,571,483,554	₩ 1,770,893,203,027	₩ 13,453,133,182,955

Details of short-term borrowings as of December 31, 2023 and 2022, are as follows:

(in Korean won)

Type	Financial Institutions	Interest rate (%)	Maturity		2023
Short-term borrowings	Nonghyup Bank	6.02	2024-03-25	₩	193,410,000,000
	Citi, JP, SMBC, Nova Scotia, CIBC	6.61	2024-01-25		105,840,587,691
	Bank Of America	6.47	2024-02-10		32,235,000,000
	SCB	6.63	2024-02-13		55,444,200,000
				₩	386,929,787,691

22. Borrowings and Bond Payables (cont'd)

(in Korean won)

Type	Financial Institutions	Interest rate (%)	Maturity	2022
Short-term borrowings	BNP Paribas	4.98	2023-01-28	₩ 25,346,000,000
	ING Bank	5.74	2023-03-20	88,711,000,000
	Bank of America	5.56	2023-03-20	50,692,000,000
	Citi, JP, SMBC, Nova Scotia, CIBC	SOFR+1.15	2023-01-25	93,207,348,084
				₩ 257,956,348,084

Details of long-term borrowings as of December 31, 2023 and 2022, are as follows:

(in Korean won and foreign currencies)

				2023		2022	
Type	Financial Institution	Interest rate (%)	Maturity	Amount	Equivalent to Korean won	Amount	Equivalent to Korean won
Long- term borrowings	The Export-Import Bank of Korea	1.45	2024-11-26	USD 250,000,000	₩ 322,350,000,000	USD 250,000,000	₩ 316,825,000,000
	The Export-Import Bank of Korea	3M SOFR +1.03	2026-07-24	USD 250,000,000	322,350,000,000	-	-
	Korea Development Bank	CD3M + 0.58%	2024-04-20~2027-01-20 (Repayment in equal installments of principal 4 times in a year)	USD 119,726,229	154,374,999,956	USD 39,453,958	50,000,000,973
	SAER	Treasury 3Y -1.25	- [1]	USD 95,026,813	122,527,572,682	USD 95,026,813	120,427,480,391
	SAER	Treasury 3Y -2.25	- [1]	USD 68,627,791	88,488,672,814	USD 68,585,051	86,917,835,474
	Kernhem International B.V	8.13	2038-04-29	-	-	USD 16,717,950	21,186,658,035
	Citi, JP, SMBC, Nova Scotia, CIBC	BA+1.15	2024-06-23	USD 9,099,761	11,733,232,542	USD 43,619,413	55,278,882,488
	The Export-Import Bank of Korea	1.95	2023-03-24	-	-	USD 369,050,000	467,697,065,051
	The Export-Import Bank of Korea	1.45	2024-11-19	USD 90,000,000	116,046,000,000	USD 90,000,000	114,057,000,000
	SMBC TERM LOAN	BA+1.15	2023-05-11	-	-	USD 221,373,735	280,546,932,531
				USD 882,480,594	1,137,870,477,994	USD 1,193,826,920	1,512,936,854,943
	Less: present value discount			USD (433,857)	(559,415,151)	USD (238,176)	(301,840,686)
				USD 882,046,737	1,137,311,062,843	USD 1,193,588,744	1,512,635,014,257
	Less: current portion			USD (385,938,601)	(497,629,232,529)	USD (597,821,352)	(757,618,998,921)
	Less: current portion of present discounted value			USD 113,170	145,921,733	-	-
				USD 496,221,306	₩ 639,827,752,047	USD 595,767,392	₩ 755,016,015,336

[1] There is no maturity specified as a successful loan, but if the exploration is successful, it must be repaid from the start date of commercial production according to the agreement, and if the exploration project fails to reach commercial production and ends, the repayment obligation will be exempted.

22. Borrowings and Bond Payables (cont'd)

Details of bond payables as of December 31, 2023 and 2022, are as follows:

(in Korean won and foreign currencies)

Type	Interest rate (%)	Maturity	2023 Amount	2023 Equivalent to Korean won	2022 Amount	2022 Equivalent to Korean won
Floating interest rate bond payables	-	2023-07-16	-	₩ -	400,000,000	₩ 506,920,000,000
	SOFR+1.08	2026-11-14	USD 500,000,000	644,700,000,000	-	-
Fixed interest rate bond payables	-	2023-01-24	-	-	HKD 400,000,000	65,019,999,995
	-	2023-02-24	-	-	EUR 37,000,000	49,994,399,012
	3.00	2025-06-24	EUR 60,000,000	85,595,400,003	EUR 60,000,000	81,071,999,995
	-	2023-07-03	-	-	EUR 50,000,000	67,559,999,998
	4.00	2024-01-23	USD 500,000,000	644,700,000,000	USD 500,000,000	633,650,000,000
	3.25	2024-07-10	USD 550,000,000	709,170,000,000	USD 550,000,000	697,015,000,000
	3.10	2027-01-21	USD 50,000,000	64,470,000,000	USD 50,000,000	63,365,000,000
	3.10	2027-01-21	USD 70,000,000	90,258,000,000	USD 70,000,000	88,711,000,000
	3.21	2030-03-19	USD 85,000,000	109,599,000,000	USD 85,000,000	107,720,500,000
	2.99	2025-03-19	USD 90,000,000	116,046,000,000	USD 90,000,000	114,057,000,000
	2.82	2025-04-29	USD 65,000,000	83,811,000,000	USD 65,000,000	82,374,500,000
	3.02	2030-04-29	USD 60,000,000	77,364,000,000	USD 60,000,000	76,038,000,000
	3.25	2025-10-01	USD 600,000,000	773,640,000,000	USD 600,000,000	760,380,000,000
	3.22	2030-11-10	USD 100,000,000	128,940,000,000	USD 100,000,000	126,730,000,000
	2.63	2026-04-14	USD 500,000,000	644,700,000,000	USD 500,000,000	633,650,000,000
	2.50	2026-10-24	USD 650,000,000	838,110,000,000	USD 650,000,000	823,745,000,000
	3.38	2027-03-27	USD 500,000,000	644,700,000,000	USD 500,000,000	633,650,000,000
	-	2023-06-01	-	-	CHF 500,000,000	686,435,000,000
	-	2024-10-04	CHF 300,000,000	458,046,000,004	CHF 300,000,000	411,861,000,000
	-	2023-06-23	-	-	KRW 100,000,000,000	100,000,000,000
	-	2023-07-21	-	-	KRW 150,000,000,000	150,000,000,000
	-	2023-08-14	-	-	KRW 150,000,000,000	150,000,000,000
	-	2023-08-21	-	-	KRW 100,000,000,000	100,000,000,000
	-	2023-09-08	-	-	KRW 100,000,000,000	100,000,000,000
	2.50	2025-03-26	HKD 160,000,000	26,409,599,999	HKD 160,000,000	26,007,999,995
	0.89	2025-04-21	CHF 200,000,000	305,364,000,002	CHF 200,000,000	274,574,000,000
	0.88	2025-10-05	USD 400,000,000	515,760,000,000	USD 400,000,000	506,920,000,000
	0.26	2027-07-30	CHF 100,000,000	152,682,000,001	CHF 100,000,000	137,287,000,000
	0.26	2027-07-30	CHF 100,000,000	152,682,000,001	CHF 100,000,000	137,287,000,000
	1.63	2030-10-05	USD 300,000,000	386,820,000,000	USD 300,000,000	380,190,000,000
	0.57	2024-10-28	SGD 400,000,000	390,743,999,997	SGD 400,000,000	377,244,000,000
	1.95	2031-02-17	KRW 90,000,000,000	90,000,000,000	KRW 90,000,000,000	90,000,000,000
	1.25	2026-04-07	USD 400,000,000	515,760,000,000	USD 400,000,000	506,920,000,000
	2.38	2031-04-07	USD 300,000,000	386,820,000,000	USD 300,000,000	380,190,000,000
	1.49	2024-12-28	USD 120,000,000	154,728,000,000	USD 120,000,000	152,076,000,000
	2.13	2027-04-18	USD 550,000,000	709,170,000,000	USD 550,000,000	697,015,000,000
	1.75	2025-04-18	USD 550,000,000	709,170,000,000	USD 550,000,000	697,015,000,000
	2.63	2032-04-18	USD 400,000,000	515,760,000,000	USD 400,000,000	506,920,000,000
	2.15	2024-12-19	CHF 100,000,000	152,682,000,001	CHF 100,000,000	137,287,000,000
	4.75	2026-04-03	USD 550,000,000	709,170,000,000	-	-
	4.88	2028-04-03	USD 450,000,000	580,230,000,000	-	-
	5.25	2026-11-14	USD 300,000,000	386,820,000,000	-	-
	1.00	2024-04-26	USD 500,194,264	644,950,483,550	USD 498,895,201	632,249,887,733
	-	2023-06-01	-	-	USD 397,697,384	504,001,896,227
				13,599,571,483,554		13,453,133,182,955
Less: discount on bond payables				(33,659,642,136)		(30,986,294,843)
Add: premium on bond payables				1,531,836,276		2,662,362,723
				13,567,443,677,694		13,424,809,250,835
Less: current portion				(3,155,020,483,552)		(2,479,931,295,317)
Add: current portion of discount of bond payables				953,812,646		297,889,384
				₩ 10,413,377,006,788		₩ 10,945,175,844,902

23. Leases

(a) The Group as a lessee

The Group recognized as an expense for the lease contract with a lease term of 12 months or less as a short-term lease of ₩ 1,043 million in 2023 and of ₩ 1,647 million in 2022, and as a low value contract with underlying assets below $ 5,000 of ₩ 44 million in 2023 and of ₩ 72 million in 2022.

Details of right-of-use assets as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023		
	Acquisition cost	**Accumulated depreciation**	**Book value**
Land	₩ 8,961,470,519	₩ (3,236,368,230)	₩ 5,725,102,289
Buildings[1]	307,936,853,419	(74,606,908,679)	233,329,944,740
Vessels	23,838,692,417	(11,561,628,553)	12,277,063,864
Vehicles	12,095,158,406	(9,111,800,066)	2,983,358,340
Others	98,657,892,295	(29,070,469,015)	69,587,423,280
	₩ 451,490,067,056	₩ (127,587,174,543)	₩ 323,902,892,513

[1] The Group has the right of pre-emption that can be exercised from 2026 in relation to the lease contract for ₩ 219,399 million on the basis of the book value.

(in Korean won)	2022			
	Acquisition cost	**Accumulated depreciation**	**Accumulated impairment losses**	**Book value**
Land	₩ 5,118,522,384	₩ (2,279,429,581)	₩ -	₩ 2,839,092,803
Buildings[1]	292,358,490,574	(61,538,120,187)	(1,563,446,605)	229,256,923,782
Vessels	14,603,912,254	(9,644,100,813)	-	4,959,811,441
Vehicles	8,336,664,585	(8,053,910,578)	-	282,754,007
Others	92,179,301,177	(22,455,537,364)	-	69,723,763,813
	₩ 412,596,890,974	₩ (103,971,098,523)	₩ (1,563,446,605)	₩ 307,062,345,846

[1] The Group has the right of pre-emption that can be exercised from 2026 in relation to the lease contract for ₩ 222,157 million on the basis of the book value.

23. Leases (cont'd)

Changes in right-of-use assets for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023					
	Beginning balance	Increase	Depreciation	Decrease	Others[1]	Ending balance
Land	₩ 2,839,092,803	₩ -	₩ (976,888,339)	₩ (93,061,373)	₩ 3,955,959,198	₩ 5,725,102,289
Buildings	229,256,923,782	5,139,836,665	(10,165,047,275)	(206,484,532)	9,304,716,100	233,329,944,740
Vessels	4,959,811,441	1,350,245,612	(3,352,059,081)	(539,873,193)	9,858,939,085	12,277,063,864
Vehicles	282,754,007	240,895,254	(1,055,175,565)	-	3,514,884,644	2,983,358,340
Others	69,723,763,813	-	(4,745,152,893)	-	4,608,812,360	69,587,423,280
	₩ 307,062,345,846	₩ 6,730,977,531	₩ (20,294,323,153)	₩ (839,419,098)	₩ 31,243,311,387	₩ 323,902,892,513

[1] Include the effect of lease modification, transfer of financial lease receivables due to sub-lease, changes in exchange rates and others.

(in Korean won)	2022					
	Beginning balance	Increase	Depreciation	Others[1]	Assets held for sale	Ending balance
Land	₩ 3,525,383,842	₩ -	₩ (1,059,268,823)	₩ 372,977,784	₩ -	₩ 2,839,092,803
Buildings	228,531,268,654	122,554,377	(12,854,557,162)	15,388,684,744	(1,931,026,831)	229,256,923,782
Vessels	6,219,335,779	-	(2,341,749,760)	1,082,225,422	-	4,959,811,441
Vehicles	1,339,684,897	273,440,920	(2,241,901,611)	911,529,801	-	282,754,007
Others	68,535,335,707	419,607,269	(4,230,910,953)	9,537,053,283	(4,537,321,493)	69,723,763,813
	₩ 308,151,008,879	₩ 815,602,566	₩ (22,728,388,309)	₩ 27,292,471,034	₩ (6,468,348,324)	₩ 307,062,345,846

[1] Include the effect of lease modification, changes in exchange rates and others.

23. Leases (cont'd)

Details of maturity analysis for lease liabilities as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023		2022	
	Contractual undiscounted cash flows	Present value of contractual cash flows	Contractual undiscounted cash flows	Present value of contractual cash flows
Lease of main office building				
Within 1 year	₩ 8,868,079,986	₩ 8,660,388,179	₩ 8,868,079,992	₩ 8,660,388,184
1-5 years	39,164,975,148	34,166,109,391	37,241,070,769	32,524,919,457
More than 5 years	422,721,491,744	182,197,280,418	433,513,476,116	182,834,274,311
	470,754,546,878	225,023,777,988	479,622,626,877	224,019,581,952
Lease excluding main office building				
Within 1 year	18,547,048,004	17,579,887,554	9,442,274,885	9,019,885,632
1-5 years	50,701,795,439	46,044,368,192	28,437,403,311	26,711,383,786
More than 5 years	52,819,156,030	39,321,959,637	58,769,730,103	43,612,346,956
	122,067,999,473	102,946,215,383	96,649,408,299	79,343,616,374
Total				
Within 1 year	27,415,127,990	26,240,275,733	18,310,354,877	17,680,273,816
1-5 years	89,866,770,587	80,210,477,583	65,678,474,080	59,236,303,243
More than 5 years	475,540,647,774	221,519,240,055	492,283,206,219	226,446,621,267
	₩ 592,822,546,351	₩ 327,969,993,371	₩ 576,272,035,176	₩ 303,363,198,326

Liquidity classification of lease liabilities as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023	2022
Current	₩ 26,240,275,733	₩ 17,680,273,816
Non-current	301,729,717,638	285,682,924,510
	₩ 327,969,993,371	₩ 303,363,198,326

Changes in lease liabilities in relation to lease contracts for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023					
	Beginning balance	Increase	Interest expense	Decrease	Others[1]	Ending balance
Lease liabilities	₩ 303,363,198,326	₩ 5,614,575,198	₩ 12,880,210,328	₩ (24,923,297,971)	₩ 31,035,307,490	₩ 327,969,993,371

[1] Include the effect of lease modification, changes in exchange rates and others.

23. Leases (cont'd)

(in Korean won)	2022					
	Beginning balance	**Increase**	**Interest expense**	**Decrease**	**Others[1]**	**Ending balance**
Lease liabilities	₩ 316,135,542,433	₩ 908,523,684	₩ 11,931,388,760	₩ (26,696,635,776)	₩ 1,084,379,225	₩ 303,363,198,326

[1] Include the effect of lease modification, changes in exchange rates and others.

The statement of profit or loss shows the following amounts relating to leases:

(in Korean won)	**2023**	**2022**
Depreciation of right-of-use assets[1]		
Land	₩ (976,888,339)	₩ (1,059,268,823)
Buildings	(10,165,047,275)	(12,854,557,162)
Vessels	(3,352,059,081)	(2,341,749,760)
Vehicles	(1,055,175,565)	(2,241,901,611)
Others	(4,745,153,442)	(4,230,910,953)
	₩ (20,294,323,702)	₩ (22,728,388,309)
Interest expense relating to lease liabilities (included in finance cost)	₩ (12,880,210,328)	₩ (11,931,388,760)
Commitments relating to short-term leases	(1,042,609,924)	(1,647,057,586)
Commitments relating to leases of low value assets	(43,518,453)	(71,625,320)
Deferred revenue recognized sale and leaseback transaction	1,071,310,825	1,060,264,594
Interest income from leasehold deposits provided	528,781,123	196,636,185
	₩ (32,660,570,459)	₩ (35,121,559,196)

(b) The Group as a lessor

The Group has entered into operating leases on its certain property, plant and equipment. The lease terms are between 1 and 40 years.

Lease income from operating leases where the Group is a lessor, is as follows:

(in Korean won)	**2023**	**2022**
Lease income	₩ 63,081,746,467	₩ 59,170,324,630
Related to variable lease payment that does not depend on an index or a rate	35,831,072,521	4,586,467,519
	₩ 98,912,818,988	₩ 63,756,792,149

23. Leases (cont'd)

The maturity analysis for operating lease payments expected to be received (in undiscounted) as of December 31, 2023 and 2022, is as follows:

(in Korean won)		2023		2022
Within 1 year	₩	61,016,455,567	₩	36,599,049,470
1~5 years		57,496,817,780		28,600,906,218
More than 5 years		37,219,647,620		43,495,326,217
	₩	155,732,920,967	₩	108,695,281,905

Lease income from finance leases where the Group is a lessor, is as follows:

(in Korean won)		2023		2022
Finance income on the net investment in the lease	₩	273,501,671	₩	225,796,724

The maturity analysis for finance lease payments receivable expected to be received (in undiscounted); reconciliation to the net investment in the lease as of December 31, 2023 and 2022, is as follows:

(in Korean won)		2023		2022
Within 1 year	₩	3,334,002,689	₩	1,958,050,799
1~5 years		9,249,805,425		5,823,247,353
More than 5 years		359,712,944		1,818,094,496
		12,943,521,058		9,599,392,648
Unrealized finance income		(936,291,066)		(647,714,520)
Net investment in the lease	₩	12,007,229,992	₩	8,951,678,128

24. Employee Benefits

Defined contribution pension plan

The Group operates both defined contribution and defined benefit pension plans based on choice of directors and employees. Contributions to the DC plan are separately managed by the plan's administrator. When employees terminate their employment before the benefits have vested, the Group's obligation to make contribution to the plan decreases on a pro rata basis.

Details of expenses relating to defined contribution plans for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023[1]		2022[1]
Cost of sales	₩	1,085,823,107	₩	972,704,879
Selling and administrative expenses[2]		1,568,523,035		1,316,037,452
	₩	2,654,346,142	₩	2,288,742,331

[1] Among the amount recognized in profit or loss for defined contribution plan, ₩ 51 million and ₩ 55 million is excluded for each of the two years in the period ended December 31, 2023, respectively, as it is capitalized as other construction costs (property, plant and equipment).

[2] Total expenses of ₩ 2,654 million and ₩ 2,289 million for each of the two years in the period ended December 31, 2023, respectively, are contributions paid by the Group based on the payment rate as defined in retirement benefits plan. There are no unpaid amounts as of December 31, 2023.

Defined benefit pension plan

The latest actuarial calculation on both plan assets and defined benefit obligation was performed as of December 31, 2023. The Group uses the projected unit credit method to determine the present value of its defined benefit obligations, the related current service costs and past service cost.

The components of defined benefits liabilities as of December 31, 2023 and 2022, are as follows:

(in Korean won)		2023		2022
Present value of defined benefit obligation from funded plans	₩	112,366,092,088	₩	93,707,582,217
Fair value of plan assets		(119,084,891,999)		(126,610,193,883)
	₩	(6,718,799,911)	₩	(32,902,611,666)

24. Employee Benefits (cont'd)

Changes in the present value of defined benefit obligations for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Beginning balance	₩	93,707,582,217	₩	99,563,386,737
Current service cost		7,224,495,357		7,994,873,475
Interest cost		5,388,659,821		3,625,201,704
Remeasurement components		24,723,522,411		(8,191,611,389)
Actual payments		(18,678,167,718)		(9,284,268,310)
Ending balance	₩	112,366,092,088	₩	93,707,582,217

Changes in the fair value of plan assets for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Beginning balance	₩	126,610,193,883	₩	106,620,108,491
Expected return on plan assets		7,100,945,572		3,578,376,818
Remeasurement components		(1,459,065,229)		(1,304,023,116)
Benefit paid by the plan		(18,467,182,227)		(9,284,268,310)
Contributions paid into the plan		5,300,000,000		27,000,000,000
Ending balance	₩	119,084,891,999	₩	126,610,193,883

Details of the fair value of plan assets as of December 31, 2023 and 2022, are as follows:

(in Korean won)	Expected rate of return[2]		Fair value of plan assets			
	2023	2022		2023		2022
Others[1]	5.95%	3.69%	₩	119,084,891,999	₩	126,610,193,883

[1] Others are comprised of 48% of deposit and 52% of local and overseas securities, and debt securities as of December 31, 2023.

[2] The expected rate of return is calculated based on the weighted average of expected rate of returns for each type of assets. The management evaluates the expected rate of returns based on the historical rate of return trends and the analysis of the predicted market during the period when the defined benefits liabilities exist.

24. Employee Benefits (cont'd)

Principal actuarial assumptions as of December 31, 2023 and 2022, are as follows:

(in percentage, %)	2023	2022
Discount rate	5.27	6.13
Expected rate of return on plan assets	5.95	3.69
Future salary growth	5.26	4.25

Details of expenses relating to defined benefit plans for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Current service cost	₩	7,224,495,357	₩	7,994,873,475
Interest cost		5,388,659,821		3,625,201,704
Expected return on plan assets		(7,100,945,572)		(3,578,376,818)
Transfer to other account		(97,969,154)		(157,302,961)
	₩	5,414,240,452	₩	7,884,395,400

Expenses described above are recognized as the following items in the financial statements.

(in Korean won)		2023		2022
Cost of sales	₩	2,019,045,664	₩	2,997,278,058
Selling and administrative expenses		3,395,194,788		4,887,117,342
Others[1]		97,969,154		157,302,961
	₩	5,512,209,606	₩	8,041,698,361

[1] Amount is attributed to reclassification and it was reflected in the consolidated statement of financial position as other construction expenses (property, plant and equipment).

Remeasurement components recognized in other comprehensive income for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Defined benefit obligations	₩	(24,723,522,411)	₩	8,191,611,389
Return on plan assets		(1,459,065,229)		(1,304,023,116)
Income tax effect		2,592,075,618		(1,597,920,464)
	₩	(23,590,512,022)	₩	5,289,667,809

24. Employee Benefits (cont'd)

A sensitivity analysis for changes in key assumptions as of December 31, 2023 is as follows:

(in Korean won)	1% decrease	1% increase
Future salary increases rate	₩ (7,623,844,273)	₩ 8,502,079,323
Discount rate	8,337,523,377	(7,358,255,941)

The sensitivity analysis is based on a change in key assumptions, keeping all other assumptions constant. The sensitivity of the defined benefit obligation to changes in key actuarial assumptions was calculated by using the same projected unit credit method used to calculate the defined benefit obligation recognized in the consolidated statement of financial position. The methods and assumptions used for the sensitivity analysis are the same as those of 2022.

The estimated cost to be recognized in profit or loss for the next period in relation to the defined benefit plan is ₩ 8,586 million.

The weighted-average duration of the defined benefit obligation is 7.4203 years.

25. Provisions

Details of provisions as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023			2022		
	Current	Non-current	Total	Current	Non-current	Total
Decommissioning cost[1,3]	₩ 86,087,599,235	₩ 2,154,912,603,081	₩ 2,241,000,202,316	₩ 58,760,675,067	₩ 1,665,996,615,818	₩ 1,724,757,290,885
Social Overhead Capital[2]	-	-	-	68,654,710	-	68,654,710
Allowance for salaries	6,435,943,576	-	6,435,943,576	5,824,577,283	-	5,824,577,283
Provision for litigations[4]	3,834,905,552	2,402,920,515	6,237,826,067	6,589,960,000	4,225,177,718	10,815,137,718
Onerous contract[3,5]	17,851,162,009	-	17,851,162,009	16,251,328,890	16,745,613,985	32,996,942,875
Others	1,113,301,110	24,086,866,200	25,200,167,310	1,078,760,066	17,971,712,491	19,050,472,557
	₩ 115,322,911,482	₩ 2,181,402,389,796	₩ 2,296,725,301,278	₩ 88,573,956,016	₩ 1,704,939,120,012	₩ 1,793,513,076,028

[1] The Group recognized provisions for future dismantling, removing and restoring obligations of wells and related facilities. Most of the costs incur at or after the completion of production and the management recognized its best estimations as provisions.

[2] The Group is committed to providing construction services with regards to the Kurdish regional government's Social Overhead Capital to obtain rights on certain exploratory areas. The Group completed the cost settlement related to this commitment and reversed these provisions for the year ended December 31, 2023.

[3] The amount reclassified to current portion is ₩ 9,345 million for provision for decommissioning cost and ₩ 17,851 million for provision for onerous contract for the year ended December 31, 2023. The amount reclassified to current portion is ₩ 23,990 million for provision for decommissioning cost and ₩ 15,824 million for provision for onerous contract for the year ended December 31, 2022.

[4] The Group recognized a provision for lawsuit results related to Ankor oldhome and for a claim amount and interest arising from the third lawsuit related to ordinary wages as provisions for the year ended December 31, 2023.

[5] The Group recognized as a provision for an obligation to pay for the oil pipelines due to its uncertain amount of related cash outflows even after production ends in Vietnam 11-2.

25. Provisions (cont'd)

Changes in provisions for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023						
	Beginning balance	Provision	Transfer	Payment	Reversal	Others[1]	Ending balance
Decommissioning cost[4,5,6]	₩ 1,724,757,290,885	₩ 233,222,334,014	₩ 83,625,196,418	₩ (132,245,697,062)	₩ (30,826,776,759)	₩ 362,467,854,820	₩ 2,241,000,202,316
Social Overhead Capital	68,654,710	-	-	-	(70,720,587)	2,065,877	-
Allowance for salaries[3]	5,824,577,283	516,123,868	-	-	-	95,242,425	6,435,943,576
Provision for litigations	10,815,137,718	3,643,399,310	-	(6,549,009,607)	(1,919,480,086)	247,778,732	6,237,826,067
Onerous contract[2]	32,996,942,875	343,425,957	741,553,815	(16,991,262,249)	-	760,501,611	17,851,162,009
Others	19,050,472,557	-	-	-	-	6,149,694,753	25,200,167,310
	₩ 1,793,513,076,028	₩ 237,725,283,149	₩ 84,366,750,233	₩ (155,785,968,918)	₩ (32,816,977,432)	₩ 369,723,138,218	₩ 2,296,725,301,278

[1] Include the effect of changes in exchange rates and others, and the transferred amount as a result of resolution of the reason that the related assets were classified as assets held for sale as of December 31, 2022 (Note 40).

[2] The provision amount of ₩ 343 million is reflected in sales commission.

[3] The provision amount of ₩ 516 million is reflected in salaries.

[4] The estimated decommissioning cost of ₩ 103,295 million has been deposited to the third party, and it is not allowed to be withdrawn except for decommissioning.

[5] The reversal amount of ₩ 4,334 million is reflected in property, plant and equipment and amount of ₩ 26,493 million is reflected in reversal of other provision.

[6] The provision amount of ₩ 226,308 million is reflected in property, plant and equipment and amount of ₩ 6,914 million is reflected in other non-operating expenses.

25. Provisions (cont'd)

(in Korean won)	2022							
	Beginning balance	Provision	Transfer	Payment	Reversal	Held for sale[7]	Others[1]	Ending balance
Decommissioning cost[3,5,6]	₩ 2,289,628,641,902	₩ 88,842,065,747	₩ 39,515,432,834	₩ (108,059,443,455)	₩ (343,148,663,979)	₩ (221,527,335,359)	₩ (20,493,406,805)	₩ 1,724,757,290,885
Social Overhead Capital	64,225,008	-	-	-	-	-	4,429,702	68,654,710
Allowance for salaries[4]	6,335,963,598	-	-	-	(967,021,991)	-	455,635,676	5,824,577,283
Provision for litigations	3,952,456,550	-	-	-	-	-	6,862,681,168	10,815,137,718
Onerous contract[2]	45,842,233,117	-	486,673,689	(15,834,512,574)	(963,027,282)	-	3,465,575,925	32,996,942,875
Others	44,276,601,262	1,092,963,861	-	-	(10,938,930,314)	-	(15,380,162,252)	19,050,472,557
	₩ 2,390,100,121,437	₩ 89,935,029,608	₩ 40,002,106,523	₩ (123,893,956,029)	₩ (356,017,643,566)	₩ (221,527,335,359)	₩ (25,085,246,586)	₩ 1,793,513,076,028

[1] Include the effect of changes in exchange rates and others.

[2] The reversal amount of ₩ 963 million is reflected in sales commission.

[3] For the year ended December 31, 2022, the amount of decrease in provisions (₩ 13,554 million) due to the sale of assets is included.

[4] The reversal amount of ₩ 967 million is reflected in salaries.

[5] The estimated decommissioning cost of ₩ 94,451 million has been deposited to the third party, and it is not allowed to be withdrawn except for decommissioning.

[6] The reversal amount of ₩ 295,092 million is reflected in property, plant and equipment and amount of ₩ 48,057 million is reflected in reversal of other provision.

[7] As Dana Petroleum Limited's Dutch subsidiary is in the process of being sold, the related liabilities are represented as an asset group held for sale (Note 40).

26. Government Grants

In accordance with the accounting standards and the provisions in the standard for public enterprise and quasi-government, government grants relating to property, plant and equipment are presented as the deduction from related assets.

Details of assets and liabilities of government grants as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023	
	Assets	Liabilities
Cash	₩ 542,873,129	₩ -
Vehicles	2,913,773	-
Others	1,132,083,310	-
Software	10,773,917	-
Patent rights	4,391,954	-
	₩ 1,693,036,083	₩ -

(in Korean won)	2022	
	Assets	Liabilities
Cash	₩ 252,231,353	₩ -
Vehicles	3,245,669	-
Others	1,254,526,110	-
Software	20,363,952	-
	₩ 1,530,367,084	₩ -

26. Government Grants (cont'd)

Changes in assets and liabilities of government grants for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023					
	Beginning balance	Additional grants	Offset with depreciation	Revenue recognized	Others[1]	Ending balance
Cash	₩ 252,231,353	₩ 2,256,520,180	₩ -	₩ (1,743,827,105)	₩ (222,051,299)	₩ 542,873,129
Vehicles	3,245,669	2,949,952	(393,320)	-	(2,888,528)	2,913,773
Others	1,254,526,110	-	(146,112,009)	-	23,669,209	1,132,083,310
Software	20,363,952	-	(10,068,640)	-	478,605	10,773,917
Patent rights	-	4,446,488	(108,362)	-	53,828	4,391,954
	₩ 1,530,367,084	₩ 2,263,916,620	₩ (156,682,331)	₩ (1,743,827,105)	₩ (200,738,185)	₩ 1,693,036,083

[1] Include the effect of changes in exchange rates.

(in Korean won)	2022					
	Beginning balance	Additional grants	Offset with depreciation	Revenue recognized	Others[1]	Ending balance
Cash	₩ 106,541,063	₩ 3,380,591,091	₩ -	₩ (2,996,659,576)	₩ (238,241,225)	₩ 252,231,353
Vehicles	-	3,563,314	(254,514)	-	(63,131)	3,245,669
Others	1,335,221,715	-	(176,188,079)	-	95,492,474	1,254,526,110
Software	28,193,300	-	(9,964,823)	-	2,135,475	20,363,952
	₩ 1,469,956,078	₩ 3,384,154,405	₩ (186,407,416)	₩ (2,996,659,576)	₩ (140,676,407)	₩ 1,530,367,084

[1] Include the effect of changes in exchange rates.

Details of government grants income recognized for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023	2022
Government grants income	₩ 1,743,827,105	₩ 2,996,659,576
Offset with depreciation	156,682,331	186,407,416
	₩ 1,900,509,436	₩ 3,183,066,992

26. Government Grants (cont'd)

Details of the government grants business by category and changes in government grants for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)

2023

						Increase		Decrease			
						Issuance		Return			
	Business	Details	Period	Budget	Carried over from prior year	Paid by the Company	Government grants	Paid by the Company	Government grants	Others[1]	Carried forward to subsequent year
Ministry of Trade, Industry and Energy		Opinet operation and improvement	2023.01.01~ 2023.12.31	₩ 576,000,000	₩ -	₩ -	₩ 576,000,000	₩ -	₩ 576,000,000	₩ -	₩ -
	Oil distribution structure improvement	Oil distribution information advancement project support	2023.01.01~ 2023.12.31	300,000,000	-	-	300,000,000	-	300,000,000	-	-
		thrifty gas station Facility improvement support	2023.01.01~ 2023.12.31	320,000,000	-	-	320,000,000	-	320,000,000	-	-
	Offshore wind power transportation installation national research project	Development of optimal transportation and installation technology of offshore wind power systems	2023.01.01~ 2023.10.30	9,500,000	-	9,000,000	19,564,353	9,000,000	19,564,353	-	-
	Large-scale CO2 through deep ocean exploration and drilling geologic storage secure	Derivation of promising structures for geological storage of large-scale CO2 promising structures in the East Sea region and evaluation of their potential	2023.01.01~ 2023.12.31	50,000,000	-	-	6,144,058	-	6,144,058	-	-
	Medium-scale CCS using Donghae gas field Integrated empirical model development	Derivation of conceptual design plan for integrated demonstration storage of CCS using Donghae gas field	2023.01.01~ 2023.12.31	200,000,000	-	-	159,853,604	-	159,853,604	-	-
	Establishment of institutional foundation including revision and acceptance of CCUS legislation	Investigate CCS project policy support system and prepare support plan	2023.01.01~ 2024.06.30	115,500,000	-	-	103,144,840	-	103,144,840	-	-
	CO2 storage efficiency improvement technology development research project	CO2 injection hole optimization design and injection scenario optimization technology development	2023.01.01~ 2025.10.31	124,460,000	-	47,460,000	1,047,390	47,460,000	1,047,390	-	-
	CO2 underground storage stability securing technology development research project	CO2 injection well drilling design	2023.01.01~ 2024.10.31	126,000,000	-	71,000,000	56,222	71,000,000	56,222	-	-
	International joint research project to advance CCUS commercial technology and secure overseas storage	Selection of CO2 storage candidate for depleted oil and gas fields in Southeast Asia and development of business model	2023.01.01~ 2024.12.31	57,500,000	-	7,500,000	50,059,363	7,500,000	50,059,363	-	-

26. Government Grants (cont'd)

Ministry of Land, Infrastructure and Transport	Research on prior technologies for local application of energy resource plants in the Arctic Circle	Arctic heavy oil production model conceptual design	2023.01.01~ 2023.12.31	113,000,000	132,281,292	-	113,000,000	-	71,483,113	3,239,726	177,037,905
	Development of core technologies for non-traditional oil production plant construction and support for demonstration	Non-traditional oil eco-friendly, high-yield recovery and circulation system technology development	2023.01.01~ 2023.12.31	150,000,000	69,943,901	-	150,000,000	-	90,810,725	(317,902)	128,815,274
Ulsan City	Future Growth Energy Hub	A study on the establishment of future growth energy hub construction plans	2023.01.01~ 2023.03.31	-	50,006,150	-	-	-	42,453,760	(7,552,390)	-
	Future Growth Energy Hub	Research on the establishment of a strategic plan for the Ulsan South Port Project	2023.06.30~ 2023.12.31	236,942,500	-	-	237,019,950	-	-	-	237,019,950
Ministry of Employment and Labor	Support for installation cost of daycare center	Support for school teaching materials at workplace daycare centers	2023.01.01~ 2023.12.31	220,630,400	-		220,630,400	-	220,630,400	-	-

[1] Include the effect of changes in exchange rates.

(in Korean won)

2022

						Increase		Decrease			
						Issuance		Return			
	Business	Details	Period	Budget	Carried over from prior year	Paid by the Company	Government grants	Paid by the Company	Government grants	Others[1]	Carried forward to subsequent year
Ministry of Trade, Industry and Energy	Oil distribution structure improvement	Opinet operation and improvement	2022.01.01~ 2022.12.31	₩ 549,000,000	₩ -	₩ -	₩ 549,000,000	₩ -	₩ 549,000,000	₩ -	₩ -
		Oil distribution information advancement project support	2022.01.01~ 2022.12.31	160,000,000	-	-	160,000,000	-	160,000,000	-	-
		thrifty gas station Facility improvement support	2022.01.01~ 2022.12.31	340,000,000	16,570,381	-	340,000,000	-	340,000,000	(16,570,381)	-
	Offshore wind power transportation installation national research project	Development of optimal transportation and installation technology of offshore wind power systems	2022.01.01~ 2022.12.31	21,500,000	-	-	88,925	-	88,925	-	-
	Large-scale CO2 through deep ocean exploration and drilling geologic storage secure	Derivation of promising structures for geological storage of large-scale CO2 promising structures in the East Sea region and evaluation of their potential	2022.01.01~ 2023.12.31	50,000,000	-	-	34,608,705	-	34,608,705	-	-
	Medium-scale CCS using Donghae gas field Integrated empirical model development	Derivation of conceptual design plan for integrated demonstration storage of CCS using Donghae gas field	2022.01.01~ 2023.12.31	571,000,000	-	-	516,449,808	-	516,449,808	-	-

26. Government Grants (cont'd)

	Establishment of institutional foundation including revision and acceptance of CCUS legislation	Investigate CCS project policy support system and prepare support plan	2022.01.01~ 2023.12.31	149,000,000	-	-	119,676,964	-	119,676,964	-	-
	CO2 storage efficiency improvement technology development research project	CO2 injection hole optimization design and injection scenario optimization technology development	2022.01.01~ 2025.10.31	132,570,000	-	51,570,000	48,842,975	51,570,000	48,842,975	-	-
	CO2 underground storage stability securing technology development research project	CO2 injection well drilling design	2022.01.01~ 2024.10.31	203,000,000	-	113,000,000	24,453,278	113,000,000	24,453,278	-	-
	International joint research project to advance CCUS commercial technology and secure overseas storage	Selection of CO2 storage candidate for depleted oil and gas fields in Southeast Asia and development of business model	2022.09.01~ 2024.12.31	80,500,000	-	10,500,000	216,626	10,500,000	216,626	-	-
	Research on prior technologies for local application of energy resource plants in the Arctic Circle	Arctic heavy oil production model conceptual design	2022.01.01~ 2022.12.31	150,000,000	89,969,497	-	150,000,000	-	109,116,494	1,428,289	132,281,292
Ministry of Land, Infrastructure and Transport	Development of core technologies for non-traditional oil production plant construction and support for demonstration	Non-traditional oil eco-friendly, high-yield recovery and circulation system technology development	2022.04.01~ 2028.12.31	100,000,000	-	-	100,000,000	-	30,087,569	31,470	69,943,901
	Floating offshore wind power development project	Inspection of corrosion in the lower area of offshore platforms and in-depth analysis of structural integrity	2022.01.01~ 2022.09.30	1,077,899,656	-	-	1,018,616,010	-	1,018,616,010	-	-
Ministry of Employment and Labor	Support for installation cost of daycare center	Support for school teaching materials at workplace daycare centers	2022.01.01~ 2022.12.31	218,637,800	-	-	218,637,800	-	218,637,800	-	-
Ulsan City	Future Growth Energy Hub	A study on the establishment of future growth energy hub construction plans	2022.01.01~ 2022.12.31	100,000,000	-	-	100,000,000	-	50,000,000	6,160	50,006,160

[1] Include the effect of changes in exchange rates.

27. Contributions for Construction

Details of contributions for construction as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023	2022
Others[1]	₩ 369,324,587	₩ 365,516,478

[1] The amounts were offset against the depreciation of the related assets for each of the two years in the period ended December 31, 2023, from cash equivalents transferred from SK Energy in accordance with the expansion construction of connecting line between the Group (Ulsan branch) and SK Energy.

28. Non-Financial Liabilities

Details of non-financial liabilities as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023		2022	
	Current	Non-current	Current	Non-current
Advance received	₩ 17,686,982,462	₩ -	₩ 70,451,870,497	₩ -
Unearned revenue	55,280,496,822	13,516,013,948	18,289,315,360	14,472,014,572
Withholdings	60,026,528,117	-	58,641,246,641	-
Others	1,058,171,950	33,949,680,907	1,040,035,142	34,407,826,774
	₩ 134,052,179,351	₩ 47,465,694,855	₩ 148,422,467,640	₩ 48,879,841,346

29. Share Capital

Details of share capital as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023			2022		
	Government	Non-government	Total	Government	Non-government	Total
Share capital	₩ 10,787,741,780,075	₩ -	₩ 10,787,741,780,075	₩ 10,699,764,780,075	₩ -	₩ 10,699,764,780,075

29. Share Capital (cont'd)

The changes in share capital for the year ended December 31 , 2023, are as follows:

(in Korean won)	Description		Amount
Beginning balance		₩	10,699,764,780,075
2023.02.23	Contribution for oil field development		228,000,000
2023.03.30	Contribution for oil field development		318,000,000
2023.03.31	Contribution for oil stockpiling business		30,538,000,000
2023.04.27	Contribution for oil stockpiling business		3,232,000,000
2023.04.27	Contribution for oil field development		142,000,000
2023.06.29	Contribution for oil stockpiling business		13,318,000,000
2023.07.26	Contribution for oil field development		98,000,000
2023.08.29	Contribution for oil field development		3,982,000,000
2023.09.26	Contribution for oil stockpiling business		2,500,000,000
2023.09.26	Contribution for oil field development		625,250,000
2023.11.29	Contribution for oil field development		7,265,412,690
2023.11.29	Contribution for oil stockpiling business		5,304,000,000
2023.12.27	Contribution for oil field development		2,950,337,310
2023.12.27	Contribution for ammonia business		5,100,000,000
2023.12.27	Contribution for oil stockpiling business		12,376,000,000
Ending balance		₩	10,787,741,780,075

30. Accumulated Deficit and Dividend

Details of accumulated deficit as of December 31, 2023 and 2022, are as follows:

(in Korean won)		2023		2022
Undisposed accumulated deficit	₩	(13,885,339,103,408)	₩	(13,599,606,712,074)

Changes in accumulated deficit for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Beginning balance	₩	(13,599,606,712,074)	₩	(13,211,701,870,824)
Loss for the year		(262,477,738,748)		(340,028,650,913)
Transfer of revaluation gain or loss to retained earnings		335,859,436		14,137,191,298
Fair value through other comprehensive income - Reclassification adjustments		-		(67,303,049,444)
Remeasurement components of defined benefits plan		(23,590,512,022)		5,289,667,809
Ending balance	₩	(13,885,339,103,408)	₩	(13,599,606,712,074)

30. Accumulated Deficit and Dividend (cont'd)

Changes in remeasurement components for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Beginning balance	₩	(3,561,101,789)	₩	(8,850,769,598)
Changes during the current year		(26,182,587,640)		6,887,588,293
Income tax effects		2,592,075,618		(1,597,920,484)
Ending balance	₩	(27,151,613,811)	₩	(3,561,101,789)

31. Statements of Disposition of Accumulated Deficit

Statements of disposition of accumulated deficit for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
I. Undisposed deficit	₩	(13,885,339,103,408)	₩	(13,599,606,712,074)
Undisposed accumulated deficit carried over from prior years		(13,599,606,712,074)		(13,211,701,870,824)
Loss for the year		(262,477,738,748)		(340,028,650,913)
Transfer of revaluation gain or loss to retained earnings		335,859,436		14,137,191,298
Fair value through other comprehensive income - Reclassification adjustments		-		(67,303,049,444)
Remeasurement components		(23,590,512,022)		5,289,667,809
II. Undisposed deficit to be carried forward to the subsequent year	₩	(13,885,339,103,408)	₩	(13,599,606,712,074)

Dates of disposition for each of the two years in the period ended December 31, 2023, are February 23, 2024, and February 24, 2023, respectively.

32. Other Components of Equity

Details of other components of equity as of December 31, 2023 and 2022, are as follows:

(in Korean won)		2023		2022
Other capital surpluses	₩	188,817,918,884	₩	242,897,446,574
Accumulated other comprehensive loss		(306,717,339,358)		(306,461,265,874)
	₩	(117,899,420,474)	₩	(63,563,819,300)

Details of other capital surpluses as of December 31, 2023 and 2022, are as follows:

(in Korean won)		2023		2022
Assets contributed	₩	24,954,221,211	₩	24,954,221,211
Loss on capital reduction		(19,958,342)		(19,958,342)
Changes in interests in subsidiaries		163,883,656,015		217,963,183,705
	₩	188,817,918,884	₩	242,897,446,574

Details of accumulated other comprehensive loss as of December 31, 2023 and 2022, are as follows:

(in Korean won)		2023		2022
Revaluation surplus	₩	429,838,180,182	₩	429,550,579,718
Gains on valuation of equity instruments measured at fair value through other comprehensive income		48,708,561,148		30,605,483,316
Equity adjustments in equity method		7,835,520,342		15,089,636,260
Foreign currency translation differences for foreign operations		(864,926,597,291)		(818,436,888,094)
Gains on valuation of derivative instruments		71,826,996,261		36,729,922,926
	₩	(306,717,339,358)	₩	(306,461,265,874)

33. Revenue

Details of revenues (based on customer locations) except for other income, other profit and financial income (Notes 35, 36, and 37) for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023			2022		
	Domestic	Overseas	Total	Domestic	Overseas	Total
Sales of goods and finished goods	₩ 49,875,374,306	₩ 2,928,909,331,693	₩ 2,978,784,705,999	₩ 55,642,444,477	₩ 3,556,214,237,176	₩ 3,611,856,681,653
Revenues from services provided	122,444,454,252	139,148,437,950	261,592,892,202	125,586,096,817	163,498,307,619	289,084,404,436
Income on government grants	1,743,827,105	-	1,743,827,105	2,996,659,576	-	2,996,659,576
Others	2,984,101,062	23,720,442,965	26,704,544,027	4,424,213,165	27,417,144,229	31,841,357,394
	₩ 175,303,929,620	₩ 3,091,778,212,608	₩ 3,267,082,142,228	₩ 185,652,754,459	₩ 3,747,129,689,024	₩ 3,932,782,443,483

34. Selling and Administrative Expenses

(in Korean won)	2023	2022
Salaries	₩ 106,028,110,192	₩ 100,892,006,135
Post-employment benefits	5,747,948,703	6,601,364,464
Employee benefits	12,006,079,583	13,220,161,854
Insurance	3,447,276,574	2,082,183,198
Depreciation	16,102,889,428	18,647,952,994
Amortization	3,328,364,884	3,504,049,012
Bad debt expenses	-	171,513,895
Commission expense	21,716,359,388	18,617,612,474
Advertising expense	470,593,752	525,516,842
Training	2,409,754,943	1,620,346,689
Vehicle	499,467,802	674,294,906
Publication	233,714,771	222,379,969
Promotional expense	202,572,075	218,755,555
Rental expense	2,371,691,158	2,220,226,025
Communication	544,601,635	655,681,508
Taxes and dues	22,695,037,131	1,510,187,667
Supplies expense	1,355,497,903	1,282,119,606
Utilities expense	1,341,026,402	1,239,328,977
Repairs	3,960,604,515	4,145,286,880
Ordinary research and development expense	3,182,563,459	3,132,454,218
Travel expense	1,793,964,314	1,642,138,437
Clothing expense	239,364,951	17,381,714
Association expense	405,006,285	442,067,772
Sales promotional expense	51,963,033	42,197,671
Sales commissions	121,602,871,985	70,108,460,201
Other selling and administrative expenses	11,092,165,658	11,350,498,308
	₩ 342,829,490,524	₩ 264,786,166,971

Details of accumulated other selling and administrative for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023	2022
Rewards expense	₩ 59,327,725	₩ 59,760,969
Litigation expense	1,319,792,981	1,982,750,226
Promotion expense	193,376,950	173,654,953
Overhead expense for production	7,518,328,866	8,588,432,577
Other administrative expenses	54,878,797	152,939,749
Miscellaneous expense	1,946,460,339	392,959,834
	₩ 11,092,165,658	₩ 11,350,498,308

35. Other Income and Expenses

Details of other for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Reversal of other provisions	₩	28,483,294,623	₩	58,996,124,668
Reversal of other bad debt allowance		12,818,074,079		26,183,519,139
Gains on assets contributed		-		409,845,505
Gains on exemption of debts		-		3,836,574,798
Compensation and indemnity		2,390,219,325		3,910,655
Rental income		478,633,694		983,007,366
Others		24,751,085,778		30,043,352,214
	₩	68,921,307,499	₩	120,456,334,345

Details others in other income for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Other income from overseas fields	₩	1,519,140,328	₩	1,934,137,726
Other non-operating income		23,231,945,450		28,109,214,488
	₩	24,751,085,778	₩	30,043,352,214

Details of other expenses for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Transfer to other provision	₩	110,269,880,061	₩	59,397,279,406
Other bad debt expense		-		39,980,897,303
Donations		1,537,103,540		1,550,037,826
Others		31,372,114,450		65,263,470,555
	₩	143,179,098,051	₩	166,191,685,090

Details of others in other expenses for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Adjusted expense resulting from inventory inspection	₩	390,496,000	₩	346,645,973
Other expenses from overseas fields		4,036,002		990,220,581
Other non-operating expenses		30,977,582,448		63,926,604,001
	₩	31,372,114,450	₩	65,263,470,555

36. Other Profit and Loss

Details of other profit and loss for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023	2022
Gains on disposal of property, plant and equipment	₩ 1,700,452,300	₩ 2,619,258,940
Gains on disposal of intangible assets other than goodwill	39,380,747	58,886,254
Gains on disposal of non-current non-financial asset	307,013,975,774	301,754,174,829
Reversal of impairment losses on property, plant and equipment	87,116,450,337	53,928,203,242
Reversal of impairment losses on intangible assets other than goodwill	48,035,120,076	-
Gains on foreign currency translation (other than finance income)	17,519,749,616	15,169,577,703
Gains on foreign currency transactions (other than finance income)	66,218,243,247	80,883,878,107
Other gains	31,549,962,607	46,462,610,815
Losses on disposal of property, plant and equipment	(1,545,096,030)	(28,660,362,180)
Losses on disposal of intangible assets other than goodwill	(58,016,545)	(20,671)
Losses on valuation of property, plant and equipment	-	(199,851,410)
Impairment losses on property, plant and equipment	(37,667,515,268)	(79,521,222,461)
Impairment losses on intangible assets other than goodwill	(98,838,023,354)	(60,561,411,298)
Impairment losses on goodwill	(9,415,497,563)	(6,810,518,740)
Losses on foreign currency translation (other than finance cost)	(20,950,310,937)	(25,736,693,981)
Losses on foreign currency transactions (other than finance cost)	(70,319,039,227)	(76,911,615,692)
Other losses	(9,913,063,200)	(5,977,346,774)
	₩ 310,486,772,580	₩ 216,497,546,683

Details of accumulated other gains for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023	2022
Gains on stockpile oil quantity adjustment	₩ 12,200,964,620	₩ 14,228,084,722
Gains on duty from stockpile lease	11,737,367,827	9,539,019,546
Miscellaneous gains	7,611,630,160	22,695,506,547
	₩ 31,549,962,607	₩ 46,462,610,815

Details of accumulated other losses for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023	2022
Losses on duty from stockpile lease	₩ 2,737,881,169	₩ 2,114,900,096
Losses on disposal of stored items	268,317,261	1,324,409,753
Losses on cancellation of debt exemption	5,765,640,716	2,080,448,312
Miscellaneous losses	1,141,224,054	457,588,613
	₩ 9,913,063,200	₩ 5,977,346,774

37. Finance income

Details of finance income for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Interest income	₩	45,088,065,805	₩	19,383,509,572
Dividend income		5,933,676		14,836,599
Gains on valuation of financial assets measured at fair value through profit or loss		68,127,304,959		4,599,672,972
Gains on valuation of financial liabilities measured at fair value through profit or loss		15,266,004,732		11,536,771,715
Gains on valuation of derivative financial instruments		523,260,544		-
Gains on transactions of derivative financial instruments		10,649,970,474		2,195,623,135
Gains on foreign currency translation		83,231,553,244		83,818,301,635
Gains on foreign currency transactions		15,041,526,167		19,828,674,897
Other finance income		-		41,651,159,255
	₩	237,933,619,601	₩	183,028,549,780

Details of interest income by sources included in finance income for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Cash and cash equivalents	₩	39,518,952,998	₩	12,721,661,526
Loans and receivables		5,569,112,807		6,661,848,046
	₩	45,088,065,805	₩	19,383,509,572

38. Finance costs

Details of finance costs for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Interest expenses	₩	489,822,132,008	₩	454,720,297,334
Losses on valuation of financial assets measured at fair value through profit or loss		72,830,989,432		177,623,641,451
Losses on valuation of financial liabilities measured at fair value through profit or loss		10,541,611,079		9,861,648,388
Losses on valuation of derivative financial instruments		-		517,865,238
Losses on transactions of derivative financial instruments		11,202,734,916		32,265,875,609
Losses on foreign currency translation		19,123,102,753		135,408,807,465
Losses on foreign currency transactions		12,847,977,615		43,602,110,276
Other financial costs		84,366,751,526		47,892,051,277
	₩	700,735,299,329	₩	901,892,297,038

Details of interest expenses by sources included in finance for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Short-term borrowings	₩	47,803,659,917	₩	9,444,485,265
Long-term borrowings		46,133,873,357		46,424,982,267
Bond payables		348,622,373,005		319,043,327,266
Derivative liabilities		34,303,456,936		65,620,979,276
Lease liability		12,880,209,937		12,192,849,326
Other financial liabilities		78,558,856		1,993,673,934
	₩	489,822,132,008	₩	454,720,297,334

39. Income Tax Expense from Continuing Operations

The components of income tax expense for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Current income tax	₩	549,237,692,149	₩	830,131,810,968
Deferred tax directly charged to equity		(88,717,465,066)		(68,348,131,661)
Changes in deferred taxes arising from temporary differences		13,410,574,499		430,381,959,766
Adjustment for prior periods		(17,360,390,087)		(1,144,628,385)
Effect of exchange rate fluctuations and changes in statutory tax rates		(16,656,721,137)		(281,167,814)
Refunds due to correction and cancellation of the charge for prior periods income tax		(703,668,950)		(863,460,571)
Income tax expense	₩	456,570,411,495	₩	1,191,021,010,688

Reconciliations of profit before income tax to income tax expense for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Profit before income tax	₩	635,332,345,402	₩	1,492,248,128,165
Income tax expense computed at the statutory rate	₩	146,761,770,493	₩	361,124,047,016
Adjustments				
Non-taxable income		(55,353,395,264)		(30,562,276,516)
Non-deductible expenses		270,851,064,676		299,195,371,164
Tax credits and reduction		(22,403,765,123)		(27,727,999,913)
Temporary differences not recognized in deferred tax assets		83,952,864,741		48,774,736,143
Differences in tax rates in overseas entities		132,303,450,031		542,808,602,570
Effect of changes in tax rates		(82,884,856,922)		(2,310,301,961)
		473,227,132,632		1,191,302,178,503
Effect of exchange rate fluctuations and changes in statutory tax rates		(16,656,721,137)		(281,167,815)
Income tax expense	₩	456,570,411,495	₩	1,191,021,010,688
Effective tax rate		71.86%		79.81%

The expected applicable statutory tax rate for each of the two years in the period ended December 31, 2023, is 23.1% and 24.2%, respectively, which is the statutory income tax rate at Korea where the Group is domiciled.

39. Income Tax Expense from Continuing Operations (cont'd)

Income tax recognized as accumulated other comprehensive income for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Revaluation of financial assets measured at fair value through other comprehensive income	₩	(329,096,472)	₩	(2,678,267,852)
Net change in the unrealized fair value of derivative using cash flow hedge accounting		(91,603,904,112)		(81,932,324,851)
Revaluation gain or loss		623,459,900		17,860,381,506
Remeasurement components		2,592,075,618		(1,597,920,464)
	₩	(88,717,465,066)	₩	(68,348,131,661)

Changes in deferred income tax assets (liabilities) recognized in the consolidated statements of financial position for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023									
		Beginning balance		Amounts recognized in profit or loss		Amounts recognized in other comprehensive income		Others		Ending balance
Deferred income tax on temporary differences										
Investment in associates and others	₩	(27,548,398,849)	₩	16,267,750,506	₩	-	₩	(679,918,894)	₩	(11,960,567,237)
Financial guarantee liabilities		(4,640,265,840)		3,128,877,180		-		(119,292,311)		(1,630,680,971)
Bad debt allowance		(34,514,541,647)		25,807,121,543		-		(918,394,450)		(9,625,814,554)
Financial assets measured at fair value through other comprehensive income		(2,532,854,928)		-		(329,096,472)		(40,133,415)		(2,902,084,815)
Intangible assets other than goodwill		(5,477,271)		4,269,996		-		(147,884)		(1,355,159)
Accrued expenses		8,945,600,765		(4,875,406,106)		-		215,792,861		4,285,987,520
Asset retirement obligation		5,418,410,852		(3,291,494,715)		-		134,857,796		2,261,773,933
Property, plant and equipment		(19,118,488)		11,308,767		-		(472,095)		(8,281,816)
Land		(210,087,331,704)		410,209,428		623,459,900		(3,676,316,536)		(212,729,978,912)
Gain (loss) on valuation of derivative		(9,859,904,489)		(1,189,321,194)		7,791,719,459		(252,916,222)		(3,510,422,446)
Defined benefit obligations		(5,296,949,018)		2,864,162,224		2,592,075,618		(159,288,824)		-
Others		45,389,679,815		(35,225,439,543)		-		1,223,548,410		11,387,788,682
		(234,751,150,802)		3,912,038,086		10,678,158,505		(4,272,681,564)		(224,433,635,775)
Deferred tax assets of subsidiaries		739,517,115,910		228,836,733,645		(99,395,623,571)		11,308,668,605		880,266,894,589
Deferred tax liabilities of subsidiaries		(363,266,758,535)		(157,441,881,164)		-		(4,403,959,997)		(525,112,599,696)
		376,250,357,375		71,394,852,481		(99,395,623,571)		6,904,708,608		355,154,294,893
	₩	141,499,206,573	₩	75,306,890,567	₩	(88,717,465,066)	₩	2,632,027,044	₩	130,720,659,118

Based on the estimated future taxable income, there is no expected amount available from the current tax losses that can be utilized as of December 31, 2023.

Temporary differences not recognized in deferred tax assets are ₩ 15,676,849 million and unused tax loss is ₩ 4,966,008 million as of December 31, 2023.

39. Income Tax Expense from Continuing Operations (cont'd)

(in Korean won)	2022				
	Beginning balance	Amounts recognized in profit or loss	Amounts recognized in other comprehensive income	Others	Ending balance
Deferred income tax on temporary differences					
Investment in associates and others	₩ (28,598,575,884)	₩ 3,082,300,719	₩ -	₩ (2,032,123,684)	₩ (27,548,398,849)
Investment in subsidiaries	6,923	(7,752)	-	829	-
Financial guarantee liabilities	(4,406,390,308)	71,532,688	-	(305,408,220)	(4,640,265,840)
Bad debt allowance	(31,410,215,529)	(955,232,947)	-	(2,149,093,171)	(34,514,541,647)
Financial assets measured at fair value through other comprehensive income	(774,592,790)	940,292,838	(2,678,267,852)	(20,287,124)	(2,532,854,928)
Intangible assets other than goodwill	12,652,863,776	(13,794,590,705)	-	1,136,249,658	(5,477,271)
Accrued expenses	8,529,805,229	(176,125,084)	-	591,920,620	8,945,600,765
Asset retirement obligation	(3,764,749,008)	9,626,601,095	-	(443,441,235)	5,418,410,852
Property, plant and equipment	42,164,303,574	(45,969,867,752)	-	3,786,445,690	(19,118,488)
Land	(219,886,156,929)	7,596,388,231	17,860,381,506	(15,657,944,512)	(210,087,331,704)
Gain (loss) on valuation of derivative	9,456,687,384	1,834,773,128	(22,192,295,472)	1,040,930,471	(9,859,904,489)
Defined benefit obligations	4,501,377,168	(8,707,629,308)	(1,597,920,464)	507,223,586	(5,296,949,018)
Others	(13,439,817,881)	60,919,168,095	-	(2,089,670,399)	45,389,679,815
	(224,975,454,275)	14,467,603,246	(8,608,102,282)	(15,635,197,491)	(234,751,150,802)
Deferred tax assets of subsidiaries	1,015,618,796,444	(293,173,250,457)	(59,740,029,379)	76,811,599,302	739,517,115,910
Deferred tax liabilities of subsidiaries	(263,356,727,638)	(83,328,180,894)	-	(16,581,850,003)	(363,266,758,535)
	752,262,068,806	(376,501,431,351)	(59,740,029,379)	60,229,749,299	376,250,357,375
	₩ 527,286,614,531	₩ (362,033,828,105)	₩ (68,348,131,661)	₩ 44,594,551,808	₩ 141,499,206,573

Based on the estimated future taxable income, there is no expected amount available from the current tax losses that can be utilized as of December 31, 2022.

Temporary differences not recognized in deferred tax assets are ₩ 14,935,810 million and unused tax loss is ₩ 3,291,470 million as of December 31, 2023.

Details of deferred income tax assets (liabilities) recognized in the consolidated statements of financial position as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023	2022
Deferred income tax assets	₩ 880,266,894,589	₩ 739,517,115,634
Deferred income tax liabilities	(749,546,235,471)	(598,017,909,061)
	₩ 130,720,659,118	₩ 141,499,206,573

Adoption and impact of global minimum tax

In May 2023, the IASB amended KIFRS 1012 to provide timely relief for affected entities, to avoid diverse interpretations of KIFRS 1012 and to improve disclosures. The amendments have introduced a temporary exception to the requirements to recognise and disclose information about deferred tax assets and liabilities related to Pillar Two income taxes. The amendments have also introduced targeted disclosure requirements for affected entities to help users of the financial statements better understand an entity's exposure to Pillar Two income taxes arising from that legislation, particularly before its effective date.

The Group has applied the mandatory exception to recognising and disclosing information about deferred tax assets and liabilities arising from Pillar Two income taxes. Furthermore, the Group is still in the process of assessing the potential exposure to Pillar Two income taxes as at 31 December 2023.

The potential exposure, if any, to Pillar Two income taxes is currently not known or reasonably estimable.

The Group expects to be engaged with tax specialists to assess the exposure and applying the legislation.

40. Non-current Assets Held for Sale

Details of non-current assets held for sale as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023[1]	2022
Assets held for sale	₩ -	₩ 300,851,578,594
Liabilities included in asset group held for sale	-	325,389,005,089

[1] Sales and Purchase Agreement was entered into on October 5, 2022 by promoting the sale Dana Petroleum Limited's a Dutch subsidiary, and approval of the government was completed, which satisfied all conditions for reclassification to assets held for sale. The sale was expected to be completed in 2023, but as the contract was canceled for the year ended December 31, 2023, assets held for sale were reclassified as operating assets such as intangible assets and property, plant and equipment.

Details of assets and liabilities included in an asset group held for sale as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023	2022
Asset held for sale		
Exploration and evaluation assets	₩ -	₩ 124,878,622,158
Oil & gas properties	-	77,839,260,400
Other property, plant and equipment	-	1,448,986,159
Right-of-use assets	-	6,468,348,324
Trade receivables (overseas)	-	83,819,086,742
Others	-	6,397,274,811
	₩ -	₩ 300,851,578,594
Liabilities included in the asset group held for sale		
Short-term provision for restoration for decommissioning	₩ -	₩ 1,168,763,852
Long-term provision for restoration for decommissioning	-	220,358,571,507
Trade payables	-	16,217,394,529
Deferred tax liabilities	-	80,911,809,298
Others	-	6,732,465,903
	₩ -	₩ 325,389,005,089

In 2015, when the Group sold North Atlantic Refining Limited (NARL), a downstream division of Harvest, the Group is obliged to bear the cost of repairing facilities in the future in accordance with the Purchase and Sales Agreements (PSA) of NARL. For the year ended December 31, 2022, the obligation to bear the cost of repairing facilities has been extinguished and the related liabilities are reversed and recognized as discontinued operations.

41. Expenses Classified by Nature

Expenses classified by nature for the year ended December 31, 2023, are as follows:

(in Korean won)	2023			
	Changes in inventories	**Selling and administrative expenses**	**Cost of sales**	**Total**
Changes in inventories - merchandise	₩ 1,617,255,479	₩ -	₩ -	₩ 1,617,255,479
Changes in inventories - finished goods	(16,387,099,612)	-	-	(16,387,099,612)
Changes in inventories - others	5,046,753,074	-	-	5,046,753,074
Purchases of inventories	-	-	59,752,903,059	59,752,903,059
Salaries	-	106,028,110,192	184,202,144,190	290,230,254,382
Severance and retirement benefits	-	5,747,948,703	3,650,255,323	9,398,204,026
Other employee benefits	-	12,006,079,583	5,577,920,330	17,583,999,913
Insurance	-	3,447,276,574	16,230,613,575	19,677,890,149
Depreciation	-	16,102,889,428	1,043,370,494,689	1,059,473,384,117
Amortization	-	3,328,364,884	63,192,805,201	66,521,170,085
Commissions and fees	-	21,716,359,388	91,109,835,668	112,826,195,056
Advertising expense	-	470,593,752	240,523,098	711,116,850
Education and training	-	2,409,754,943	1,315,286,575	3,725,041,518
Vehicle maintenance	-	499,467,802	1,913,345,546	2,412,813,348
Books and printing	-	233,714,771	16,305,876	250,020,647
Business development	-	202,572,075	57,877,989	260,450,064
Rental expense	-	2,371,691,158	29,473,569,851	31,845,261,009
Communications	-	544,601,635	584,505,552	1,129,107,187
Transport	-	-	98,952,172,687	98,952,172,687
Taxes and dues	-	22,695,037,131	47,119,638,353	69,814,675,484
Supplies	-	1,355,497,903	2,299,736,254	3,655,234,157
Utilities	-	1,341,026,402	69,806,302,467	71,147,328,869
Repairs	-	3,960,604,515	175,838,110,860	179,798,715,375
Research and development	-	3,182,563,459	14,593,761,047	17,776,324,506
Travel	-	1,793,964,314	826,947,863	2,620,912,177
Clothing expenses	-	239,364,951	256,573,114	495,938,065
Association fee	-	405,006,285	291,309,265	696,315,550
Sales promotion	-	51,963,033	-	51,963,033
Sales commissions	-	121,602,871,985	3,479,478,389	125,082,350,374
Others	-	11,092,165,658	173,368,611,320	184,460,776,978
	₩ (9,723,091,059)	₩ 342,829,490,524	₩ 2,087,521,028,141	₩ 2,420,627,427,606

41. Expenses Classified by Nature (cont'd)

Expenses classified by nature for the year ended December 31, 2022, are as follows:

(in Korean won)	2022			
	Changes in inventories	**Selling and administrative expenses**	**Cost of sales**	**Total**
Changes in inventories - merchandise	₩ (8,310,290,086)	₩ -	₩ -	₩ (8,310,290,086)
Changes in inventories - finished goods	4,771,796,654	-	-	4,771,796,654
Changes in inventories - others	18,319,453,079	-	-	18,319,453,079
Purchases of inventories	-	-	56,007,228,846	56,007,228,846
Salaries	-	100,892,006,135	185,322,457,713	286,214,463,848
Severance and retirement benefits	-	6,601,364,464	4,102,751,303	10,704,115,767
Other employee benefits	-	13,220,161,854	5,268,516,546	18,488,678,400
Insurance	-	2,082,183,198	18,792,809,348	20,874,992,546
Depreciation	-	18,647,952,994	590,703,747,267	609,351,700,261
Amortization	-	3,504,049,012	59,667,038,967	63,171,087,979
Bad debt expenses	-	171,513,895	-	171,513,895
Commissions and fees	-	18,617,612,474	51,068,704,752	69,686,317,226
Advertising expense	-	525,516,842	(81,944,513)	443,572,329
Education and training	-	1,620,346,689	703,579,175	2,323,925,864
Vehicle maintenance	-	674,294,906	1,941,340,916	2,615,635,822
Books and printing	-	222,379,969	11,954,413	234,334,382
Business development	-	218,755,555	57,066,723	275,822,278
Rental expense	-	2,220,226,025	26,195,593,703	28,415,819,728
Communications	-	655,681,508	572,097,423	1,227,778,931
Transport	-	-	128,183,302,378	128,183,302,378
Taxes and dues	-	1,510,187,667	45,643,040,576	47,153,228,243
Supplies	-	1,282,119,606	2,850,328,513	4,132,448,119
Utilities	-	1,239,328,977	87,599,368,756	88,838,697,733
Repairs	-	4,145,286,880	153,781,737,412	157,927,024,292
Research and development	-	3,132,454,218	14,234,486,760	17,366,940,978
Travel	-	1,642,138,437	541,319,298	2,183,457,735
Clothing expenses	-	17,381,714	118,540,288	135,922,002
Association fee	-	442,067,772	156,793,636	598,861,408
Sales promotion	-	42,197,671	-	42,197,671
Sales commissions	-	70,108,460,201	4,341,092,823	74,449,553,024
Others	-	11,350,498,308	225,554,732,946	236,905,231,254
	₩ 14,780,959,647	₩ 264,786,166,971	₩ 1,663,337,685,968	₩ 1,942,904,812,586

42. Categories of Financial Instruments

Details of current financial assets by category as of December 31, 2023, are as follows:

(in Korean won)	2023			
	Fair value through profit or loss	**Amortized costs[1]**	**Fair value – hedging instruments**	**Total**
Cash and cash equivalents	₩ -	₩ 611,769,880,179	₩ -	₩ 611,769,880,179
Current portion of financial assets at fair value through profit or loss	116,761,131,115	-	-	116,761,131,115
Short-term loans	-	13,062	-	13,062
Short-term financial instruments	-	474,341,339	-	474,341,339
Derivative assets	-	-	109,500,546,754	109,500,546,754
Other current financial assets	-	876,568,070	-	876,568,070
Trade and other receivables	-	615,438,335,330	-	615,438,335,330
	₩ 116,761,131,115	₩ 1,228,559,137,980	₩ 109,500,546,754	₩ 1,454,820,815,849

[1] The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

Details of non-current financial assets by category as of December 31, 2023, are as follows:

(in Korean won)	2023				
	Fair value through profit or loss	**Fair value through other comprehensive income**	**Amortized costs[1]**	**Fair value – hedging instruments**	**Total**
Non-current financial assets at fair value through profit or loss [2]	₩ 494,292,695,163	₩ -	₩ -	₩ -	₩ 494,292,695,163
Financial assets at fair value through other comprehensive income	-	30,300,785,308	-	-	30,300,785,308
Long-term loans	-	-	79,334,832,982	-	79,334,832,982
Long-term financial instruments	-	-	7,960,422,148	-	7,960,422,148
Non-current derivative assets	-	-	-	90,523,720,764	90,523,720,764
Long-term trade and other receivables	-	-	34,947,019,827	-	34,947,019,827
	₩ 494,292,695,163	₩ 30,300,785,308	₩ 122,242,274,957	₩ 90,523,720,764	₩ 737,359,476,192

[1] The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

[2] Loans to related parties and accrued income from related parties are included.

42. Categories of Financial Instruments (cont'd)

Details of current financial liabilities by category as of December 31, 2023, are as follows:

(in Korean won)	2023			
	Fair value through profit or loss	**Amortized costs[1]**	**Fair value – Hedging instruments**	**Total**
Current financial liabilities at fair value through profit or loss	₩ 55,616,639,843	₩ -	₩ -	₩ 55,616,639,843
Short-term borrowings	-	386,929,787,691	-	386,929,787,691
Current portion of long-term borrowings	-	497,483,310,796	-	497,483,310,796
Current portion of bond payables	-	3,154,066,670,906	-	3,154,066,670,906
Current derivative liabilities	-	-	44,828,402	44,828,402
Trade and other payables	-	713,939,226,671	-	713,939,226,671
	₩ 55,616,639,843	₩ 4,752,418,996,064	₩ 44,828,402	₩ 4,808,080,464,309

[1] The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

Details of non-current financial liabilities by category as of December 31, 2023, are as follows:

(in Korean won)	2023			
	Fair value through profit or loss	**Amortized costs[1]**	**Fair value – Hedging instruments**	**Total**
Non-current Financial liabilities at fair value through profit or loss	₩ 2,334,754,927	₩ -	₩ -	₩ 2,334,754,927
Long-term borrowings	-	639,827,752,047	-	639,827,752,047
Bond payables	-	10,413,377,006,788	-	10,413,377,006,788
Non-current derivative liabilities	-	-	16,820,019,571	16,820,019,571
Long-term trade and other payables	-	353,328,256,170	-	353,328,256,170
	₩ 2,334,754,927	₩ 11,406,533,015,005	₩ 16,820,019,571	₩ 11,425,687,789,503

[1] The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values

42. Categories of Financial Instruments (cont'd)

Details of current financial assets by category as of 2022, are as follows:

(in Korean won)	2022			
	Fair value through profit or loss	Amortized costs[1]	Fair value – hedging instruments	Total
Cash and cash equivalents	₩ -	₩ 679,626,569,037	₩ -	₩ 679,626,569,037
Current portion of financial assets at fair value through profit or loss	158,073,711,855	-	-	158,073,711,855
Short-term financial instruments	-	250,000,005	-	250,000,005
Derivative assets	-	-	65,589,725,152	65,589,725,152
Other current financial assets	-	861,543,908	-	861,543,908
Trade and other receivables	-	969,408,847,437	-	969,408,847,437
	₩ 158,073,711,855	₩ 1,650,146,960,387	₩ 65,589,725,152	₩ 1,873,810,397,394

[1] The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

Details of non-current financial assets by category as of 2022, are as follows:

(in Korean won)	2022				
	Fair value through profit or loss	Fair value through other comprehensive income	Amortized costs[1]	Fair value – Hedging instruments	Total
Non-current financial assets at fair value through profit or loss [2]	₩ 563,940,096,546	₩ -	₩ -	₩ -	₩ 563,940,096,546
Non-current financial assets at fair value through other comprehensive income	-	11,887,370,695	-	-	11,887,370,695
Long-term loans	-	-	81,677,000,119	-	81,677,000,119
Long-term financial instruments	-	-	7,099,281,534	-	7,099,281,534
Non-current derivative assets	-	-	-	71,650,539,637	71,650,539,637
Long-term trade and other receivables	-	-	38,883,818,092	-	38,883,818,092
	₩ 563,940,096,546	₩ 11,887,370,695	₩ 127,660,099,745	₩ 71,650,539,637	₩ 775,138,106,623

[1] The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

[2] Loans to related parties and accrued income from related parties are included.

42. Categories of Financial Instruments (cont'd)

Details of current financial liabilities by category as of 2022, are as follows:

(in Korean won)	2022			
	Fair value through profit or loss	Amortized costs[1]	Fair value – hedging instruments	Total
Current financial liabilities at fair value through profit or loss	₩ 17,115,068,421	₩ -	₩ -	₩ 17,115,068,421
Short-term borrowings	-	257,956,348,084	-	257,956,348,084
Current portion of long-term borrowings	-	757,618,998,921	-	757,618,998,921
Current portion of bond payables	-	2,479,633,405,933	-	2,479,633,405,933
Current derivative liabilities	507,984,532	-	157,616,594,311	158,124,578,843
Trade and other payables	-	920,679,720,566	-	920,679,720,566
	₩ 17,623,052,953	₩ 4,415,888,473,504	₩ 157,616,594,311	₩ 4,591,128,120,768

[1] The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

Details of non-current financial liabilities by category as of 2022, are as follows:

(in Korean won)	2022			
	Fair value through profit or loss	Amortized costs[1]	Fair value – hedging instruments	Total
Non-current financial liabilities at fair value through profit or loss	₩ 43,185,107,820	₩ -	₩ -	₩ 43,185,107,820
Long-term borrowings	-	755,016,015,336	-	755,016,015,336
Bond payables	-	10,945,175,844,902	-	10,945,175,844,902
Non-current derivative liabilities	-	-	19,682,963,522	19,682,963,522
Long-term trade and other payables	-	336,304,089,664	-	336,304,089,664
	₩ 43,185,107,820	₩ 12,036,495,949,902	₩ 19,682,963,522	₩ 12,099,364,021,244

[1] The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values

42. Categories of Financial Instruments (cont'd)

Net gains or losses by financial instruments for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023	2022
Financial assets measured at fair value through profit of loss		
Losses on valuation, net	₩ (4,703,684,473)	₩ (173,023,968,479)
Financial assets measured at amortized costs		
Interest income	45,088,065,805	19,383,509,572
Gains (losses) on foreign currency transactions, net	(163,701,508)	480,813,817
Losses on foreign currency translation, net	(20,390,103,739)	(18,852,276,089)
Bad debt expenses	-	(40,152,411,198)
Reversal of bad debt allowance	12,818,074,079	26,183,519,139
Financial assets measured at fair value through other comprehensive income		
Dividend income	5,933,676	14,836,599
Other comprehensive gain (loss), net of tax	18,103,077,832	(4,183,547,272)
Financial assets designated as hedging instruments		
Losses on transactions, net	-	(73,345,643)
Gains (losses) on foreign currency translation, net	112,253,345,210	(11,706,970,998)
Other comprehensive gain, net of tax	5,537,032,860	66,502,302,758
Financial liabilities measured at fair value through profit or loss		
Gains on valuation	4,724,393,653	1,675,123,327
Gains (losses) on transactions of derivatives	10,649,970,474	(23,181,895,529)
Gains (losses) on valuation of derivatives	523,260,544	(517,865,238)
Financial liabilities measured at amortized cost		
Interest expense	(482,829,460,583)	(448,242,973,660)
Losses on foreign currency transactions, net	(1,743,543,309)	(20,281,988,073)
Losses on foreign currency translation, net	(34,333,578,371)	(11,143,930,481)
Other financial cost[1]	-	(420,784,239)
Reversal of financial guarantee liabilities	-	34,181,998,384
Financial liabilities designated as hedging instruments		
Losses on transactions, net	(11,202,734,916)	(6,815,011,302)
Interest expense	(6,992,671,425)	(6,477,323,414)
Gains (losses) on foreign currency translation, net	3,148,224,766	(20,454,444,820)
Other comprehensive gain, net of tax	29,560,040,475	250,389,998,065
	₩ (319,948,058,950)	₩ (386,716,634,774)

[1] Excludes interest cost on provisions amounting to ₩ 84,367 million and ₩ 40,002 million for each of the two years in the period ended December 31, 2023, respectively.

43. Netting Agreements

Offsetting of financial assets and financial liabilities

As of December 31, 2023 and 2022, financial assets and financial liabilities subject to offsetting, enforceable master netting arrangements and similar agreements are as follows:

(in Korean won)

	2023											
	Gross amounts recognized as financial instruments		Gross amounts of recognized financial instruments set off in the statement of financial position		Net amounts of financial instruments presented in the statement of financial position		Related amounts not set off in the statement of financial position				Net amount[2]	
							Financial instruments		Collateral received or pledged			
Financial assets												
Derivative[1]	₩	200,024,267,518	₩	-	₩	200,024,267,518	₩	(16,864,847,960)	₩	-	₩	183,159,419,558
Financial liabilities												
Derivative[1]	₩	16,864,847,986	₩	-	₩	16,864,847,986	₩	(16,864,847,986)	₩	-	₩	-

[1] Some of derivative contracts are made under International Swaps and Derivative Association (ISDA) master netting agreements.

[2] In general, under such agreements the amounts owed by each counter party on a single day in respect of all transactions outstanding in the same currency are aggregated into a single net amount that is payable by one party to the other. In certain circumstances (i.e. when a default occurs), all standing transactions under the agreement are terminated, the termination value is assessed and only a single amount is payable in settlement of all transactions.

(in Korean won)

	2022											
	Gross amounts recognized as financial instruments		Gross amounts of recognized financial instruments set off in the statement of financial position		Net amounts of financial instruments presented in the statement of financial position		Related amounts not set off in the statement of financial position				Net amount[2]	
							Financial instruments		Collateral received or pledged			
Financial assets												
Derivative[1]	₩	137,240,264,789	₩	-	₩	137,240,264,789	₩	(137,240,264,789)	₩	-	₩	-
Financial liabilities												
Derivative[1]	₩	177,807,542,365		-	₩	177,807,542,365	₩	(137,240,264,789)	₩	-	₩	40,567,277,576

[1] Some of derivative contracts are made under International Swaps and Derivative Association (ISDA) master netting agreements.

[2] In general, under such agreements the amounts owed by each counter party on a single day in respect of all transactions outstanding in the same currency are aggregated into a single net amount that is payable by one party to the other. In certain circumstances (i.e. when a default occurs), all standing transactions under the agreement are terminated, the termination value is assessed and only a single amount is payable in settlement of all transactions.

44. Risk Management

(a) Capital management

The primary objective of the Group's capital management is to ensure that it maintains a strong credit rating and healthy capital ratios in order to support its business and maximize the owners' value. To maintain the sound capital structure, management periodically reviews the Group's capital structure through short- and long-term borrowings and issuance of share capital. The Group's capital structure consists of equity and net debt, net of cash and cash equivalents and borrowing. No changes were made in the objectives, policies or processes for managing capital for the year ended December 31, 2022.

The Group's debt-to-equity ratios as of December 31, 2023 and 2022, are as follows:

(in Korean won)		2023		2022
Total borrowings and debt securities (A)	₩	15,091,684,528,228	₩	15,195,400,613,176
Cash and cash equivalents (B)		611,769,880,179		679,626,569,037
Net borrowings and debt securities (A – B = C)		14,479,914,648,049		14,515,774,044,139
Total equity (D)		(1,348,663,665,732)		(1,495,978,695,233)
Total invested capital (C + D = E)	₩	13,131,250,982,317	₩	13,019,795,348,906
Net borrowings and debt securities-to-total invested capital ratio (C/E)		110.27%		111.49%

(b) Financial risk management

The Group is exposed to various risks related to its financial instruments such as credit risk, market risk (currency risk, interest rate risk and price risk) and liquidity risk.

(i) Risk management structure

The board of directors is responsible for implementing and monitoring the Group's risk management structure and the management regularly updates the policies for each risk and confirms the validity of the policies. The purpose of the risk management policies is to identify the risks that could potentially affect the Group's financial results and reduce, to an acceptable level, avoid or eliminate those risks. The policies are reviewed regularly to reflect the current market conditions and the Group's activities. The Group makes constant efforts to improve the policies by monitoring on real time basis and with support from the outside experts. The audit committee oversees the Group's compliance to the risk management policies and procedures and reviews the effectiveness of the structure.

44. Risk Management (cont'd)

(ii) Credit risk

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations, and arises principally from the Group's receivables from customers, investment securities, derivatives and financial guarantee contracts.

Credit risk also arises from transactions with financial institutions, and such transactions include transactions of cash and cash equivalents, various deposits, and financial instruments such as derivative contracts. The Group manages its exposure to this credit risk by only entering into transactions with banks that have high international credit ratings. The Group implements a credit risk management policy under which the Group only transacts business with counterparties that have a certain level of credit rate evaluated based on financial condition, historical experience, and other factors.

Book values of the financial assets and guarantee amounts by the contract represent the maximum amounts exposed to the credit risk. Details of the Group's level of maximum exposure to credit risk as of December 31, 2023 and 2022, are as follows:

(in Korean won)	**2023**	**2022**
Cash and cash equivalents	₩ 611,769,880,179	₩ 679,626,569,037
Derivative assets	200,024,267,518	137,240,264,789
Financial assets at amortized costs	739,031,532,758	1,098,180,491,095
Financial assets measured at fair value through profit or loss	611,053,826,278	722,013,808,401
Financial assets measured at fair value through other comprehensive income	30,300,785,308	11,887,370,695
Financial guarantee contracts[1]	104,054,580,000	102,271,110,000

[1] It represents to the maximum amount of financial guarantee provided by the Group.

The Group recognizes allowance for bad debt to record impairment losses until it is convinced that the amount of the asset amount cannot be recovered. After the Group decides that the asset amount cannot be recovered, the allowance for bad debt is offset against that asset. Further disclosures relating to impairment of assets are provided as follows:

Impairment losses of accounts receivable and other receivables: *Note 8*

44. Risk Management (cont'd)

(iii) Market risk

① Crude oil price risk

Crude oil price risk is the risk that the profit or cash flows will fluctuate due to changes in the international market prices of crude oil. The Group entered into derivative contracts according to the expected fluctuations of changes in the international market prices of crude oil to avoid the crude oil price risk and secure the product margin. With all other variables held constant, the changes in Company's profit before tax for each of the two years in the period ended December 31, 2023, from crude oil price fluctuations are as follows:

(in Korean won)	2023		2022	
	Increase by 10%	**Decrease by 10%**	**Increase by 10%**	**Decrease by 10%**
Increase (decrease) of profit before tax	₩ 243,095,824,267	₩ (243,095,824,267)	₩ 93,308,568,183	₩ (93,308,568,183)

② Interest rate risk

The Group is exposed to interest rate risk due to its borrowings with floating interest rates. Assuming a 100 basis points increase or decrease in interest rates for the year ended December 31, 2023, the Group's total equity and its profit or loss will also increase or decrease. The Group mitigates risks from fluctuation in interest rate through interest rate swap contracts.

Except for the effect of derivative transactions, this analysis considers the Group's total exposed risks associated with the fluctuation in interest rate. This analysis assumes that all other variables are held constant and the same method is applied as the method used in the prior periods. The details of increase or decrease in the total equity and profit or loss are as follows:

(in Korean won)	2023		2022	
	Increase by 100bp	**Decrease by 100bp**	**Increase by 100bp**	**Decrease by 100bp**
Increase (decrease) of profit before tax	₩ (4,146,230,249)	₩ 4,146,230,249	₩ (7,469,624,299)	₩ 7,469,624,299

③ Foreign currency risk

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates (the 'functional currency'). The Group is exposed to currency risk from the sales, purchases and borrowings not in United States dollar. The Group reduces currency risk from fluctuations in foreign exchange rates by carrying out and interest rate swap and currency swaps.

44. Risk Management (cont'd)

Without considering the effect of the derivative aforementioned, the Group's exposures to foreign currency risk as of December 31, 2023 and 2022, are as follows:

(in foreign currencies and Korean won)

		2023		2022	
	Currency unit	Foreign currencies	Equivalent to Korean won	Foreign currencies	Equivalent to Korean won
Financial assets denominated in foreign currencies	KRW	182,296,542,775	₩ 182,296,542,775	182,285,788,540	₩ 182,285,788,412
	VND	120,632,170,732	6,377,267,959	45,432,215,610	2,418,202,297
	NOK	27,920,656	3,528,087,548	15,716,724	2,013,690,275
			₩ 192,201,898,282		₩ 186,717,680,984
Financial liabilities denominated in foreign currencies	KRW	847,061,914,801	₩ 847,061,914,801	1,129,908,163,646	₩ 1,129,908,163,279
	EUR	349,250,990	498,238,723,954	282,751,845	382,052,952,544
	SGD	400,196,345	390,931,575,539	398,461,070	375,798,460,794
	HKD	160,000,000	26,406,912,000	564,799,794	91,833,391,482
	CHF	800,000,000	1,221,422,832,000	1,302,239,580	1,787,800,560,420
	VND	218,034,048,780	11,526,457,202	96,792,519,320	5,151,936,948
	GBP	1,698,199,313	2,788,091,778,623	798,666,665	1,220,147,144,355
			₩ 5,783,680,194,119		₩ 4,992,692,609,822

The exchange rates applied for the years ended and as of December 31, 2023 and 2022, are as follows:

(in US dollar per one foreign currency)	Average rates		Reporting date spot rate	
	2023	2022	2023	2022
KRW	0.0008	0.0008	0.0008	0.0008
EUR	1.0820	1.0533	1.1064	1.0662
SGD	0.7449	0.7255	0.7576	0.7442
HKD	0.1277	0.1277	0.1280	0.1283
CHF	1.1137	1.0477	1.1841	1.0833
VND(100)	0.0042	0.0043	0.0041	0.0042
NOK	0.0948	0.1043	0.0980	0.1011
GBP	1.2441	1.2366	1.2733	1.2055

44. Risk Management (cont'd)

The Group and its subsidiaries use various functional currencies depending on their primary economic environment in which the entities operate. The functional currencies of Harvest Operations Corp., Dana Petroleum Limited, and KNOC Kaz B.V. are CAD, GBP and KZT, respectively. A sensitivity analysis below indicates the effect on the Group's profit before tax from the fluctuations in each function currency exchange rate. As of December 31, 2023 and 2022, the effect of a 5% increase or decrease in each functional currency exchange rate on profit before tax assuming all other variables held constant is as follows:

(in Korean won)		2023		2022	
		Increase by 5%	**Decrease by 5%**	**Increase by 5%**	**Decrease by 5%**
Increase (decrease) of profit before tax	KRW	₩ (33,650,975,814)	₩ 33,650,975,814	(48,302,719,463)	₩ 48,302,719,463
	HKD	(1,336,739,840)	1,336,739,840	(4,680,981,195)	4,680,981,195
	CHF	(61,829,439,240)	61,829,439,240	(91,128,735,640)	91,128,735,640
	EUR	(25,221,258,439)	25,221,258,439	(19,474,209,439)	19,474,209,439
	SGD	(19,789,281,372)	19,789,281,372	(19,155,402,096)	19,155,402,096
	GBP	(141,135,523,838)	141,135,523,838	(62,193,999,172)	62,193,999,172
	Others	(82,061,516)	82,061,516	(36,702,427)	36,702,427

44. Risk Management (cont'd)

(iv) Liquidity risk

The details of contractual maturities of financial liabilities and other contractual obligations as of December 31, 2023, are as follows:

(in Korean won)	2023					
	Book value	Contractual cash flows[1]	Less than 1 year	1 ~ 2 years	2 ~ 5 years	More than 5 years
Short-term borrowings	₩ 386,929,787,691	₩ 390,098,636,033	₩ 390,098,636,033	₩ -	₩ -	₩ -
Bond payables	13,567,443,677,694	14,630,525,497,169	3,483,408,098,549	2,897,090,137,137	6,459,112,712,569	1,790,914,548,914
Long-term borrowings[2]	1,137,311,062,843	1,213,802,065,392	530,132,971,456	64,780,376,632	399,436,282,581	219,452,434,723
Lease liabilities	327,969,993,371	592,822,546,017	27,415,128,674	26,774,082,833	63,092,687,419	475,540,647,091
Trade and other payables[2]	739,297,489,470	763,946,620,886	687,698,951,171	21,927,536	-	76,225,742,179
Derivative liabilities	16,864,847,973	16,864,847,845	44,828,570	16,820,019,275	-	-
Financial liabilities measured at fair value through profit or loss	57,951,394,770	67,071,813,211	64,737,057,949	-	2,334,755,262	-
Financial guarantee liabilities[3]	-	104,054,580,000	104,054,580,000	-	-	-
	₩ 16,233,768,253,812	₩ 17,779,186,606,553	₩ 5,287,590,252,402	₩ 3,005,486,543,413	₩ 6,923,976,437,831	₩ 2,562,133,372,907

[1] Contractual cash flows include the estimated interest payments but exclude the effects of offsetting contracts.

[2] Borrowings and trade and other payables include accrued interest related to Loans from Special Accounting for Energy and Resources ("SAER") for which cash flows are not fixed.

[3] Financial guarantee is allocated at the earliest period that the maximum amount could be requested.

The Group had a working capital (current assets minus current liabilities) deficit of ₩ 3,512,309 million as of December 31, 2023. The Group's management currently anticipates that raising capital in the money market using credit sources, borrowing agreements held by the Group, expected cash flows that the Group generates from its operations, expected future capital contributions from the Government, and existing cash and cash equivalents as of December 31, 2023 will be sufficient to meet its currently anticipated needs for working capital, capital expenditures and business expansion throughout the foreseeable future.

44. Risk Management (cont'd)

(v) Other price risk

Other price risk is the risk that the fair value or cash flows of financial instruments will fluctuate because of changes in market prices other than interest rate risk and foreign currency risk. The Group's marketable equity securities are exposed to market price risk arising from the fluctuation in the price of the securities. However, the Group's management believes that the effect of the fluctuation in the price of the securities on the financial statements is not significant.

(c) Fair value measurement

A number of the Group's accounting policies and disclosures require the measurement of fair values, for both financial and non-financial assets and liabilities. The Group has performed all significant fair value measurements, including fair values classified at Level 3 in the fair value hierarchy. These assessments are performed by each relevant department, and material assessment results are reported directly to the responsible executives.

The valuation team regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as broker quotes or pricing services, is used to measure fair values, then the valuation team assesses the evidence obtained from the third parties to support the conclusion that such valuations meet the requirements of KIFRS, including the level in the fair value hierarchy in which such valuations should be classified.

When measuring the fair value of an asset or a liability, the Group uses market observable data as far as possible. Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows.

· Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.
· Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices).
· Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

If the inputs used to measure the fair value of an asset or a liability fall into different levels of the fair value hierarchy, then the fair value measurement is categorized in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement.

44. Risk Management (cont'd)

(i) Fair value and book value of financial assets and liabilities as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023		2022	
	Book value	Fair value	Book value	Fair value
Assets recognized at fair value				
Financial assets measured at fair value through other comprehensive income	₩ 30,300,785,308	₩ 30,300,785,308	₩ 11,887,370,695	₩ 11,887,370,695
Financial assets measured at fair value through profit or loss	611,053,826,278	611,053,826,278	722,013,808,401	722,013,808,401
Currency forwards	-	-	304	304
Currency swap	183,123,857,918	183,123,857,918	128,915,648,520	128,915,648,520
Interest swap	-	-	8,324,615,965	8,324,615,965
Other derivative assets	16,900,409,600	16,900,409,600	-	-
	₩ 841,378,879,104	₩ 841,378,879,104	₩ 871,141,443,885	₩ 871,141,443,885
Assets recognized at amortized costs[1]				
Cash and cash equivalent	₩ 611,769,880,179	₩ 611,769,880,179	₩ 679,626,569,037	₩ 679,626,569,037
Short-term financial instruments	474,341,339	474,341,339	250,000,005	250,000,005
Loans	79,334,846,044	79,334,846,044	81,677,000,119	81,677,000,119
Long-term financial instruments	7,960,422,148	7,960,422,148	7,099,281,534	7,099,281,534
Other financial assets	876,568,070	876,568,070	861,543,908	861,543,908
Trade receivables and other receivables	650,385,355,157	650,385,355,157	1,008,292,665,529	1,008,292,665,529
	₩ 1,350,801,412,937	₩ 1,350,801,412,937	₩ 1,777,807,060,132	₩ 1,777,807,060,132
Liabilities recognized at fair value				
Currency swap	₩ 16,820,019,275	₩ 16,820,019,275	₩ 55,343,083,498	₩ 55,343,083,498
Financial liabilities measured at fair value through profit or loss	57,951,394,770	57,951,394,770	60,300,176,241	60,300,176,241
Other derivative liabilities	44,828,698	44,828,698	122,464,458,867	122,464,458,867
	₩ 74,816,242,743	₩ 74,816,242,743	₩ 238,107,718,606	₩ 238,107,718,606
Liabilities recognized at amortized costs				
Bond payables without collateral	₩ 13,567,443,677,694	₩ 13,567,443,677,694	₩ 13,424,809,250,835	₩ 13,424,809,250,835
Bank borrowings	1,524,240,850,534	1,524,240,850,534	1,770,591,362,341	1,770,591,362,341
Trade and payables	1,067,267,482,841	1,067,267,482,841	1,256,983,810,230	1,256,983,810,230
	₩ 16,158,952,011,069	₩ 16,158,952,011,069	₩ 16,452,384,423,406	₩ 16,452,384,423,406

[1] The fair values of the financial assets and liabilities measured at amortized costs do not significantly differ from their book values.

44. Risk Management (cont'd)

(ii) Fair value hierarchy

The following table provides an analysis of financial instruments that are measured subsequent to initial recognition at fair value, classified as Level 1, 2, or 3, based on the degree to which the fair value is observable.

Level 1: Unadjusted quoted prices in active markets for identical assets or liabilities;
Level 2: Inputs other than quoted prices that are observable for the asset or liability either directly or indirectly; and
Level 3: Inputs that are not based on observable market data.

Fair values of financial instruments by hierarchy level as of December 31, 2023, are as follows:

(in Korean won)	2023			
	Level 1	**Level 2**	**Level 3**	**Total**
Financial assets at fair value				
Through other comprehensive income	₩ -	₩ -	₩ 30,300,785,308	₩ 30,300,785,308
Through profit or loss	-	-	611,053,826,278	611,053,826,278
Derivative assets	14,602,663,986	185,421,603,532	-	200,024,267,518
	₩ 14,602,663,986	₩ 185,421,603,532	₩ 641,354,611,586	₩ 841,378,879,104
Financial liabilities at fair value				
Derivative liabilities	₩ -	₩ 16,864,847,973	₩ -	₩ 16,864,847,973
Through profit or loss	-	-	57,951,394,770	57,951,394,770
	₩ -	₩ 16,864,847,973	₩ 57,951,394,770	₩ 74,816,242,743

There were no changes in level for the financial instruments during the year ended December 31, 2023.

44. Risk Management (cont'd)

Fair values of financial instruments by hierarchy level as of December 31, 2022, are as follows:

(in Korean won)	2022			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value				
Through other comprehensive income	₩ -	₩ -	₩ 11,887,370,695	₩ 11,887,370,695
Through profit or loss	-	12,703,294,807	709,310,513,594	722,013,808,401
Derivative assets	-	137,240,264,789	-	137,240,264,789
	₩ -	₩ 149,943,559,596	₩ 721,197,884,289	₩ 871,141,443,885
Financial liabilities at fair value				
Derivative liabilities	₩ -	₩ 177,807,542,365	₩ -	₩ 177,807,542,365
Through profit or loss	-	17,115,068,418	43,185,107,823	60,300,176,241
	₩ -	₩ 194,922,610,783	₩ 43,185,107,823	₩ 238,107,718,606

There were no changes in level for the financial instruments during the year ended December 31, 2022.

44. Risk Management (cont'd)

The valuation method and significant unobservable input variables used for the fair value measurement of financial assets and liabilities classified as level 3 as of December 31, 2023, are as follows.

(in Korean won)

2023					
Classification	Methods	Type	Book value	Significant, unobservable input variable	Range
Financial assets measured at fair value through other comprehensive income	Discounted Cash Flow Method	Private Equity Fund	₩ 29,314,324,680	Weighted average cost of capital	22.83%
				LNG selling price	4.26~9.26/MMBtu
	Net book value	Private Equity Fund	986,460,628	1	1
Financial assets measured at fair value through profit or loss	Discounted Cash Flow Method	Debt securities	611,053,826,278	Weighted average cost of capital	10.00%(*2)
Financial liabilities measured at fair value through profit or loss	Discounted Cash Flow Method	Debt securities	55,616,639,508	Weighted average cost of capital	20.00%
	Net book value	Debt securities	2,334,755,262	1	1

[1] The financial instruments were measured at net book value based on a reasonable approximation of their fair values.

[2] The fair value of the bond was discounted to 10.00%. If the discount rate changes by 50bp to 9.50% or 10.50%, the measured value increases by ₩ 11,096 million or decreases by ₩ 10,783 million.

44. Risk Management (cont'd)

The valuation method and significant unobservable input variables used for the fair value measurement of financial assets and liabilities classified as level 3 as of December 31, 2022, are as follows.

(in Korean won)

2022					
Classification	**Methods**	**Type**	**Book value**	**Significant, unobservable input variable**	**Range**
Financial assets measured at fair value through other comprehensive income	Discounted Cash Flow Method	Private Equity Fund	₩ 10,917,817,355	Weighted average cost of capital	26.06%
				LNG selling price	3.13~6.25/MMBtu
	Net book value	Private Equity Fund	969,553,340	[1]	[1]
Financial assets measured at fair value through profit or loss	Discounted Cash Flow Method	Debt securities	11,176,878,060	Weighted average cost of capital	9.51%
	Discounted Cash Flow Method	Debt securities	671,161,348,730	Weighted average cost of capital	10.04%
	Discounted Cash Flow Method	Debt securities	26,972,286,804	Weighted average cost of capital	8.13%
Financial liabilities measured at fair value through profit or loss	Discounted Cash Flow Method	Debt securities	43,185,107,823	Weighted average cost of capital	20.00%

[1] The financial instruments were measured at net book value based on a reasonable approximation of their fair values.

Changes in financial instruments classified as fair value level 3 for the year ended December 31, 2023, are as follows:

(in Korean won)

	2023						
Classification[1]	**Beginning balance**	**Acquisition**	**Profit or loss**	**Other comprehensive income**	**Disposal**	**Exchange rate effect**	**Ending balance**
Financial assets measured at fair value through profit or loss	₩ 709,310,513,594	₩ 97,905,750	₩ (4,673,928,970)	₩ -	₩ (11,661,916,786)	₩ (82,018,747,310)	₩ 611,053,826,278
Financial assets measured at fair value through other comprehensive income	11,887,370,695	-	-	18,432,173,481	-	(18,758,868)	30,300,785,308
Financial liabilities measured at fair value through profit or loss	43,185,107,823	-	4,724,393,653	-	-	10,041,893,294	57,951,394,770

[1] Changes in financial assets at fair value through profit or loss included in 'others' are amounts transferred from general long-term loans.

44. Risk Management (cont'd)

Changes in financial instruments classified as fair value level 3 for the year ended December 31, 2022, are as follows:

(in Korean won)	2022						
Classification[1]	**Beginning balance**	**Acquisition**	**Profit or loss**	**Other comprehensive income**	**Disposal**	**Exchange rate effect**	**Ending balance**
Financial assets measured at fair value through profit or loss	₩ 876,295,807,230	₩ 174,154,860	₩ (190,417,668,184)	₩ -	₩ (81,099,243,949)	₩ 104,357,463,637	₩ 709,310,513,594
Financial assets measured at fair value through other comprehensive income	12,923,988,432	-	-	17,794,333	(17,794,333)	(1,036,617,737)	11,887,370,695
Financial liabilities measured at fair value through profit or loss	34,423,249,111	-	-	-	-	8,761,858,712	43,185,107,823

[1] Changes in financial assets at fair value through profit or loss included in 'others' are amounts transferred from general long-term loans.

45. Transaction with Government and Public Institution

Transactions with government and public institution for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)

Counter party	Transaction	Income 2023	Income 2022	Expenses 2023	Expenses 2022
Ministry of Trade, Industry and Energy	Profit of debt exemption	₩ -	₩ 3,836,574,798	₩ -	₩ -
Ministry of Trade, Industry and Energy	Loss on cancellation of debt exemption	-	-	5,765,640,716	2,080,448,312
Ministry of Trade, Industry and Energy	Government grants income	1,743,827,105	2,996,659,576	-	-
		₩ 1,743,827,105	₩ 6,833,234,374	₩ 5,765,640,716	₩ 2,080,448,312

The outstanding assets and liabilities, arising from the transactions with government and public institution as of December 31, 2023 and 2022, are as follows:

(in Korean won)

Counter party	Transaction	Receivables 2023	Receivables 2022	Payables 2023	Payables 2022
KOREA GAS CORPORATION	Trade receivables	₩ -	₩ 396,617,364	₩ -	₩ -
Ministry of Trade, Industry and Energy.	Borrowings based on Accounting for Energy and Resources	-	-	211,016,246,733	207,345,317,135
Ministry of Trade, Industry and Energy	Government grants for others	-	-	1,131,932,310	1,254,526,616
Ministry of Trade, Industry and Energy	Government grants for software	-	-	10,773,917	20,364,244
		₩ -	₩ 396,617,364	₩ 212,159,103,960	₩ 208,620,206,375

46. Related Parties

The Group's major related parties as of December 31, 2023, are as follows:

Type	Related parties
Ultimate parent company	Government of the Republic of Korea
Associates	Oilhub Korea Yeosu Co., Ltd.
	Korea GS E&P Pte. Ltd.
	Parallel Petroleum LLC[1]
	KNOC Nigerian East Oil Company Ltd.[1]
	KNOC Nigerian West Oil Company Ltd.[1]
	KNOC Ferghana2 Ltd.[1]
Joint ventures	KNOC Inam Ltd.[1]
	K.K. Korea Kamchatka Co., Ltd.[1]
	KNOC Ferghana Ltd.[1]
	Korea Energy Terminal Co., Ltd.
	Deep Basin Partnership
	HKMS Partnership

[1] As of the end of the current period, it is being liquidated.

46. Related Parties (cont'd)

Transactions between the Parent Company and its subsidiaries have been removed at the time of consolidation and are not disclosed in the notes. Significant transactions with related parties for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		Sales and others		Purchases and others	
	Transaction	2023	2022	2023	2022
Oilhub Korea Yeosu Co., Ltd.[2]	Revenues from rental services	₩ 1,907,937,650	₩ 1,796,745,458	₩ -	₩ -
Kernhem B.V.[1]	Interest on loans	-	343,890,360	-	-
	Other bad debt expenses	-	-	-	343,890,360
	Reversal of bad debt allowance	-	13,884,763,647	-	-
	Other income	-	2,078,491,886	-	-
ADA Oil LLP [1]	Interest on loans	-	67,923,884	-	-
	Other bad debt expenses	-	-	-	67,923,884
	Reversal of bad debt allowance	-	12,298,755,492	-	-
KNOC Nigerian West Oil Company Ltd.	Other income	14,873,646	-	-	
	Loss on valuation of financial asset measured at fair value through profit or loss	-	-	39,162,300	58,137,750
KNOC Nigerian East Oil Company Ltd.	Other income	14,873,646	-	-	
	Loss on valuation of financial asset measured at fair value through profit or loss	-	-	58,743,450	38,758,500
KC kazakh B.V.(*3)	Reversal of bad debt allowance	2,654,760,101	-	-	-
KNOC Ferghana Ltd.	Other income	78,677,283	-	-	-
KNOC Ferghana2 Ltd.	Loss on valuation of financial asset measured at fair value through profit or loss	-	-	-	77,258,610
	Other income	677,864,454	-	-	-
Korea Energy Terminal Co., Ltd.	Other income	1,276,700,105	1,285,810,292	-	-
Parallel Petroleum LLC	Reversal of financial guarantee liabilities	-	41,651,159,255	-	-
	Other bad debt expenses	-	-	-	35,188,825,355
	Reversal of bad debt allowance	9,842,942,828	-	-	-
Deep Basin Partnership	Other expenses	-	-	143,886,370	522,425,561
	Other income	358,480,900	913,015,914	-	-
HKMS Partnership	Other income	324,405,921	150,975,140	-	-
		₩ 17,151,516,534	₩ 74,471,531,328	₩ 241,792,120	₩ 36,297,220,020

46. Related Parties (cont'd)

[1] During the year ended December 31, 2022, all of the shares held by the Group were sold and excluded from associates, and the amount disclosed was incurred before the sale was completed.

[2] This is the amount for the lease contract for land in Yeosu branch office.

[3] During the year ended December 31, 2023, it is liquidated., and the amount disclosed was incurred before the sale was completed.

The receivables and payables, arising from the transactions with related parties as of December 31, 2023 and 2022, are as follows:

(in Korean won)		Receivables[1]		Payables	
	Transaction	2023	2022	2023	2022
Parallel Petroleum LLCv	Long-term account receivables	₩ 14,490,127,372	₩ 34,517,433,625	₩ -	₩ -

[1] The above loan is the amount before the allowance for doubtful accounts is reflected.

[2] As of December 31, 2023, the Group recognizes 100% of allowance for doubtful accounts in respect to such loans.

The Group recognized no other bad debt expenses (2022: ₩ 35,601million) and reversal of other bad debt expenses of ₩ 12,498 million (2022: ₩ 26,184 million) on receivables arising from the transaction with related parties for the year ended December 31, 2023.

Loans to related parties as of December 31, 2023 and 2022, are as follows:

(in Korean won)	2023	2022
Associates		
KNOC Nigerian East Oil Company Ltd.[1,2]	₩ 31,136,623,205	₩ 31,111,453,239
KNOC Nigerian West Oil Company Ltd.[1,2]	32,799,787,359	32,729,953,092
KNOC Ferghana2 Ltd.[1,2]	23,515,622,338	23,112,570,335
Joint ventures		
KNOC INAM Ltd.[2]	30,492,976,554	29,970,334,409
K.K. Korea Kamchatka Co. Ltd[2]	148,847,149,662	146,295,945,995
KC kazakh B.V[3]	-	218,273,885,694
KNOC Ferghana Ltd.[2]	33,710,770,779	33,132,976,429
	₩ 300,502,929,897	₩ 514,627,119,193

[1] As of December 31, 2023, it has been classified into a financial asset measured at fair value through profit or loss on the consolidated statement of financial position.

[2] As of December 31, 2023, the Group recognizes 100% of allowance for doubtful accounts in respect to such loans. The above loans are the amount before the allowance for doubtful account is reflected.

[3] It was written off during the year ended December 31, 2023.

The above loan is the amount before the allowance for doubtful accounts is reflected.

46. Related Parties (cont'd)

Changes in loans to related parties for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023	2022
Beginning Balance	₩ -	₩ -
Loans	97,905,750	174,154,860
Impairment	-	(174,154,860)
Gain (loss) on valuation	(97,905,750)	24,873,040,031
Exclusion from related parties due to disposal of shares	-	(24,873,040,031)
Ending balance	₩ -	₩ -

There are no borrowings from the related parties as at the end of the year.

As of December 31, 2023, details of the payment guarantee provided by the Group to the related parties are as follows:

(in US dollar)

provider	Beneficiary	Description	Amount	Maturity
Korea National Oil Corporation	Korea GS E&P Pte. Ltd.[1]	Bank Loan Payment Guarantee	USD 28,800,000	2024.07.05
		Bank Loan Payment Guarantee	USD 13,500,000	2024.07.03
		Bank Loan Payment Guarantee	USD 9,900,000	2024.07.05
		Bank Loan Payment Guarantee	USD 13,500,000	2024.07.05
		Bank Loan Payment Guarantee	USD 15,000,000	2024.07.05

[1] This is the payment guarantee provided indirectly through GS Energy Corporation (Note 48).

As of December 31, 2023, the Group is not provided with any guarantees from the related parties.

As of December 31, 2023, there is no loans agreement with the related parties.

As of December 31, 2023, the Group is invested \ 87,977million(2022: \ 76,345million) by Government of the Republic of Korea, the ultimate parent company.

The compensations to the Parent Company's key management personnel for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023	2022
Salaries	₩ 624,396,360	₩ 557,318,840
Severance and retirement benefits	37,101,626	50,040,111
	₩ 661,497,986	₩ 607,358,951

47. Additional Cash Flow Statement Information

Non-Cash Transactions

Significant non-cash investment and finance transactions excluded from statements of cash flows for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)		2023		2022
Revaluation of land classified as property, plant and equipment	₩	623,460,409	₩	(47,745,241,347)
Bond payables transferred to current portion		3,191,860,189,131		2,511,783,482,908
Long-term borrowings transferred to current portion		459,279,975,352		702,452,696,132
Construction in progress transferred to other accounts		6,802,946,669		13,893,461,055
Provisions transferred to current portion		21,495,917,777		22,601,745,007
Account transfer between non-controlling interests and retained earnings[1]		-		219,455,601,008
Assets held for sale transferred to intangible assets[2]		124,878,622,158		-
Assets held for sale transferred to property, plant and equipment[2]		85,756,594,883		-
Assets held for sale transferred to Trade receivables[2]		83,819,086,742		-
Liabilities included in asset group held for sale transferred to provisions[2]		221,527,335,359		-
Liabilities included in asset group held for sale transferred to Deferred tax liabilities [2]		80,911,809,298		-

[1] As Eagle Ford Energy LLC (a subsidiary of Eagleford) paid unequal dividends for the year ended December 31, 2022, the portion of the dividend exceeding the interests in Eagleford was treated as a decrease in non-controlling interest and an increase in retained earnings, as it was regarded as a transaction between the shareholders.

[2] As the reason for classification of assets held for sale and liabilities included in asset group held for sale as of December 31, 2022 has been resolved, the related assets and liabilities are transferred to other accounts (Note 40).

47. Additional Cash Flow Statement Information (cont'd)

Details of change in liabilities in financing activities for each of the two years in the period ended December 31, 2023, are as follows:

(in Korean won)	2023					
			Changes in non-cash			
	Beginning balance	Cash flow	Change in exchange rate	Change in fair value	Others[1]	Ending balance
Lease liability	₩ 303,363,198,326	₩ (24,923,298,861)	₩ (5,177,429,680)	₩ -	₩ 54,707,523,586	₩ 327,969,993,371
Short-term borrowings	257,956,348,084	124,779,157,893	2,718,090,670	-	1,476,191,044	386,929,787,691
Long term borrowings	755,016,015,336	470,073,024,211	(1,868,435,483)	-	(583,392,852,017)	639,827,752,047
Current portion of long-term borrowings	757,618,998,921	(855,487,159,104)	1,346,261,092	-	594,005,209,887	497,483,310,796
Bond payables	10,945,175,844,902	2,334,616,131,174	116,547,890,186	-	(2,982,962,859,474)	10,413,377,006,788
Current portion of bond payables[2]	2,479,633,405,933	(2,545,003,535,582)	8,240,858,829	-	3,211,195,941,726	3,154,066,670,906
Assets held to hedge risk of bond payable[2]	137,240,264,789	2,033,295,879	52,649,310,507	15,607,936,243	(7,506,539,900)	200,024,267,518
Liabilities held to hedge risk of bond payable[2]	177,807,542,365	(83,560,334,711)	1,528,148,482	(4,646,398,029)	(74,264,110,134)	16,864,847,973

[1] Includes liquidity transfer and amortization to present value etc.

[2] The assets and liabilities above are comprised of currency swap and interest swap derivative and included in the cash flow of related bond payables.

(in Korean won)	2022					
			Changes in non-cash			
	Beginning balance	Cash flow	Change in exchange rate	Change in fair value	Others[1]	Ending balance
Lease liability	₩ 316,135,542,433	₩ (28,410,307,982)	₩ (20,166,808,870)	₩ -	₩ 35,804,772,745	₩ 303,363,198,326
Short-term borrowings	144,342,885,493	10,649,585,154	(3,952,206,183)	-	106,916,083,620	257,956,348,084
Long term borrowings	1,376,604,010,935	(4,547,731,227)	(22,310,329,730)	-	(594,729,934,642)	755,016,015,336
Current portion of long-term borrowings	456,226,404,287	(278,116,235,283)	(50,470,750,648)	-	629,979,580,565	757,618,998,921
Bond payables	10,713,362,977,657	2,064,083,408,472	(125,781,168,472)	-	(1,706,489,372,755)	10,945,175,844,902
Current portion of bond payables[2]	2,187,473,241,073	(2,374,149,590,779)	(31,594,056,778)	-	2,697,903,812,417	2,479,633,405,933
Assets held to hedge risk of bond payable[2]	91,590,770,741	582,955,777,180	3,039,153,465	52,668,257,712	(593,013,694,309)	137,240,264,789
Liabilities held to hedge risk of bond payable[2]	575,764,942,912	(696,173,831,514)	(2,617,506,215)	(35,299,947,266)	336,133,884,448	177,807,542,365

[1] Includes liquidity transfer and amortization to present value etc.

[2] The assets and liabilities above are comprised of currency swap and interest swap derivative and included in the cash flow of related bond payables.

48. Contingencies and Commitments

Details of the Group's significant pending litigations as of December 31, 2023, are as follows:

(in US dollar, Korean won)

Court	Plaintiff	Defendant	Description[1]		Amount	Status
Seoul Central District Court[2]	Private litigant	The Parent Company	Claims for additional wages (overtime pay, severance pay) according to the ordinary wage calculation method	₩	1,414,394,520	In first trial
Seoul Central District Court	SK ecoplant Co., Ltd. and another	The Parent Company	Claiming adjustment of contracted amount due to design change and extension of construction period and additional construction charge thereto.(2nd claim)	₩	12,577,605,543	In second trial
Nigeria Lagos State Court[3]	AAA company and Dr. Owolabi	The Parent Company	Claims for damages equivalent to brokerage fees, claims for contribution to acquisition of a mining site	$	100,000,000	In first trial

[1] As of December 31, 2023, in addition to the above lawsuits, 3 lawsuits have been filed against the Group, with the total litigation value of ₩ 365 million, and 7 cases were filed by the Group, with the total litigation value of ₩ 3,745 million.

[2] The amount and interest charged under the third lawsuit related to ordinary wage were recognized as provisions (Note 25).

[3] Dr. Owolabi and others are engaged in a lawsuit demanding that the Group pays for the cooperation to acquire Nigerian mining rights. The Group currently believes that it has no obligations, and as of December 31, 2023, it has not recognized any provisions for these litigations.

For the Peru Block 8 project, an international arbitration is in progress from April, 2021 to determine whether it is right to automatically terminate the mining right contract after the operator notified the liquidation due to the Peruvian government's excessive demand for environmental restoration and fines. Although the obligation of decommissioning and fine to be borne by the Group has yet to be determined, under the Joint Operation Agreement (JOA), the Group fulfills its obligation to pay as much as the participating interest of the Group for the responsibilities and expenses incurred by the joint operation until the end of the project.

48. Contingencies and Commitments (cont'd)

The Company has provided loan guarantees to non-related parties as of December 31, 2023 and 2022, as follows:

(in US dollar)

Description of guarantee	Guaranteed Party	Guarantee period	2023	2022
Payment guarantees for Korea GS E&P	GS Energy	2023.07.06.~2024.07.05.	$ 28,800,000	$ 28,800,000
		2023.07.03.~2024.07.03.	13,500,000	13,500,000
		2023.07.21.~2024.07.05.	9,900,000	9,900,000
		2023.08.01.~2024.07.05.	13,500,000	13,500,000
		2023.07.31.~2024.07.05.	15,000,000	15,000,000

As of December 31, 2023, the payment guarantees provided by the Company to others are as follows:

(in thousands of US dollar, millions of Korean won)

Details of contract[1]	Financial institutions	Credit line	Current Balance
Trade finance	BNP Paribas[2]	$ 200,000,000	$ -
	Development Bank of Singapore[2]	$ 240,000,000	$ -
	Bank of America[2]	$ 190,000,000	$ -
	ING Bank[2]	$ 300,000,000	$ -
	Standard Chartered Bank[2]	$ 150,000,000	$ -
	Credit Agricole[2]	$ 100,000,000	$ -
	Societe Generale[2]	$ 200,000,000	$ -
		$ 1,380,000,000	$ -
Credit line	BNP Paribas[2]	$ 200,000,000	$ -
	Development Bank of Singapore[2]	$ 240,000,000	$ -
	Mizuho Bank	$ 400,000,000	$ -
	Bank of America[2]	$ 190,000,000	$ -
	ING Bank[2]	$ 300,000,000	$ -
	Credit Agricole[2]	$ 100,000,000	$ -
	Standard Chartered Bank[2]	$ 150,000,000	$ -
	Export-Import Bank of Korea	$ 550,000,000	$ 500,000,000
	Societe Generale[2]	$ 200,000,000	$ -
		$ 2,330,000,000	$ 500,000,000
Credit line	Korea Development Bank	₩ 154,375,000,000	₩ 154,375,000,000
Bank overdraft	Hana Bank	₩ 10,000,000,000	₩ -
		$ 100,000,000	$ -
	NongHyup Bank	$ 200,000,000	$ 150,000,000
	Daegu Bank	₩ 100,000,000,000	₩ -

48. Contingencies and Commitments (cont'd)

[1] The above arrangement does not include an arrangement on the basis that the Group successfully completes oil exploration.
[2] A portion of or all of lines of credit for trade finance and financial loans have been integrated.

As of December 31, 2023, the details of guarantees the Group received from others are as follows:

(in foreign currencies, Korean won)

			Guarantee amount		
Provider	**Beneficiary**	**Description**	**Currency**	**2023**	**Details**
Gibsons Energy Inc.	Harvest Operations Corp.	Foreign currency payment	CAD	15,000,000	Oil/Gas/NGL Sales Payment Guarantee
Plains All American Pipeline LLP	Harvest Operations Corp.	Foreign currency payment	USD	50,000,000	Oil/NGL Sales Payment Guarantee
Tidal Energy Marketing Inc.	Harvest Operations Corp.	Foreign currency payment	CAD	20,000,000	Oil/Gas/NGL Sales Payment Guarantee
Trafigura Beheer BV	Harvest Operations Corp.	Foreign currency payment	CAD	25,000,000	Oil/Gas/NGL Sales Payment Guarantee
Societe Generale	Dana Petroleum Limited	Performance Bond	EUR	27,962,500	Restoration performance guarantee
DNB	Dana Petroleum Limited	Performance Bond	GBP	20,937,253	Restoration performance guarantee
DNB	Dana Petroleum Limited	Performance Bond[1]	GBP	3,602,000	Restoration performance guarantee
Societe Generale	Dana Petroleum Limited	Performance Bond	GBP	37,941,535	Restoration performance guarantee

[1] Provided 100% of cash assets as collateral in the guarantee details.

Regarding the investment agreement for Korea Energy Terminal, on November 13, 2019, the Parent Company signed a Joint Venture Agreement with SK Gas Co., Ltd. to promote the Ulsan North Port project. According to this agreement, the total investment cost is ₩ 91,476 million up to now, and for the amounts that are not financed through external borrowings, each participant promised to invest in the amounts equivalent to the participant's share which is remainder of ₩ 187,043 million is obliged by the Parent Company. The amounts that are not financed through external borrowings should change in accordance with the total investment costs and the related legislation.

As of December 31, 2023, other significant contingencies and commitments related to the Group's subsidiaries are as follows:

(i) Dana Petroleum Limited ("Dana") and its subsidiaries

The Parent Company provided a payment guarantee of borrowings of Dana Petroleum Limited, a subsidiary, entered into with the Export-Import Bank of Korea and others, up to USD 300 million. As of December 31, 2023, the Parent Company provided a performance guarantee of GBP 185 million to participating companies for the expenses that will incur for restoration of the sites, decommissioning, dismantling, removal and disposal of the facilities and structures after the completion of Dana Petroleum Limited's oil field.

48. Contingencies and Commitments (cont'd)

The Group provided a restoration performance guarantee of EUR 28 million and GBP 59 million to banks that issue letter of credit for the expenses that will incur for restoration of the sites, decommissioning, dismantling, removal and disposal of the facilities and structures which is required for issuance of letter of credit.

(ii) Harvest Operations Corp. and its subsidiaries

Guarantees provided by the Parent Company for Harvest Operations Corp. as of December 31, 2023 are as follows:

(in foreign currencies)

Beneficiary	Description	Amount	Executed amount
Harvest Operations Corp.	Guarantees for borrowing from banks	CAD 300,000,000	CAD 126,033,241
Harvest Operations Corp.	Guarantees for issuing of bonds	USD 500,000,000	USD 500,000,000
Harvest Operations Corp.	Guarantees for borrowing from banks	CAD 100,000,000	-

[1] For bank loans, Harvest Operations Corp. provided its total assets as collateral.

The opened Harvest Operations Corp.'s performance guarantee L/C is USD 2.9 million and CAD 2.5 million, and the processing and transportation contractual arrangements are CAD 99 million as of December 31, 2023.

Harvest operates DBP/HKMS in partnership with KERR and assumes the top-up obligation to guarantee the minimum rate of return of KERR. When the parent company of Harvest, which is obliged to guarantee revenues, changes from the Parent Company to a third party, KERR can exercise put options due to change of control (COC).

(iii) ANKOR E&P Holdings Corp. ("ANKOR") and its subsidiaries

The Group provided a guarantee of USD 90 million to Chubb Limited and others for the future restoration of oil and gas sites held by ANKOR.

(iv) KNOC Yemen Ltd.

The Group discussed business acquisition with local acquirer YICOM regarding the withdrawal of business of its subsidiary, KNOC Yemen Ltd., but the negotiation is suspended due to civil war occurred in Yemen. Depending on the acquisition agreement, there may be settlement to be paid or received between the Group and YICOM, but the amounts are not reasonably estimable.

.

48. Contingencies and Commitments (cont'd)

(v) KNOC Eagle Ford and its subsidiaries

Details of agreements with financial institutions of KNOC Eagle Ford Corporation and its subsidiaries are as follows:

(in US dollar)

Agreement	Financial Institution	Credit line amount	Executed amount
Credit line	Bank of America	$ 25,000,000	$ 25,000,000
	Sumitomo Mitsui Banking Corporation	70,000,000	-
	Standard Chartered Bank	100,000,000	43,000,000
		$ 195,000,000	$ 68,000,000

The Parent Company provided a payment guarantee of USD 90 million for loans signed with the Export-Import Bank of Korea by its subsidiary, KNOC Eagle Ford Corporation, and the executed amount is USD 90 million. Furthermore, the Parent Company provided a guarantee of USD 48 million to Chubb Limited and others for the future restoration of oil and gas sites.

(vi) KNOC Caspian LLP and its subsidiaries

KNOC Caspian LLP's Mining rights (production) contract stipulates annual mandatory investment. In addition, under Kazakhstan's Underground Resources Act, 1% of production costs must be invested in the R&D funds, and 1% of the annual investment must be invested in the training funds. In addition, there are many other arrangements to be implemented in Kazakhstan, such as the liquidation fund, etc. If the agreement is not performed, the Group might have to pay a levy to the Kazakhstan government. In this regard, the Group estimates that KZT 35,704 million will be used as a mandatory investment in 2023.

(vii) Altuis Holding Inc. and subsidiaries

Altius Holding Inc.'s Mining rights (production) contract stipulates annual mandatory investment. In addition, under Kazakhstan's Underground Resources Act, 1% of production costs must be invested in the R&D funds, and 1% of the annual investment must be invested in the training funds. In addition, there are many other arrangements to be implemented in Kazakhstan, such as the liquidation fund, etc. If the agreement is not performed, the Group might have to pay a levy to the Kazakhstan government. In this regard, the Group estimates that KZT 28,505 million will be used as a mandatory investment in 2023.

49. Date of Authorization of Issue

The consolidated financial statements were approved for issue by the Board of Directors on February 23, 2024.

THE ISSUER

Korea National Oil Corporation
305, Jongga-ro
Jung-gu
Ulsan, 44538
Korea

**ISSUING AND PRINCIPAL PAYING AGENT,
REGISTRAR, EXCHANGE AGENT AND TRANSFER AGENT**

Citibank, N.A., London Branch
c/o Citibank, N.A., Dublin Branch
1 North Wall Quay
Dublin 1
Ireland

LEGAL ADVISERS

To the Issuer as to Korean law

Lee & Ko
8th Fl., Hanjin Main Building
63 Namdaemun-ro
Jung-gu
Seoul 04532, Korea

To the Dealers as to English law

Cleary Gottlieb Steen & Hamilton LLP
19F, Ferrum Tower
19, Eulji-ro 5-gil
Jung-gu
Seoul 04539, Korea

INDEPENDENT AUDITORS

Ernst & Young Han Young
2-8th Floor, Taeyoung Bldg.
111 Yeouigongwon-ro, Yeongdeungpo-gu
Seoul 07241, Korea

DEALERS

Citigroup Global Markets Inc.
388 Greenwich Street
New York, NY 10013
United States of America

Crédit Agricole Corporate and Investment Bank
30/F, Two Pacific Place
88 Queensway
Hong Kong

The Hongkong and Shanghai Banking Corporation Limited
Level 17, HSBC Main Building
1 Queen's Road Central
Hong Kong

ING Bank N.V. Singapore Branch
1 Wallich Street
#12-01 Guoco Tower
Singapore 078881

J.P. Morgan Securities plc
25 Bank Street
Canary Wharf
London E14 5JP
United Kingdom

The Korea Development Bank
14 Eunhaeng-ro
Yeongdeungpo-gu
Seoul 07242, Korea

Merrill Lynch International
2 King Edward Street
London EC1A 1HQ
United Kingdom

Mizuho Securities Asia Limited
14-15/F., K11 Atelier
18 Salisbury Road
Tsim Sha Tsui, Kowloon
Hong Kong

MUFG Securities EMEA plc
Ropemaker Place, 25 Ropemaker Street
London EC2Y 9AJ
United Kingdom

Nomura Singapore Limited
10 Marina Boulevard #36-01
Marina Bay Financial Centre Tower 2
Singapore 018983

Société Générale
29 Boulevard Haussmann
75009 Paris
France

Standard Chartered Bank
One Basinghall Avenue
London EC2V 5DD
United Kingdom

UBS AG, Hong Kong Branch
52th Floor, Two International Finance Centre
8 Finance Street, Central
Hong Kong

SINGAPORE LISTING AGENT

Shook Lin & Bok LLP
1 Robinson Road
#18-00 AIA Tower
Singapore 048542

A.Plus International
FINANCIAL PRESS LIMITED
250380118