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 ADDRESSES 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 dated June 24, 2022 as amended and supplemented by the preliminary pricing supplement dated June 27, 2022 (together, 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 SET FORTH IN THE ATTACHED OFFERING CIRCULAR. 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). By accepting the e-mail and accessing the following offering circular, you shall be deemed to have represented to us 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 initial purchasers or any affiliate of the initial purchasers is a licensed broker or dealer in that jurisdiction, the offering shall be deemed to be made by the initial purchasers or such affiliate on behalf of the issuer in such jurisdiction.

The following offering circular has been sent to you in an electronic form. You are reminded that documents transmitted via this medium may be altered or changed during the process of electronic transmission and consequently, none of Citigroup Global Markets Inc., The Hongkong and Shanghai Banking Corporation Limited, J.P. Morgan Securities plc, The Korea Development Bank, Merrill Lynch International, NH Investment & Securities Co., Ltd., Shinhan Investment Corp. and UBS AG Hong Kong Branch (collectively, the "Joint Lead Managers") 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 Joint Lead Managers.

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.

PRELIMINARY PRICING SUPPLEMENT DATED JUNE 27, 2022

PRICING SUPPLEMENT

KOREA GAS CORPORATION

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

Issue of US$[ ] [ ]% Senior Unsecured Notes due 20[ ]
Issue of US$[ ] [ ]% Senior Unsecured Notes due 20[ ]
under the U.S.$11,000,000,000
Global Medium Term Note Program

THE NOTES TO WHICH THIS PRICING SUPPLEMENT RELATES (THE “NOTES”) HAVE NOT BEEN REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE “SECURITIES ACT”), OR WITH ANY SECURITIES REGULATORY AUTHORITY OF ANY STATE OR OTHER JURISDICTION OF THE UNITED STATES AND, UNLESS SO REGISTERED, MAY NOT BE OFFERED OR SOLD WITHIN THE UNITED STATES 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 SECURITIES LAWS. ACCORDINGLY, THE NOTES WILL BE OFFERED AND SOLD ONLY (I) OUTSIDE THE UNITED STATES TO NON-U.S. PERSONS IN RELIANCE ON REGULATION S AND (II) WITH RESPECT TO NOTES IN REGISTERED FORM ONLY, WITHIN THE UNITED STATES IN RELIANCE ON RULE 144A UNDER THE SECURITIES ACT (“RULE 144A”) TO QUALIFIED INSTITUTIONAL BUYERS (AS DEFINED UNDER RULE 144A).

IN CONNECTION WITH THIS ISSUE, THE STABILIZING MANAGERS (OR ANY PERSON ACTING ON BEHALF OF ANY STABILIZING MANAGER) MAY OVER-ALLOT OR EFFECT TRANSACTIONS WITH A VIEW TO SUPPORTING THE MARKET PRICE OF THE NOTES AT A LEVEL HIGHER THAN THAT WHICH MIGHT OTHERWISE PREVAIL FOR A LIMITED PERIOD AFTER THE ISSUE DATE. HOWEVER, THERE MAY BE NO OBLIGATION ON THE STABILIZING MANAGERS (OR ANY PERSON ACTING ON BEHALF OF ANY STABILIZING MANAGER) TO UNDERTAKE STABILIZATION ACTION. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME, AND MUST BE BROUGHT TO AN END AFTER A LIMITED PERIOD. SUCH STABILIZING SHALL BE IN COMPLIANCE WITH ALL APPLICABLE LAWS, REGULATIONS AND RULES.

Joint Bookrunners and Joint Lead Managers

BofA Merrill Lynch | **Citigroup**
HSBC | **J.P. Morgan**
Korea Development Bank | **NH Investment & Securities**
Shinhan Investment | **UBS**

The date of this Pricing Supplement is , 2022

MiFID II PRODUCT GOVERNANCE – Solely for the purposes of each 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 each UK MiFIR 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 ("COBS") and professional clients, as defined in Regulation (EU) No 600/2014 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018 ("UK MiFIR"); 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 "UK MiFIR distributor") should take into consideration each UK MiFIR manufacturer's target market assessment; however a 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.

KOREA GAS CORPORATION

Issue of US$[ ] [ ]% Senior Unsecured Notes due 20[ ]
under the U.S.$11,000,000,000
Global Medium Term Note Program of
Korea Gas Corporation

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 (the "Conditions") set forth in the offering circular dated June 24, 2022 (the "Offering Circular"). This Pricing Supplement contains the final terms of the Notes and is supplemental to and must be read in conjunction with the Offering Circular.

1.	(i) Issuer:	Korea Gas Corporation
		(Legal Entity Identifier: 988400TFZILHBD5M3R71)
2.	(a) Series Number:	50
	(b) Tranche Number:	1
	(c) Re-opening:	No
3.	Specified Currency or Currencies:	United States dollars ("U.S.$")
4.	Aggregate Nominal Amount:	
	(a) Series:	U.S.$[ ]
	(b) Tranche:	U.S.$[ ]

5.	(a)	Issue Price of Tranche:	[ ]% of the Aggregate Principal Amount
	(b)	Net Proceeds (after deducting underwriting discounts but not estimated expenses):	U.S.$ [ ]
	(c)	Use of Proceeds:	As described in the Offering Circular
6.	(a)	Specified Denominations:	U.S.$200,000 and integral multiples of U.S.$1,000 in excess thereof
	(b)	Calculation Amount:	U.S.$1,000
7.	(a)	Issue Date:	[ ], 2022
	(b)	Interest Commencement Date:	[ ], 2022
8.	Maturity Date:		[ ], 20[ ]
9.	Interest Basis:		[ ]% Fixed Rate
10.	Redemption/Payment Basis:		Redemption at par
11.	Change of Interest Basis or Redemption/Payment Basis:		None
12.	Put (other than Condition 9.5)/Call (other than Condition 9.2) Options:		Not Applicable
13.	Listing:		Frankfurt Stock Exchange Open Market
14.	(a)	Status of the Notes:	Senior Unsecured Notes
	(b)	Date of Issuer's approval for the issuance of Notes obtained:	Board's Approval: December 30, 2021 President's Approval: March 25, 2022
15.	Method of distribution:		Syndicated

PROVISIONS RELATING TO INTEREST (IF ANY) PAYABLE

16.	Fixed Rate Note Provisions:		Applicable
	(a)	Rate(s) of Interest:	[ ]% per annum payable semi-annually in arrear
	(b)	Interest Payment Date(s):	[ ] and [ ] in each year up to and including the Maturity Date (with the first interest payment date being [ ])
	(c)	Fixed Coupon Amount(s):	U.S.$[ ] per Calculation Amount
	(d)	Broken Amount(s):	Not Applicable
	(e)	Day Count Fraction:	30/360
	(f)	Determination Date(s):	Not Applicable
	(g)	Other terms relating to the method of calculating interest for Fixed Rate Notes:	None

17. Floating Rate Note Provisions:	Not Applicable
18. Zero Coupon Note Provisions:	Not Applicable
19. Index Linked Interest Note Provisions:	Not Applicable
20. Dual Currency Interest Note Provisions:	Not Applicable

PROVISIONS RELATING TO REDEMPTION

21. Issuer Call (other than Condition 9.2):	Not Applicable
22. Investor Put (other than Condition 9.5):	Not Applicable
23. Final Redemption Amount:	U.S.$1,000 per Calculation Amount
24. Early Redemption Amount 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 9.7 (*Redemption and Purchase – Early Redemption Amounts*)):	U.S.$1,000 per Calculation Amount

GENERAL PROVISIONS APPLICABLE TO THE NOTES

25. Form of Notes:	Registered Notes: Regulation S Global Note registered in the name of a nominee for DTC and Rule 144A Global Note registered in the name of a nominee for DTC
26. Additional Financial Center(s) or other special provisions relating to Payment Days:	London, New York, Seoul
27. Talons for future Coupons or Receipts to be attached to Definitive Bearer Notes (and dates on which such Talons mature):	Not Applicable
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
29. Details relating to Installment Notes:	
(a) Installment Amount(s):	Not Applicable
(b) Installment Date(s):	Not Applicable

30. Redenomination applicable:	Redenomination not applicable
31. Other terms:	Not Applicable

DISTRIBUTION

32. (a) If syndicated, names of Managers:	Citigroup Global Markets Inc. The Hongkong and Shanghai Banking Corporation Limited J.P. Morgan Securities plc The Korea Development Bank Merrill Lynch International NH Investment & Securities Co., Ltd. Shinhan Investment Corp. UBS AG Hong Kong Branch (as Joint Bookrunners and Joint Lead Managers)
(b) Stabilizing Manager:	Each of the Managers
33. If non-syndicated, name of Relevant Dealer:	Not Applicable
34. U.S. Selling Restrictions:	Reg. S Category 2/Rule 144A TEFRA rules not applicable
35. Prohibition of sales to EEA retail investors:	Not Applicable
36. Prohibition of sales to UK retail investors:	Not Applicable
37. Additional selling restrictions:	Not Applicable

OPERATIONAL INFORMATION

38. Any clearing system(s) other than Euroclear and Clearstream and the relevant identification number(s):	DTC
39. Delivery:	Free of payment
40. Additional Paying Agent(s) (if any):	Not Applicable

ISIN:	Rule 144A Notes: Regulation S Notes:
Common Code:	Rule 144A Notes: Regulation S Notes:
CUSIP:	Rule 144A Notes: Regulation S Notes:

RESPONSIBILITY

The Issuer accepts responsibility for the information contained in this Pricing Supplement.

MiFID II PRODUCT GOVERNANCE – Solely for the purposes of each 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 each UK MiFIR 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 ("COBS") and professional clients, as defined in Regulation (EU) No 600/2014 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018 ("UK MiFIR"); 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 "UK MiFIR distributor") should take into consideration each UK MiFIR manufacturer's target market assessment; however a 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.

KOREA GAS CORPORATION

Issue of US$[ ] [ ]% Senior Unsecured Notes due 20[ ]
under the U.S.$11,000,000,000
Global Medium Term Note Program of
Korea Gas Corporation

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 (the "Conditions") set forth in the offering circular dated June 24, 2022 (the "Offering Circular"). This Pricing Supplement contains the final terms of the Notes and is supplemental to and must be read in conjunction with the Offering Circular.

1. (i) Issuer:	Korea Gas Corporation
	(Legal Entity Identifier: 988400TFZILHBD5M3R71)
2. (a) Series Number:	51
(b) Tranche Number:	1
(c) Re-opening:	No
3. Specified Currency or Currencies:	United States dollars ("U.S.$")
4. Aggregate Nominal Amount:	
(a) Series:	U.S.$[ ]
(b) Tranche:	U.S.$[ ]

5.	(a)	Issue Price of Tranche:	[ ]% of the Aggregate Principal Amount
	(b)	Net Proceeds (after deducting underwriting discounts but not estimated expenses):	U.S.$ [ ]
	(c)	Use of Proceeds:	As described in the Offering Circular
6.	(a)	Specified Denominations:	U.S.$200,000 and integral multiples of U.S.$1,000 in excess thereof
	(b)	Calculation Amount:	U.S.$1,000
7.	(a)	Issue Date:	[ ], 2022
	(b)	Interest Commencement Date:	[ ], 2022
8.		Maturity Date:	[ ], 20[ ]
9.		Interest Basis:	[ ]% Fixed Rate
10.		Redemption/Payment Basis:	Redemption at par
11.		Change of Interest Basis or Redemption/Payment Basis:	None
12.		Put (other than Condition 9.5)/Call (other than Condition 9.2) Options:	Not Applicable
13.		Listing:	Frankfurt Stock Exchange Open Market
14.	(a)	Status of the Notes:	Senior Unsecured Notes
	(b)	Date of Issuer's approval for the issuance of Notes obtained:	Board's Approval: December 30, 2021 President's Approval: March 25, 2022
15.		Method of distribution:	Syndicated

PROVISIONS RELATING TO INTEREST (IF ANY) PAYABLE

16.		Fixed Rate Note Provisions:	Applicable
	(a)	Rate(s) of Interest:	[ ]% per annum payable semi-annually in arrear
	(b)	Interest Payment Date(s):	[ ] and [ ] in each year up to and including the Maturity Date (with the first interest payment date being [ ])
	(c)	Fixed Coupon Amount(s):	U.S.$[ ] per Calculation Amount
	(d)	Broken Amount(s):	Not Applicable
	(e)	Day Count Fraction:	30/360
	(f)	Determination Date(s):	Not Applicable
	(g)	Other terms relating to the method of calculating interest for Fixed Rate Notes:	None

17. Floating Rate Note Provisions:	Not Applicable
18. Zero Coupon Note Provisions:	Not Applicable
19. Index Linked Interest Note Provisions:	Not Applicable
20. Dual Currency Interest Note Provisions:	Not Applicable

PROVISIONS RELATING TO REDEMPTION

21. Issuer Call (other than Condition 9.2):	Not Applicable
22. Investor Put (other than Condition 9.5):	Not Applicable
23. Final Redemption Amount:	U.S.$1,000 per Calculation Amount
24. Early Redemption Amount 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 9.7 (*Redemption and Purchase – Early Redemption Amounts*)):	U.S.$1,000 per Calculation Amount

GENERAL PROVISIONS APPLICABLE TO THE NOTES

25. Form of Notes:	Registered Notes: Regulation S Global Note registered in the name of a nominee for DTC and Rule 144A Global Note registered in the name of a nominee for DTC
26. Additional Financial Center(s) or other special provisions relating to Payment Days:	London, New York, Seoul
27. Talons for future Coupons or Receipts to be attached to Definitive Bearer Notes (and dates on which such Talons mature):	Not Applicable
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
29. Details relating to Installment Notes:	
(a) Installment Amount(s):	Not Applicable
(b) Installment Date(s):	Not Applicable

30. Redenomination applicable:	Redenomination not applicable
31. Other terms:	Not Applicable

DISTRIBUTION

32. (a) If syndicated, names of Managers:	Citigroup Global Markets Inc. The Hongkong and Shanghai Banking Corporation Limited J.P. Morgan Securities plc The Korea Development Bank Merrill Lynch International NH Investment & Securities Co., Ltd. Shinhan Investment Corp. UBS AG Hong Kong Branch (as Joint Bookrunners and Joint Lead Managers)
(b) Stabilizing Manager:	Each of the Managers
33. If non-syndicated, name of Relevant Dealer:	Not Applicable
34. U.S. Selling Restrictions:	Reg. S Category 2/Rule 144A TEFRA rules not applicable
35. Prohibition of sales to EEA retail investors:	Not Applicable
36. Prohibition of sales to UK retail investors:	Not Applicable
37. Additional selling restrictions:	Not Applicable

OPERATIONAL INFORMATION

38. Any clearing system(s) other than Euroclear and Clearstream and the relevant identification number(s):	DTC
39. Delivery:	Free of payment
40. Additional Paying Agent(s) (if any):	Not Applicable

ISIN:	Rule 144A Notes: Regulation S Notes:
Common Code:	Rule 144A Notes: Regulation S Notes:
CUSIP:	Rule 144A Notes: Regulation S Notes:

RESPONSIBILITY

The Issuer accepts responsibility for the information contained in this Pricing Supplement.

OFFERING CIRCULAR

KOREA GAS CORPORATION

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

U.S.$11,000,000,000
Global Medium Term Note Program

This offering circular replaces and supersedes the offering circular dated June 30, 2021 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.$11,000,000,000 Global Medium Term Note Program (the "**Program**"), Korea Gas Corporation (the "**Company**") or any subsidiary of the Company which accedes to the Program by executing an accession agreement pursuant to the terms of the Agency Agreement (as defined below) (each such subsidiary, a "**Guaranteed Issuer**", and together with the Company, each, an "**Issuer**" in relation to the Notes issued by it), subject to compliance with all relevant laws, regulations and directives, may from time to time issue notes (the "**Notes**") denominated in any currency agreed between the Issuer and the Relevant Dealer (as defined below).

The Notes will be issued on a senior basis and may be issued in bearer or registered form ("**Bearer Notes**" and "**Registered Notes**", respectively). Notes issued by the Guaranteed Issuers will be guaranteed by the Company (in such capacity, the "**Guarantor**") on a senior basis. The maximum aggregate nominal amount of all Notes from time to time outstanding under the Program will not exceed U.S.$11,000,000,000 (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 subscribe such Notes.

Approval in-principle has been received from the Singapore Exchange Securities Trading Limited (the "**SGX-ST**") in connection with the Program and application will be made for the listing and quotation of any Notes that may be issued by the Company pursuant to the Program and which are agreed at or prior to the time of issue thereof to be so listed on the SGX-ST. Such permission will be granted when such Notes have been admitted for listing and quotation on the SGX-ST. The SGX-ST 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 SGX-ST are not to be taken as an indication of the merits of any Guaranteed Issuer, the Company, the Program or the Notes. 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 which 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**") a copy of which, with respect to Notes to be listed on the SGX-ST, will be submitted to the SGX-ST before the date of listing of the Notes of such Tranche.

The Program provides that Notes may be listed or admitted to trading, as the case may be, on such other or further stock exchanges or markets as may be agreed between the Issuer, the Guarantor and the Relevant Dealer(s). Issuer may also issue unlisted Notes and/or Notes not admitted to trading on any market.

See "Risk Factors" beginning on page 69 for a discussion of certain factors to be considered in connection with an investment in the Notes.

The Notes have not been and will not be registered under the U.S. Securities Act of 1933, as amended (the "**Securities Act**"), or with any securities regulatory authority of any state or other jurisdiction of the United States.

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 only outside the United States to non-U.S. persons in reliance on the exemption from registration provided by Regulation S under the Securities Act ("**Regulation S**") and Registered Notes may be issued both outside the United States to non-U.S. persons in reliance on the exemption from registration provided by Regulation S and within 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. Bearer Notes are subject to U.S. tax law requirements. Subject to certain exceptions, the Notes may not be offered or sold, or in the case of Bearer Notes delivered, in the United States or its possessions or to, or for the benefit of, U.S. persons (as defined in Regulation S under the Securities Act or, in the case of Bearer Notes, the U.S. Internal Revenue Code of 1986, as amended). See "Form of the Notes" for more description of the manner in which Notes will be issued. Notes are subject to certain restrictions on transfer. See "Subscription and Sale and Transfer and Selling Restrictions."

The Issuer and the Guarantor may agree with any Dealer that the Notes may be issued in a form not contemplated under "Terms and Conditions of the Notes" herein, in which event (in the case of Notes intended to be listed on the SGX-ST) a supplementary offering circular, if appropriate, will be made available which will describe the effect of the agreement reached in relation to such Notes.

Arranger

Citigroup

Dealers

BofA Merrill Lynch

BNP PARIBAS

Citigroup

Crédit Agricole CIB

HSBC

J.P. Morgan

KB Securities

Korea Development Bank

Mirae Asset Securities

Mizuho Securities

Société Générale Corporate & Investment Banking

Standard Chartered Bank

UBS

The date of this offering circular is June 24, 2022.

The Company (in its capacity as the Issuer or, in the case of Senior Guaranteed Notes, as the Guarantor) and the Guaranteed Issuers, having made all reasonable enquiries, confirm 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 Company and the Guaranteed Issuers accept 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 government and other public sources, and the Company and the Guaranteed Issuers accept 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.

This offering circular is based on the information provided by the Company and the Guaranteed Issuers. The Arranger and the Dealers have not separately verified the information contained or incorporated by reference in this offering circular. 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 Company or the Guaranteed Issuers, and none of the Arranger or the Dealers accept any responsibility for any acts or omissions of the Company or the Guaranteed Issuers or any other person (other than the relevant Dealers) in connection with the Program and the issue and offering of the Notes. None of the Dealers accepts any responsibility for the contents of this offering circular or for any statement made or purported to be made by the Dealers or on its behalf in connection with the Company, the Guaranteed Issuers, the Program or the issue and offering of the Notes. The Dealers accordingly disclaim all and any liability whether arising in tort or contract or otherwise (save as referred to above) which it might otherwise have in respect of this offering circular or any such statement.

No person is or has been authorized by the Company or the Guaranteed Issuers to give any information or to make any representation other than as contained in 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 any of the Company, the Guaranteed Issuers or 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 any of the Company, the Guaranteed Issuers or 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 Company and the Guaranteed Issuers. 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 any of the Company, the Guaranteed Issuers or the Dealers to any person to subscribe for or to purchase any Notes. The contents of this offering circular should not be construed as providing legal, business, accounting or tax advice. An investor should bear the economic risk of an investment in the 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 Company and the Guaranteed Issuers 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 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 Company, the Guaranteed Issuers 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 Company, the Guaranteed Issuers 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, Singapore, Hong Kong, Taiwan and Korea. 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 the Pricing Supplement, as the case may be) in respect of any Series (as defined under "Terms and Conditions of the Notes") of Notes may include information entitled "MiFID II Product Governance," which will outline the target market assessment in respect of the Notes of any such Series and which channels for distribution of the Notes are appropriate. If such information is included, any person subsequently offering, selling or recommending the Notes (a "**distributor**") should take into consideration the target market assessment; however, a distributor subject to Directive 2014/65/EU (as amended, "**MiFID II**") will be responsible for undertaking its own target market assessment in respect of the Notes (by either adopting or refining the target market assessment) and determining the appropriate distribution channels.

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

IMPORTANT – EEA RETAIL INVESTORS – If the final terms (or the Pricing Supplement, as the case may be) in respect of any Series of Notes includes a legend entitled "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 the Prospectus Regulation (as defined below); and (b) the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes. Consequently, no key information document required by Regulation (EU) No 1286/2014 (the "**PRIIPs Regulation**") for offering or selling the Notes or otherwise making them available to retail investors in the EEA 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.

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

UK INFORMATION

UK MiFIR product governance – The final terms (or the Pricing Supplement, as the case may be) in respect of any Series (as defined under "Terms and Conditions of the Notes") of Notes may include information entitled "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 the Pricing Supplement, as the case may be) in respect of any Series of Notes includes a legend entitled "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 or (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, the Company or the Guaranteed 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 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."

Bearer Notes 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 U.S. persons, except in certain transactions permitted by U.S. Treasury regulations. Terms used in this paragraph have the meanings given to them by the U.S. Internal Revenue Code of 1986, as amended, and the U.S. Treasury regulations promulgated thereunder.

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 or, as the case may be, the Guaranteed 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).

CERTAIN DEFINED TERMS AND CONVENTIONS

Industry data used in this offering circular were obtained from statistics published by the Korea Energy Economics Institute and industry studies released by the Ministry of Trade, Industry and Energy. Such information has been accurately reproduced herein and, as far as the Company and the Guaranteed Issuers are aware and are able to ascertain from information published by such third parties, no facts have been omitted that would render the reproduced information inaccurate or misleading. Such industry studies, while believed to be reliable, have not been independently verified, and none of the Company, the Guaranteed Issuers or the Dealers makes any representation as to the accuracy or completeness of this information.

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 "Company" or the "Guarantor" shall mean Korea Gas Corporation, a statutory juridical entity established under the Korea Gas Corporation Act of 1982, as amended (the "**KOGAS Act**"), and its consolidated subsidiaries, unless the context otherwise requires. All references to "Guaranteed Issuers" herein shall mean the subsidiaries of Korea Gas Corporation that have acceded to the Program by executing an accession agreement pursuant to the terms of the Agency Agreement, and all references to "Issuers" herein shall mean Korea Gas Corporation and the Guaranteed Issuers. All references to "KEPCO" herein are references to Korea Electric Power Corporation. All references to "U.S." shall mean the United States of America. All references to "city gas companies" herein are references to companies that distribute gas to end-users in Korea.

In this offering circular, all references to "Won" or "₩" are to the lawful currency of Korea, all references to "U.S. dollars", "dollar", "US$" or "U.S.$" are to the lawful currency of the United States of America, all references to "Euro", "euro" or "€" are to the lawful currency of the European Economic and Monetary Union, all references to "Japanese yen", "yen" or "¥" are to the lawful currency of Japan, all references to "Canadian dollar" are to the lawful currency of Canada and all references to "£" are to the lawful currency of the UK.

All financial information, descriptions and other information in this offering circular regarding the Company's activities, financial condition and results of operations are, unless otherwise indicated or required by context, presented on a consolidated basis.

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 Company is a corporation with limited liability organized under the laws of Korea. All of the Company's directors and officers and certain other persons named in this offering circular reside in Korea, and a significant portion of the assets of the directors and officers and certain other persons named in this offering circular and a significant portion of the Company'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 Company 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.

AVAILABLE INFORMATION

To permit compliance with Rule 144A under the Securities Act in connection with sales of the Notes, each of the Issuers and the Guarantor (if applicable) will be required to furnish, upon request, to a Holder (as defined in "Terms and Conditions of the Notes") of a Note and a prospective investor designated by such Holder, the information required to be delivered under Rule 144A(d)(4) under the Securities Act unless at the time of the request the Issuer is a reporting company under Section 13 or Section 15(d) of the United States Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), or is exempt from the registration requirements of Section 12(g) of the Exchange Act (and therefore is required to publish on its website, in English, certain information pursuant to Rule 12g3-2(b) under the Exchange Act).

PRESENTATION OF FINANCIAL INFORMATION

The Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019, the Company's audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020 and the Company's unaudited interim condensed consolidated financial statements as of March 31, 2022 and for the three months ended March 31, 2022 and 2021 (the "**unaudited interim condensed consolidated financial statements**") are included elsewhere in the offering circular. Unless otherwise stated, the financial data contained in this offering circular as of and for the year ended December 31, 2019 have been derived from the Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019 included herein and the financial data contained in this offering circular as of and for the years ended December 31, 2020 and 2021 have been derived from the Company's audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020 included herein, which have been prepared in accordance with International Financial Reporting Standards as adopted by the Republic of Korea ("**Korean IFRS**"), which differ in certain important respects from generally accepted accounting principles in other countries, including U.S. GAAP, and the financial data contained in this offering circular as of March 31, 2022 and for the three months ended March 31, 2022 and 2021 have been derived from the Company's unaudited interim condensed consolidated financial statements included herein which have been prepared in accordance with Korean IFRS No. 1034 Interim Financial Reporting.

Any unaudited financial statements should not be relied upon to provide the same quality of information associated with information that has been subject to an audit nor taken as an indication of the expected financial condition and results of operations of the Company for the relevant full financial year. Potential investors must exercise caution when using such data to evaluate the Company's financial condition and results of operations.

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This offering circular includes risk factors, the Company's audited and unaudited consolidated financial statements and disclosure concerning the Company's business and financial condition and results of operations, as well as other matters. You should carefully review the entire offering circular before making an investment decision.

You should rely only on the information contained in this offering circular or to which the Issuers have referred you. Neither the Company nor the Guaranteed Issuers have authorized anyone to provide you with information that is different. This offering circular may only be used where it is legal to sell the Notes. You should not assume that the information in this offering circular is accurate as of any date other than the date at the front of this offering circular. This offering circular is confidential. You are authorized to use this offering circular solely for the purpose of considering the purchase of the Notes described in this offering circular. You may not reproduce or distribute this offering circular in whole or in part, and you may not disclose any of the contents of this offering circular or use any information herein for any purpose other than considering a purchase of the Notes. You agree to the foregoing by accepting delivery of this offering circular.

IN CONNECTION WITH THE ISSUE AND DISTRIBUTION OF ANY TRANCHE OF NOTES, THE DEALER(S) (IF ANY) NAMED AS THE STABILIZATION MANAGER(S) (OR PERSONS ACTING ON BEHALF OF ANY STABILIZATION 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 IS NO ASSURANCE THAT THE STABILIZATION MANAGER(S) (OR PERSONS ACTING ON BEHALF OF A STABILIZATION MANAGER) WILL UNDERTAKE STABILIZING ACTION. SUCH STABILIZATION, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME AND, IF BEGUN, MUST BE BROUGHT TO AN END AFTER A LIMITED PERIOD. ANY STABILIZING ACTION OR OVER-ALLOTMENT MUST BE CONDUCTED BY THE RELEVANT STABILIZATION MANAGER(S) (OR PERSON(S) ACTING ON BEHALF OF ANY STABILIZATION MANAGER(S)) IN ACCORDANCE WITH ALL APPLICABLE LAWS AND RULES.

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 the most recently published unaudited interim condensed consolidated financial statements (if any) of the Company from time to time;

(b) the most recently published audited consolidated annual financial statements (if any) and the most recently published unaudited interim condensed consolidated financial statements (if any) of the Guaranteed Issuers from time to time;

(c) each relevant Pricing Supplement; and

(d) all supplements or amendments to this offering circular circulated by the Issuers 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 Company and the Guaranteed Issuers 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 Issuers at their offices set out at the end of this offering circular. In addition, such documents will be available for inspection upon prior written notice and satisfactory proof of holding during reasonable business hours (between 9:00am and 3:00pm) from the principal office of Citibank, N.A., London Branch (the "Principal Paying Agent").

The Company and the Guaranteed Issuers will, in connection with the listing of the Notes on the SGX-ST, so long as the rules of the SGX-ST so require, in the event of any material change in the information contained 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 and quoted on the SGX-ST. A supplement to this offering circular will also be prepared and submitted to the SGX-ST each time a New Issuer accedes to the Program.

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, with the approval of the Guarantor (if applicable), may from time to time issue Notes denominated in any currency, subject to 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, the Guarantor (if applicable) 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."

This offering circular and any supplement will only be valid for Notes issued under the Program in an aggregate principal amount which, when added to the aggregate principal amount then outstanding of all Notes previously or simultaneously issued under the Program, does not exceed U.S.$11,000,000,000 or its equivalent in other currencies. For the purpose of calculating the U.S. dollar equivalent of the aggregate principal 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 and the Guarantor (if applicable), 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 and the Guarantor (if applicable) 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 principal 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" shall have the same meanings in this summary.

Initial Issuer	Korea Gas Corporation (the "**Company**")
Accession of New Issuers	Any Subsidiary of the Company nominated by the Company may agree to be bound by all the terms of the Program, and thereby become a "New Issuer" by executing an accession agreement pursuant to the terms of the Agency Agreement. In this offering circular, any reference to the "Issuer" shall mean the Initial Issuer and the New Issuers in respect of the Notes issued by it in accordance with the terms of the Program.
Guaranteed Issuers	The New Issuers
Guarantor	Korea Gas Corporation, with respect to Notes issued by the Guaranteed Issuers.
Guarantee	The Guarantor will unconditionally and irrevocably guarantee (the "**Guarantee**") to each holder of Notes issued by a Guaranteed Issuer the due payment of all amounts owing from time to time under such Notes.
Description	Global Medium Term Note Program
Arranger	Citigroup Global Markets Inc.
Dealers	BNP Paribas, Citigroup Global Markets Inc., Crédit Agricole Corporate and Investment Bank, The Hongkong and Shanghai Banking Corporation Limited, J.P. Morgan Securities plc, KB Securities Co., Ltd., The Korea Development Bank, Merrill Lynch International, Mirae Asset Securities Co., Ltd., Mizuho Securities Asia Limited, Standard Chartered Bank, Société Générale, UBS AG Hong Kong Branch and any additional Dealer appointed from time to time in accordance with the Program Agreement. In this offering circular, any reference to the "Relevant Dealer" shall mean any of the Dealers in respect of the Notes as to whose issue such Dealer has entered into an agreement with the Issuer and (in the case of a Guaranteed Issuer) the Guarantor in accordance with the terms of the Program.
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 having 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 and redemption value of at least £100,000 or its equivalent, see "Subscription and Sale and Transfer and Selling Restrictions."
Principal Paying Agent	Citibank, N.A., London Branch
Paying Agent and Transfer Agent . .	Citibank, N.A., London Branch
Registrar.	Citibank, N.A., London Branch
Program Size	Up to U.S.$11,000,000,000 (or its equivalent in other currencies calculated as described under "General Description of the Program") in aggregate principal amount of Notes outstanding at any time. The Company may increase the amount of the Program in accordance with the terms of the Program Agreement.
Distribution	Subject to applicable selling restrictions, 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, the Guarantor (if applicable) and the Relevant Dealer.
Redenomination	The applicable Pricing Supplement may provide that certain Notes may be redenominated in euro.
Maturities.	Such maturities as may be agreed between the Issuer, the Guarantor (if applicable) 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 Guarantor 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, to the extent permitted by applicable law.
Form of Notes	The Notes will be issued in bearer or registered 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, the Guarantor (if applicable) and the Relevant Dealer and on redemption and will be calculated on the basis of such Day Count Fraction as may be agreed between the Issuer, the Guarantor (if applicable) 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 the 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 an alternative basis as may be agreed by and among the Issuer, the Guarantor (if applicable) and the Relevant Dealer. The margin (if any) relating to such floating rate will be agreed between the Issuer, the Guarantor (if applicable) and the Relevant Dealer for each Series 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 6.2(e) of the "Terms and Conditions of the Notes" shall apply if Benchmark Transition Event is specified in the applicable Pricing Supplement; (b) Condition 6.2(f) 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, the Guarantor (if applicable) and the Relevant Dealer may agree, to the extent permitted by applicable law.
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, the Guarantor (if applicable) 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, the Guarantor (if applicable) 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, the Guarantor (if applicable) and the Relevant Dealer may agree, to the extent permitted by applicable law.
Zero Coupon Notes	Zero Coupon Notes will be offered and sold at a discount to their nominal amount, or offered and sold at their nominal amount and be redeemed at a premium, and will not bear interest.

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 occurrence of a Change of Control (as defined herein) or following an Event of Default), or that such Notes will be redeemable at the option of the Issuer, and/or the Noteholders upon giving notice to the Noteholders or the Issuer and the Guarantor, 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, the Guarantor (if applicable) and the Relevant Dealer. The applicable Pricing Supplement may provide that Notes may be redeemable in two or more installments of such amounts and on such dates as are indicated in the applicable Pricing Supplement. Notes having a maturity of less than one year may be subject to restrictions on their denomination and distribution, see "– Certain Restrictions" above.
Change of Control Redemption	The Notes will be redeemable at the option of the Noteholders, in all or in part, upon the occurrence of a Change of Control at 100% of their principal amount, together with accrued and unpaid interest, if any, to but excluding the Change of Control Put Date (as defined herein). See "Terms and Conditions of the Notes – Redemption and Purchase – Change of Control Redemption."
Denomination of Notes	Notes will be issued in such denominations as may be agreed between the Issuer, the Guarantor and the Relevant Dealer except that the minimum denomination of each Note will be such as may be allowed or required from time to time by the central bank (or equivalent body) or any laws or regulations applicable to the relevant Specified Currency, see "– Certain Restrictions" above. 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. Notes having a maturity of less than one year may be subject to restrictions on their denomination and distribution (see "– Certain Restrictions" above). The minimum denomination of each Note admitted to trading on a regulated market within the EEA or offered to the public in a Member State of the EEA in circumstances which require the publication of a prospectus under the Prospectus Directive will be €100,000 (or, if the Notes are denominated in a currency other than euro, the equivalent amount in such currency).

Taxation	All payments of principal and interest in respect of the Notes, Receipts and Coupons or under the Guarantee (if applicable) will be made without deduction for or on account of withholding taxes imposed by the Tax Jurisdiction (as defined in Condition 10) unless such withholding or deduction is required by law. In the event that any such deduction is made, the Issuer (and failing whom, the Guarantor) will, except in certain limited circumstances provided in Condition 10, be required to pay additional amounts to cover the amounts so deducted. See "Terms and Conditions of the Notes – Taxation." In making an investment decision, each prospective investor is strongly recommended to consult its own professional advisors in respect of the tax implications of holding the Notes. See "Terms and Conditions of the Notes – Taxation."
Negative Pledge	The terms of the Notes will contain a negative pledge provision as further described in Condition 4 (*Certain Covenants*).
Events of Default	Events of default for the Notes are set out in Condition 12 (*Events of Default*).
Cross-acceleration	The terms of the Notes will contain a cross-acceleration provision as further described in Condition 12 (*Events of Default*).
Status	*Senior Notes:* Notes issued by the Company are referred to as Senior Notes. The Senior Notes will constitute direct, unconditional, unsubordinated and (subject to the provisions of Condition 4 (*Certain Covenants*)) unsecured general obligations of the Company and will rank pari passu, without any preference among themselves and (except for certain obligations required to be preferred by applicable law) equally with all other unsecured and unsubordinated general obligations of the Company, from time to time outstanding. *Senior Guaranteed Notes:* Notes issued by a Guaranteed Issuer are referred to as Senior Guaranteed Notes. The Senior Guaranteed Notes will constitute direct, unconditional, unsubordinated and (subject to the provisions of Condition 4 (*Certain Covenants*)) unsecured general obligations of the Company and will rank pari passu, without any preference among themselves and (except for certain obligations required to be preferred by applicable law) equally with all other unsecured and unsubordinated general obligations of the Guaranteed Issuer, from time to time outstanding.

	Guarantee:
	The Guarantee will constitute a direct, unconditional, unsubordinated and (subject to the provisions of Condition 4 (*Certain Covenants*)) unsecured general obligations of the Guarantor and will rank pari passu, without any preference among themselves and (except for certain obligations required to be preferred by applicable law) equally with all other unsecured and unsubordinated general obligations of the Guarantor, from time to time outstanding.
Listing	Approval in-principle has been received from the SGX-ST in connection with the Program and application will be made for the listing and quotation of any Notes that may be issued by the Company pursuant to the Program and which are agreed at or prior to the time of issue thereof to be so listed on the SGX-ST. Such permission will be granted when such Notes have been admitted for listing and quotation on the SGX-ST. The Notes may also be listed on such other or further stock exchange(s) as may be agreed between the Issuer, the Guarantor (if applicable) and the Relevant Dealer in relation to each Series. For so long as any Notes are listed on the SGX-ST and the rules of the SGX-ST so require, such Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of S$200,000 (or its equivalent in foreign currencies).
	Unlisted Notes may also be issued.
	The applicable Pricing Supplement will state whether or not the relevant Notes are to be listed and, if so, on which stock exchange(s).
Governing Law	The Notes, the Program Agreement and the Agency Agreement will be governed by, and construed in accordance with, New York law.
Selling Restrictions	There are restrictions on the offer, sale and transfer of the Notes in the United States, the EEA, the UK, Hong Kong, Singapore, Japan, Taiwan and Korea 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."

FORM OF THE NOTES

The Notes of each Series will be in either bearer form, with or without interest coupons attached ("**Bearer Notes**"), or registered form, without interest coupons attached ("**Registered Notes**"). Bearer Notes will be issued outside the United States 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 another available exemption from the registration requirements of the Securities Act.

BEARER NOTES

Each Tranche of Bearer Notes 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**") 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**"). While 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.

On and after the date (the "**Exchange Date**") which is 40 days after a 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 certification of beneficial ownership as described above unless such certification has already been given. Definitive Bearer Notes will only be delivered outside the United States. 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 requirement for certification.

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. For these purposes, "Exchange Event" means that (i) an Event of Default (as defined in Condition 12 (*Events of Default*)) has occurred and is continuing, (ii) the Issuer and the Guarantor have 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 successor clearing system is available or (iii) the Issuer or the Guarantor 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. For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, in the event that the Bearer Global Note is exchanged for definitive Bearer Notes, the Issuer and the Guarantor will (a) appoint and maintain a Paying Agent in Singapore (the "**Singapore Paying Agent**") where the Notes may be presented or surrendered for payment or redemption and (b) make an announcement of such exchange through the SGX-ST, and such announcement will include all material information with regard 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 or the Guarantor 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 which have an original maturity of more than 365 days and on all talons, 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, receipts or interest coupons 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, receipts or interest coupons.

Notes which 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 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 except as otherwise provided in Condition 2 (*Transfers of Registered Notes*) 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**").

Registered Global Notes will either (i) be deposited with a custodian for, and registered in the name of a nominee of, DTC for the accounts of its participants, including Euroclear and Clearstream or (ii) 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 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.$500,000 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 8.4 (*Payments – Payments in respect of Registered Notes*)) as the registered holder of the Registered Global Notes. None of the Issuer, the Guarantor, 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 8.4 (*Payments – Payments in respect of Registered Notes*)) 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, "Exchange Event" means that (i) an Event of Default has occurred and is continuing, (ii) in the case of Notes registered in the name of a nominee for DTC, either DTC has notified the Issuer and the Guarantor 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, (iii) in the case of Notes registered in the name of a nominee for a common depositary for Euroclear and Clearstream, the Issuer and the Guarantor have 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 (iv) the Issuer or the Guarantor have 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. For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, in the event that the Registered Global Note is exchanged for definitive Registered Notes, the Issuer and the Guarantor will (a) appoint and maintain a Singapore Paying Agent where the Notes may be presented or surrendered for payment or redemption and (b) make an announcement of such exchange through the SGX-ST, and such announcement will include all material information with regard 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 (iv) above, the Issuer and the Guarantor may also give notice to the Registrar requesting exchange. Any such exchange shall occur not later than 10 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. 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."

GENERAL

Pursuant to the Agency Agreement (as defined under "Terms and Conditions of the Notes"), the Principal Paying Agent or the Registrar, as the case may be, 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 and, where applicable, a CUSIP and CINS number which are different from the common code, ISIN, CUSIP and CINS 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 and, for Notes subject to the certification requirements under U.S. Treasury regulations, until at least the Temporary Global Note is exchanged for the Permanent Global Note.

For so long as any of the Notes is represented by a Global Note 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 except in the case of manifest error) shall be treated by the Issuer and the Guarantor (if applicable) and their respective 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 the Guarantor (if applicable) and their respective 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 and/or 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.

A Note may be accelerated by the holder thereof in certain circumstances described in Condition 12 (*Events of Default*). 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 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.

For so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, in the event that a Global Note is exchanged for definitive Notes, the Issuer and the Guarantor will (a) appoint and maintain a Singapore Paying Agent where the Notes may be presented or surrendered for payment or redemption and (b) make an announcement of such exchange through the SGX-ST, and such announcement will include all material information with regard to the delivery of the definitive Notes, including details of the Singapore Paying Agent.

FORM OF APPLICABLE PRICING SUPPLEMENT

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

[MiFID II PRODUCT GOVERNANCE – Solely for the purposes of each 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 each UK MiFIR 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 ("COBS") and professional clients, as defined in Regulation (EU) No 600/2014 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018 ("UK MiFIR"); 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 "UK MiFIR distributor") should take into consideration each UK MiFIR manufacturer's target market assessment; however a 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.]

[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 (the "Prospectus Regulation"); and (b) the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes. Consequently, no key information document required by Regulation (EU) No 1286/2014 (the "PRIIPs Regulation") for offering or selling the securities or otherwise making them available to retail investors in the EEA 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.]

[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 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 ("FMSA") 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 Regulation (EU) 2017/1129 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 Regulation (EU) No 1286/2014 as it forms part of domestic law by virtue of the EUWA ("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.]

[Date]

[KOREA GAS CORPORATION/[NEW ISSUER]]

Issue of [Aggregate Nominal Amount of Tranche] [Title of Notes]
under the U.S.$11,000,000,000
Global Medium Term Note Program of
Korea Gas Corporation

[as guaranteed by Korea Gas Corporation]

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 (the "Conditions") set forth in the offering circular dated June 24, 2022 (the "offering circular"). This Pricing Supplement contains the final terms of the Notes and is supplemental to and must be read in conjunction with such offering circular.

[The following alternative language applies if the first tranche of an issue which 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 is supplemental to must be read in conjunction with the offering circular dated [current date] (the "offering circular"), except 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 Supplement.]

[If the Notes have a maturity of less than one year from the date of their issue, the minimum denomination [must/may need to] be £100,000 or its equivalent in any other currency.]

1.	(i)	Issuer:	Korea Gas Corporation/[NEW ISSUER]
	[(ii)	Guarantor:	Korea Gas Corporation (*delete for direct issues by Korea Gas Corporation*)]
2.	(a)	**Series Number**:	[●]
	(b)	Tranche Number:	[●] *(If fungible with an existing Series, details of such Series, including the date on which the Notes become fungible)*
	(c)	Re-opening:	[Yes/No] *[Specify terms of initial or eventual fungibility]*
3.	Specified Currency or Currencies:		[●]
4.	Aggregate Nominal Amount:		
	(a)	Series:	[●]
	(b)	Tranche:	[●] *(If fungible with an existing Series, details of such Series, including the date on which the Notes become fungible)*
5.	(a)	Issue Price of Tranche:	[●]% of the Aggregate Principal Amount [plus accrued interest from [*insert date] (in the case of fungible issues only, if applicable)*]
	(b)	Net Proceeds: *(required only for listed issues)*	[●]
	(c)	Use of Proceeds: *(as described in the offering circular/describe)*	[●]
6.	(a)	Specified Denominations:	[●] *(N.B. In the case of Registered Notes, this means the minimum integral amount in which transfers can be made. For Registered Global Notes, consider including language substantially to the following effect (however, appropriate amendments should be made for different currencies) "€100,000 and integral multiples of €1,000 in excess thereof")*

		(N.B. For Bearer Notes with a Specified Denomination and higher integral multiples above the minimum denomination, consider including language substantially to the following effect. However, appropriate amendments should be made or different currencies.) ("[U.S.$200,000] and integral multiples of [U.S.$1,000] in excess thereof, up to and including [U.S.$399,000] and, for so long as the Notes are represented by a Global Note (as defined below) and Euroclear and Clearstream so permit, the Notes shall be tradable only in the minimum authorized denomination of [U.S.$200,000] and higher integral multiples of [U.S.$1,000], notwithstanding that no definitive notes will be issued with a denomination above [U.S.$399,000].") *(N.B. It should be noted that such Specified Denomination will not be permitted in relation to any issue of Notes which are to be represented on issue by a Temporary Global Note exchangeable for Definitive Notes.)*
	(b) Calculation Amount:	[●] *(If only one Specified Denomination, insert the Specified Denomination. If there is more than one Specified Denomination, insert the highest common factor. N.B. There must be a common factor in the case of two or more Specified Denominations.)*
7.	(a) Issue Date:	[●]
	(b) Interest Commencement Date:	*[specify/*Issue Date/Not Applicable*] (N.B. An Interest Commencement Date will not be relevant for certain Notes, for example Zero Coupon Notes.)*
8.	Maturity Date:	*[Fixed rate – specify date/Floating rate* – Interest Payment Date falling in or nearest to *[specify month and year]]*
9.	Interest Basis:	[[●]% Fixed Rate] [[EURIBOR/SOFR/Other reference rate] +/- [●]% 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/Call Options:		[Investor Put] [Issuer Call] [(further particulars specified below)]
13.	Listing:		[*Singapore Exchange Securities Trading Limited*[1]/specify other/None]
14.	(a)	Status of the Notes:	[Senior Notes/Senior Guaranteed Notes]
	[(b)	Status of the Guarantee]	[Senior] *(delete for direct issues by Korea Gas Corporation)*
	[(c)	Date of [the Issuer's Board] approval for the issuance of Notes obtained]	[[●]/None required]
	[(d)	Date of [the Guarantor's Board] approval for the making of the Guarantee obtained]	[[●]/None required] *(delete for direct issues by Korea Gas Corporation*)
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 subparagraphs of this paragraph)*
	(a)	Rate(s) of Interest:	[●]% per annum [payable [annually/semi-annually/quarterly/other (*specify*)] in arrear] *(If payable other than annually, consider amending Condition 6 (Interest)*
	(b)	Interest Payment Date(s):	[●] in each year up to and including the Maturity Date] [adjusted in accordance *with [specify Business Day Convention and any applicable Additional Business Center(s) for the definition of "Business Day"] /*not adjusted]/[*specify other*] *(N.B. This will need to be amended in the case of long or short coupons)*
	(c)	Fixed Coupon Amount(s): *(applicable to Notes in definitive form*)	[●] per Calculation Amount
	(d)	Broken Amount(s): *(applicable to Notes in definitive form)*	([●]per Calculation Amount, payable on the Interest Payment Date falling [in/on] [●] [*Insert particulars of any initial or final broken interest amounts which do not correspond with the Fixed Coupon Amount*]
	(e)	Day Count Fraction:	[30/360 or Actual/Actual (ICMA) or [specify other]]

1 For SGX-ST- listing: For drawdowns based on the offering circular dated June 24, 2022, please note that if the issuer's audited financials for FY2022 has since become available, this should be appended in full to the pricing supplement.

(f)	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. N.B. This will need to be amended in the case of regular interest payment dates which are not of equal duration. N.B. Only relevant where Day Count Fraction is Actual/Actual (ICMA))*]
(g)	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 subparagraphs of this paragraph)*
(a)	Specified Period(s)/Specified Interest Payment Dates:	[●]
(b)	Business Day Convention:	[Floating Rate Convention/Following Business Day Convention/Modified Following Business Day Convention/Preceding Business Day Convention/[*specify other]]*
(c)	Additional Business Center(s):	*[●] (Insert New York City for U.S. dollar denominated Notes to be held through DTC and for non-US dollar denominated Notes where exchange into U.S. dollars is contemplated for DTC participants holding through Euroclear and Clearstream)*
(d)	Manner in which the Rate of Interest and Interest Amount is to be determined:	[Screen Rate Determination/ISDA Determination/*specify other*]
(e)	Party responsible for calculating the Rate of Interest and Interest Amount (if not the Principal Paying Agent):	[●]
(f)	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 TARGET2 System is open prior to the start of each Interest Period if EURIBOR or Euro LIBOR)*
•	Relevant Screen Page:	[●] *(In the case of EURIBOR, if not Reuters EURIBOR01 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*)
(g)	ISDA Determination:	
	• Floating Rate Option:	[●] (*If not 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, the Issuer shall describe the basis here)*
	• Designated Maturity:	[●]
	• Reset Date:	[●]
(h)	Margin(s):	[+/-][●]% per annum
(i)	Minimum Rate of Interest:	[●]% per annum
(j)	Maximum Rate of Interest:	[●]% per annum
(k)	Day Count Fraction:	[Actual/Actual (ISDA)] [Actual/365 (Fixed)] [Actual/365 (Sterling)] [Actual/360] [30/360, 360/360 or Bond Basis] [30E/360 or Eurobond Basis] [30E/360 (ISDA)] [Other] *(See Condition 6 (Interest) for alternatives)*
(l)	Fallback 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 subparagraphs of this paragraph)*
(a)	Accrual Yield:	[●]% per annum

	(b)	Reference Price:	[●]
	(c)	Any other formula/basis of determining amount payable:	[●]
	(d)	Day Count Fraction in relation to Early Redemption Amounts and late payment:	[Conditions 9.7 *(Redemption and Purchase – Early Redemption Amounts)* and 9.12 *(Redemption and Purchase – Late payment on Zero Coupon Notes)* 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 subparagraphs of this paragraph)*
	(a)	Index/Formula:	[*Give or annex details*]
	(b)	Calculation Agent:	[*give name*]
	(c)	Party responsible for calculating the Rate of Interest (if not the Calculation Agent) and Interest Amount (if not the Principal Paying Agent):	[●]
	(d)	Provisions for determining Coupon where calculation by reference to Index and/or Formula is impossible or impracticable:	[*Need to include a description of market disruption or settlement disruption events and adjustment provisions*]
	(e)	Specified Period(s)/Specified Interest Payment Dates:	[●]
	(f)	Business Day Convention:	[Floating Rate Convention/Following Business Day Convention/Modified Following Business Day Convention/Preceding Business Day Convention/*specify other*]
	(g)	Additional Business Center(s):	[●]
	(h)	Minimum Rate of Interest:	[●]% per annum
	(i)	Maximum Rate of Interest:	[●]% per annum
	(j)	Day Count Fraction:	[Actual/Actual (ISDA)] [Actual/365 (Fixed)] [Actual/365 (Sterling)] [Actual/360] [30/360, 360/360 or Bond Basis] [30E/360 or Eurobond Basis] [30E/360 (ISDA)] [Other] *(See Condition 6 (Interest) for alternatives*)
20.	Dual Currency Interest Note Provisions:		[Applicable/Not Applicable] (*If not applicable, delete the remaining subparagraphs of this paragraph)*
	(a)	Rate of Exchange/method of calculating Rate of Exchange:	[Give or annex details]

	(b)	Party, if any, responsible for calculating the principal and/or interest due (if not the Principal Paying Agent):	[●]
	(c)	Provisions applicable where calculation by reference to Rate of Exchange impossible or impracticable:	[*Need to include a description of market disruption or settlement disruption events and adjustment provisions*]
	(d)	Person at whose option Specified Currency(ies) is/are payable:	[●]
	(e)	Day Count Fraction:	[Actual/Actual (ISDA)] [Actual/365 (Fixed)] [Actual/365 (Sterling)] [Actual/360] [30/360, 360/360 or Bond Basis] [30E/360 or Eurobond Basis] [30E/360 (ISDA)] [Other] *(See Condition 6 (Interest) for alternatives)*

PROVISIONS RELATING TO REDEMPTION

21.	Issuer Call:		[Applicable/Not Applicable] *(If not applicable, delete the remaining subparagraphs of this paragraph)*
	(a)	Optional Redemption Date(s):	[●]
	(b)	Optional Redemption Amount of each Note and method, if any, of calculation of such amount(s):	[[●] per Calculation Amount/*specify other*]
	(c)	If redeemable in part:	
		(i) Minimum Redemption Amount:	[●] per Calculation Amount
		(ii) Maximum Redemption Amount:	[●] per Calculation Amount
	(d)	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 and the Guarantor are 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, the Guarantor and the Principal Paying Agent)*
22.	Investor Put:		[Applicable/Not Applicable*] (If not applicable, delete the remaining subparagraphs of this paragraph)*
	(a)	Optional Redemption Date(s):	[●]
	(b)	Optional Redemption Amount of each Note and method, if any, of calculation of such amount(s):	[[●] per Calculation Amount/*specify other*]

	(c) 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 and the Guarantor are 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, the Guarantor and the Principal Paying Agent)*
23.	Final Redemption Amount:	[[●] per Calculation Amount/*specify other*/see Appendix]
24.	Early Redemption Amount 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 9.7 *(Redemption and Purchase – Early Redemption Amounts)):*	[[●] per Calculation Amount/*specify other*/see Appendix]

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]] [Bearer Notes: Temporary Bearer Global Note exchangeable for Definitive Notes on and after the Exchange Date] [Bearer Notes: Permanent Bearer Global Note exchangeable for Definitive Notes [on 60 days' notice given at any time/only upon an Exchange Event/at any time at the request of the Issuer]] [Registered Notes: Regulation S Global Note (U.S.$[●] nominal amount) registered in the name of a nominee for [DTC/a common depositary for Euroclear and Clearstream]/Rule 144A Global Note (U.S.$[●] principal amount registered in the name of a nominee for [DTC/a common depositary for Euroclear and Clearstream]/Definitive IAI Registered Notes (*specify principal amounts*)] *(Ensure that this is consistent with the wording in the "Form of the Notes" section in the offering circular and the Notes themselves. N.B. The exchange upon notice/at any time options for Bearer Notes should not be expressed to be applicable if the Specified Denomination of the Notes in paragraph 6 includes language substantially to the following effect:* "[U.S.$200,000] and integral multiples of [U.S.$1,000] in excess thereof, up to and including [U.S.$399,000]." *Furthermore, such Specified Denomination construction is not permitted in relation to any issue of Notes which is to be represented on issue by a Temporary Global Note exchangeable for Definitive Notes.)*

		("[U.S.$200,000] and integral multiples of [U.S.$1,000] in excess thereof, up to and including [U.S.$399,000] and, for so long as the Notes are represented by a Global Note (as defined below) and Euroclear and Clearstream so permit, the Notes shall be tradable only in the minimum authorized denomination of [U.S.$200,000] and higher integral multiples of [U.S.$1,000], notwithstanding that no definitive notes will be issued with a denomination above [U.S.$399,000].")
26.	Additional Financial Center(s) or other special provisions relating to Payment Days:	[Not Applicable/give details*] (Note that this paragraph relates to the place of payment and not Interest Period end dates to which sub-paragraphs 17(c) and 19(g) relate)*
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] (N.B. *A new form of Temporary Global Note and/or Permanent Global Note may be required for Partly Paid issues)*
29.	Details relating to Installment Notes:	
	(a) Installment Amount(s):	[Not Applicable/*give details*]
	(b) Installment Date(s):	[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))]
31.	Other terms:	[Not Applicable/*give details*]

Distribution

32.	(a) If syndicated, names of Managers:	[Not Applicable/*give names*]
	(b) Stabilization Manager(s) (if any):	[Not Applicable/*give name*]
33.	If non-syndicated, name of Relevant Dealer:	[Not Applicable/*give name*]
34.	U.S. Selling Restrictions:	[Regulation S Cat. [1/2]/Rule 144A] [TEFRA D/TEFRA C/TEFRA not applicable (*for Bearer Notes with a maturity of one year or less (including unilateral rollovers and extensions) or Registered Notes)*]

35.	Prohibition of sales to EEA retail investors:	[Applicable/Not Applicable]
36.	Prohibition of sales to UK retail investors:	[Applicable/Not Applicable]
37.	Additional selling restrictions:	[Not Applicable/*give details*]

Operational Information

38.	Any clearing system(s) other than Euroclear and Clearstream and the relevant identification number(s):	[Not Applicable/*give name(s) and number(s)*]
39.	Delivery:	Delivery [against/free of] payment
40.	Additional Paying Agent(s) (if any):	
	ISIN:	[●]
	Common Code:	[●]
	CUSIP:	[●]
	(insert here any other relevant codes such as CINS)	[Not Applicable/*specify*]

[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).

* To delete accordingly.]

LISTING AND ADMISSION TO TRADING APPLICATION

This Pricing Supplement comprises the final terms required to list the issue of Notes described herein pursuant to the U.S.$11,000,000,000 Global Medium Term Note Program of the Issuer [and the Guarantor].

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

RESPONSIBILITY

The Issuer accepts responsibility for the information contained in this Pricing Supplement.

Signed on behalf of the Issuer:

By: ________________________

Duly authorized

If the applicable Pricing Supplement specifies any modification to the Terms and Conditions of the Notes as described herein, it is envisaged that, to the extent that such modification relates only to Conditions 1 *(Form, Denomination and Title)*, 5 *(Redenomination)*, 6 *(Interest)*, 8 *(Payments)*, 9 *(Redemption and Purchase* (except Condition 9.2 *(Redemption and Purchase – Redemption for tax reasons)*), 13 *(Replacement of Notes, Receipts, Coupons and Talons)*, 14 *(Agents)*, 15 *(Exchange of Talons)*, 16 *(Notices)* (insofar as such Notes are not listed or admitted to trade on any stock exchange) or 18 *(Further Issues)*, 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 (the "**Conditions**") of the Notes (as defined below) 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 rules of 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 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 Conditions, replace or modify the following 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 the 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 Gas Corporation (the "**Company**") or any additional issuer which is a Subsidiary (as defined below) of the Company and has acceded to the Program by executing an accession agreement pursuant to the terms of the Agency Agreement (as defined below) (each of the Company and such additional issuers, in relation to the Notes issued by it, the "Issuer", and each of such additional issuers, excluding the Company, a "**Guaranteed Issuer**"). Notes issued by a Guaranteed Issuer will be guaranteed by the Company (in such capacity, the "**Guarantor**"). References to the Guarantor in the Conditions shall only be relevant in the context of Notes issued by a Guaranteed Issuer.

References herein to the "**Notes**" shall be references to the Senior Notes or the Senior Guaranteed Notes (each as defined in Condition 3 below), as the case may be, of this Series issued by the Issuer (and in the case of issuance by a Guaranteed Issuer, guaranteed by the Guarantor) 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 (as defined below);

(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, and in the case of the Bearer Notes, the Receipts (as defined below) and the Coupons (as defined below), are issued pursuant to, and have the benefit of, an agency agreement dated September 30, 2010, as amended and supplemented by a first amendment to the agency agreement dated January 5, 2012, a second amendment to the agency agreement dated January 24, 2014, a third amendment to the agency agreement dated June 24, 2016 and a fourth amendment to the agency agreement dated June 23, 2017, among the Company, The Bank of New York Mellon, London Branch, as the original principal paying agent, and the other original agents named therein, and a supplemental agency agreement dated May 21, 2021, among the Company, The Bank of New York Mellon, London Branch, as the original principal paying agent, Citibank, N.A., London Branch, as principal paying agent, paying agent, transfer agent and registrar (each, a "**Principal Paying Agent**," "**Paying Agent**," "**Transfer Agent**," and "**Registrar**," each of which terms include any successor thereto or additional such agent appointed pursuant to the terms of the Agency Agreement, and collectively, the "**Agents**"), and the other original agents named therein, and a sixth amendment to the agency agreement dated June 30, 2021 and a seventh amendment to the agency agreement dated June 24, 2022 between the Company and Citibank, N.A., London Branch as Principal Paying Agent, Paying Agent, Transfer Agent and Registrar (such agency agreement as amended and/or supplemented and/or restated from time to time, the "**Agency Agreement**").

Interest-bearing definitive Bearer Notes have (unless otherwise indicated in the applicable Pricing Supplement) 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 Conditions, and may specify other terms and conditions which shall, to the extent so specified or to the extent inconsistent with these Conditions, replace or modify these 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 case of 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 admission to trading), 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 and admission to trading) except for their respective Issue Dates, Interest Commencement Dates (if applicable) and/or Issue Prices (if applicable).

Copies of the Agency Agreement are available for inspection during normal business hours at the specified office of each of the Agents. Copies of the applicable Pricing Supplement are available for inspection during normal business hours at the specified office of each of the Agents except 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 such Series and such Noteholder must produce evidence satisfactory to the relevant Agent as to its holding of such Notes and its 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 and the applicable Pricing Supplement which are applicable to them. The statements in these 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 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, or between these Conditions and the applicable Pricing Supplement, the applicable Pricing Supplement will prevail.

1. FORM, DENOMINATION AND TITLE

The Notes may be issued in bearer form or in registered form as specified in the applicable Pricing Supplement and, in the case of definitive Notes, will be serially numbered, in the Specified Currency and the Specified Denomination(s). Except as provided in Condition 2 (*Transfers of Registered Notes*), 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*. Registered Notes are represented by registered certificates and, except as provided in Condition 2.3, each such certificate shall represent the entire holding of Registered Notes by the same holder.

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 upon the Redemption/Payment Basis shown in the applicable Pricing Supplement. This Note may also be a Limited Recourse Note, as indicated in the applicable Pricing Supplement.

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

Subject as set out below, title to 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, the Guarantor and any Agent 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, and no person shall be liable for so treating the holder.

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 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, the Guarantor and the 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, the Guarantor and any 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 which 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.

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

2. TRANSFERS OF REGISTERED NOTES

2.1 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.

2.2 Transfers of Registered Notes in definitive form

Subject as provided in Conditions 2.5 (*Transfers of Registered Notes – Transfers of interests in Regulation S Global Notes*), 2.6 (*Transfers of Registered Notes – Transfers of interests in Legended Notes*) and 2.7 (*Transfers of Registered Notes – Exchanges and transfers of Registered Notes generally*), 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 seven 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 make available for collection at the specified office of the Transfer Agent, or 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.

2.3 Registration of transfer upon partial redemption

In the event of a partial redemption of Notes under Condition 9 (*Redemption and Purchase*), the Issuer shall not be required to register the transfer of any Registered Note, or part of a Registered Note, called for partial redemption.

2.4 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 (or the Guarantor, as applicable) 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.

2.5 Transfers of interests in Regulation S Global Notes

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

(a) upon receipt by the Registrar of a written certification substantially in the form set out in 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:

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

  (ii) to a person who is an Institutional Accredited Investor, in which case the Transfer Certificate must be accompanied by a duly executed investment letter from the relevant transferee substantially in the form set out in Schedule 3 of the Agency Agreement (an "**IAI Investment Letter**"); or

(b) otherwise pursuant to the Securities Act (as defined below) or an exemption therefrom, subject to receipt by the Issuer and the Guarantor of such satisfactory evidence as the Issuer and the Guarantor may reasonably require, which may include an opinion of U.S. counsel, that such transfer is in compliance with any applicable federal securities laws of the United States or 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)(i) above, such transferee may take delivery through a Legended Note (as defined below) in global or definitive form, and, in the case of (a)(ii) above, such transferee may take delivery only through a Legended Note in definitive form. After expiry of the applicable Distribution Compliance Period (a) 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 (b) such certification requirements will no longer apply to such transfers.

2.6 Transfers of interests in Legended Notes

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

(a) 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 (as defined below) 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

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

(i) 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

(ii) 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

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

2.7 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.

2.8 Closed Periods

No Noteholder may require the transfer of a Registered Note to be registered during (i) the period of 15 days ending on the due date for any redemption or payment of principal or interest or payment on such Note and (ii) during the 15 days before any dates on which Notes may be called for redemption by the Issuer at its option pursuant to Condition 9.3, (iii) after any such Note has been called for redemption or (iv) during the period of seven (7) days ending (and including) on any Record Date (as defined below).

2.9 Definitions

In this Condition, 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; GUARANTEE

3.1 Senior Notes

This Condition 3.1 is applicable to all Notes which are specified in the applicable Pricing Supplement as being Senior Notes issued by the Company ("**Senior Notes**").

The Senior Notes and any Receipts and Coupons relating thereto are direct, unconditional, unsubordinated and (subject to Condition 4 (*Certain Covenants*)) unsecured general obligations of the Company and shall at all times rank pari passu, without any preference among themselves and (except for certain obligations required to be preferred by applicable law) equally with all other unsecured and unsubordinated general obligations of the Company, from time to time outstanding.

3.2 Senior Guaranteed Notes

This Condition 3.2 is applicable to all Notes which are specified in the applicable Pricing Supplement as being Senior Guaranteed Notes issued by a Guaranteed Issuer ("**Senior Guaranteed Notes**").

The Senior Guaranteed Notes and any Receipts and Coupons relating thereto are direct, senior, unconditional, unsubordinated and (subject to Condition 4 (*Certain Covenants*)) unsecured general obligations of the relevant Guaranteed Issuer and shall at all times rank pari passu, without any preference among themselves and (except for certain obligations required to be preferred by applicable law) equally with all other unsecured and unsubordinated general obligations of such Guaranteed Issuer, from time to time outstanding.

The Senior Guaranteed Notes and any Receipts and Coupons relating thereto are guaranteed as to payment of principal and interest by the Guarantor as set forth in Condition 3.3.

In relation to each Series of Senior Guaranteed Notes and any Receipts and Coupons relating thereto, claims in respect of the Guarantee (as defined below) shall at all times rank pari passu and (except for certain obligations required to be preferred by applicable law) equally with all other unsecured and unsubordinated general obligations of the Guarantor, from time to time outstanding.

3.3 Guarantee

The Guarantor unconditionally and irrevocably guarantees (the "**Guarantee**") to each holder of the Senior Guaranteed Notes and any Receipts and Coupons relating thereto the due payment of all amounts owing from time to time under the Senior Guaranteed Notes and the related Receipts and Coupons.

The Guarantee is a guarantee of payment and not a guarantee of collection.

The Guarantee is a direct, senior, unconditional, unsubordinated and (subject to Condition 4 (*Certain Covenants*)) unsecured general obligation of the Guarantor and shall at all times rank pari passu and (except for certain obligations required to be preferred by applicable law) equally with all other unsecured and unsubordinated general obligations of the Guarantor, from time to time outstanding.

4. CERTAIN COVENANTS

4.1 Negative Pledge

So long as any of the Notes of this Series remains outstanding, neither the Issuer nor the Guarantor will 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 securities or (ii) any payment under any guarantee of any such securities or (iii) any payment under any indemnity or other like obligation relating to any such 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 passed at a meeting of the Noteholders of this Series.

The foregoing shall not operate to restrict or prohibit the creation or existence of any Security 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 the Guarantor makes an investment and to which the Issuer or the Guarantor transfers Receivables and related assets) of the Issuer or the Guarantor.

As used herein:

"**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 Korean Won or are denominated in Korean Won and more than 50% of the aggregate principal amount thereof is initially distributed outside Korea by or with the authorization of the Issuer and the Guarantor; 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.

"**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**" means such accounting principles which are generally accepted in the jurisdiction of the Relevant Issuer's or the Guarantor's incorporation, as applicable.

"**Subsidiary**" means (i) any corporation or other entity of which securities or other ownership interests having ordinary voting power to elect a majority of the board of directors or other persons performing similar functions are at the time directly or indirectly owned by the Issuer or Guarantor or (ii) any subsidiary subject to consolidation with the Issuer or the Guarantor's financial statements under Relevant GAAP.

4.2 Consolidation, Merger and Sale of Assets

Each of the Issuers and the Guarantor, without the consent of the Noteholders, 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 organized under the laws of the respective jurisdiction of its incorporation; provided that (i) any successor corporation expressly assumes the applicable obligations of the Issuer or the Guarantor, as the case may be, under the Notes, the Guarantee (if applicable) and the Agency Agreement, as the case may be, (ii) after giving effect to the transaction, with respect to the Issuer or the Guarantor, as the case may be, or any such successor corporation, no Event of Default (as defined below) 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 or the Guarantor, as the case may be, has delivered to the Principal Paying Agent a certificate executed by a duly authorized officer of the Issuer or the Guarantor, as the case may be, 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.

4.3 Provision of Information to Noteholders

Each of the Issuers and the Guarantor covenants that for so long as any of the Notes are "restricted securities" within the meaning of Rule 144 under the Securities Act, it will, at any time when it is not subject to either the periodic reporting requirements of Section 13 or Section 15(d) of the Exchange Act or the requirements of Rule 12g3-2(b) thereunder, provide to any Noteholder or prospective purchaser of Notes designated by such Noteholder, upon the request of such Noteholder or prospective purchaser, the information required to be provided by Rule 144A(d)(4) under the Securities Act.

5. REDENOMINATION

5.1 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 applicable Agent, DTC, Euroclear and Clearstream and at least 30 days' prior notice to the Noteholders in accordance with Condition 16 (*Notices*), 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:

(a) the Notes and the Receipts shall be deemed to be redenominated into Euro with a principal amount for each Note and Receipt equal to the principal amount of that Note or Receipt in the Specified Currency, converted into Euro at the Established Rate, rounded to the nearest Euro 0.01 if the conversion results in an amount involving a fraction of Euro 0.01, *provided* that, if the Issuer determines, with prior notice to the applicable Agents, that the then market practice in respect of the redenomination into 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 applicable Agents of such deemed amendments;

(b) except to the extent that an Exchange Notice (as defined below) has been given in accordance with paragraph (d) below, the amount of interest due in respect of the Notes will be calculated by reference to the aggregate principal 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 Euro 0.01;

(c) 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 Euro 1,000, Euro 10,000, Euro 100,000 and (but only to the extent of any remaining amounts less than Euro 1,000 or such smaller denominations as stated in prior notice to the applicable Agent) Euro 0.01 and such other denominations as the applicable Agent shall be notified of by the Issuer or the Guarantor and notify the same to the Noteholders;

(d) 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 applicable Agent may specify acting on the instruction of the Issuer 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;

(e) 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 check;

(f) 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 (as defined below) (as specified in the applicable Pricing Supplement), it will be calculated by applying the Rate of Interest to each Specified Denomination, multiplying such sum by the applicable Day Count Fraction (as defined below), 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;

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

(h) such other changes shall be made to this Condition as the Issuer may decide, after prior notice to the applicable Agent, and as may be specified in the notice, to conform it to conventions then applicable to instruments denominated in Euro.

5.2 Interpretation

In these Conditions, 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 rounding in accordance with applicable European Community regulations) into Euro established by the Council of the European Union pursuant to Article 123 of the Treaty;

"**Euro**" or "**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 Condition 5.1 (*Redenomination*) 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 (signed in Rome on March 25, 1957), as amended from time to time.

6. INTEREST

6.1 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 (expressed as a percentage) 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.

If the Notes are in definitive form, 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.

Except in the case of Notes in definitive form where a Fixed Coupon Amount or Broken Amount is specified in the applicable Pricing Supplement, interest shall be calculated in respect of any period by applying the Rate of Interest to:

(A) in the case of Fixed Rate Notes which are represented by a Global Note, the aggregate outstanding nominal amount of the Fixed Rate Notes represented by such Global Note (or, if they are Partly Paid Notes, the aggregate amount paid up); or

(B) in the case of Fixed Rate Notes in definitive form, the Calculation Amount;

and, in each case, 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. Where the Specified Denomination of a Fixed Rate Note in definitive form comprises more than one Calculation Amount, the amount of interest payable in respect of such Fixed Rate Note shall be the aggregate of the amounts (determined in the manner provided above) for each Calculation Amount comprising the Specified Denomination without any further rounding.

In these Conditions:

"**Day Count Fraction**" means, in respect of the calculation of an amount of interest, in accordance with this Condition 6.1:

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

   (i) 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 (as defined below) and (2) the number of Determination Dates (as specified in the applicable Pricing Supplement) that would occur in one calendar year; or

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

(A) 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

(B) 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

(b) 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.

"**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 date);

"**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; 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, one cent.

6.2 Interest on Floating Rate Notes and Index Linked Interest Notes

(a) 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:

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

(ii) if no Specified Interest Payment Date(s) is/are specified in the applicable Pricing Supplement, each date (each such date, together with each Specified Interest Payment Date, 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 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 which is not a Business Day (as defined below), then, if the Business Day Convention specified is:

(A) in any case where Specified Periods are specified in accordance with Condition 6.2 (*Interest – Interest on Floating Rate Notes and Index Linked Interest Notes – (a)(ii)*) above, the Floating Rate Convention, such Interest Payment Date (a) in the case of (x) above, shall be the last day that is a Business Day in the relevant month and the provisions of (ii) below shall apply *mutatis mutandis* or (b) 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 (i) such Interest Payment Date shall be brought forward to the immediately preceding Business Day, and (ii) 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

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

(C) 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

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

In these Conditions, "**Business Day**" means a day which is both:

(x) 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, New York and any Additional Business Center specified in the applicable Pricing Supplement; and

(y) either (i) 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 center of the country of the relevant Specified Currency (if other than London, New York and any Additional Business Center and which if the Specified Currency is Australian dollars or New Zealand dollars shall be Melbourne or Wellington, respectively) or (ii) in relation to any sum payable in Euro, a day on which the Trans-European Automated Real-Time Gross Settlement Express Transfer (TARGET2) System (the "**TARGET2 System**") is open.

(b) 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.

(i) 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 (as defined below) plus or minus (as indicated in the applicable Pricing Supplement) the Margin (if any). For the purposes of this sub-paragraph (i), "**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 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 (i), "Floating Rate", "Calculation Agent", "**Floating Rate Option**", "**Designated Maturity**" and "**Reset Date**" have the meanings given to those terms in the ISDA Definitions.

(ii) *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.

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.

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 6.2(e) shall apply if the Issuer or its designee has determined that a Benchmark Transition Event (as defined in Condition 6.2(e)) has occurred and Benchmark Transition Event is specified in the applicable Pricing Supplement.

(iii) *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 6.2(f) 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:

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

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:

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

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 6.2(b)(iii)(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 6.2(f) 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:

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

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 6.2(iii)(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 6.2(f) shall apply as specified in the applicable Pricing Supplement;

"**SOFR Index$_{\mathbf{End}}$**" 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 IndexStart**" 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 6.2(b)(iii):

"**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.

(c) 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 (b) 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 (b) above is greater than such Maximum Rate of Interest, the Rate of Interest for such Interest Period shall be such Maximum Rate of Interest.

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

The Principal Paying Agent, in the case of certain 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. Where applicable, 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 or the Calculation Agent (where applicable) will calculate the amount of interest (the "**Interest Amount**") payable on the Floating Rate Notes or Index Linked Interest Notes for the relevant Interest Period by applying the Rate of Interest to:

(A) in the case of Floating Rate Notes or Index Linked Interest Notes which are represented by a Global Note, the aggregate outstanding nominal amount of the Notes represented by such Global Note (or, if they are Partly Paid Notes, the aggregate amount paid up); or

(B) in the case of Floating Rate Notes or Index Linked Interest Notes in definitive form, the Calculation Amount;

and, in each case, 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. Where the Specified Denomination of a Floating Rate Note or an Index Linked Interest Note in definitive form comprises more than one Calculation Amount, the Interest Amount payable in respect of such Note shall be the aggregate of the amounts (determined in the manner provided above) for each Calculation Amount comprising the Specified Denomination without any further rounding.

(e) 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 herein) and its related Benchmark Replacement Date (as defined herein) have occurred prior to the Reference Time (as defined herein) in respect of any determination of the Benchmark (as defined herein) on any date, the Benchmark Replacement (as defined herein) 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 herein) from time to time.

At the request of the Issuer, but subject to receipt by the Agents of a certificate signed by two duly authorised officers of the Issuer pursuant to Condition 6.2(e)(D) and at least five London banking days' prior notice thereof, the Agents shall (at the expense of the Issuer), without any requirement for the consent or approval of Noteholders, be obliged to concur with the Issuer in effecting any Benchmark Replacement Conforming Changes (including, inter alia, by amending or supplementing the Agency Agreement), *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 Conditions or the Agency Agreement (including, for the avoidance of doubt, any supplemental agency agreement) in any way.

In connection with any Benchmark Replacement Conforming Changes in accordance with this Condition 6.2(e), 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 6.2(e), 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 or its designee's sole discretion, and, notwithstanding anything to the contrary in these 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 6.2(e) will be notified promptly by the Issuer to the Principal Paying Agent and, in accordance with Condition 16, 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 6.2(e); 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 6.2(e), 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 Date: Without prejudice to the obligations of the Issuer under Condition 6.2(e)(A), (B), (C) and (D), the Benchmark and the fallback provisions provided for in the Agency Agreement 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 6.2(e)(D).

(F) Certain Defined Terms: As used in this Condition 6.2(e):

"**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 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 Web site**" 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 Web site.

"**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.

(f) 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 6.2(f). 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 6.2(f), 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 6.2(f):

"**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 6.2:

(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:

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

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.

(g) Notification of Rate of Interest and Interest Amounts

The Principal Paying Agent or the Calculation Agent (where applicable) 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 any stock exchange on which the relevant Floating Rate Notes or Index Linked Interest Notes are for the time being listed and notice thereof to be published in accordance with Condition 16 (*Notices*) as soon as practicable after their determination but in no event later than the fourth London Business Day (as defined below) thereafter, provided that such notification details are provided by the Issuer to the Agent, or in accordance with Annex D of the Procedures Memorandum. 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 the Issuer and 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 16 (*Notices*). 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 in London. For the avoidance of doubt, this Condition 6.2(e) shall not apply if a Benchmark Transition Event has occurred and Condition 6.2(b)(iii) becomes effective.

(h) 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 6.2, whether by the Principal Paying Agent or, if applicable, the Calculation Agent, shall (in the absence of willful misconduct, fraud or gross negligence) be binding on the Issuer, the Guarantor (if applicable), the Principal Paying Agent, the Calculation Agent (if applicable), the other Agents and all Noteholders, Receiptholders and Couponholders and (in the absence as aforesaid) no liability to the Issuer, the Guarantor (if applicable), 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.

6.3 Zero Coupon Notes

Where a Note the Interest Basis of which is specified to be Zero Coupon is repayable prior to the Maturity Date and is not paid when due, the amount due and payable prior to the Maturity Date shall be the Early Redemption Amount (as defined below) of such Note. As from the Maturity Date, the Rate of Interest for any overdue principal of such Note shall be a rate per annum (expressed as a percentage) equal to the Accrual Yield (as described in paragraph (c) of Condition 9.7).

6.4 Interest on Dual Currency Interest 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.

6.5 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.

6.6 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:

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

(b) five days after the date on which the full amount of the moneys payable in respect of such 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 16 (*Notices*).

7. LIMITED RECOURSE

The amounts payable in respect of the Limited Recourse Notes shall be determined in the manner specified in the applicable Pricing Supplement.

8. PAYMENTS

8.1 Method of payment

Subject as provided below:

(a) 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 check in such Specified Currency drawn on, a bank in the principal financial center 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

(b) 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 check.

Payments will be subject in all cases to (i) any fiscal or other laws and regulations applicable thereto in the place of payment, but without prejudice to the provisions of Condition 10 (*Taxation*) and (ii) any deduction or withholding required pursuant to FATCA (as defined in Condition 10). References to "**Specified Currency**" will include any successor currency under applicable law.

8.2 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 Condition 8.1 (*Payments – Method of payment*) 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)) and in each case payments will not be made by a transfer of funds to an account maintained by the payee in the United States or mailed to an address in the United States.

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 Condition 8.1 (*Payments – Method of payment*) above only 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 Condition 8.1 (*Payments – Method of paymen*t) 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 10 years after the Relevant Date (as defined in Condition 10 (*Taxation*)) in respect of such principal (whether or not such Coupon would otherwise have become void under Condition 11 (*Prescription*)) or, if later, five 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 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 Rate 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 Interest Payment 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 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.

8.3 Payments in respect of Bearer Global Notes

Payments of principal and interest (if any) in respect of any 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 relevant Paying Agent to which it was presented and such record shall be *prima facie* evidence that the payment in question has been made.

8.4 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**"), (i) where the Notes are in global form, at the close of business day (being for this purpose, a day on which Euroclear, Clearstream or DTC, as the case may be, are open for business in respect of Notes cleared through Euroclear, Clearstream or DTC, as the case may be) before the relevant date and (ii) where the Notes are in definitive form, 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 (a) a holder does not have a Designated Account or (b) 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 check in the Specified Currency drawn on a Designated Bank (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 center 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 (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 check 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 relevant Register, (i) where the Notes are in global form, at the close of business day (being for this purpose, a day on which Euroclear, Clearstream or DTC, as the case may be, are open for business in respect of Notes cleared through Euroclear, Clearstream or DTC, as the case may be) before the relevant date and (ii) where the Notes are 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 or an installment of principal (other than the final installment) 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 check posted in accordance with this Condition 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.

Neither the Issuer, the Guarantor nor any of 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.

8.5 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 (and the Guarantor, if applicable) 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 DTC, Euroclear or Clearstream, as the beneficial holder of a particular nominal amount of Notes represented by such Global Note must look solely to DTC, 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, 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:

(a) the Issuer and the Guarantor have 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;

(b) 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

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

8.6 Payment Day

If the date for payment of any amount in respect of any Note, Receipt or Coupon is not a Payment Day (as defined below), 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 which (subject to Condition 11 (*Prescription*) is:

(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:

    (i) in the case of Notes in definitive form only, the relevant place of presentation;

    (ii) London; and

    (iii) any Additional Financial Center 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;

(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 center of the country of the relevant Specified Currency (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 TARGET2 System is open; and

(c) in the case of any payment in respect of a Registered Global Note denominated in a Specified Currency other than U.S. dollars and registered in the name of DTC or its nominee and in respect of which an accountholder of DTC (with an interest in such Registered Global Note) has elected to receive any part of such payment in U.S. dollars, a day on which commercial banks are not authorized or required by law or regulation to be closed in New York City.

8.7 Interpretation of principal and interest

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

(a) any additional amounts which may be payable with respect to principal under Condition 10 (*Taxation*);

(b) the Final Redemption Amount of the Notes;

(c) the Early Redemption Amount of the Notes;

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

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

(f) in relation to Zero Coupon Notes, the Amortized Face Amount (as defined in Condition 9.7 (*Redemption and Purchase – Early Redemption Amounts*)); and

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

Any reference in the 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 10 (*Taxation*).

9. REDEMPTION AND PURCHASE

9.1 Redemption at maturity

Unless previously redeemed or purchased and cancelled as specified below, each Note (including Dual Currency Redemption 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.

9.2 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, an Index Linked Interest Note or a Dual Currency Interest Note) or on any Interest Payment Date (if this Note is either a Floating Rate Note, 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 applicable Agent and, in accordance with Condition 16 (*Notices*), the Noteholders (which notice shall be irrevocable), if:

(a) the Issuer or (if the Guarantor is required to make payments under the Guarantee) the Guarantor has or will become obligated to pay additional amounts as provided or referred to in Condition 10 (*Taxation*) as a result of any change in, or amendment to, the laws or regulations of a Tax Jurisdiction (as defined in Condition 10 (*Taxation*)) or any regulations or rulings promulgated thereunder, or any change in the application or official interpretation of such laws or regulations or rulings, or any change in the application or official interpretation of, or any execution of or amendment to, any treaty or treaties affecting in taxation to which the Tax Jurisdiction is a party, which change or amendment becomes effective on or after the date on which agreement is reached to issue the first Tranche of the Notes of the relevant Series; and

(b) such obligation cannot be avoided by the Issuer or the Guarantor, if applicable, taking reasonable measures available to it,

provided that no such notice of redemption shall be given earlier than 60 days prior to the earliest date on which the Issuer or the Guarantor, if applicable, would be obligated to pay such additional amounts or give effect to such treatment, as the case may be, were a payment in respect of the Notes (or the Guarantee, if applicable), then due.

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

Notes redeemed pursuant to this Condition 9.2 will be redeemed at their Early Redemption Amount referred to in Condition 9.7 (*Redemption and Purchase – Early Redemption Amounts*) below together (if appropriate) with interest accrued to (but excluding) the date of redemption.

9.3 Redemption at the option of the Issuer ("Issuer Call")

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

(a) not less than 15 nor more than 30 days' notice to the Noteholders in accordance with Condition 16 (*Notices*); and

(b) not less than 15 days before the giving of the notice referred to in (a) above, notice to the Principal Paying Agent and, in 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 not more than the Maximum 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 DTC, Euroclear and/or Clearstream, 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 16 (*Notices*) 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 Condition 9.3 and notice to that effect shall be given by the Issuer to the Noteholders in accordance with Condition 16 (*Notices*) at least five days prior to the Selection Date.

9.4 Redemption at the option of the Noteholders ("Investor Put")

If Investor Put is specified in the applicable Pricing Supplement, then, if and to the extent specified in the applicable Pricing Supplement, upon the holder of any Note, giving to the Issuer, in accordance with Condition 16 (*Notices*), not less than 15 nor more than 30 days' notice (or such other notice period as is specified in the applicable Pricing Supplement) (which notice shall be irrevocable), 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 relevant Optional Redemption Amount as specified in, or determined in the manner specified in, the applicable Pricing Supplement, together, if applicable, with interest accrued to (but excluding) the relevant Optional Redemption Date. It may be that before an Investor Put can be exercised, certain conditions and/or circumstances will need to be satisfied. Where relevant, the provisions relating to such conditions and circumstances will be set out in the applicable Pricing Supplement. Registered Notes may be redeemed under this Condition 9.4 in any multiple of their lowest Specified Denomination.

9.5 Change of Control Redemption

Upon the occurrence of a Change of Control (as defined below), each Noteholder will have the option (the "**Change of Control Put Option**") (unless, prior to the giving of the Change of Control Put Event Notice (as defined below), the Issuer shall have given notice under Condition 9.2 (*Redemption and Purchase – Redemption for tax reasons*) or 9.3 (*Redemption and Purchase – Redemption at the option of the Issuer ("**Issuer Call**")*) in respect of the relevant Notes), exercisable during the Change of Control Put Period (as defined below), to require the Issuer to redeem all or any part of such Noteholder's Notes at a redemption price (the "**Change of Control Redemption Price**") equal to 100% of the principal amount of such Notes, together with accrued and unpaid interest, if any, to but excluding the Change of Control Put Date (as defined below). The Change of Control Put Option shall operate as set out in Condition 9.4 (*Redemption at the option of the Noteholders ("**Investor Put**")*). Accrued and unpaid interest in respect of the then current Interest Period (or portion thereof) shall be determined as if the Change of Control Put Date was an Interest Payment Date. Within 30 days following a Change of Control, the Issuer shall cause the Principal Paying Agent to mail a notice (a "**Change of Control Put Event Notice**") to the Noteholders in accordance with Condition 16 stating (a) that 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, (b) the date (the "**Change of Control Put Date**") fixed by the Issuer for redemption under this Condition 9.5 (which shall be a Business Day within the fifth day after the expiry of the Change of Control Put Period) and (c) the procedures determined by the Issuer that a Noteholder must follow in order to have its Notes redeemed. In this Condition:

"**Change of Control**" means the central government and local governments of Korea ceasing to own and control (directly or indirectly or in combination) at least 50.1% of the Company's issued and outstanding voting shares.

"**Change of Control Put Period**" means the period fixed by the Issuer, which shall end on a Business Day no earlier than 30 days or later than 60 days after a Change of Control Put Event Notice is mailed.

9.6 Put Notices

To exercise the right to require redemption of such Note, pursuant to Condition 9.4 (*Redemption and Purchase – Redemption at the option of the Noteholders ("**Investor Put**")*) or 9.5 (*Redemption and Purchase – Change of Control Redemption*) the Noteholder must deliver, at the specified office of the Principal 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 Principal Paying Agent or, as the case may be, the Registrar falling within the notice period (in the case of Condition 9.4) or the Change of Control Put Period (in the case of Condition 9.5), such Note (except for a Global Note) together with a duly signed and completed notice of exercise in the form (for the time being current) obtainable from any specified office of the relevant 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 check, an address) to which payment is to be made under this Condition or evidence satisfactory to the Principal Paying Agent concerned or, as the case may be, the Registrar that the Note will, following delivery of the Put Notice, be held to its order or under its control 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 2.2 (*Transfers of Registered Notes – Transfers of Registered Notes in definitive form*). If this Note is in definitive form, the Put Notice must be accompanied by this Note or evidence satisfactory to the relevant Paying Agent concerned that this Note will, following delivery of the Put Notices, be held to its order or under its control.

Any Put Notice or other notice given in accordance with the standard procedures of Euroclear and Clearstream given by a holder of any Note pursuant to Condition 9.4 (*Redemption and Purchase – Redemption at the option of the Noteholders ("Investor Put")*) or Condition 9.5 (*Redemption and Purchase – Change of Control Redemption*) shall be irrevocable except where, prior to the due date of redemption, an Event of Default has occurred and is continuing, in which event, such holder, at its option, may elect by notice to the Issuer to withdraw the notice given pursuant to Condition 9.4 (*Redemption and Purchase – Redemption at the option of the Noteholders ("Investor Put")* or Condition 9.5 (*Redemption and Purchase – Change of Control Redemption*) and instead to declare such Note forthwith due and payable pursuant to Condition 12 (*Events of Default*).

9.7 Early Redemption Amounts

For the purpose of Condition 9.2 (*Redemption and Purchase – Redemption for tax reasons*) above and Condition 12 (*Events of Default*), each Note will be redeemed at its Early Redemption Amount calculated as follows:

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

(b) in the case of a Note (other than a Zero Coupon Note but including an Installment Note and a Partly Paid 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 Note is 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

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

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

where:

"**RP**" means the Reference Price;

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

"**y**" is a fraction the numerator of which is equal to the number of days (calculated on the basis of a 360-day year consisting of 12 months of 30 days each) from (and including) the Issue Date of the first Tranche of the Notes of the relevant Series 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.

9.8 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 Condition 9.7 (*Redemption and Purchase – Early Redemption Amounts*) above.

9.9 Partly Paid Notes

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

9.10 Purchases

The Issuer, the Guarantor and any of their respective Subsidiaries may at any time purchase Notes (provided that, in the case of definitive Bearer Notes, all unmatured Receipts, Coupons and Talons appertaining thereto are purchased therewith) by tender (available to all Noteholders alike) or in the open market at any price. If the Issuer, the Guarantor or any of their respective Subsidiaries 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 relevant Paying Agent and/or the Registrar for cancellation and are cancelled and retired by such Paying Agent and/or the Registrar. Notes purchased or otherwise acquired or held by or on behalf of the Issuer, the Guarantor or any of their respective Subsidiaries may be held, resold or, at its discretion, surrendered to any Paying Agent and/or the Registrar for cancellation. Notes purchased or otherwise acquired or held by or on behalf of the Issuer, the Guarantor or any of their respective Subsidiaries are not entitled to vote at meetings of Noteholders and shall not be deemed to be outstanding for the purposes of calculating quorums at meetings of Noteholders.

9.11 Cancellation

All Notes which 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 Condition 9.10 (*Redemption and Purchase – Purchases*) above (together with all unmatured Receipts, Coupons and Talons cancelled therewith) shall be forwarded to the Principal Paying Agent (which shall notify the Registrar of such cancelled Notes in the case of Registered Notes) and cannot be reissued or resold.

9.12 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 Condition 9.1 (*Redemption and Purchase – Redemption at maturity*), 9.2 (*Redemption and Purchase – Redemption for tax reasons*), 9.3 (*Redemption and Purchase – Redemption at the option of the Issuer ("Issuer Call"),* 9.4 (*Redemption and Purchase – Redemption at the option of the Noteholders ("Investor Put")* or 9.5 (*Redemption and Purchase – Change of Control Redemption*) above or upon its becoming due and repayable as provided in Condition 12 (Events of Default) 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 (c) of Condition 9.7 (*Redemption and Purchase – Early Redemption Amounts)* 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:

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

(b) 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, in the case of Registered Notes, the Registrar and notice to that effect has been given to the Noteholders in accordance with Condition 16 (*Notices*).

9.13 Obligation to redeem

Upon the expiry of any notice as is referred to in 9.2 (*Redemption and Purchase – Redemption for tax reasons*), 9.3 (*Redemption and Purchase – Redemption at the option of the Issuer ("Issuer Call")),* 9.4 (*Redemption and Purchase – Redemption at the option of the Noteholders ("Investor Put"*)) or 9.5 (*Redemption and Purchase – Change of Control Redemption*) above, the Issuer, failing whom, the Guarantor, shall be bound to redeem the Notes to which the notice referred at the relevant redemption price applicable at the date of such redemption together with, if appropriate, interest accrued to (but excluding) the relevant redemption date.

10. TAXATION

All payments of principal and interest in respect of the Notes, Receipts and Coupons or under the Guarantee (if applicable) by or on behalf of the Issuer or the Guarantor (if applicable) will be made without withholding or deduction for or on account of any present or future taxes or duties of whatever nature imposed or levied by or on behalf of the relevant Tax Jurisdiction unless such withholding or deduction is required by law. In such event, the Issuer (or the Guarantor, if applicable) 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 shall equal 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:

(a) where such withholding or deduction is imposed on a payment to a holder by reason of such holder presenting such Note, Receipt or Coupon for payment (where presentation is required) in the relevant Tax Jurisdiction (provided the Notes can also be presented at an office of a Paying Agent outside such Tax Jurisdiction); or

(b) to or on behalf of a holder of such Note, Receipt or Coupon who is subject to any present or future taxes or duties of whatever nature imposed or levied by or on behalf of the relevant Tax Jurisdiction in respect of such Note, Receipt or Coupon by reason of such holder being or having been connected with the relevant Tax Jurisdiction (or any political subdivision thereof) other than merely by holding such Note, Receipt or Coupon or receiving principal or interest or other payments in respect thereof; or

(c) where such withholding or deduction is imposed on a payment to a holder who is liable for such taxes or duties in respect of such Note, Receipt or Coupon by reason of such holder of the Note (or fiduciary, settlor, beneficiary, member or shareholder of, or possessor of power over the relevant holder, if the relevant holder is an estate, nominee, trust or corporation) being or having been connected with a Tax Jurisdiction other than merely by holding such Note, Receipt or Coupon; or

(d) presented for payment (where presentation is required) more than 30 days after the Relevant Date (as defined below) except to the extent that the holder thereof would have been entitled to an additional amount on presenting the same for payment on such thirtieth day assuming that day to have been a Payment Day (as defined in Condition 8.6 (*Payments – Payment Day*)); or

(e) where such withholding or deduction is imposed on a payment to a holder who would not be liable or subject to the withholding or deduction by making a declaration of non-residence or other similar claim for exemption to the relevant tax authority if (i) after having been requested in writing by the Issuer (or the Guarantor, if applicable) to make such a declaration or claim, such holder fails to do so and (ii) specific arrangements to undertake the monitoring required to monitor such a declaration or claim have been agreed to and put in place by the Issuer (or the Guarantor, if applicable), Euroclear, Clearstream, the Principal Paying Agent and the Paying Agent; or

(f) where such withholding or deduction would not have been imposed but for a failure by the holder or beneficial owner (or any financial institution through which the holder or beneficial owner holds any Note, Receipt or Coupon or through which payment on the Note, Receipt or Coupon is made) to comply with any certification, information, identification, documentation or other reporting requirements (including entering into and complying with an agreement with the U.S. Internal Revenue Service) imposed pursuant to Sections 1471 through 1474 of the U.S. Internal Revenue Code of 1986, as amended (including any successor or amended version of these provisions, any regulations or agreements thereunder, or official interpretations thereof), or an intergovernmental agreement between the United States and another jurisdiction facilitating the implementation thereof (or any law implementing such an intergovernmental agreement) (collectively, "FATCA"); or

(g) any combination of paragraphs (a), (b), (c), (d), (e) or (f) above.

As used herein:

(i) "**Tax Jurisdiction**" means, (i) with respect to the Company and the Guarantor, Korea or any political subdivision or any authority thereof or therein having power to tax or any other jurisdiction or any political subdivision or any authority thereof or therein having power to tax to which the Company or the Guarantor becomes subject in respect of payments made by it of principal and interest on the Notes, Receipts or Coupons or under the Guarantee, as the case may be, through such jurisdiction, and (ii) with respect to any Guaranteed Issuer, such Guaranteed Issuer's jurisdiction of incorporation or any political subdivision or any authority thereof or therein having power to tax or any other jurisdiction or any political subdivision or any authority thereof or therein having power to tax to which such Guaranteed Issuer becomes subject in respect of payments made by it of principal and interest on the Notes, Receipts or Coupons through such jurisdiction; and

(ii) the "**Relevant Date**" means the date on which such payment first becomes due, except that, if the full amount of the moneys payable has not been duly received by the relevant Agent or the relevant Registrar, as the case may be, on or prior to such due date, it means 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 16 (*Notices*).

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

Whenever there is mentioned in any context the payment of principal of, and any premium or interest on, any Note, Receipt or Coupon, such mention shall be deemed to include payment of additional amounts to the extent that, in such context, additional amounts are, were or would be payable in respect thereof.

11. PRESCRIPTION

The Notes (whether in bearer or registered form), Receipts and Coupons or the Guarantee will become void unless presented for payment within a period of five years (in the cases of principal) and two years (in the case of interest) after the Relevant Date (as defined in Condition 10 (*Taxation*)) 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 or Condition 8.2 (*Payments – Presentation of definitive Bearer Notes, Receipts and Coupons*) or any Talon which would be void pursuant to Condition 8.2 (*Payments – Presentation of definitive Bearer Notes, Receipts and Coupons*).

12. EVENTS OF DEFAULT

12.1 Events of Default

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

(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, or premium (if any) on, any of the Notes as and when the same shall become due and payable, whether at maturity, upon redemption or otherwise;

(iii) breach or failure to observe or perform any other of the covenants or agreements on the part of the Issuer or the Guarantor (if applicable) contained in the Notes of the relevant Series or the Guarantee (if applicable) 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 the Notes of the relevant Series or the Guarantee (if applicable) and demanding that the Issuer or the Guarantor (if applicable) remedy the same, shall have been given to the Issuer or the Guarantor (if applicable), with a copy to the Principal Paying Agent, by the holders of at least 10% in aggregate principal amount of the Notes of the relevant Series at the time outstanding;

(iv) any Debt of the Company in the aggregate outstanding principal amount of US$10,000,000 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 Company 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 Company 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 or the Guarantor 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 issuance of the first Tranche of the Notes or thereafter, or appointing a receiver, liquidator, assignee, custodian, trustee or sequestrator (or similar official) of the Issuer or the Guarantor 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 or the Guarantor 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 or the Guarantor of a voluntary case under any applicable bankruptcy, insolvency, reorganization, rehabilitation, compulsory composition or other similar law in effect on the date of issuance of the first Tranche 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 the Guarantor or for any substantial part of its property, or, subject to Condition 4.2, cease to carry on the whole or substantially the whole of its business (other than in furtherance of the new legislation by or plan of the government for restructuring of the gas industry and/or privatization of the Company, as it may be amended, modified or supplemented), 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 of a given Series occurs and is continuing, the holders of not less than 25% in aggregate principal amount of the Notes of the relevant Series then outstanding may declare the principal amount (and premium, if any) of, and all accrued but unpaid interest on, all the Notes of the relevant Series to be due and payable immediately, by a notice in writing to the Issuer and the Guarantor (if applicable) 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 the Guarantor (if applicable) and to the Noteholders of the relevant Series, by mail and publication. 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 or the Guarantor, as applicable, pays or deposits with the Principal Paying Agent all amounts then due with respect to the Notes of the relevant Series (other than amounts due solely because of such declaration) and cures all other Events of Default with respect to the Notes of the relevant Series, such defaults may be waived and such declaration may be annulled and rescinded by the holders of more than 50% in aggregate principal amount of the Notes of the relevant Series then outstanding by written notice thereof to the Issuer and the Guarantor (if applicable) at the office of the Principal Paying Agent.

For the avoidance of doubt, the Agent shall have no responsibility to take any steps to ascertain whether any relevant event under this Condition has occurred.

As used herein, "**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 a Security 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 (vi), 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 Security securing the obligations of others and the amount of such obligations secured.

13. 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, subject to applicable laws, regulations and stock exchange or other relevant authority regulations, at the specified office of the relevant Paying Agent (in the case of Bearer Notes, Receipts or Coupons) 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 and the Agents may reasonably require. Mutilated or defaced Notes, Receipts, Coupons or Talons must be surrendered before replacements will be issued.

14. AGENTS

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

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

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

(b) so long as the Notes are listed on any stock exchange or admitted to trading by any other relevant authority, there will at all times be a Paying Agent (in the case of Bearer Notes) and a Registrar 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 (and in the case of Bearer Notes, outside the United States);

(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, London or Hong Kong; and

(d) for so long as the Notes are listed on the SGX-ST and the rules of the SGX-ST so require, in the event that the Global Note is exchanged for definitive Notes, there will at all times be a Paying Agent in Singapore.

In addition, the Issuer and the Guarantor shall forthwith appoint a Paying Agent having a specified office in New York City in the circumstances described in Condition 8.5 (*Payments – General provisions applicable to payments*). Any variation, termination, appointment or change shall only take effect (other than in the case of insolvency, when it shall be of immediate effect) after not less than 30 or more than 45 days' prior notice thereof shall have been given to the Noteholders in accordance with Condition 16 (*Notices*).

In acting under the Agency Agreement, the 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 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 agent.

15. 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 11 (*Prescription*). Each Talon shall, for the purpose of these Conditions, be deemed to mature on the Interest Payment Date on which the final Coupon comprised in the relative Coupon sheet matures.

16. NOTICES

All notices regarding the Bearer Notes will be deemed to be validly given if published in a leading English language daily newspaper of general circulation in Asia by the Issuer or the Guarantor, if applicable. It is expected that such publication will be made in the *Asian Wall Street Journal*. The Issuer or the Guarantor, as applicable, shall also ensure that notices are duly published in a manner which complies with the rules and regulations of any stock exchange (or any other relevant authority) on which the Bearer Notes are for the time being listed or by which they have been admitted to trading. 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 (a) 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 (b) in addition, if and for so long as the Registered Notes are listed on a stock exchange or are admitted to trading by another relevant authority 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.

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 DTC, Euroclear and/or Clearstream, be substituted for such publication in such newspaper(s) the delivery of the relevant notice to DTC, Euroclear and/or Clearstream 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 or are admitted to trading by another relevant authority and the rules of that stock exchange or any other relevant authority so require, such notice will be published in a manner specified 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 DTC, Euroclear and/or Clearstream.

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). So long as any of the Notes are represented by a Global Note, such notice may be given by any holder of a Note to the Agent or the Registrar through DTC, Euroclear and/or Clearstream, as the case may be, in such manner as the Principal Paying Agent, the Registrar and DTC, Euroclear and/or Clearstream, as the case may be, may approve for this purpose.

Receiptholders and Couponholders will be deemed for all purposes to have notice of the contents of any notice given to the Noteholders in accordance with this condition.

17. MEETINGS OF NOTEHOLDERS, MODIFICATION AND WAIVER

17.1 Meetings of Noteholders

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, the Guarantor or Noteholders holding not less than 10% 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% 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 due date of maturity of the Notes or any date for payment of principal, premium, redemption amount or interest thereof, reducing or canceling the amount of principal, premium or redemption amount or the rate of interest payable in respect of the Notes, modifying or canceling the Guarantee or altering the currency of payment of the principal amount of the Notes, Receipts or Coupons), the quorum shall be one or more persons holding or representing not less than 75% in nominal amount of the Notes for the time being outstanding, or at any adjourned such meeting one or more persons holding or representing not less than 25%, 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.

17.2 Modifications and Waivers

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

(a) any modification (except as mentioned above) of the Notes, the Receipts, the Coupons, the Conditions, the Agency Agreement or the Guarantee which is not materially prejudicial to the interests of the Noteholders; or

(b) any modification of the Notes, the Receipts, the Coupons, the Conditions, the Agency Agreement or the Guarantee 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.

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 16 (Notices) as soon as practicable thereafter.

18. FURTHER ISSUES

The Issuer may from time to time without the consent of the Noteholders, the Receiptholders or the Couponholders, create and issue further notes with the same terms and conditions as the Notes in all respects except for the amount and date of the first payment of interest thereon so that such further issue shall be consolidated and form a single Series with the outstanding Notes; provided that, in the case of Bearer Notes initially represented by interests in a Temporary Bearer Global Note exchangeable for interests in a Permanent Bearer Global Note or definitive Bearer Notes, such consolidation will occur only upon certification of non-U.S. beneficial ownership and exchange of interests in the Temporary Bearer Global Note for interests in the Permanent Bearer Global Note or definitive Bearer Notes; provided further that, any further notes shall be issued under a separate CUSIP or ISIN number unless the further notes are issued pursuant to a "qualified reopening" of the original series, are otherwise treated as part of the same "issue" of debt instruments as the original series or are issued with less than a *de minimis* amount of original issue discount, in each case for United States federal income tax purposes.

19. CURRENCY INDEMNITY

Any amount received or recovered in a currency other than the currency in which payment under the relevant Note, Receipt or Coupon is due (whether as a result of, or of the enforcement of, a judgment or order of a court of any jurisdiction, in the insolvency, winding-up or dissolution of the Issuer or the Guarantor, as applicable) by any Noteholder, Receiptholder or Couponholder in respect of any sum expressed to be due to it from the Issuer or the Guarantor (as applicable) shall only constitute a discharge to the Issuer or the Guarantor, as applicable, to the extent of the amount in the currency of payment under the relevant Note, Receipt or Coupon that the recipient is able to purchase with the amount so received or recovered in that other currency on the date of that receipt or recovery (or, if it is not practicable to make that purchase on that date, on the first date on which it is practicable to do so). If the amount received or recovered is less than the amount expressed to be due to the recipient under any Note, Receipt or Coupon, the Issuer, failing whom the Guarantor, shall indemnify such Noteholder, Receiptholder or Couponholder, as the case may be, against any loss sustained by it as a result. In any event, the Issuer, failing whom the Guarantor, shall indemnify the recipient against the cost of making any such purchase. For the purposes of this Condition, it shall be sufficient for the Noteholder, Receiptholder or Couponholder, as the case may be, to demonstrate that it would have suffered a loss had an actual purchase been made. These indemnities constitute a separate and independent obligation from the Issuer's and the Guarantor's other obligations, shall give rise to a separate and independent cause of action, shall apply irrespective of any indulgence granted by any Noteholder, Receiptholder or Couponholder and shall continue in full force and effect despite any other judgment, order, claim or proof for a liquidated amount in respect of any sum due under any Note, Receipt or Coupon or any other judgment or order.

20. GOVERNING LAW AND SUBMISSION TO JURISDICTION

20.1 Governing law

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

20.2 Submission to jurisdiction

To the fullest extent permitted by applicable law, the Issuer and the Guarantor irrevocably submit to the non-exclusive jurisdiction of any federal or state court in the Borough of Manhattan, The City of New York, United States of America, in any suit, action or proceeding brought by any Noteholder, Receiptholder or Couponholder arising out of or based upon the Notes, the Guarantee, the Receipts/or the Coupons, and irrevocably agrees that all claims in respect of any such suit, action or proceeding may be determined in any such court. The Issuer and the Guarantor irrevocably and to the fullest extent they are permitted to do so under applicable law waive any objection they may have to the laying of venue in any such court or the defense of an inconvenient forum to the maintenance of any such suit or proceeding to the extent permitted by applicable law. The Issuer and the Guarantor hereby appoint the Law Office of Sungchurl Koh, whose address as of the date hereof is 303 Fifth Avenue, Suite 806, New York, NY 10016, U.S.A. as their authorized agent (the "**Authorized Agent**", which expression shall include any replacement authorized agent) upon whom process may be served in any such suit or proceeding set forth herein, it being understood that the designation and appointment of the Authorized Agent as such authorized agent shall become effective immediately without any further action on the part of the Issuer or the Guarantor; provided that if for any reason the Authorized Agent named above ceases to act as Authorized Agent hereunder for the Issuer or the Guarantor, the Issuer and the Guarantor will appoint another person acceptable to the Dealers in the Borough of Manhattan, The City of New York and the State of New York, as Authorized Agent. The Issuer and the Guarantor agree to take any and all action as may be necessary, including the filing of any and all documents that may be necessary, to maintain such designation and appointment of the authorized agent in full force and effect. If for any reason the appointment of the Authorized Agent shall cease to be in force, the Issuer and the Guarantor shall forthwith appoint a new agent to be the Authorized Agent and shall deliver to the Dealers and the Arranger a copy of the new Authorized Agent's acceptance for that appointment within 30 days. Service of process upon the Authorized Agent shall be deemed, in every respect, effective service of process upon the Issuer or the Guarantor. The parties hereto each hereby waive any right to trial by jury in any action, proceeding or counterclaim arising out of or relating to the Notes, the Guarantee, the Receipts and/or Coupons.

20.3 Other documents

In the Agency Agreement the Issuer and the Guarantor submitted to the jurisdiction of the courts of the State of New York and appointed an agent for service of process in terms substantially similar to those set out above.

20.4 Waiver of immunity

The Issuer and the Guarantor hereby irrevocably and unconditionally waive and agrees not to raise with respect to the Notes or the Guarantee (including a dispute relating to any non-contractual obligations arising out of or in connection thereunder) 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 legal action or other proceedings.

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 investments in overseas gas exploration, development and production projects, 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 U.S. dollars and rounded down to the nearest tenth of one Won. No representation is made that the Won or U.S. dollar amounts referred to herein could have been or could be converted into U.S. dollars or Won, as the case may be, at any particular rate or at all.

Period	At End of Period	Average Rate(1)	High	Low
		(Won per U.S.$1.00)		
2017	1,071.4	1,130.8	1,208.5	1,071.4
2018	1,118.1	1,100.3	1,142.5	1,057.6
2019	1,157.8	1,165.7	1,218.9	1,111.6
2020	1,088.0	1,180.1	1,280.1	1,082.7
2021	1,185.5	1,144.4	1,199.1	1,083.1
December	1,185.5	1,183.7	1,191.5	1,173.8
2022 (through June 23)	1,295.7	1,230.4	1,295.7	1,185.5
January	1,202.4	1,194.0	1,202.4	1,185.5
February	1,202.7	1,198.3	1,205.7	1,192.1
March	1,210.8	1,221.0	1,241.7	1,203.6
April	1,269.4	1,232.3	1,269.4	1,210.7
May	1,245.8	1,269.9	1,286.4	1,245.8
June (through June 23)	1,295.7	1,272.2	1,295.7	1,238.4

Source: Seoul Money Brokerage Services, Ltd.

(1) The average rate for the period is calculated as the average of the market average exchange rates on each business day during the relevant period.

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.

Risks related to the Company and its Natural Gas Import and Wholesale Business

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

As of March 31, 2022, the government directly and indirectly held 46.7% of the Company's issued and outstanding shares, and local governments held an additional 7.9% of the Company's issued and outstanding shares. Accordingly, the government is able to influence the election of the directors on the Company's board and the management of the Company. Although the Company's management runs the day-to-day operations, the government may determine material policies and, without the consent of other shareholders, the outcome of any transaction or other matter submitted to the Company's shareholders for approval, except for those matters requiring a special resolution of the shareholders. The government has historically influenced, and is likely to continue to influence, the Company's strategy and operations. The government also has the ability to influence and control other government-related entities, some of which are the Company's customers.

The Company was established under the KOGAS Act to, among other things, secure Korea's long-term supply of natural gas. The Company is heavily regulated by a variety of laws and regulatory bodies, including the Ministry of Trade, Industry and Energy and the Ministry of Economy and Finance. 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 natural gas industry, which may not be in the Company's best commercial interests. In particular, public policy considerations relating to the level of the Company's profitability affect the Company's prescribed rate of return. The Ministry of Trade, Industry and Energy, among other things, supervises the Company's forecasting process for natural gas demand, approves the Company's liquefied natural gas ("**LNG**") supply contracts, and regulates natural gas sales prices. In addition, the Company must obtain the Ministry of Trade, Industry and Energy's consent in certain instances, and in some cases must seek amendments to current laws, to expand its operations into new businesses outside of its core gas operations.

Furthermore, the Ministry of Economy and Finance has been encouraging government-controlled enterprises, including the Company, to significantly reduce their debt levels. In this respect, the government annually reviews and revises five-year target guidelines for the Company to reduce its liabilities-to-equity ratio, and the current target guideline, set in 2021, suggests that the Company reduce its liabilities-to-equity ratio to 285%, on a consolidated basis, by the end of 2024. In response to such guidelines, the Company has been in periodic discussions with the Ministry of Trade, Industry and Energy and the Ministry of Economy and Finance regarding the Company's plans for debt reduction, including through disposal of non-core or unprofitable assets and issuance of equity and/or equity-linked securities, as well as various other cost-saving initiatives, and the Company's liabilities-to-equity ratio was 415% as of March 31, 2022, on a consolidated basis. However, there is no assurance that the Company's plans will be fully implemented as currently anticipated or, even if implemented in full, will enable the Company to achieve the target liabilities-to-equity ratio. If the Company does not meet such target ratio within the agreed timeline, the Company may face sanctions by the government, which may include adverse performance evaluation by the government and dismissal of the Company's President.

In June 2016, the Ministry of Economy and Finance announced broad-based measures to adjust the functions of government-controlled entities in the energy, environment and education sectors (the "**June 2016 Government Plan**"). These measures include, among others, (i) rationalization of the overseas natural resource exploration, development and production activities of government-controlled enterprises, including the Company, (ii) the gradual liberalization of the LNG wholesale market beginning in 2025 as well as measures aimed at improving the market environment for direct imports of LNG for own-use and (iii) the public listing of shares of Korea Gas Technology Corp., a wholly-owned subsidiary of the Company, which provides system maintenance for the Company's gas-related facilities and designs and supervises the construction of natural gas production and supply facilities. Subsequently in June 2016, the Ministry of Trade, Industry and Energy announced improvement measures for the overseas natural resource exploration, development and production activities of government-controlled enterprises, including the Company. According to such improvement measures, the Company has developed a plan for the sale of its interests in overseas exploration, development and production operations, other than core assets (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 timing of any such sales will be subject to market conditions. In addition, 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. Pursuant to such plan, in July 2018, the Company sold 10% of its equity interest in the LNG Canada project in British Columbia to Petroliam Nasional Berhad ("**Petronas**") of Malaysia. In addition, certain agreements relating to the Company's overseas exploration, development and production activities require the consent of other parties in order to effect some or all of the measures being considered by the government. The Company cannot make any assurances that future policy decisions by the government will not have an adverse effect on the Company's business, results of operations and financial condition.

From time to time, the government may suspend the Company's ability to increase its sales prices to city gas companies to fully reflect increases in raw material costs, which has had, and may in the future have, a negative impact on the Company's cash flows and financial condition, and also a temporary negative impact on the Company's results of operations.

Historically, the Ministry of Trade, Industry and Energy, after consultation with the Ministry of Economy and Finance, has permitted the Company to pass through its raw material costs (including LNG costs, transportation expenses, insurance costs and taxes and duties as well as reserves periodically allocated for the collection of the Company's outstanding receivables) through periodic adjustments to the Company's sales prices to its customers, which has enabled the Company to mitigate its commodity price and foreign exchange risks. Prior to the beginning of each calendar year, the Ministry of Trade, Industry and Energy, after consultation with the Ministry of Economy and Finance and the Company, determines the unit "supply margin," which is based on the Company's target sales volume, estimated unit supply costs based on such target sales volume (including depreciation, selling, general and administrative expenses and labor costs) and a guaranteed return for the Company for the then upcoming year. The guaranteed return amount is determined based on the Company's assets used in the distribution of natural gas, the Company's weighted average cost of capital and certain adjustments. The Company adds to this unit supply margin the unit raw material costs to arrive at the unit gas sales prices charged to its customers ("**Formula Prices**"). This enables the Company to recover its supply costs, pass through its raw material costs and realize a guaranteed return. Such Formula Prices are adjusted periodically throughout the year to reflect fluctuations in raw material costs, as permitted by the Supply of Natural Gas Regulation under the City Gas Business Act.

However, during periods of substantial fluctuations in the price of LNG and the value of the Won relative to the U.S. dollar, as part of the government's efforts to mitigate the impact of such fluctuations as well as concerns over inflation, the Ministry of Trade, Industry and Energy temporarily suspended the bi-monthly adjustments to the sales prices that the Company invoices to city gas companies. During such periods, the amounts that the Company was entitled to collect from city gas companies based on the Formula Prices but was unable to collect due to the suspension of the bi-monthly adjustments were recorded as "current non-financial assets" (for amounts estimated to be collectible within one year subsequent to the statement of financial position date) or "non-current non-financial assets" (for amounts estimated to be collectible after one year subsequent to the statement of financial position date). For example, the Ministry of Trade, Industry and Energy temporarily suspended from March 2008 to February 2013 the periodic bi-monthly adjustments to the sales price that the Company invoices to city gas companies. The total amount of current non-financial assets and non-current non-financial assets accumulated during the suspension period relating to the material costs component of sales to city gas companies was Won 5,341 billion. Such suspension and the resulting inability by the Company to fully increase its invoice sales prices to city gas companies to reflect the Formula Prices led to a substantial decrease in net cash inflows and a corresponding increase in the Company's borrowings during the suspension period. In 2013, the Ministry of Trade, Industry and Energy lifted the suspension of the periodic bi-monthly adjustments and reformulated the Formula Prices at a level that enabled the Company to recoup from February 2013 to October 2017 the accumulated Won 5,341 billion to which the Company was entitled but unable to collect during the suspension period. Following such reformulation of the Formula Prices, when the Company recognizes sales, it reduced the amounts in other non-financial assets by an amount equal to the portion of the Formula Prices earmarked for recoupment until all such previously suspended amounts are recouped. Following the lifting of the suspension in February 2013 and the reformulation of the Formula Price, the Company recouped all such amounts accumulated during the suspension period by October 2017.

From October 2018 to June 2019 and from July 2020 to March 2022, in order to mitigate the impact of increases in the price of LNG, the Ministry of Trade, Industry and Energy re-suspended the bi-monthly adjustments to the sales prices that the Company invoices to city gas companies. Such amounts that the Company was unable to collect due to the suspension and estimated to be collectible within one year subsequent to the statement of financial position date amounted to Won 843 billion as of December 31, 2019, Won 1,246 billion as of December 31, 2020, Won 1,628 billion as of December 31, 2021 and Won 2,182 billion as of March 31, 2022 and were recorded as "other current non-financial assets." Such amounts that the Company was unable to collect due to the suspension and estimated to be collectible after one year subsequent to the statement of financial position date amounted to Won 439 billion as of December 31, 2019, Won 237 billion as of December 31, 2020, Won 1,453 billion as of December 31, 2021 and Won 4,122 billion as of March 31, 2022 and were recorded as "other non-current non-financial assets." In April 2022, the Ministry of Trade, Industry and Energy lifted the suspension of the periodic bi-monthly adjustments and reformulated the Formula Prices, and the Company has begun to recoup the accumulated amounts. No assurance can be given as to when the Company will be able to recoup the accumulated amounts to which the Company was entitled but unable to collect or that the Ministry of Trade, Industry and Energy will not change its policy or adopt other measures that may prevent or delay the Company from realizing its guaranteed return fully or at all. In addition, the time lag associated with the bi-monthly adjustments to the Formula Prices has had, and may in the future have, a negative impact on the Company's cash flows and financial condition and a temporary negative impact on the Company's results of operations. In addition, if the Ministry of Trade, Industry and Energy changes its regulation to the effect that the Company becomes unable to fully pass through its raw material and supply costs by charging the Formula Prices to its customers, the Company's results of operations, cash flows and financial condition could be materially adversely affected.

The government is pursuing liberalization of the Korean natural gas industry, including opening the LNG import and wholesale market to competition.

Since 1998, the government has stated that it is considering various options regarding the liberalization of the natural gas industry to introduce competition and greater transparency. In 1999, the government amended the Petroleum Business Act to allow gas consumers to import LNG for their own use from 2001. Since the passage of the amendment, twelve companies, GS Caltex, GS EPS, GS Power, POSCO, POSCO Energy, S-Oil, SK E&S, SK Energy, Korea Zinc, SPPC, Hyundai Chemical, SK Hynix and Hanwha Solutions, have imported LNG for their own use, and Korea Midland Power, a power generating subsidiary of KEPCO, started importing LNG directly from 2014. The Company can make no assurance that additional companies will not import LNG for their own use in the future. If a large number of companies were to begin to import LNG in substantial amounts or in such a way as to bypass the Company's terminals and pipeline facilities, the Company's sales and results of operations could be adversely affected.

In October 2008, the Ministry of Trade, Industry and Energy proposed a road map to permit other companies to enter the LNG import and wholesale market in Korea. The road map contemplates gradual liberalization, initially starting with liberalization of the market for power generating companies followed by the market for industrial usage. In January 2014, the City Gas Business Act was amended to permit other companies to enter the LNG market. The amendment allows LNG traders, upon registration, to store LNG in bonded areas (in accordance with the Customs Act of Korea) for onward sales overseas, but prohibits sales of such stored LNG to domestic third parties in Korea. The amendment also allows overseas sales of LNG by domestic companies that directly import LNG for their own use. In June 2016, the Ministry of Economy and Finance announced broad-based measures to adjust the functions of government-controlled entities in the energy, environment and education sectors. These measures include, among others, the gradual liberalization of the LNG wholesale market beginning in 2025 as well as measures aimed at improving the market environment for direct imports of LNG for own-use. In July 2016, the Ministry of Trade, Industry and Energy announced measures to broadly spread the results of, and reform the regulations applicable to, new energy businesses. These measures include, among others, the expansion of own-use LNG imports. Notwithstanding such developments, the Company believes that its profitability for the near- to mid-term will not be materially affected, as a substantial portion of projected demand for natural gas in the next decade is expected to be satisfied under the Company's existing long-term supply contracts and new competitors for LNG import and wholesale will only be able to compete for the portion of projected demand that will not be met by the Company under its existing long-term supply contracts until such contracts terminate. Accordingly, the Company believes that new entrants would not be able to significantly penetrate the market in the near future. However, liberalization of the Korean natural gas industry may intensify competition in the LNG import and wholesale market in the future, which could have a material adverse effect on the Company's business, results of operation and financial condition, and the Company may be put at a disadvantage due to its long-term contracts and pricing structure. New entrants may be able to obtain natural gas at rates lower than those to which the Company has committed to purchase under its long-term contracts and may have more flexibility in pricing.

The government may privatize the Company by further reducing its ownership interest in the Company or spinning off parts of the Company's operations.

In the past, the government contemplated privatization of the Company through a reduction in the government's shareholding or a spin-off of the Company's LNG importation and distribution business. In June 2016, the Ministry of Economy and Finance announced broad-based measures to adjust the functions of government-controlled entities in the energy, environment and education sectors. These measures include, among others, (i) rationalization of the overseas natural resource exploration, development and production activities of government-controlled enterprises, including the Company and (ii) the public listing of shares of Korea Gas Technology Corp., a wholly-owned subsidiary of the Company, which provides system maintenance for the Company's gas-related facilities and designs and supervises the construction of natural gas production and supply facilities. Subsequently in June 2016, the Ministry of Trade, Industry and Energy announced improvement measures for the overseas natural resource exploration, development and production activities of government-controlled enterprises, including the Company. According to such improvement measures, the Company has developed a plan for the sale of its interests in overseas exploration, development and production operations, other than core assets (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 timing of any such sales will be subject to market conditions. Pursuant to such plan, in July 2018, the Company sold 10% of its equity interest in the LNG Canada project in British Columbia to Petronas of Malaysia. See "– The Company is subject to the control of the government, and its activities are heavily regulated." To the Company's knowledge, the government currently does not have any plan to privatize the Company through a reduction in the government's shareholding. However, there can be no assurance that the government will not consider privatization of the Company in the future. In such an event, the Company cannot be certain how reduced government control would affect its business and results of operations. In particular, the Company cannot provide any assurance that certain government policies, such as the pass-through of costs and guaranteed return on investment, would continue to exist after privatization or a reduction in government control. In addition, certain ship financing agreements relating to ships that are used exclusively by the Company require the central government and the local governments to maintain direct or indirect ownership or control of an aggregate of 30% of the Company's total issued and outstanding shares. Should any privatization plan not make specific arrangements for such provisions, the Company's liquidity, financial condition and results of operations could be adversely affected.

In the event that the central government and local governments of Korea cease to own and control (directly or indirectly or in combination) at least 50.1% of the Company's issued and outstanding capital stock (a "change of control event"), such event will trigger a change of control redemption provision under the Notes. See "Terms and Conditions of the Notes – Redemption and Purchase – Change of Control Redemption." Upon the occurrence of a change of control event, each holder of Notes will have the right to require the Company to redeem all or any part of such holder's Notes at a redemption price equal to 100% of their principal amount plus accrued but unpaid interest, if any, to the date of redemption. The failure to redeem any Notes required to be so redeemed would constitute an event of default under the Notes. The Company cannot assure you that it would have sufficient funds available at the time of a change of control event to make any repayment as described above.

The Company obtains substantially all of its natural gas from a small number of overseas suppliers.

The Company currently obtains substantially all of its LNG from overseas sources, including Australia, Oman, Qatar and the United States. The Company has found that developing relationships with certain key suppliers has enabled the Company to obtain consistent supplies of high quality natural gas at competitive prices. Any prolonged interruption in the supply of natural gas from any key suppliers would have a material adverse effect on the Company's business operations. In order to ensure a stable source of supply, the Company selectively enters into long-term LNG supply contracts typically for 20 years. Any significant interruption in the supply of natural gas from any of its suppliers could cause the Company to purchase gas on the spot market at prices higher than contracted, which in turn would result in an increase in the Company's gas sales prices to its customers. In addition, there is no guarantee that the Company would be able to find suitable alternative sources of long-term supply on a timely basis, on commercially acceptable terms or at all.

The volatility in the prices of natural gas, crude oil and other competing energy sources could affect demand for natural gas as a fuel source.

The Company's purchase price for LNG is primarily determined by crude oil prices, and the purchase price in Won terms is also affected by the exchange rate between the Won and the U.S. dollar. Driven primarily by a fluctuation in crude oil prices in recent years, the price of natural gas has also fluctuated significantly. The market price and supply of imported natural gas are subject to a variety of factors that are beyond the control of the Company, including political developments and instability in crude oil and natural gas producing regions (in particular the Middle East), activities of the Organization of Petroleum Exporting Countries ("**OPEC**") and other petroleum and natural gas producing nations in setting and maintaining production levels, and the development, market prices and supply levels of alternative or substitute energy sources, including the discovery and extraction of a large reserve of shale oil and gas in the United States. In particular, the ongoing global COVID-19 pandemic has materially and adversely affected the global economy and financial markets since 2020, which in turn also led to a decrease in the global demand for crude oil and natural gas in 2020. See "– Earthquakes, tsunamis, floods, severe health epidemics (including the ongoing global COVID-19 pandemic and any possible recurrence of other types of widespread infectious diseases) and other natural calamities could materially adversely affect the Company's business, results of operations or financial condition." Such developments 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. The market price of crude oil has recovered since then, as the oil producing nations were able to reach and have since sustained a consensus on reduced production levels, and global demand for oil has shown signs of improvement, reflecting the progress in ongoing COVID-19 vaccination efforts, rising mobility, as well as recovering global economic activity. More recently, global prices for crude oil and natural gas have increased in light of the disruptions in the supply of crude oil due to Russia's invasion of Ukraine in February 2022 and the ensuing sanctions imposed against Russia by the United States and other countries. Such developments, coupled with the impact of the COVID-19 pandemic, have led to increased uncertainty and volatility regarding the future prospects for crude oil prices. 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.

Most of the gas currently sold by the Company is sold under long-term contracts and therefore, in the short term, demand for gas is not materially affected by price volatility. However, long-term demand is dependent upon the relative prices of natural gas and competing alternative energy sources. If there is an increase in the price of crude oil, leading to an increase in the Company's gas sales price, there may be less demand for the Company's gas. For example, when natural gas prices are unusually high, power generating companies may switch from natural gas to cheaper sources of fuel. To the extent that the market price of alternative energy sources drops to and is sustained at a low level, or the Company's gas sales prices increase as a result of an increase in the price of LNG procured under future contacts, demand for the Company's natural gas may decrease, which could adversely affect the Company's business, results of operations and financial condition. Governmental policies may also impact the prices of natural gas and other competing energy sources. Although the Company's sales price adjustment mechanism enables the Company to pass on a substantial portion of the fluctuation in costs of natural gas imports to its customers through adjustments of the Formula Price, there can be no assurance that the Company will continue to be able to pass on increased costs without negatively impacting customer demand or the Company's long-term relationship with its customers.

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 loss on its assets. Likewise, certain of the entities in which the Company has made equity investments may be required to recognize impairment loss 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 loss on property, plant and equipment of Won 460 billion in 2019 and Won 386 billion in 2020, and impairment loss on intangible assets of Won 74 billion in 2019 and Won 76 billion in 2020, primarily related to impairment of assets of the Company's wholly-owned subsidiaries (mainly attributable to KOGAS Prelude Pty. Ltd., KOGAS Australia Pty. Ltd., KOGAS Canada Ltd. and KOGAS Canada Energy Ltd.) that invested in various overseas gas exploration, development and production projects. The Company recognized a reversal of impairment loss on property, plant and equipment of Won 442 billion in 2021 mainly attributable to a reversal of impairment loss related to machinery of KOGAS Australia Pty. Ltd. and a reversal of impairment loss on intangible assets of Won 89 billion in 2021 mainly attributable to a reversal of impairment loss related to mineral rights of KOGAS Australia Pty. Ltd., in each case due to increases in forecasted prices of oil and gas and improvements in the business environment. While these impairment losses do not have any effect on the Company's cash flow and may be reversed in the future upon changes in the business environment resulting in the resumption or reappraisal of the Company's related development activities, they do negatively impact the Company's results of operations and there is no assurance that such impairment losses will be reversed in whole, in part or at all, in the future.

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.

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

If earthquakes, tsunamis, floods, severe health epidemics or any other natural calamities were to occur in any area where any of the Company's assets, exploration, production or development projects or customers are located, the Company's business, results of operations or financial condition could be adversely affected. 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 natural gas. In addition, natural calamities in areas where the Company's customers are located may cause disruptions in their businesses, which in turn could adversely impact their demand for the Company's natural gas, which may also lead to lower prices for such natural gas.

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

While the Company believes that COVID-19 has not caused material disruption to its business operations to date, COVID-19 has had a material adverse effect on the overall Korean and global economies and the demand for, and the prices and margins of, the Company's products during 2020 and beyond. Primarily as a result of such effect, including the decrease in crude oil and natural gas prices described in "– The volatility in the prices of natural gas, crude oil and other competing energy sources could affect demand for natural gas as a fuel source," the Company's revenue decreased to Won 20,834 billion in 2020 from Won 24,983 billion in 2019, and the Company recorded net loss of Won 161 billion in 2020 compared to net profit of Won 58 billion in 2019. Risks associated with a prolonged outbreak of COVID-19, which was declared a pandemic in March 2020 by the World Health Organization, or other types of widespread infectious diseases include:

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

- disruption in the normal operations of the Company's business resulting from contraction of COVID-19 by the Company's employees or those of the Company's exploration, production and development projects, which may necessitate such employees to be quarantined and/or the Company's exploration, production and development projects or offices to be temporarily shut down, which in turn may adversely impact the Company's production capacity;

- disruption in the distribution of the Company's 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 Company's business, financial condition and results of operations and may also adversely affect the sale of the Company's overseas assets pursuant to the June 2016 Government Plan.

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

The expansion of the Company's gas processing, storage and transmission network will require additional capital for which the Company may be unable to obtain sufficient financing.

The Company is currently constructing storage facilities in Dangjin, and it also plans to make capital expenditures to increase its processing and storage capacity and further expand its national pipeline. The Company currently expects to spend approximately Won 3.8 trillion in planned capital expenditures from 2022 until 2024 relating to the expansion of its receiving terminals and storage capacity, construction of a liquid hydrogen plant and hydrogen refueling stations, and construction and maintenance of its pipeline network. The Company may from time to time adjust its future capital expenditures subject to market demand in Korea for natural gas, the production outlook of the global gas industry and global economic conditions in general. There can be no assurance that debt or equity financing or cash flow from operations will be available or sufficient to meet the Company's capital expenditure requirements or, if debt or equity financing is available, that it will be available on terms acceptable to the Company. Any inability of the Company to access sufficient capital could have a material adverse effect on the Company's growth strategy.

The Company engages in certain international activities and dealings, including dealings relating to Russia and Myanmar, that may be subject to or otherwise affected by economic sanctions administered and enforced by various jurisdictions. These economic sanctions may limit what dealings the Company can engage in, including dealings related to the Company's supply of LNG and natural gas, and may have other adverse effects on the Company's business and reputation.

The U.S. government, including the U.S. Department of the Treasury's Office of Foreign Assets Control, or OFAC, administers and enforces certain laws and regulations, or U.S. direct sanctions, that impose prohibitions or restrictions on dealings with or related to certain designated countries and territories, governments, entities and individuals, and entities majority-owned by such parties, that take place within U.S. jurisdiction. U.S. direct sanctions include territorial sanctions targeting specific countries and jurisdictions; blocking sanctions, which generally prohibit U.S. persons from engaging in transactions or other dealings with or involving blocked persons or the property or interests in property of blocked person; and non-blocking prohibitions and restrictions that target specific kinds of dealings, including, for example, dealings in debt or equity issued by certain designated parties after certain dates. U.S. direct sanctions are subject to frequent and unpredictable changes. For example, as a result of recent events in Ukraine and Myanmar, the United States has adopted new, additional and/or enhanced direct sanctions targeting, to different extents, Russia and Myanmar, and persons located in those jurisdictions. Although U.S. direct sanctions generally are not applicable to non-U.S. persons (although certain U.S. direct sanctions programs do apply to non-U.S. subsidiaries of U.S. companies), non-U.S. persons can be held liable for violations of U.S. direct sanctions to the extent they participate in prohibited transactions within U.S. jurisdiction (including transactions, for example, involving U.S. goods, services or technology, U.S. persons, or U.S. dollar payments that are cleared through the U.S. financial system). U.S. direct sanctions may apply to the Company or its dealings, and changes to U.S. direct sanctions may affect what dealings the Company can pursue or engage in, and/or what counterparties the Company can interact with.

In addition to U.S. direct sanctions, the United States maintains numerous secondary sanctions programs that give the U.S. government authority to impose a variety of sanctions on foreign parties that engage in certain sanctionable activities, including certain dealings with U.S. sanctioned persons, regardless of whether such sanctionable activities occur within U.S. jurisdiction. The imposition of U.S. secondary sanctions is not automatic, and instead requires specific action by the U.S. government. In practice, U.S. secondary sanctions are highly discretionary and may be strongly influenced by political considerations, and accordingly, are difficult to predict. Non-U.S. parties that engage in sanctionable activities are potentially subject to a number of sanctions, including, among other things, the blocking of any property within U.S. jurisdiction (including the possession or control of U.S. persons) in which the sanctioned party has an interest, and a prohibition on transactions or dealings with or involving such parties or property in which such persons have an interest if such transactions or other dealings are undertaken within U.S. jurisdiction. The Company's business and reputation could be adversely affected, for example, if the U.S. government were to determine that its activities, or the activities of any of its counterparties, involve sanctionable activity under U.S. secondary sanctions.

In addition to U.S. direct and secondary sanctions, other jurisdictions, including the European Union, the United Kingdom and Korea, administer and enforce their own economic sanctions that target certain countries and territories, governments, entities and individuals in varying respects. Like the United States, some of these jurisdictions have adopted new, additional and/or enhanced sanctions targeting Russia and Myanmar in response to recent events. These sanctions may apply to the Company or its dealings, and changes to such sanctions may affect what dealings the Company can pursue or engage in, and/or what counterparties the Company can interact with.

Any violation of applicable sanctions by the Company could result in criminal, civil, and/or administrative liability for the Company, including potentially substantial fines or other criminal, civil, and/or administrative penalties, and the Company's reputation being adversely affected.

The Company is engaged in the following dealings with sanctioned parties. As of the date of this document, the Company has no other dealings with sanctioned parties.

In July 2005, the Company entered into a long-term LNG supply agreement with Sakhalin Energy Investment Company ("**SEIC**"), which is 50% owned by Gazprom Sakhalin Holdings, a subsidiary of PJSC Gazprom, for the supply of LNG through 2028. PJSC Gazprom has been designated for certain U.S. non-blocking sanctions (including being designated under Directive 4 under Executive Order 13662 and Directive 3 under Executive Order 14024). Since SEIC is indirectly more than 50% owned by PJSC Gazprom, the same sanctions that apply to PJSC Gazprom apply to SEIC. In 2019, 2020, 2021 and the first three months of 2022, the Company's LNG supply sourced from SEIC represented approximately 4.7%, 4.2%, 3.5% and 5.1%, respectively, of its total LNG supply.

In December 2009, the Company joined a consortium including Gazprom Neft Badra B.V., a subsidiary of Gazprom Neft PJSC, to develop and produce oil and gas in the Badra oilfield in Iraq based on a 20-year technical service contract with the Iraqi government (the "**Badra Project**"). The Company holds a 22.50% equity interest in the Badra Project and Gazprom Neft Badra B.V. holds a 30.0% equity interest in the Badra Project (the remaining ownership interest in the Badra Project is held by non-sanctioned persons/the Iraqi government). Gazprom Neft PJSC has been designated for certain U.S. non-blocking sanctions (including being designated under Directives 2 and 4 under Executive Order 13662 and Directive 3 under Executive Order 14024) and certain EU and UK sanctions. Since Gazprom Neft Badra B.V. is more than 50% owned by Gazprom Neft PJSC, Gazprom Neft Badra B.V. is subject to the same restrictions as Gazprom Neft PJSC. In 2019, 2020, 2021 and the first three months of 2022, the Company's revenue recognized from the Badra Project represented approximately 0.8%, 0.5%, 0.6% and 0.4%, respectively, of its total revenue.

In November 2001, the Company made direct investments in a gas field development project in Myanmar from which the Company continues to derive revenue (the "**Myanmar Project**"). The Company holds an 8.5% equity interest in the Myanmar Project and Myanma Oil and Gas Enterprise ("**MOGE**") holds a 15.0% equity interest in the project (the remaining ownership interest in the Myanmar Project is held by non-sanctioned persons). MOGE has been designated for EU sanctions. In 2019, 2020, 2021 and the first three months of 2022, the Company's revenue recognized from the Myanmar Project represented approximately 0.5%, 0.5%, 0.3% and 0.1%, respectively, of its total revenue.

As noted above, these dealings predate the conflict in Ukraine which began in February 2022 and the February 2021 military coup in Myanmar and since such dates, the Company has not entered into any new agreements in, with, or involving Russia or Myanmar. While these dealings have historically included transactions conducted in U.S. dollars through U.S. financial institutions, the Company confirms that these transactions have been conducted at all times in full compliance with all sanctions laws. Furthermore, the Company does not have any dealings with the government of the Russian Federation, the Central Bank of the Russian Federation, VTB Bank Public Joint Stock Company, The Corporation Bank for Development and Foreign Economic Affairs Vnesheconombank, Promsvyazbank Public Joint Stock Company, Bank Rossiya, or any person or arrangement that is owned or controlled by any of the aforementioned entities. The Company is continuing to evaluate its business activities in, with, or involving Russia and Myanmar in light of recent developments and will only engage in additional transactions in, with, or involving Russia or Myanmar that are fully compliant with applicable sanctions. Although the Company believes that it is in compliance with all applicable sanctions, and intends to use its reasonable best efforts to maintain such compliance, the Company cannot guarantee that it will be in compliance in the future, particularly since the scope of such sanctions may be uncertain and such sanctions are subject to frequent and unpredictable changes. Additionally, changes to applicable sanctions may have a negative impact on the Company's stable procurement of LNG and natural gas or otherwise on its business or reputation. While the Company believes that adequate alternative supplies of LNG and natural gas are currently available to it, if the Company cannot obtain adequate LNG or natural gas volumes of the type and quality it requires or if it is able to obtain such types and volumes only at unfavorable prices as a result of applicable sanctions, the Company's business and results of operations could be materially and adversely affected.

The Company's business is highly seasonal, and this seasonality and weather conditions may lead to increased costs, the failure to fulfill natural gas supply contracts or reduced demand.

Demand for gas in Korea peaks during the winter and falls off considerably in the summer months. Furthermore, extreme weather conditions such as heat waves or winter storms could cause these seasonal fluctuations to be more pronounced. This seasonality may result in increased storage costs in the summer months and deficient supplies of LNG in winter months. Although the Company has historically been able to pass on to customers additional costs incurred as a result of increased storage costs or spot market purchases, there can be no assurance that it will be able to continue to do so in the future. In addition, warm winters and cool summers may reduce demand for natural gas by retail consumers and power generating companies. The Company has implemented various measures to reduce the effects of seasonality on its business, including offering incentives to city gas companies that use natural gas in the summer for cooling operations, but it can make no assurance as to the continued effectiveness of these measures.

The Company's supply and shipping contracts may require the Company to pay for LNG that it did not actually import.

Almost all of the Company's supply contracts contain take-or-pay provisions which require the Company to pay for an agreed amount of LNG annually even if the Company fails to actually take delivery of such agreed amount of LNG in a given year. In addition, 21 of the Company's shipping contracts include ship-or-pay clauses that oblige the Company to pay annually an agreed amount of costs payable by the shipping company if the Company fails to actually ship a certain volume of LNG in a given year.

To date, the Company has never been required to make payments under such take-or-pay or ship-or-pay clauses principally because, in most cases, it has been able to purchase and ship sufficient amounts of LNG to avoid triggering these clauses. On rare occasions, due to a decrease in demand, the Company purchased or shipped less than the agreed amounts of LNG, but the amounts were within the range allowed to be deferred under the supply or shipping contracts. However, if the Company's requirements for LNG were to be materially reduced in future years and the Company is not able to negotiate a reduction of the annual off-take or shipment volumes, the Company may incur payment obligations under these clauses. Because at times the Company must negotiate supply volumes with the power generating companies after committing to minimum purchases of LNG from overseas suppliers, the Company may be forced to make payments under its take-or-pay or ship-or-pay clauses if the volume agreed upon with the power generating companies is substantially lower than the Company's committed off-take amounts.

The Company's ability to pass on any take-or-pay or ship-or-pay obligations to city gas companies is limited because city gas companies are typically obliged to pay for only 2% of any amount they contract for but do not actually purchase. The Company believes that it will be able to pass on any such costs related to power generating companies if ever incurred, but can make no assurances that it will be able to do so. Thus, if the Company had to make any payments under its take-or-pay or ship-or-pay obligations, its financial condition and results of operations could be adversely affected.

The Company may have to make substantial payments under its shipping contracts if it discontinues using any ships currently under contract.

29 LNG ships that the Company currently uses were built specifically for use by the Company. Although the Company is not a party to the financing documents for these ships, it has entered into contracts of affreightment with the shipping companies. Under these contracts, the Company may be required to make payments in respect of the loans used to finance the construction of the ships if the Company were to terminate its use of one or more of the ships and, as a result, were not to make freight or other payments with respect to the use of such ships. Even if the Company were required to make the remaining payments under any ship financing documents, it would not acquire title to the relevant ship. Accordingly, if the Company terminates the use of ships and is required to make the committed payments, the Company's results of operations and financial condition could be adversely affected.

The Company relies on the subsidiaries of KEPCO for a substantial portion of its sales, and its results of operations and financial condition are affected by their performance and the mix of fuel sources they use to generate power.

The Company relies on the power generating subsidiaries of KEPCO for a substantial portion of the Company's sales. As of March 31, 2022, KEPCO held 20.5% of the Company's issued and outstanding shares. Sales volume to the subsidiaries of KEPCO accounted for 15.5%, 16.7%, 19.7% and 15.2% of the Company's sales volume in 2019, 2020, 2021 and the three months ended March 31, 2022, respectively. Consequently, the Company's sales volume is substantially affected by the amount of natural gas the Company sells to the subsidiaries of KEPCO and their overall policy to utilize natural gas as a fuel source for power generation. In addition, if the natural gas industry were to be liberalized, the subsidiaries of

KEPCO may satisfy a portion of their natural gas needs through the Company's competitors instead of the Company or by directly importing natural gas from overseas sources, and the subsidiaries of KEPCO may elect to discontinue using the Company's products and services. In 1999, the government amended the Petroleum Business Act to allow gas consumers to import LNG for their own use from 2001, and Korea Midland Power, a power generating subsidiary of KEPCO, started importing LNG directly from 2014. Furthermore, in June 2016, the Ministry of Economy and Finance announced broad-based measures to adjust the functions of government-controlled entities in the energy, environment and education sectors, which include, among others, the deregulation and gradual liberalization of the retail electricity market. There can be no assurance that the Company's key relationships with KEPCO or any of its subsidiaries will not terminate or otherwise be adversely impacted, or that demand for natural gas from the power generating subsidiaries of KEPCO will not continue to decrease. Any such development may have a material and adverse effect on the Company's business and results of operations.

Depreciation of the Won against the U.S. dollar may have an adverse effect on the Company's results of operations.

All of the LNG processed by the Company is imported from other countries pursuant to contracts denominated in U.S. dollars, and all of the Company's contracts with its customers for sales of natural gas are denominated in Won. Depreciation of the Won increases the amounts paid in Won for raw material costs, freight costs and interest and principal payment amounts on foreign currency-denominated debt as well as the Won amounts of the Company's foreign currency-denominated liabilities.

With respect to the Company's exposure to foreign currency risks related to raw material costs and freight costs, such risks to the Company are mitigated because the Ministry of Trade, Industry and Energy generally allows the Company to pass through its raw material costs (including freight costs) by periodically adjusting the Company's Formula Prices. The Company is also exposed to the risks inherent in its foreign currency positions relating to its foreign currency-denominated debt, which accounted for approximately 43% of the Company's total short-term borrowings and long-term debt (long-term borrowings and debentures including current portion less discount) as of March 31, 2022. It is the Company's policy to hedge all of its foreign currency-denominated debt through derivative instruments and asset-liability matching. The Company is also exposed to foreign currency risks on capital lease expenses relating to 30 of its LNG ships. For additional information, including how such capital lease expenses are hedged, see note 7 to the unaudited interim condensed consolidated financial statements, note 8 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020 and note 8 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019 included elsewhere in this offering circular. To the extent the Company has unhedged positions or its hedging and other risk management procedures do not work as planned, or the pass-through of cost increases resulting from foreign currency risks is delayed or not fully made, the Company's results of operations and financial condition could be adversely affected.

Importing, processing and transporting natural gas involve numerous risks that may result in accidents and other operating risks and costs.

Natural gas distributed by the Company is highly flammable and explosive. There is a significant risk of either accidents or leakage causing damage and/or injury. There can be no assurances that accidents will not occur and any significant accidents that arise at the fault of the Company could have a material adverse effect on the Company.

These risks could result in 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 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. Although the Company maintains insurance against most of these risks and losses, the occurrence of any of these events not fully covered by insurance could have a material adverse effect on the Company's financial position and results of operations.

The Company is subject to environmental regulations, and its operations could expose it to substantial liabilities.

The Company is subject to national and local environmental laws and regulations, which increasingly reflect the pressure to reduce emission of carbon dioxide relating to the Company's gas processing and transporting activities, and the Company's operations could expose it to risk of substantial liability relating to environmental or health and safety issues, such as those resulting from discharge of pollutants and carbon dioxide into the environment and the handling, storage and disposal of hazardous materials. The Company may also be responsible for the investigation and remediation of environmental conditions at currently and formerly operated sites. In addition, the Company may become subject to associated liabilities, including liabilities for natural resource damage, third party property damage or personal injury resulting from lawsuits brought by the government or private litigants. In the course of the Company's operations, hazardous materials may be generated at third party-owned or operated sites, and hazardous materials may be disposed of or treated at third party-owned or operated disposal sites. If those sites become contaminated, the Company could also be held responsible for the cost of investigation and remediation of such sites, for any associated natural resource damage, and for civil or criminal fines or penalties.

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 the 2021 United Nations Climate Change Conference ("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. 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 gas and fossil fuel-based power generation while increasing corporate expenses. 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 could have an adverse effect on the Company's debt issuances, could affect the Company's access to the 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 the Company's outstanding debt securities as well as on its business plans and financial performance.

Disputes with the Company's labor union may disrupt its business operations.

As of March 31, 2022, approximately 90% of the Company's employees were members of a labor union. The Company negotiates a collective bargaining agreement every two years as well as a wage agreement on an annual basis with its labor union. The latest collective bargaining agreement came into effect in January 2016 and will continue to be in effect until the Company negotiates a new collective bargaining agreement, which is currently under negotiations. The Company entered into a new wage agreement with its labor union in December 2021. In the past, the Company has experienced opposition from its labor union for concerns over the government's plans to liberalize and privatize the natural gas wholesale and transport industry and restructure the Company to improve its operating efficiency and profitability by reducing its employee base. Although the Company has not experienced any significant labor disputes and unrests that have interrupted its business operations in recent years, there can be no assurance that the Company will not experience in the future labor disputes and unrests, including expanded protests and strikes or protracted negotiation of the collective bargaining agreements, which could disrupt its business operations and have an adverse effect on its financial condition and results of operation.

Risks relating to the Company's Exploration, Development and Production Business

If the Company is unable to divest from overseas exploration, development and production operations on acceptable terms, the Company's financial condition and results of operations may be adversely affected.

In accordance with its debt reduction plan submitted to the Ministry of Economy and Finance and as part of its plan to bolster its overall financial soundness, the Company plans to concentrate on its core business of LNG import-related operations and pursue selective new business opportunities abroad. In June 2016, the Ministry of Economy and Finance announced broad-based measures to adjust the functions of government-controlled entities in the energy, environment and education sectors. These measures include, among others, rationalization of the overseas natural resource exploration, development and production activities of government-controlled enterprises, including the Company. The measures announced by the Ministry of Economy and Finance contemplate selling the Company's interests in overseas exploration, development and production operations, other than core assets, to private sector third parties. Subsequently in June 2016, the Ministry of Trade, Industry and Energy announced improvement measures for the overseas natural resource exploration, development and production activities of government-controlled enterprises, including the Company. According to such improvement measures, the Company has developed a plan for the sale of its interests in overseas exploration, development and production operations, other than core assets (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 timing of any such sales will be subject to market conditions. Pursuant to such plan, in July 2018, the Company sold 10% of its equity interest in the LNG Canada project in British Columbia to Petronas of Malaysia. In addition, 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. See "– The Company is subject to the control of the government, and its activities are heavily regulated."

Even if the Company is successful in disposing of certain of its overseas 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 divest from its overseas exploration, development and production operations 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 faces various risks associated with its investments worldwide, and if the Company is not able to effectively manage these risks, the Company's financial condition and results of operations may be adversely affected.

As part of a consortium or through acquisition of a minority interest, the Company engages in overseas gas exploration, development and production projects in various locations, including Australia, Iraq and Mozambique, as well as participates in LNG terminal operation and maintenance activities and invests in gas supply companies located abroad. The Company may also selectively acquire or invest in companies or businesses that may complement its business. Demand and market acceptance for the Company's activities abroad are subject to a substantially higher level of uncertainty than its natural gas import and wholesale business and are substantially dependent upon the market condition of the global natural gas industry. In addition, much of the Company's current exploration projects involve drilling exploratory wells on properties with no proven natural gas and oil reserves. Although all drilling, whether developmental or exploratory, involves risks, exploratory drilling involves greater risks of dry holes or failure to find commercial quantities of natural gas and oil.

Furthermore, 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. Furthermore, as the global competition for limited natural resources continues to intensify, the Company may face protectionist measures imposed by governments that are designed to protect local commercial interests.

The Company's operations abroad requires management attention and personnel resources. In addition, the Company's results of operations may be adversely affected by a number of risks 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;
- local labor relation issues which could lead to significant work stoppages and labor unrest;
- changes in laws, regulations or governmental policies, or in the interpretation or enforcement thereof, including those affecting taxes and royalties on energy resources, labor, environmental compliance and investments, as well as those driven by resource nationalism;
- difficulty and costs relating to compliance with different commercial and legal requirements, including obtaining licenses, permits or other regulatory approvals from local authorities and in enforcing the Company's rights under contracts;
- fluctuations in foreign currency exchange rates;
- foreign exchange controls and cash repatriation restrictions;
- military hostilities or acts of terrorism;
- forced relocation and labor issues arising from projects in countries that have weaker protections relating to labor and human rights; and
- natural disasters including earthquakes or tsunamis and landslides, and epidemics or outbreaks (such as the Middle East Respiratory Syndrome outbreak).

The likelihood of such risks being realized and their potential impact on the Company vary from country to country and are difficult to predict with any degree of accuracy. The Company may not be able to develop and implement policies and strategies that will be effective in each location where it conducts business, and there can be no assurance that the Company's exposure to such risks will not adversely affect the Company's business, results of operations and financial condition.

The Company may encounter problems with joint overseas gas exploration, development and production projects and large-scale infrastructure projects, which may materially and adversely affect its business.

In recent years, the Company has participated in a number of overseas gas exploration, development and production projects, as well as large-scale infrastructure projects. The Company typically pursues these gas exploration, development and production projects and infrastructure projects jointly with consortium partners or through acquisition of a minority interest in such projects, and the Company expects to be involved in other joint projects in the future. The Company typically lacks a controlling interest in the joint projects even though the Company sometimes holds the largest interest in the projects among the consortium partners. Therefore, the Company is usually 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 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 a stake in the joint project, may require the consent of all other partners. These limitations may adversely affect the Company's ability to obtain the economic and other benefits it seeks from participating in these projects.

In addition, the Company's consortium partners may:

- have economic or business interests or goals that are inconsistent with those of 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 and other factors may have a material adverse effect on the performance of the Company's joint projects and expose the Company to a number of risks, including the risk that the partners may be incapable of providing the required financial support to the partnerships and the risk that the partners may not be able to fulfill their other obligations, resulting in disputes not only between the Company and its partners, but also between the joint ventures and their customers. Such a development may in turn materially and adversely affect the Company's business, results of operations and financial condition.

Risks related to Korea

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

The Company is incorporated in Korea, where most of its assets are located and most of its income is generated. As a result, the Company is subject to political, economic, legal and regulatory risks specific to Korea, and its performance and successful fulfillment of its operational strategies are dependent in large part on the overall Korean economy. The economic indicators in Korea in recent years have shown mixed signs of growth and uncertainty, and future growth of the Korean economy is subject to many factors beyond the Company's control, including developments in the global economy. Any future deterioration of the Korean or global economy could adversely affect the Company's business, financial condition and results of operations.

In particular, the on-going COVID-19 pandemic, and more recently, Russia's invasion of Ukraine and the ensuing sanctions against Russia, have had an adverse impact on the Korean economy. Following the government's announcement of the first confirmed case of COVID-19 in Korea in January 2020, it has implemented a number of measures in order to contain the spread of the COVID-19 disease, including a nationwide order for social distancing, implementation of strict self-isolation and quarantine measures for those who may be infected, and the temporary closure of all school and other public facilities. In addition, the government has undertaken a series of actions to mitigate the adverse impact of the COVID-19 pandemic on the Korean economy, including (i) lowering of The Bank of Korea's policy rates, (ii) execution of a bilateral currency swap agreement with the U.S. Federal Reserve, (iii) provision of loans, guarantees and maturity extensions to eligible financial institutions, small- and medium business enterprises and self-employed business owners facing liquidity crises, and (iv) offering emergency relief payments for those impacted by the COVID-19 pandemic. However, the impact of the COVID-19 pandemic and the current and future sanctions against Russia to the Korean economy in 2022 and for the foreseeable future remains highly uncertain.

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

- declines in consumer confidence and a slowdown in consumer spending, including as a result of the ongoing global COVID-19 pandemic;

- the occurrence of severe health epidemics in Korea and other parts of the world (such as the ongoing global COVID-19 pandemic);

- adverse conditions or uncertainty in the economies of countries and regions that are important export markets for Korea, such as China, the United States, Europe and Japan, or in emerging market economies in Asia or elsewhere, including as a result of the ongoing COVID-19 pandemic, deteriorating relations between the United States and China and increased uncertainties resulting from the UK's exit from the European Union;

- hostilities, political or social tensions involving Russia (including the invasion of Ukraine by Russia and the 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 changes or volatility in foreign currency reserve levels, commodity prices (including oil prices), exchange rates, interest rates, inflation rates or stock 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;

- increased sovereign default risks in select countries and the resulting adverse effects on the global financial markets;
- deterioration in the financial condition or performance of small- and medium-sized enterprises and other companies in Korea due to the government's policies to increase minimum wages and limit working hours of employees;
- investigations of large Korean business groups and their senior management for possible misconduct;
- a continuing rise in the level of household debt and increasing delinquencies and credit defaults by retail and small- and medium-sized enterprise borrowers in Korea;
- the economic impact of any pending or future free trade agreements or of any changes to existing free trade agreements;
- social and labor unrest;
- substantial 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, in particular in light of the government's ongoing efforts to provide emergency relief payments to households and emergency loans to corporations in need of funding in light of COVID-19, which, together, would likely lead to a national budget deficit as well as an increase in the government's debt;
- financial problems or lack of progress in the restructuring of Korean business groups, other large troubled companies, their suppliers or the financial sector;
- increases in social expenditures to support an aging population in Korea or decreases in economic productivity due to the declining population size in Korea;
- political uncertainty or increasing strife among or within political parties in Korea;
- hostilities or political or social tensions involving oil producing countries in the Middle East (including a potential escalation of hostilities between the United States and Iran) and Northern Africa and any material disruption in the global supply of oil or sudden increase in the price of oil;
- natural or man-made disasters that have a significant adverse economic or other impact on Korea or its major trading partners; and
- an increase in the level of tensions or an outbreak of hostilities between North Korea and Korea or the United States.

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

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

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

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

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

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

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

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

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

In addition to preparing its financial statements in accordance with the KOGAS Act, the City Gas Business Act and the Accounting Process Standards for Public Enterprises and Semi-Governmental Institutions, the Company prepared and presented its audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020 and its audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019 in accordance with Korean IFRS and expects to prepare its financial statements in accordance with Korean IFRS for future periods, which differ in certain respects from accounting principles 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.

Risks related 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 KOGAS Act, the government is allowed 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.

The Notes are subject to transfer restrictions.

The Notes will not be registered under the Securities Act or any 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 to qualified institutional buyers in reliance on the exemption provided by Rule 144A, to certain persons in offshore transactions in reliance on Regulation S, or pursuant to another exemption from, or in another transaction not subject to, the registration requirements of the Securities Act and in accordance with applicable state securities laws. 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.

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

- prevailing interest rates;
- the Company's results of operations and financial condition;
- political and economic developments in and affecting Korea;
- the market conditions for similar securities; and
- the financial condition and stability of the Korean natural gas industry and the Korean financial sector.

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

In March 2021, the U.K. Financial Conduct Authority (the "FCA"), which has regulatory authority with respect to LIBOR, announced that all LIBOR settings will either cease to be provided by any administrator or no longer be representative (i) after December 31, 2021 in the case of all Sterling, Euro, Swiss Franc and Japanese Yen settings and the one-week and two-month U.S. dollar settings and (ii) after June 30, 2023 in the case of the remaining U.S. dollar settings. While the ICE Benchmark Administration, the administrator of LIBOR, may publish certain LIBOR settings on the basis of a synthetic methodology for "tough legacy" contracts, there is no guarantee that such rates will be determined and published after the announced deadlines nor confirmed to be representative by the FCA.

Given the extensive use of LIBOR across financial markets, the transition away from LIBOR presents various risks and challenges to financial markets and institutions, including the Company. The Company holds several lease liabilities that reference LIBOR and mature after the announced deadlines.

If not sufficiently planned for, the discontinuation of LIBOR or any other interest rate benchmark could result in increased financial, operational, legal, reputational and/or compliance risks. For example, a significant challenge will be managing the impact of the LIBOR transition on the contractual mechanics of LIBOR-based financial instruments and contracts that mature after the announced deadlines. Certain of these instruments and contracts may not provide for alternative reference rates, and even if such instruments and contracts provide for alternative reference rates, such alternative reference rates are likely to differ from the prior benchmark rates and may require the Company to pay interest at higher rates on the related obligations, which could adversely impact its interest expense, results of operations and cash flows. For example, the Secured Overnight Financing Rate ("**SOFR**") has been identified by the Alternative Reference Rates Committee convened by the Board of Governors of the U.S. Federal Reserve System and the Federal Reserve Bank of New York as the preferred alternative benchmark reference rate for LIBOR and differs from LIBOR in many respects, including its basis on actual observed transactions in the U.S. Treasury market as opposed to LIBOR's usage of estimations of borrowing rates. While there are a number of international working groups focused on transition plans and the provision of fallback contract language that seek to minimize market disruption, replacement of LIBOR or any other benchmark with a new benchmark rate, such as SOFR, could adversely impact the value of and return on existing instruments and contracts. Moreover, replacement of LIBOR or other benchmark rates could result in market dislocations and have other adverse consequences for market participants, including the potential for increased costs, and litigation risks stemming from potential disputes with customers and counterparties regarding the interpretation and enforceability of fallback contract language in the LIBOR-based financial instruments and contracts. Accordingly, the Company's failure to adequately prepare for the potential discontinuation of LIBOR could have a material adverse impact on its business, reputation, results of operations and financial condition.

For risks relating to the Company's Floating Rate Notes based on LIBOR, see "– The transition away from LIBOR and the application of a successor or alternative benchmark reference rate may adversely affect the value of and return on the Notes that are Floating Rate Notes."

The transition away from LIBOR and the application of a successor or alternative benchmark reference rate may adversely affect the value of and return on the Notes that are Floating Rate Notes.

In the case of the Notes that are Floating Rate Notes, LIBOR may be the benchmark reference rate used to calculate the rate of interest applicable to such Notes ("LIBOR-based Floating Rate Notes") for each interest period. In March 2021, the FCA announced that all LIBOR settings will either cease to be provided by any administrator or no longer be representative (i) after December 31, 2021 in the case of all sterling, euro, Swiss franc and Japanese yen settings and the one-week and two-month U.S. dollar settings and (ii) after June 30, 2023 in the case of the remaining U.S. dollar settings. See "– Uncertainties regarding the transition away from the London Interbank Offered Rate ("LIBOR") or any other interest rate benchmark could have adverse consequences for market participants, including the Company."

Upon the occurrence of a Benchmark Transition Event (as defined in Condition 6.2(b)(ii) of the Terms and Conditions of the Notes) with respect to LIBOR, including a public statement or publication of information by or on behalf of the FCA or the ICE Benchmark Administration announcing that the latter has ceased or will cease to provide LIBOR permanently or indefinitely, the Benchmark Replacement (as defined in Condition 6.2(b)(ii) of the Terms and Conditions of the Notes) as determined by the Company or its designee will replace LIBOR for all purposes relating to outstanding LIBOR-based Floating Rate Notes. Among other alternatives, the SOFR, which has been identified by the Alternative Reference Rates Committee convened by the Board of Governors of the U.S. Federal Reserve System and the Federal Reserve Bank of New York as the preferred alternative benchmark reference rate for LIBOR, together with any necessary spread adjustment, may be determined as the Benchmark Replacement to be used to calculate the rate of interest applicable to outstanding LIBOR-based Floating Rate Notes. Any such Benchmark Replacement determined by the Company or its designee will, in the absence of manifest error, be conclusive and binding on the applicable Noteholders. See "Terms and Conditions of the Notes – 6.2(b)(ii) Effect of Benchmark Transition Event." Accordingly, if a Benchmark Transition Event occurs with respect to LIBOR prior to the maturity of any LIBOR-based Floating Rate Notes, the method of calculation and rate of interest payable on such Notes will change. There is no guarantee that any Benchmark Replacement will be similar to, or behave in the same manner as, LIBOR, or that the rate of interest calculated based on any such Benchmark Replacement will not be lower than the rate of interest that would have applied to any LIBOR-based Floating Rate Notes for any interest period if LIBOR had continued to be used as the benchmark reference rate.

Uncertainty regarding the continued availability of LIBOR, as well as the rate of interest that would be applicable to LIBOR-based Floating Rate Notes if LIBOR is discontinued or ceases to be published, may negatively affect the trading market for and trading price of such Notes. Currently, it is not possible to predict future developments with respect to LIBOR or their timing or impact. Any such developments, including as a result of international, national or other initiatives for reform or the adoption of successor or alternative benchmark reference rates in the international debt capital markets, could have a material adverse effect on the value of and return on LIBOR-based Floating Rate Notes. If a Benchmark Transition Event occurs, a U.S. Holder holding LIBOR-based Floating Rate Notes may be deemed to have exchanged such Floating Rate Notes for new notes for U.S. federal income tax purposes, which may be taxable to such U.S. Holder. U.S. Treasury Regulations that went into effect on March 7, 2022 provide that in certain circumstances, the replacement of the Benchmark with a qualifying reference rate will not result in a deemed exchange under the Code. U.S. Holders should consult with their own tax advisors regarding the potential consequences of a Benchmark Transition Event.

Risks Relating to Forward-Looking Statements

This offering circular contains forward-looking statements that are the Company's present expectations of future events and are subject to certain factors and uncertainties that could cause actual results to differ materially from those described in the forward-looking statements.

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

- general economic, business and political conditions;
- fluctuations in prices of natural gas, crude oil and other competing energy sources;
- adverse trends in regulatory, legislative and judicial developments;
- the ability of third parties to perform in accordance with contractual terms and specifications;
- fluctuations in exchange rates between the Won and the U.S. dollar;
- the Company's leverage and its ability to meet its debt obligations;
- changes in competitive conditions in the Korean natural gas industry; 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, among others, 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 could increase, capital costs could increase, capital investment 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 disclaim 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.

CAPITALIZATION OF THE COMPANY

The following table sets forth the Company's capitalization (defined as the sum of long-term debt, excluding current portion, and equity) as of March 31, 2022 on a consolidated basis. This table should be read in conjunction with the Company's unaudited interim condensed consolidated financial statements included elsewhere in this offering circular.

	As of March 31, 2022
	Outstanding
	(in billions of Won)
Long-term debt (excluding current portion):	
Debentures, net of discount	₩16,519
Long-term borrowings	184
Total long-term debt	16,703
Equity:	
Share capital	462
Share premium	1,304
Hybrid bonds	335
Retained earnings	6,693
Other components of equity	629
Equity attributable to owners of the parent	9,421
Non-controlling interests	237
Total equity	9,658
Total capitalization	₩26,361

There has been no material change in the Company's capitalization (on a consolidated basis) since March 31, 2022.

SELECTED FINANCIAL AND OPERATING DATA

The following tables present selected consolidated financial and operating 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.

SELECTED FINANCIAL DATA

The selected financial data as of and for the years ended December 31, 2019, 2020 and 2021 below are derived from the Company's consolidated financial statements included elsewhere in this offering circular, which have been prepared in accordance with Korean IFRS. The selected financial data as of March 31, 2022 and for the three months ended March 31, 2021 and 2022 below are derived from the Company's unaudited interim condensed consolidated financial statements included elsewhere in this offering circular, which have been prepared in accordance with Korean IFRS No. 1034 *Interim Financial Reporting*.

	For the year ended December 31,			For the three months ended March 31,	
	2019	**2020**	**2021**	**2021**	**2022**
	(in billions of Won)				
Selected Statements of Comprehensive Income Data:					
Revenue	₩24,983	₩20,834	₩27,521	₩7,711	₩13,979
Cost of sales	(23,227)	(19,513)	(25,859)	(6,838)	(12,958)
Gross profit	1,756	1,320	1,662	873	1,021
Selling and administrative expenses	(421)	(421)	(422)	(109)	(109)
Operating profit	1,335	899	1,240	765	913
Other income	3	4	35	31	153
Other expenses	(58)	(61)	(46)	(4)	(6)
Other gains (losses)	(466)	(448)	549	4	6
Finance income	451	730	881	378	403
Finance costs	(1,253)	(1,427)	(1,472)	(524)	(534)
Gains on investments in associates and joint ventures, net	105	34	180	42	96
Profit (loss) before income tax	116	(269)	1,367	692	1,030
Income tax benefit (expense)	(58)	108	(403)	(177)	(293)
Profit (loss) for the year/period	₩58	₩(161)	₩965	₩515	₩736
Profit (loss) for the year/period attributable to:					
Owners of the parent	39	(172)	951	513	733
Non-controlling interests	20	11	14	2	3
Total comprehensive income (loss)	₩117	₩(286)	₩1,080	₩556	₩793
Total comprehensive income (loss) attributable to:					
Owners of the parent	92	(289)	1,054	548	788
Non-controlling interests	24	3	26	8	6
Selected Cash Flow Data:					
Net cash provided by (used in) operating activities	₩1,986	₩3,251	₩(2,071)	₩(434)	₩(2,556)
Net cash used in investing activities	(1,397)	(972)	(1,170)	(149)	(221)
Net cash provided by (used in) financing activities	(582)	(2,190)	3,476	748	2,928

	As of December 31,			As of March 31,
	2019	2020	2021	2022
	(in billions of Won)			
Selected Statements of Financial Position Data:				
Cash and cash equivalents	₩257	₩332	₩565	₩752
Trade and other receivables	5,137	4,245	6,979	8,767
Inventories	2,645	1,390	3,583	2,806
Current non-financial assets	1,085	1,503	1,886	3,750
Other current assets	108(1)	58(1)	135(1)	180(1)
Total current assets	9,233	7,528	13,148	16,255
Long-term trade and other receivable	283	201	210	215
Property, plant and equipment	24,377	23,134	23,581	23,528
Non-current non-financial assets	469	272	1,507	4,339
Other non-current assets	4,949(2)	4,774(2)	5,224(3)	5,440(3)
Total non-current assets	30,079	28,382	30,522	33,521
Total assets	₩39,312	₩35,910	₩43,670	₩49,777
Total current liabilities (including current portion of long-term debt)	₩8,901	₩7,213	₩14,022	₩19,073
Total non-current liabilities	22,265	20,962	20,529	21,046
Total liabilities	31,165	28,175	34,551	40,119
Total equity	8,147	7,735	9,119	9,658
Total liabilities and equity	₩39,312	₩35,910	₩43,670	₩49,777

(1) The amount includes the current portions of financial assets at fair value through profit or loss, financial assets at amortized cost, short-term loans, short-term financial instruments, current tax assets, and short-term contract assets.

(2) The amount includes the non-current portions of financial assets at fair value through profit or loss, financial assets at fair value through other comprehensive income, financial assets at amortized cost, long-term loans, long-term financial instruments, other financial assets, intangible assets other than goodwill, investments in associates and joint ventures, net defined benefit assets and deferred tax assets.

(3) The amount includes the non-current portions of financial assets at fair value through profit or loss, financial assets at fair value through other comprehensive income, financial assets at amortized cost, long-term loans, long-term financial instruments, other financial assets, intangible assets other than goodwill, goodwill, investments in associates and joint ventures, net defined benefit assets and deferred tax assets.

SELECTED OPERATING DATA

	For the year ended December 31,			For the three months ended March 31,	
	2019	2020	2021	2021	2022
Average daily sales volume (metric tons)	92,047	88,677	101,132	134,667	141,289

	As of December 31,			As of March 31,
	2019	2020	2021	2022
Send-out capacity (metric tons/hour)	15,360	15,340	15,340	15,340
Pipeline length (kilometers)	4,908	4,945	5,027	5,027
Storage capacity (thousands of kiloliters)	11,560	12,160	12,160	12,160

THE COMPANY

Business

The Company is the only company in Korea engaged in the wholesale distribution of natural gas, and is one of the largest importers of LNG in the world. Since beginning commercial operations in 1986, the Company has significantly expanded its operations, supplying 36.9 million metric tons of natural gas in 2021 and 12.7 million metric tons in the first three months of 2022. The Company believes that natural gas supplied by the Company accounted for approximately 19.6% of the primary energy consumed in Korea in 2021. The Company supplies gas primarily to 34 city gas companies, five non-nuclear power generating subsidiaries of KEPCO and 22 other power generating companies in Korea. The Company imports LNG primarily through long- and medium-term contracts with overseas suppliers. From time to time, the Company also purchases LNG on the spot market to cover short-term fluctuations in demand for natural gas.

The Company was established by the government on August 18, 1983 to facilitate the implementation of the government's policies relating to the diversification of energy sources through the development of the natural gas industry. The government has sought to reduce Korea's dependence on fossil fuels, such as petroleum and coal, partly to reduce its vulnerability to the international oil market, but also in response to growing international and domestic awareness of environmental issues. Through its direct and indirect holdings, the government controls a majority of the Company's issued share capital. As of March 31, 2022, the government directly and indirectly held 46.7% of the Company's issued and outstanding shares, and local governments held an additional 7.9% of the Company's issued and outstanding shares. Accordingly, the government has historically influenced, and is likely to continue to influence, the Company's strategy, operations and management. The Company is heavily regulated by a variety of laws and regulatory bodies, including the Ministry of Trade, Industry and Energy and the Ministry of Economy and Finance. The government also has the ability to influence and control other government-related entities, such as the five non-nuclear power generating subsidiaries of KEPCO, which are the Company's customers. 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 natural gas industry that are not necessarily in the Company's best commercial interests. For example, public policy considerations relating to the level of the Company's profitability affect the Company's prescribed rate of return.

As part of its efforts to diversify its operations and prepare for the potential restructuring and liberalization of the natural gas industry in Korea as well as in response to the government's policy to promote procurement of natural resources, the Company has participated in exploration, development and production of natural gas outside Korea. As part of a consortium or through acquisition of a minority interest, the Company engages in overseas gas exploration and development in various locations, including Australia, Iraq and Mozambique, as well as participates in LNG terminal operation and maintenance activities and invests in gas supply companies located abroad. Some of these projects have recently begun to generate profits after years of investment, and the Company intends to make the scheduled or requisite investments in its overseas projects.

In more recent years, the Company's strategic goal has been to enhance profitability and financial soundness through debt reduction, including through disposition of non-core or unprofitable assets and issuance of equity and/or equity-linked securities, as well as various other cost-saving measures. Such strategic goal is in line with the Company's debt reduction plan submitted to the Ministry of Economy and Finance and as part of its plan to bolster its overall financial health. Accordingly, the Company plans to concentrate on its core business of LNG import-related operations and pursue selective new business opportunities domestically and abroad. For example, in May 2021, the Company announced that it has partnered with GS Caltex Corporation to launch a liquid hydrogen production and supply business, which will involve the construction of a liquid hydrogen plant with an average annual production capacity of approximately 10,000 tons of liquid hydrogen per year by 2025. In overseas gas exploration, development and production projects, the Company invested approximately Won 488 billion in 2019, Won 508 billion in 2020, Won 495 billion in 2021 and Won 119 billion in the first three months of 2022, and it expects to invest approximately Won 667 billion in such projects in the remainder of 2022, substantially all of which relate to committed capital expenditures on its existing projects, including the construction of the liquid hydrogen plant described above.

The Company's facilities consist primarily of its gas processing terminals, storage facilities and a nationwide pipeline network. The Company imports, receives and revaporizes LNG at its LNG receiving terminals and then distributes natural gas to its customers through its nationwide network of pipelines that encompassed 5,027 kilometers as of March 31, 2022. The Company has five receiving terminals located in Pyongtaek, Incheon, Tongyeong, Samcheok and Jeju. As of March 31, 2022, the Pyongtaek, Incheon, Tongyeong, Samcheok and Jeju terminals had LNG storage capacities of 3.4 million kiloliters, 3.5 million kiloliters, 2.6 million kiloliters, 2.6 million kiloliters and 0.1 million kiloliters, respectively. The Company intends to expand both its pipeline network and storage capacity to meet forecasted increases in demand for natural gas in Korea.

The Company generated revenue of Won 27,521 billion in 2021 and had total assets of Won 43,670 billion and total equity of Won 9,119 billion as of December 31, 2021. The Company generated revenue of Won 13,979 billion in the first three months of 2022 and had total assets of Won 49,777 billion and total equity of Won 9,658 billion as of March 31, 2022.

THE KOREAN GAS INDUSTRY

Energy Policy

The government has long had an active involvement in the energy sector, necessitated by the limited availability of domestic energy resources. Early energy policy was driven by a desire to maintain rapid economic growth. However, the present government policy is to develop a sustainable energy policy in which economic growth, energy security and environmental goals are balanced.

In the past, priority was placed on the development of energy resources to meet increasing energy demand generated by Korea's rapid economic growth. The oil crisis experienced in the 1970s exposed Korea's over-dependence on oil as its primary source of fuel. In an effort to achieve a more secure energy supply, the government encouraged diversification into other sources of primary fuel and the development of alternative fuel sources. Accordingly, as is the case for the majority of developed economies, the government created a centralized agency, namely the Ministry of Trade, Industry and Energy (and its predecessors) to link its energy policy as an integral part of the wider economic and industrial policies.

In order to secure the necessary and appropriate sources of energy, the Ministry of Trade, Industry and Energy prepares various energy plans that guide energy policy, including the importation and production plans for Korea's energy providers. The Basic National Energy Plan (the "**Basic Plan**") is prepared by the government every five years and contains plans for various types of energy (petroleum, gas, electric power, hard and soft coal, other minerals, and new and renewable energy sources). The third Basic Plan was established on June 4, 2019. The Long-Term Natural Gas Supply-Demand Plan (the "**Long-Term Plan**") is updated every two years and lays out the government's projections for natural gas demand in Korea. The current Long-Term Plan was last announced in April 2021.

According to the third Basic Plan, the percentage of total energy consumption to be satisfied by gas in Korea is expected to rise from 19.3% in 2017 to 25.4% in 2040, and total demand for natural gas in Korea is expected to increase at a compound annual growth rate of 1.8% during this period from 47.2 million tons in 2017 to 71.2 million tons in 2040. In comparison, according to the third Basic Plan, the percentages of total energy consumption to be satisfied by coal, oil, nuclear power and renewable energy are expected to change from 35.2% to 30.5%, 25.8% to 20.7%, 12.9% to 8.6% and 6.1% to 14.1%, respectively, in each case, from 2017 to 2040, with a compound annual growth rate of 0.0%, 0.4%, 1.2% and 4.3%, respectively, during this period, with a total compound annual growth rate of 0.6% for all types of energy during this period. The Ministry of Trade, Industry and Energy's demand forecasts are typically conservative compared to actual demand and generally have been revised upwards to reflect rising gas usage. Furthermore, in July 2014, to rationalize energy consumption patterns nationally and promote an increased use of natural gas in lieu of electricity, the individual consumption tax rate applicable to natural gas for uses other than power generation was lowered from Won 60 per kilogram to Won 42 per kilogram subject to certain variations, which enhanced the price competitiveness of natural gas compared to other energy sources. For further discussion of these plans, see "Regulation of the Korean Gas Industry." In addition to providing support in the production of the required reports of the government, the Company uses a demand forecast model to continually update and revise gas demand forecasts for its own internal purposes.

In general, the rate of growth in energy demand in Korea has been closely correlated to the rate of growth in the overall economy, reflected in such measures as GDP growth. According to the third Basic Plan, Korea's gross domestic product is expected to grow at a compound annual growth rate of 2.0% per annum during the period from 2017 to 2040. In addition to growth in the overall economy, other factors such as environmental regulations are expected to have a significant positive impact on the growth of natural gas demand as regulations that promote or mandate "clean energy" have the effect of encouraging greater use of natural gas compared to other conventional fuel sources.

Industry Liberalization

Since 1998, the government has stated that it is considering various options regarding the liberalization of the natural gas industry to introduce competition and greater transparency. In 1999, the government amended the Petroleum Business Act to allow gas consumers to import LNG for their own use from the year 2001. Since the passage of the amendment, twelve companies, GS Caltex, GS EPS, SK Hynix, GS Power, POSCO, POSCO Energy, S-Oil, SK E&S, SK Energy, Korea Zinc, SPPC, Hyundai Chemical and Hanwha Solutions have imported LNG for their own use, and Korea Midland Power, a power generating subsidiary of KEPCO, started importing LNG directly from 2014. The Company can give no assurance that additional companies will not import LNG for their own use in the future.

In October 2008, the Ministry of Trade, Industry and Energy proposed a road map to permit other companies to enter the LNG import and wholesale market in Korea. The road map contemplates gradual liberalization, initially starting with liberalization of the market for power generating companies followed by the market for industrial usage. In January 2014, the City Gas Business Act was amended to permit other companies to enter the LNG market. The amendment allows LNG traders, upon registration, to store LNG in bonded areas (in accordance with the Customs Act of Korea) for onward sales overseas, but prohibits sales of such stored LNG to domestic third parties in Korea. The amendment also allows overseas sales of LNG by domestic companies that directly import LNG for their own use. In June 2016, the Ministry of Economy and Finance announced broad-based measures to adjust the functions of government-controlled entities in the energy, environment and education sectors. These measures include, among others, the gradual liberalization of the LNG wholesale market beginning in 2025 as well as measures aimed at improving the market environment for direct imports of LNG for own-use. In July 2016, the Ministry of Trade, Industry and Energy announced measures to broadly spread the results of, and reform the regulations applicable to, new energy businesses. These measures include, among others, the expansion of own-use LNG imports. Notwithstanding such developments, the Company believes that its profitability for the near- to mid-term will not be materially affected, as a substantial portion of projected demand for natural gas in the next decade is expected to be satisfied under the Company's existing long-term supply contracts and new competitors for LNG import and wholesale will only be able to compete for the portion of projected demand that will not be met by the Company under its existing long-term supply contracts until such contracts terminate. Accordingly, the Company believes that new entrants would not be able to significantly penetrate the market in the near future. However, such liberalization plans may intensify competition in the LNG import and wholesale market in the future.

Privatization of the Company

In the past, the government contemplated privatization of the Company through a reduction in the government's shareholding or a spin-off of the Company's LNG importation and distribution business. In June 2016, the Ministry of Economy and Finance announced broad-based measures to adjust the functions of government-controlled entities in the energy, environment and education sectors. These measures include, among others, (i) rationalization of the overseas natural resource exploration, development and production activities of government-controlled enterprises, including the Company and (ii) the public listing of shares of Korea Gas Technology Corp., a wholly-owned subsidiary of the Company, which provides system maintenance for the Company's gas-related facilities and designs and supervises the construction of natural gas production and supply facilities. With respect to the overseas natural resources exploration, development and production operations of the Company, the measures announced by the Ministry of Economy and Finance contemplate selling the Company's interests in such operations, other than core assets, to private sector third parties. Subsequently in June 2016, the Ministry of Trade, Industry and Energy announced improvement measures for the overseas natural resource exploration, development and production activities of government-controlled enterprises, including the Company. According to such improvement measures, the Company has developed a plan for the sale of its interests in overseas exploration, development and production operations, other than core assets (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 timing of any such sales will be subject to market conditions. Pursuant to such plan, in July 2018, the Company sold 10% of its equity interest in the LNG Canada project in British Columbia to Petronas of Malaysia. In addition, 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. See "– The Company is subject to the control of the government, and its activities are heavily regulated." To the Company's knowledge, the government currently does not have any plan to privatize the Company through a reduction in the government's shareholding. However, there can be no assurance that the government will not consider privatization of the Company in the future.

SALES

The Company's sales are primarily split between two customer groups: city gas companies and power generating companies. Demand for natural gas from the city gas companies has grown over the past decade as new pipeline connections have increased access to natural gas and customers that used other forms of energy switched to natural gas as it became available. Over a third of sales to power generating companies are to the five non-nuclear power generating subsidiaries of KEPCO. The Company also sold natural gas to 22 other power generating companies that, in the aggregate, owned 38 power plants as of March 31, 2022.

In addition, the Company sells compressed natural gas to private transport companies and companies that operate portable gas fueling stations. The Company also earns fees from companies that utilize the Company's pipelines in order to transport LNG, as well as fees from diverting LNG through a private company that uses the low temperatures of LNG for cooling purposes before LNG reaches the Company's revaporizing facilities.

The Company first supplied natural gas to city gas companies in 1987. Since then, sales to city gas companies have surpassed sales to power generating companies and grew to approximately 19,331 thousand metric tons in 2021 and 7,640 thousand metric tons in the first three months of 2022. The residential gas penetration rate in Korea in 2021 was 83.6% compared to 50% in 1998. The growth in volume of natural gas supplied to residential and business heating end-users and industrial end-users has slowed in recent years. However, the Company believes that there remains potential to increase natural gas sales to such users where penetration rates are relatively lower.

The Company first sold natural gas to KEPCO in 1986. Sales of natural gas by the Company to power generating companies amounted to 17,582 thousand metric tons in 2021 and 5,014 thousand metric tons in the first three months of 2022.

The table below provides details of gas sales volume for the periods indicated.

	For the year ended December 31,						For the three months ended March 31,			
	2019		2020		2021		2021		2022	
	Sales volume	Percent of total	Sales volume	Percent of total	Sales volume	Percent of total	Sales volume	Percent of total	Sales volume	Percent of total
	(in thousands of metric tons)									
City gas companies:										
Residential/ business heating. .	8,322	24.8%	8,631	26.7%	8,793	23.8%	4,212	34.8%	4,526	35.8%
Industrial	7,534	22.4	6,906	21.3	7,589	20.6	2,104	17.4	2,071	16.4
Others	2,966	8.8	2,710	8.4	2,949	8.0	925	7.5	1,043	8.2
Sub-total	18,822	56.0	18,247	56.4	19,331	52.4	7,241	59.7	7,640	60.4
Power generating companies:										
Subsidiaries of KEPCO	5,200	15.5	5,396	16.7	7,269	19.7	1,922	15.9	1,923	15.2
Others	9,575	28.5	8,724	27.0	10,313	27.9	2,957	24.4	3,091	24.4
Sub-total	14,775	44.0	14,120	43.6	17,582	47.6	4,879	40.3	5,014	39.6
Total sales volume . . .	33,597	100.0%	32,367	100.0%	36,913	100.0%	12,120	100.0%	12,654	100.0%

City Gas Companies

As of March 31, 2022, the Company supplied natural gas to 34 city gas companies in Korea. The Company supplies natural gas to city gas companies generally under 20-year contracts, which may be extended if the parties agree to an extension of five years before expiration of the relevant contract. Under these contracts, in November of each year, the volume of gas to be supplied each month of the following year is determined. If the volume that a city gas company fails to purchase is greater than 10% of the agreed amount, these contracts typically contain penalty provisions that oblige the city gas company to pay 2% of the amount they contract for but do not actually take. The penalty does not apply if extreme weather conditions cause a decrease in demand. Thus, the Company may not be able to fully pass through to the city gas companies any costs it incurs under its own take-or-pay or ship-or-pay obligations discussed below.

The table below shows the city gas penetration rate as of December 31, 2021.

Region/City	Total number of households	Households with natural gas supply	Penetration rate(1)
	(in thousands)		(%)
Seoul	4,426	4,358	98.5
Incheon	1,299	1,165	89.7
Gyeonggi	5,842	4,956	84.8
Busan	1,545	1,495	96.8
Daegu	1,064	1,036	97.4
Gwangju	646	646	100.0
Daejon	664	623	93.8
Ulsan	483	464	96.2
Sejong	154	112	72.9
Gangwon	746	404	54.1
Chungbuk	761	526	69.1
Chungnam	1,002	713	71.1
Jeonbuk	849	611	72.0
Jeonnam	903	491	54.3
Gyeongbuk	1,277	856	67.1
Gyeongnam	1,506	1,140	75.7
Jeju	307	36	11.7
Total	23,473	19,632	83.6

Source: City Gas Companies Association.

(1) Discrepancies in the penetration rate are due to rounding.

Although residential heating and electricity generation have been, and are expected to continue to be in the foreseeable future, the major uses of natural gas, natural gas has also become a key energy source for industrial use, including in the manufacturing of food, textile, metal, machinery and chemical products. Sales volume of natural gas for industrial use represented 20.6% of the Company’s total sales volume and 39.3% of the Company’s sales volume to city gas companies in 2021 and 16.4% of the Company’s total sales volume and 27.1% of the Company’s sales volume to city gas companies in the first three months of 2022.

The table below provides details of sales by volume to the Company's major city gas customers for the periods indicated.

	For the year ended December 31,			For the three months ended March 31,	
	2019	2020	2021	2021	2022
	(in thousands of metric tons)				
Samchully	2,985	2,949	3,153	1,145	1,240
Seoul	1,558	1,511	1,552	663	721
Gyeongdong	1,813	1,461	1,800	631	556
Ko-one	1,237	1,200	1,250	506	538
Busan	1,088	1,084	1,102	415	446

As a substantial portion of natural gas supplied by the Company is used for heating of residential and commercial units, sales tend to be heavily skewed toward the winter months. Gas demand from the residential and commercial sectors is predominantly for heating purposes, and demand for gas in the winter months is significantly greater than in the summer months due to Korea's climate in which winters tend to be long and cold. The demand gap, or "Turn-Down Ratio," for city gas companies was approximately 3:1 in 2021, meaning that in such year, sales in the month with the highest gas usage were approximately three times greater than sales in the month with the lowest gas usage.

At the beginning of the winter season, the Company's storage tanks generally achieve full capacity levels, whereas at the end of the winter season the storage tanks operate at significantly lower utilization rates, which then gradually increase during the summer and fall seasons. In order to use overall capacity and storage facilities more efficiently year-round, the Company seeks to reduce the seasonality effect by boosting demand for natural gas during the summer, including through the following initiatives:

- focusing on new customer types with more stable demand patterns, particularly industrial consumers;
- developing a price structure that encourages increased summer demand;
- promoting the use of natural gas-powered air conditioning; and
- promoting the use of compressed natural gas-powered cars and buses.

Power Generating Companies

The Company's sales to power generating companies are split between two customer segments: the five non-nuclear power generating subsidiaries of KEPCO and the 22 other power generating companies in Korea. The power generating companies' generating systems consist of nuclear, thermal, hydro and internal combustion units, which at the end of 2021 had an aggregate installed generating capacity of 134,020 megawatts. According to the Korea Power Exchange, it was estimated that natural gas was used for approximately 29.2% of the power generating companies' gross generating production in 2021. Because of the variety of energy sources available to the power generating companies, it is the government's practice to first allocate supplies of LNG to the city gas companies, which do not have the same flexibility.

Power Generating Subsidiaries of KEPCO

From the Company's inception until April 2001, it supplied natural gas to KEPCO. In April 2001, pursuant to a restructuring plan for the electricity industry in Korea, KEPCO's non-nuclear generating capacity was divided among the following five separate power generating subsidiaries, each with its own management structure, assets and liabilities: Korea South-East Power Co., Ltd., Korea Southern Power Co., Ltd., Korea Midland Power Co., Ltd., Korea Western Power Co., Ltd. and Korea East-West Power Co., Ltd. Each of these subsidiaries remains wholly owned by KEPCO, although the government may gradually reduce KEPCO's shareholding of each such subsidiary.

The Company entered into 20-year LNG supply contracts with the five non-nuclear power generating subsidiaries of KEPCO that are currently scheduled to expire between December 2026 and December 2039. Under the terms of the contracts, the Company's annual sales quantity is determined annually through negotiations with the power generating companies, subject to the government's approval, and may be adjusted through negotiations between the parties. The Company and each power generating company have agreed that, if the Company and the relevant power generating company cannot agree on the annual purchase quantity, the power generating company will continue to purchase LNG from the Company, with the purchase quantity being determined based on the average of the quantities purchased during the preceding three years. The five non-nuclear power generating subsidiaries of KEPCO are jointly and severally liable for a take-or-pay obligation to the Company to the extent of their annual purchase quantity.

As discussed above in "– The Korean Gas Industry – Energy Policy" and in "Regulation of the Korean Gas Industry," energy policy in Korea is expressed through a series of government energy plans. These plans are periodically revised every two to five years and their main objectives include maintaining a balance between energy supply and demand, improving efficiency within the electricity industry and ensuring the production of electricity in an environmentally clean manner. The government also develops electricity plans ("**Electricity Plans**") which effectively determine the power generating companies' long-term plans for construction of generating units. In December 2020, the government published in consultation with KEPCO the Ninth Electricity Plan which forecasts electricity supply and demand until 2034. The Ninth Electricity Plan projects that electricity consumption will grow at an average growth rate of 1.6% from 2020 to 2034 and increase to 647,893 gigawatt hours in 2034 from 516,651 gigawatt hours in 2020. The Ninth Electricity Plan contemplates significant capacity increases in power generated from nuclear, coking coal and renewable energy sources, while it projects capacity decreases in power generated from hard coal and oil. The capacity for power generated from LNG is expected to increase to 59,096 megawatts in 2034 from 41,316 megawatts in 2020.

Other Power Generating Companies

In addition to the five non-nuclear power generating subsidiaries of KEPCO, the Company currently supplies natural gas to 22 other power generating companies. The following table describes the natural gas usage capacities of these companies as of March 31, 2022.

	Number of power plants	Capacity
		(in megawatts)
Posco Energy Corporation	5	2,276
GS Power Co., Ltd.	2	932
GS EPS Co., Ltd.	2	915
CGN Yulchon Generation Co., Ltd.	2	1,390
Pyongtaek Energy Co., Ltd..	1	770
Pocheon Power Co., Ltd..	2	1,450
S-Power Co., Ltd..	1	751
Dongducheon Dream Power Co., Ltd.	2	1,717
Pocheon IPP Co., Ltd..	1	874
KOSPO Youngnam Power Co., Ltd.	1	400
Korea District Heating Co., Ltd.	6	2,076
Busan-Jungkwan Energy Co., Ltd.	2	100
Incheon Airport Energy Co., Ltd..	1	127
Incheon Total Energy Company	1	187
Suwan Energy Co., Ltd.	1	115
Byeollae Energy Co., Ltd..	1	115
Daeryun Power Co., Ltd..	1	524
Daegu Green Power Co., Ltd.	1	371
Narae Energy Service Co., Ltd.	1	364
DS Power Co., Ltd.	1	436
Chuncheon Energy Co., Ltd.	1	431
Korea Land & Housing Corporation	1	102
Total	37	16,423

Wholesale Pricing of Natural Gas

Wholesale gas and gas supply prices are set by the Ministry of Trade, Industry and Energy after consultations with the Ministry of Economy and Finance. A sales price adjustment mechanism is implemented pursuant to the Supply of Natural Gas Regulation under the City Gas Business Act and is designed to enable the Company to recover its reasonable costs (including supply costs and raw material costs) plus a guaranteed return. Prior to the beginning of each calendar year, the Ministry of Trade, Industry and Energy, after consultation with the Ministry of Economy and Finance and the Company, determines the unit "supply margin," which is based on the Company's target sales volume, estimated unit supply costs based on such target sales volume (including depreciation, selling, general and administrative expenses and labor costs) and a guaranteed return for the Company for the then upcoming year. The guaranteed return amount is determined based on the Company's assets used in the distribution of natural gas, the Company's weighted average cost of capital and certain adjustments. The weighted average cost of capital is calculated by applying the Company's estimated borrowing rate as well as the Company's cost of equity calculated using a capital asset pricing model.

The Company adds to the unit supply margin the unit raw material costs (including LNG costs, transportation expenses, insurance costs and taxes and duties as well as reserves periodically allocated for the collection of the Company's outstanding receivables) to arrive at the Formula Price. This enables the Company to recover its supply costs, pass through its raw material costs and realize the guaranteed return. Such Formula Prices are adjusted periodically throughout the year to reflect fluctuations in raw material costs, which enables the Company to mitigate its commodity price and foreign exchange risks. In the case of raw material costs related to the Company's sales to power generating companies and to city gas companies for industrial end-users and other end-users, estimates for such costs are determined on a monthly basis and the Company is able to periodically settle any differences between its estimated costs and the actual costs it incurs. In the case of raw material costs related to the Company's sales to city gas companies for residential and business heating end-users, such costs are typically adjusted every two months under the City Gas Business Act and Supply of Natural Gas Regulation thereunder if the fluctuations in the raw material costs exceed 3%.

The government reserves the right to suspend the periodic adjustments to the sales price the Company invoices to its customers. During periods of substantial fluctuations in the price of LNG and the value of the Won relative to the U.S. dollar, as part of the government's efforts to mitigate the impact of such fluctuations as well as concerns over inflation, the Ministry of Trade, Industry and Energy has temporarily suspended the bi-monthly adjustments to the sales prices that the Company invoices to city gas companies. During such periods, the amounts that the Company was entitled to collect from city gas companies based on the Formula Prices but was unable to collect due to the suspension of the bi-monthly adjustments were recorded as "current non-financial assets" (for amounts estimated to be collectible within one year subsequent to the statement of financial position date) or "non-current non-financial assets" (for amounts estimated to be collectible after one year subsequent to the statement of financial position date). For example, the Ministry of Trade, Industry and Energy temporarily suspended from March 2008 to February 2013 the periodic bi-monthly adjustments to the sales price that the Company invoices to city gas companies. The total amount of current non-financial assets and non-current non-financial assets accumulated during such suspension period relating to the material costs component of sales to city gas companies was Won 5,341 billion. Such suspension and the resulting inability by the Company to fully increase its invoice sales prices to city gas companies to reflect the Formula Prices in turn led to a substantial decrease in net cash inflows and a corresponding increase in the Company's borrowings during the suspension period.

In February 2013, the Ministry of Trade, Industry and Energy lifted the suspension of the periodic bi-monthly adjustments and reformulated the Formula Prices at a level that enabled the Company to recoup from February 2013 to October 2017 the accumulated Won 5,341 billion to which the Company was entitled but unable to collect during the suspension period. Following such reformulation of the Formula Prices, when the Company recognizes sales, it reduced the amounts in other non-financial assets accumulated during the suspension period by an amount equal to the portion of the Formula Prices allocated over the relevant period to the recoupment of the prior guaranteed return that was not collected due to the suspension until all such amounts accumulated during the suspension period were recouped. Following the lifting of the suspension in February 2013 and the reformulation of the Formula Price, the Company recouped all such amounts accumulated during the suspension period by October 2017.

From October 2018 to June 2019 and from July 2020 to March 2022, in order to mitigate the impact of increases in the price of LNG, the Ministry of Trade, Industry and Energy re-suspended the bi-monthly adjustments to the sales prices that the Company invoices to city gas companies. Such amounts that the Company was unable to collect due to the suspension and estimated to be collectible within one year subsequent to the statement of financial position date amounted to Won 843 billion as of December 31, 2019, Won 1,246 billion as of December 31, 2020, Won 1,628 billion as of December 31, 2021 and Won 2,182 billion as of March 31, 2022 and were recorded as "other current non-financial assets." Such amounts that the Company was unable to collect due to the suspension and estimated to be collectible after one year subsequent to the statement of financial position date amounted to Won 439 billion as of December 31, 2019, Won 237 billion as of December 31, 2020, Won 1,453 billion as of December 31, 2021 and Won 4,122 billion as of March 31, 2022 and were recorded as "other non-current non-financial assets." See note 11 to the Company's unaudited interim condensed consolidated financial statements, note 17 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020 and note 17 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019, included elsewhere in this offering circular. In April 2022, the Ministry of Trade, Industry and Energy lifted the suspension of the periodic bi-monthly adjustments and reformulated the Formula Prices, and the Company has begun to recoup the accumulated amounts. No assurance can be given as to when the Company will be able to recoup the accumulated amounts to which the Company was entitled but unable to collect or that the Ministry of Trade, Industry and Energy will not change its policy or adopt other measures that may prevent or delay the Company from realizing its guaranteed return fully or at all. See "Risk Factors – Risks related to the Company and its Natural Gas Import and Wholesale Business – From time to time, the government may suspend the Company's ability to increase its sales prices to city gas companies to fully reflect increases in raw material costs, which has had, and may in the future have, a negative impact on the Company's cash flows and financial condition, and also a temporary negative impact on the Company's results of operations."

The split of the Company's supply cost burden between city gas companies and power generating companies is determined based on the respective purchase volume forecasts and cost factors for these two customer groups. The Company at times charges different supply prices based on seasonality and the ultimate end user.

LNG SUPPLY

The Company currently obtains substantially all of its LNG requirements from overseas sources, including Australia, Oman, Qatar and the United States. The Company imported 37.4 million metric tons of LNG in 2021 and 11.2 million metric tons of LNG in the first three months of 2022.

LNG Sales and Purchase Agreements

Developers and financiers of LNG facilities have historically required long-term sales contracts of 20 to 25 years to be in place before starting the capital-intensive process of LNG facility construction. As a large purchaser of LNG, the Company has established a number of long-term sales and purchase agreements with suppliers that guarantee a minimum level of annual LNG supply. The Company believes that developing and maintaining good relationships with key suppliers is critical to securing consistent supplies of high quality natural gas at competitive prices. Since the introduction of LNG in Korea in 1986, natural gas demand has increased at rates often exceeding the LNG supply from long-term contracts. This has occurred in part because the Company's purchase commitments under long-term contracts are constrained by plans issued by the Ministry of Trade, Industry and Energy that have often underestimated growth in demand. Accordingly, the Company from time to time has entered into short- and medium-term purchase contracts or spot market transactions to cover short-term fluctuations in seasonal demand. Historically, the Company has obtained approximately 10% to 25% of its LNG annual supply on the spot market. In 2021, the Company obtained approximately 22% of its LNG supply on the spot market. The Company increased its spot market purchases in 2021 as there was an increase in demand for natural gas primarily stemming from reduced coal-fired power generation reflecting greenhouse gas emissions reduction efforts.

The following table provides certain information about the Company's long- and medium-term LNG purchase agreements outstanding as of March 31, 2022.

Supplier	**Contract period**	**Delivery basis**	**Contract volume (in thousand metric tons per year)**
Malaysia LNG SDN. BHD. (Malaysia)	2008 to 2028	DES[(1)]	2,000[(2)]
Qatargas (Qatar)	1999 to 2024	FOB[(3)]	4,920
	2007 to 2026	DES	2,100
	2013 to 2032	DES	2,000
	2025 to 2044	DES	2,000
Oman LNG L.L.C. (Oman)	2000 to 2024	FOB	4,060
Sakhalin Energy Investment Company (Russia)	2008 to 2028	FOB	1,500
Gladstone LNG (Australia).	2016 to 2036	FOB	3,500[(4)]
Shell Eastern Trading (Pte.) Ltd. (primarily Australia) . . .	2013 to 2038	DES	3,640[(5)]
Total Gas & Power Limited (primarily Australia)[(6)]	2014 to 2031	DES	2,000[(7)]
Sabine Pass LNG (USA)	2017 to 2037	FOB	2,800
PT Donngi Senoro LNG (Indonesia)	2015 to 2027	FOB	700
BP (United Kingdom)	2025 to 2042	DES	1,580

(1) Under "delivered-ex-ship" ("**DES**") contracts, the suppliers arrange for the transportation of the LNG to the Company's receiving terminals in Korea and a transportation component is included in the contract price. Title to the LNG passes to the Company at the Company's receiving terminals.

(2) Including 500 thousand metric tons per year that can be purchased at the option of the Company.

(3) Under "free-on-board" ("**FOB**") contracts, title to the LNG passes to the Company at the loading docks in the country where the supplier is located, and the Company arranges for transportation to its receiving terminals.

(4) Includes 500 thousand metric tons per year that can be supplied at the option of the supplier.

(5) Purchases are made under a portfolio contract that provides for the supply of LNG primarily from Australia and other regions as necessary.

(6) Purchases are made under a portfolio contract that provides for the supply of LNG primarily from Egypt and other regions as necessary.

(7) Initially one million metric tons per year from 2014 to 2017, and increasing to two million metric tons from 2018 onwards.

Almost all of the long- and medium-term supply contracts contain take-or-pay provisions that require the Company to purchase a certain amount of LNG each year of the contract term, whether or not delivery is taken. Conversely, some agreements specify that the suppliers have downward flexibility to defer supplies. The long- and medium-term supply contracts also specify the downward flexibility available to the Company, which is the amount that may be deferred in any one year without payment becoming due. This figure varies between 4% to 10% of the annual volume the Company is required to purchase. The Company normally is required to purchase such deferred amounts during the remaining term of the relevant contract. Furthermore, there is a limit on the total amount of LNG that can be deferred under such contracts, generally up to 100% of the annually contracted volume. Once this level is reached, the Company is required to pay for the LNG even if delivery is not taken. Almost all of the supply agreements provide that any payment made under the take-or-pay provision can be applied as a credit to future LNG purchases that in subsequent years exceed that year's agreed-upon volume. To date, there have been no instances where the Company has been required to pay for undelivered LNG under the take-or-pay provisions. As the Company increases its storage capacity and expands its pipeline network, its ability to store unutilized LNG is expected to increase. As a result, the Company expects that its ability to deal with excess LNG, if any, will improve.

The price of LNG is generally determined by an LNG market pricing formula based primarily on the price of crude oil. The price of LNG purchased by the Company from Qatar, Malaysia, Oman, Russia, Brunei and Australia, and LNG purchased from PT Donngi Senoro LNG and Total are determined by the Japanese Crude Cocktail, which is linked to the price of customs-cleared crude oil imports into Japan. The price of LNG which is expected to be imported from Qatargas after 2025 is linked to the price of Brent crude oil and the price of LNG which is expected to be imported from BP after 2025 is linked to the price of Henry Hub natural gas.

The Company's contracts with Gladstone LNG, Malaysia LNG SDN. BHD. III, PT Donngi Senoro LNG, Sakhalin Energy Investment Company Ltd., Shell Eastern Trading (Pte.) Ltd. and Total Gas & Power Limited permit the Company or the supplier to request renegotiation of pricing terms every five years. The Company's contract with Qatargas signed in 2021 is subject to a price review after ten years from the commencement of the contract period. The Company may in the future enter into additional long-and medium-term agreements with other suppliers to satisfy its supply requirements on a stable and diversified basis.

The purchase prices under the supply contracts are payable in U.S. dollars.

Shipping

The Company currently imports all of its natural gas in the form of LNG in ships designed and used exclusively for transporting LNG. Each ship can transport approximately 56,000 to 79,000 metric tons of LNG at temperatures ranging from minus 159.8 celsius to minus 163.8 celsius.

The Company arranges LNG shipments on two different bases:

- Under DES contracts, the suppliers arrange for the transportation of the LNG to the Company's receiving terminals in Korea and a transportation component is included in the contract price. For such contracts, title to the LNG passes to the Company at the Company's receiving terminals.

- Under FOB contracts, title to the LNG passes to the Company at the loading docks in the country where the supplier is located, and the Company must arrange for the transportation to its receiving terminals.

For its FOB contracts, the Company utilizes the services of the following domestic Korean shipping companies: Hyundai LNG Shipping Co., Ltd., SK Shipping Co., Ltd., H-Line Shipping Co., Ltd., Korea Line LNG and Korea LNG Trading Co., Ltd. Each ship is allocated to a particular LNG purchase contract, although there is some flexibility in changing the allocation.

As of March 31, 2022, the Company had entered into a total of 30 shipping contracts with the above five Korean shipping companies for the exclusive use of 30 vessels. 29 of these shipping contracts relate to LNG transporting vessels that were built specifically for use by the Company. Each of these 29 shipping contracts has a term of 20 or 25 years, which term may be adjusted by the Company with the consent of the relevant shipping company. The one other shipping contract relates to ships chartered by the relevant shipping companies for use by the Company. 13 of the financing contracts for these ships require the government to directly or indirectly own 30% of the Company's shares and maintain effective control of the Company.

If the Company were to terminate its use of one or more of the ships under its shipping contracts, it could be required to make the remaining payments under the relevant shipping company's financing documents. Although the Company is not a party to the financing documents for these ships, it has entered into contracts of affreightment with the shipping companies. The Company believes that it would terminate its use of such ships only pursuant to a plan by the Ministry of Trade, Industry and Energy that calls for large reductions in supply. The Company believes that the government would reimburse the Company for any payments it makes following the termination of a shipping contract. However, the government does not have any legal or contractual obligation to do so. Even if the Company were required to make payments under a ship's financing documents, it would not acquire title to the ship. The financing documents also contain various grace periods and other provisions regarding alternative uses of the ships, which the Company believes would enable it to minimize its exposure in respect of such payments.

Under the shipping contracts relating to the 29 ships built for the Company, the Company and the shipping companies have agreed to an annual shipment volume for the life of the agreements. Each year the Company may adjust the shipment volume for the following year based on any changes to agreements between the Company and its LNG suppliers. The annual shipment volume may be adjusted according to the Company's shipping requirements as long as the Company adheres to the aggregate shipment volume for the term of the contract.

Other than the shipping contracts relating to the ships to be used for the transportation of LNG under the Sabine Pass LNG purchase agreement, 21 of the shipping contracts contain ship-or-pay clauses, which require the Company to pay the costs incurred by the shipping company if the committed volume of shipment, as adjusted as described in the previous paragraph, for a given year is not shipped. Under the shipping contracts relating to the ships built for the Company, the payments under the ship-or-pay clauses are determined based on the shipping companies' capital costs and vessel expenses. The components of the shipping companies' capital costs include the cost of building the vessel, interest expense on financing for the construction of the vessel and other costs such as management and other fees in connection with such financing. The shipping companies' vessel expenses include labor, repair, maintenance and insurance costs for the ships. Payments under the ship-or-pay clauses are calculated by multiplying the unit shipment costs by the shortfall in shipment volume for the relevant year.

To date, the Company has never been required to make payments under such take-or-pay or ship-or-pay clauses principally because, in most cases, it has been able to purchase and ship sufficient amounts of LNG to avoid triggering these clauses. On rare occasions, due to a decrease in demand, the Company has purchased or shipped less than the agreed amounts of LNG, but the amounts were within the range allowed to be deferred under the supply or shipping contracts. However, if the Company's requirements for LNG were to be materially reduced in future years and the Company were not able to negotiate a reduction of the annual shipment volumes, the Company may incur payment obligations under the ship-or-pay clauses. Under the shipping contracts, any such payments could be applied against costs relating to future shipping requirements in excess of contracted amounts.

STORAGE AND TRANSMISSION

As of March 31, 2022, the Company owned and operated a pipeline network of 5,027 kilometers in length. The Company receives, stores and vaporizes LNG in five large terminal complexes in Pyongtaek, Incheon, Tongyeong, Samcheok and Jeju that had a combined storage capacity of 12.2 million kiloliters of LNG as of March 31, 2022. Pyongtaek and Incheon are located on the western coast of Korea near Seoul; Tongyeong is located on the southern coast of Korea; Samcheok is located on the eastern coast of Korea; Jeju is located off the southern coast of Korea.

LNG is delivered to the Company's receiving terminals in specially designed ships. LNG is then pumped into storage tanks through unloading arms and pipes. Later, LNG is pumped out to the vaporizers where it is revaporized and then piped in a gaseous state to wholesale customers throughout Korea. The Company's facilities for receiving, storing, vaporizing and distributing natural gas have been constructed to meet international industry design standards and are operated under strict quality and safety controls.

Terminals

Pyongtaek

The Pyongtaek complex, which has been in operation since 1986, is located on a 1,332,231 square meter tract of land at Asan Bay on Korea's western coast in Gyeonggi province, 100 kilometers south-west of Seoul. The Pyongtaek complex is equipped with berthing facilities for two tankers to unload LNG and, as of March 31, 2022, it housed 23 storage tanks with a total capacity of 3.4 million kiloliters of LNG. Each tank has a storage capacity of between 100,000 to 200,000 kiloliters, is above ground with a concrete membrane and is designed to withstand earthquakes to the same scale as nuclear power plants in Korea. The Pyongtaek complex's vaporizing facilities are a combination of "open rack" type and "submerged" type with a production capacity of 4,680 metric tons of natural gas per hour as of March 31, 2022. The terminal processed approximately 12.4 million metric tons of natural gas in 2021 and approximately 4.2 million metric tons of natural gas in the first three months of 2022.

The revaporizing facilities at the Pyongtaek complex utilize waste water from the adjacent Korea Western Power Co., Ltd.'s power station. The Company believes this has a significant beneficial effect on the Pyongtaek complex's operating cost structure when compared to the Incheon complex.

Incheon

The Incheon complex, which commenced operations in 1996, is located on a 1,381,818 square meter site, also on the Republic's western coast in the Incheon municipality. Due to safety concerns in this heavily populated area, the Incheon complex is situated entirely on an island of reclaimed land, approximately eight kilometers off the coast. The Incheon complex is also equipped with two berths and, as of March 31, 2022, had 23 storage tanks in operation with a total capacity of 3.5 million kiloliters. 13 of the storage tanks are above ground and ten are below ground. The vaporizing facility had a production capacity of 6,210 metric tons of natural gas per hour as of March 31, 2022. The terminal processed approximately 13.6 million metric tons of natural gas in 2021 and approximately 4.9 million metric tons of natural gas in the first three months of 2022.

Tongyeong

The Tongyeong complex is located on a 1,123,967 square meter site and has been operational since September 2002. The Tongyeong complex is equipped with two berths and, as of March 31, 2022, had 17 storage tanks in operation with a total capacity of 2.6 million kiloliters. All of the storage tanks are above ground. The vaporizing facility had a production capacity of 3,030 metric tons of natural gas per hour as of March 31, 2022. The terminal processed approximately 8.0 million metric tons of natural gas in 2021 and approximately 2.7 million metric tons of natural gas in the first three months of 2022.

Samcheok

The Samcheok complex is located on a 872,727 square meter site on the eastern coast of Korea and has been operational since July 2014. The Samcheok complex, as of March 31, 2022, had twelve storage tanks in operation with a total capacity of 2.6 million kiloliters. The vaporizing facility had a production capacity of 1,320 metric tons of natural gas per hour as of March 31, 2022. The terminal processed approximately 3.8 million metric tons of natural gas in 2021 and approximately 1.2 million metric tons of natural gas in the first three months of 2022.

Jeju

The Jeju complex is located on a 76,033 square meter site off the southern coast of Korea and has been operational since October 2019. The Jeju complex, as of March 31, 2022, had two storage tanks in operation with a total capacity of 0.1 million kiloliters. The vaporizing facility had a production capacity of 100 metric tons of natural gas per hour as of March 31, 2022. The terminal processed approximately 264 thousand metric tons of natural gas in 2021 and approximately 75 thousand metric tons of natural gas in the first three months of 2022.

Pipeline Network

Once LNG is converted into vaporized gas at the Pyongtaek, Incheon, Tongyeong, Samcheok and Jeju facilities, the gas is pumped throughout Korea through underground pipelines. The pipes are constructed in Korea to ISO 9001 technical standards and ISO 14001 environmental standards, and are insulated with rubber and then buried 1.2 to 1.5 meters underground after stringent inspections. The Company's distribution facilities also include stations for regulating the pressure of the gas as it is transmitted and other auxiliary facilities such as metering instruments.

As of March 31, 2022, the Company's transmission system had a total of 5,027 kilometers of pipeline in operation. As of March 31, 2022, the pipelines supplied gas to approximately 215 counties and cities throughout Korea. The Company's transmission system includes 422.1 kilometers of pipeline that encircle the Seoul metropolitan area in order to provide this highly populated area with a stable and secure supply of natural gas. The Company's extensive pipeline also allows the Company to distribute LNG to regional areas of Korea outside of the major metropolitan areas. By the end of 2024, the Company expects to expand its network to comprise approximately 5,310 kilometers of pipeline.

System Control Centers

The Central System Control Center, which is located in the Company's headquarters building in Daegu, continually and automatically checks and controls the production and distribution operations with computerized monitoring equipment. The control center has been designed with the assistance of Dong-Ah Engineering Co., Ltd. (Korea) and OGE Energy Corp. (Japan) and utilizes computer-controlled equipment from Digital Equipment Corporation (USA). The center is designed to prevent accidents and to manage any emergency that may arise. In addition, there are nine regional control centers in Ansan, Daejon, Gimhae, Gunsan, Gwangju, Gyeongsan, Incheon, Seoul and Wonju, which continually monitor the distribution of natural gas within their respective regions. The regional centers are also designed for accident prevention.

The Central System Control Center also monitors the distribution and flow of natural gas in order to obtain consumption and demand figures. The information gathered is used to study and review the Company's performance and customer consumption patterns.

OVERSEAS OPERATIONS

As part of its efforts to diversify its operations and prepare for the potential restructuring and liberalization of the natural gas industry in Korea as well as in response to the government's policy to promote procurement of natural resources, the Company has participated in exploration, development and production of natural gas outside Korea. As part of a consortium or through acquisition of a minority interest, the Company engages in overseas gas exploration and development in various locations, including Australia, Iraq and Mozambique, as well as participates in LNG terminal operation and maintenance activities and invests in gas supply companies located abroad.

In more recent years, the Company's strategic goal has been to enhance profitability and financial soundness through debt reduction, including through disposition of non-core or unprofitable assets and issuance of equity, as well as various other cost-saving measures. Such strategic goal is in line with the Company's debt reduction plan submitted to the Ministry of Economy and Finance and as part of its plan to bolster its overall financial health. Accordingly, the Company plans to concentrate on its core business of LNG import-related operations and pursue selective new business opportunities domestically and abroad. In overseas gas exploration, development and production projects, the Company invested approximately Won 488 billion in 2019, Won 508 billion in 2020, Won 495 billion in 2021 and Won 119 billion in the first three months of 2022, and it expects to invest approximately Won 667 billion in such projects in the remainder of 2022, substantially all of which relate to committed capital expenditures on its existing projects.

The major overseas gas exploration, development and production projects that the Company is currently pursuing are as follows:

- **Gladstone Project in Australia**. In January 2011, the Company, Total S.A., Santos Ltd. and Petronas announced their approval of the Gladstone LNG project in Australia (the "**GLNG Project**"). The integrated GLNG Project consists of the development and production of coal bed methane, an unconventional natural gas, from the Fairview, Arcadia, Roma and Scotia fields located in the Bowen and Surat Basin in Queensland, eastern Australia, the construction of a gas transmission pipeline from the gas fields to Gladstone, Queensland as well as the construction of a liquefaction plant on Curtis Island, Queensland. The consortium commenced commercial production in September 2015. The GLNG project expects to produce 7.8 million metric tons of LNG per year, and the Company has entered into a long-term agreement to offtake 3.5 million metric tons of LNG per year from 2015 to 2031.

  As of March 31, 2022, KOGAS Australia Pty. Ltd. ("**KOGAS Australia**"), a wholly-owned subsidiary of the Company which acts as a holding company for the Company's interest in the project, held a 15.0% interest in the GLNG project. KOGAS Australia recorded sales of Won 623 billion in 2019, Won 504 billion in 2020 and Won 603 billion in 2021 and Won 253 billion in the first quarter of 2022, and net loss of Won 80 billion in 2019, net loss of Won 230 billion in 2020, net profit of Won 393 billion in 2021 and net profit of Won 54 billion in the first quarter of 2022. As of March 31, 2022, KOGAS Australia had total assets of Won 4,179 billion and total liabilities of Won 3,588 billion.

- **Prelude Project in Australia**. In June 2012, the Company announced its purchase of a 10.0% interest in the Prelude floating LNG project in Australia from Shell Australia Pty. (the "**Prelude Project**"). Floating LNG projects produce, liquefy, store and transfer LNG at sea before carriers ship it directly to markets. The Prelude Project commenced production operations in June 2019 with initial production capacity of approximately 3.6 million metric tons of LNG per year.

  As of March 31, 2022, KOGAS Prelude Pty. Ltd. ("**KOGAS Prelude**"), a wholly-owned subsidiary of the Company, held a 10.0% interest in the Prelude Project. KOGAS Prelude, which is the operator of the project, recorded sales of Won 44 billion in 2019, Won 35 billion in 2020 and Won 287 billion in 2021, and net loss of Won 352 billion in 2019, net loss of Won 154 billion in 2020, net profit of Won 4 billion in 2021, and net loss of Won 29 billion in the first quarter of 2022. KOGAS Prelude did not record any sales in the first quarter of 2022. As of March 31, 2022, KOGAS Prelude had total assets of Won 2,097 billion and total liabilities of Won 1,555 billion.

- **Zubair Project in Iraq**. In June 2009, the Company joined a consortium with Eni S.p.A. and Occidental Petroleum Corporation and made a successful bid in the Iraqi government's auction of the Zubair oilfield (the "**Zubair Project**"). The consortium has the right to develop and produce oil and gas in the Zubair oilfield for 25 years, with the right to extend the contract period by an additional five years, subject to certain conditions. The consortium commenced commercial production in February 2010. The consortium expects to produce an aggregate of 4.7 billion barrels of crude oil during the initial contract period of 25 years, and the Company has entered into a long-term agreement to offtake a certain portion of the crude oil produced from 2010 to 2035.

As of March 31, 2022, KOGAS Iraq B.V. ("**KOGAS Iraq**"), a wholly-owned subsidiary of the Company, held a 23.8% interest in the Zubair Project. KOGAS Iraq has entered into a service agreement related to the project and receives compensation for its services from the crude oil produced in the project. KOGAS Iraq recorded sales of Won 385 billion in 2019, Won 299 billion in 2020, Won 376 billion in 2021 and Won 80 billion in the first quarter of 2022, and net profit of Won 61 billion in 2019, Won 42 billion in 2020, Won 65 billion in 2021 and Won 7 billion in the first quarter of 2022. As of March 31, 2022, KOGAS Iraq had total assets of Won 1,152 billion and total liabilities of Won 167 billion.

- **Badra Project in Iraq**. In December 2009, the Company joined a consortium with Gazprom Neft, Petronas and Turkiye Petrolleri Anonim Ortakligi, the state-owned oil and gas company of Turkey, and made a successful bid in the Iraqi government's auction of the Badra oilfield (the "**Badra Project**"). The consortium has the right to develop and produce oil and gas in the Badra oilfield for 20 years, with the right to extend the contract period by an additional five years, subject to certain conditions. The consortium commenced commercial production in the second half of 2014. The consortium expects to produce an aggregate of 670 million barrels of crude oil during the initial contract period of 20 years, and the Company has entered into a long-term agreement to offtake a certain portion of the crude oil produced from 2010 to 2030.

  As of March 31, 2022, KOGAS Badra B.V. ("**KOGAS Badra**"), a wholly-owned subsidiary of the Company, held a 22.5% interest in the Badra Project. KOGAS Badra has entered into a service agreement related to the project and receives compensation for its services from the crude oil produced in the project. KOGAS Badra recorded sales of Won 206 billion in 2019, Won 112 billion in 2020, Won 150 billion in 2021 and Won 49 billion in the first quarter of 2022, and net profit of Won 21 billion in 2019, net loss of Won 5 billion in 2020, net profit of Won 8 billion in 2021 and net profit of Won 8 billion in the first quarter of 2022. As of March 31, 2022, KOGAS Badra had total assets of Won 506 billion and total liabilities of Won 33 billion.

- **Mozambique Project**. In July 2007, the Company formed a consortium with Eni S.p.A. and Petroleos e Gas de Portugal SGPS, S.A. to explore the Area 4 offshore block in Mozambique owned by Eni S.p.A. (the "**Mozambique Project**"). The Coral FLNG project, which is the first natural gas extraction project of Area 4, is expected to produce 3.4 million metric tons of LNG per year from 2022.

  As of March 31, 2022, KG Mozambique Ltd. ("**KG Mozambique**"), a wholly-owned subsidiary of the Company, held a 10.0% interest in the Mozambique Project. KG Mozambique, which is the operator of the project, recorded no sales in 2019, 2020, 2021 and the first quarter of 2022, and net loss of Won 22 billion in 2019, Won 30 billion in 2020, Won 19 billion in 2021, and Won 3 billion in the first quarter of 2022. As of March 31, 2022, KG Mozambique had total assets of Won 1,150 billion and total liabilities of Won 773 billion.

For additional details of the Company's consolidated subsidiaries that engage in overseas operations, see note 1 to the Company's unaudited interim condensed consolidated financial statements, note 1 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020 and note 1 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019, included elsewhere in this offering circular.

HYDROGEN BUSINESS

In January 2019, the Ministry of Trade, Industry and Economy announced the Hydrogen Economy Roadmap with a goal to create a comprehensive hydrogen ecosystem in Korea and to become a leading country in the new global hydrogen economy including in areas of fuel cell electric vehicles and fuel cells. In addition, the Korean National Assembly passed the Hydrogen Economy Promotion and Safety Management Act in February 2020 with a view to create a legal framework for the realization of the Hydrogen Economy Roadmap. The roadmap aims to, among others, (1) supply 15 gigawatts of utility-scale fuel cells and 2.1 gigawatts of commercial and residential fuel cells by 2040, (2) produce 5.9 million fuel cell electric vehicles and 60,000 fuel cell buses by 2040 and (3) install 1,200 hydrogen refueling stations by 2040.

Pursuant to such government initiatives, the Company plans to make investment through 2030 for the construction of large-scale hydrogen production bases and hydrogen refueling stations in Korea. The Company plans to help establish a nation-wide hydrogen fueling infrastructure by taking advantage of its existing natural gas supply facilities and technical expertise. In addition to its hydrogen distribution business, the Company also plans to engage in hydrogen fuel cell ventures by utilizing its LNG terminals.

The Company plans to construct renewable energy production facilities with an aggregate installed capacity of 17.1 gigawatts and commence production of 1,070 thousand tons of green hydrogen by 2030.

The major hydrogen projects that the Company is currently pursuing are as follows:

- The Company is currently constructing hydrogen production bases in Gwangju covering the South Jeolla Province and in Changwon covering the South Gyeongsang Province. Construction is expected to be completed by 2023.

- In July 2020, the Company signed a memorandum of understanding ("MoU") with Hyundai Motor Group to build and operate integrated hydrogen charging stations that can accommodate eco-friendly vehicles that run on hydrogen, liquefied natural gas and electricity.

- In May 2021, the Company announced that it has partnered with GS Caltex Corporation to launch a liquid hydrogen production and supply business, which will involve the construction of a liquid hydrogen plant with an average annual production capacity of approximately 10,000 tons of liquid hydrogen per year by 2025.

- In September 2021, the Company signed an MoU with Siemens Energy to collaborate closely across all areas of hydrogen-related businesses and to pursue the production of green hydrogen and its use in power generation.

- In September 2021, the Company signed an MoU with the Global Green Growth Institute of Indonesia to promote production and use of green hydrogen in developing and emerging countries, including Indonesia.

- In April 2022, the Company signed an MoU with Sempra Infrastructure, an American energy company, for project development and offtake across multiple business areas, including LNG, carbon capture and sequestration and hydrogen infrastructure.

SAFETY

Safety standards and regulations in the LNG industry are issued, and compliance of such standards and regulations is monitored, by the Ministry of Trade, Industry and Energy and the Gas Technology Standards Committee, a government body under the control of the Ministry of Trade, Industry and Energy. Liability for gas-related accidents involving either the Company or the city gas companies is generally governed by the Korean Civil Code, the Labor Standards Act and the Industrial Accident Compensation Insurance Act. There are no specific provisions for civil liability relating to gas-related accidents in any relevant legislation for either the Company or the city gas companies.

The Company has undertaken various measures including replacing pipeline valves with newer and safer models, improving computer systems, increasing safety and maintenance training for employees and improving the Company's patrolling equipment (used to detect leaks and other defects in pipes). The Company believes that its safety standards surpass or are at least comparable to domestic and international safety standards relating to the gas industry. The Company has acquired ISO 45001, ISO 9001 and ISO 14001 and certifications for its safety and health management. The government also periodically conducts spot-checks of the Company's facilities to ensure that they are in compliance with environmental regulations. These spot-checks have never identified any major violations or resulted in material monetary fines or other penalties. There has not been a serious accident at any of the Company's workplaces since 1995.

EMPLOYEES

As of March 31, 2022, the Company had 4,254 employees. The following table provides a breakdown of employees by function as of the dates indicated.

Function	As of December 31, 2019	As of December 31, 2020	As of December 31, 2021	As of March 31, 2022
Planning	89	99	97	120
Administration	186	197	217	211
Marketing	115	113	103	99
Exploration & production	220	217	167	156
Production	1,207	1,197	1,164	1,083
Operations	1,783	1,794	1,778	1,632
Research & development	303	272	392	363
Others	386	398	389	590
Total	4,289	4,287	4,307	4,254

Labor Relations

As of March 31, 2022, 3,563 of the Company's employees, or approximately 89.9% of its total employees, were members of a labor union. The Company negotiates a collective bargaining agreement every two years as well as a wage agreement on an annual basis with its labor union. The latest collective bargaining agreement came into effect in January 2016 for a term of two years and will continue to be in effect until the Company negotiates a new collective bargaining agreement, which is currently under negotiations. The Company entered into a new wage agreement with its labor union in December 2021. In the past, the Company has experienced opposition from its labor union for concerns over the government's plans to liberalize and privatize the natural gas wholesale and transport industry and restructure the Company to improve its operating efficiency and profitability by reducing its employee base. In recent years, the Company has not experienced any significant labor disputes and unrests that have interrupted its business operations. Although the Company believes that it has hired and trained appropriate personnel to ensure continuous operations in the event of a strike or work stoppages, there can be no assurance that this will be the case.

Remuneration

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.

PROPERTY

The Company's headquarters and principal offices are located at 120 Cheomdan-ro, Dong-gu, Daegu, 41062, Korea. As part of a wider government initiative to relocate public companies from the Seoul metropolitan area to other parts of Korea, the Company relocated its headquarters to Daegu on October 1, 2014. The Company owns nine branch offices in Seoul, Incheon, Gyeonggi, Gyeongnam, Choongchung, Chunbuk, Chunnam, Gyeongbuk and Gangwon.

The Company has title over the land used for the Incheon, Jeju, Pyongtaek, Tongyeong and Samcheok receiving terminals.

To construct the pipeline network, pipelines are laid underneath government-owned land whenever possible. The Company generally pays annual fees for the use of such land. In other cases, the Company either pays landowners for "right of use" permission, pursuant to which a single up-front right of use fee is paid to landowners and in exchange for which the landowners are required to restrict the future uses of such land, or else purchases the land outright.

INSURANCE

The Company maintains a comprehensive insurance policy that covers different aspects of its business and properties, including general commercial liability, bodily injury, fire, construction, property and cargo insurance policies with respect to the Pyongtaek, Incheon, Tongyeong, Samcheok and Jeju complexes, its distribution stations and its LNG and other raw materials. In addition, the Company maintains directors' and officers' liability insurance and insurance against damage from terrorism. In 2021, the Company paid premiums for its major insurance policies totaling approximately Won 13 billion. 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.

RESEARCH AND DEVELOPMENT AND INTELLECTUAL PROPERTY

In May 1990, the Company opened its Research and Development Center in Ansan in Gyeonggi province. The center has a branch in Incheon to conduct further research and development activities. As of March 31, 2022, the Center employed 84 researchers and 69 other employees. The Company incurred research and development expenses of Won 49 billion in 2021.

Under the KOGAS Act, the Company is required to appropriate at least 1% of its net gas sales for research and development in its budget for each business year. In 2021, the Company appropriated 3.6% of its net gas sales for research and development in its annual budget on a separate basis. The Company's objective with regard to research and development is to develop internal technologies that (i) serve as a growth engine for the Company through increased operating efficiencies and increasing demand for natural gas, (ii) ensure the safety of its facilities, and (iii) provide the Company with a competitive advantage in its overseas gas exploration, development and production projects.

Current core projects focus on development of the following areas:

- core technologies such as LNG storage tanks and LNG cargo containers used in vessels;
- safety control systems for ensuring safe operation of the Company's infrastructure; and
- new and alternative energy development, including hydrogen fuel cell technology, and the commercialization of such technologies and their production process.

The Company has entered into cooperation agreements with other natural gas energy companies in order to pursue joint research and development activities. In addition, the Company is a member of various international organizations related to the natural gas industry, such as the International Gas Union, Institute of Gas Technology, the Society of International Gas Tanker and Terminal Operators Ltd., the International Group of LNG Importers, the Institute of Energy & Economics and the International Energy Agency.

The Company's general policy is to seek intellectual property protection for those inventions and improvements likely to be incorporated into its products or to give it a competitive advantage compared to other fuel sources. The Company relies on a variety of patents, utility model rights, 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 452 patents and nine utility model rights as of March 31, 2022. 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.

SUBSIDIARIES

For details of the Company's consolidated subsidiaries that engage in overseas operations, see note 1 to the Company's unaudited interim condensed consolidated financial statements, note 1 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020 and note 1 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019, included elsewhere in this offering circular.

LEGAL MATTERS

The Company is involved from time to time in legal and regulatory proceedings, including those arising in the ordinary course of its business.

In July 2017, Shell Australia Pty Ltd. and five other organizations made an arbitration claim against the Company for U.S.$115 million relating to LNG pricing of the North West Shelf project in Australia. The arbitration was finalized in August 2020, and the Company paid U.S.$102 million in arbitration amounts and associated expenses, which have been reflected in the Company's financial statements as of and for the years ended December 31, 2020 and 2019.

On June 30, 2021, the Daejeon District Prosecutor's Office indicted three individuals, including Hee-Bong Chae, the Company's president and chief executive officer since July 2019, in his capacity as the former presidential secretary for industrial policy at the Office of the President (in which position he served from June 2017 to October 2018), for allegedly undervaluing the economic viability of the nuclear power plant Wolsong unit #1 which led to its early shutdown. The trial is currently ongoing at the Daejeon District Court and the outcome of such trial remains uncertain. There can be no assurance that the outcome of the ongoing case will not have a material adverse effect on the Company.

While the Company is unable to predict the ultimate disposition of these proceedings, it is the Company's view that there are no other legal or regulatory 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 position of the Company.

Management's Discussion and Analysis of Financial Condition and Results of Operations

All financial information included below is given on a consolidated basis, unless otherwise specified. The following discussion and analysis should be read in conjunction with the Company's financial statements, together with the accompanying notes, included elsewhere in this offering circular. The unaudited interim condensed consolidated financial information for the three months ended March 31, 2022 presented in this offering circular may not be indicative of the Company's full year results for 2022.

OVERVIEW

The Company is the only company in Korea engaged in the wholesale distribution of natural gas, and is one of the largest importers of LNG in the world. The Company supplied 36.9 million metric tons of natural gas in 2021 and 12.7 million metric tons in the first three months of 2022. The Company believes that natural gas supplied by the Company accounted for approximately 19.6% of the primary energy consumed in Korea in 2021. The Company's facilities consist primarily of its gas processing terminals, storage facilities and nation-wide pipeline network. The Company imports, receives and revaporizes LNG at its five LNG receiving terminals, and then distributes the natural gas to its customers through its network of pipelines which encompassed 5,027 kilometers as of March 31, 2022. The Company intends to expand both its pipeline network and storage capacity to meet forecasted increases in demand for natural gas in Korea.

As of March 31, 2022, the government directly and indirectly held 46.7% of the Company's issued and outstanding shares, and local governments held an additional 7.9% of the Company's issued and outstanding shares. Accordingly, the government has historically influenced, and is likely to continue to influence, the Company's strategy, operations and management. The Company is heavily regulated by a variety of laws and regulatory bodies, including the Ministry of Trade, Industry and Energy and the Ministry of Economy and Finance. The government also has the ability to influence and control other government-related entities, such as the five non-nuclear power generating subsidiaries of KEPCO, which are the Company's customers. 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 natural gas industry which are not necessarily in the Company's best commercial interests. For example, public policy considerations relating to the level of the Company's profitability affect the Company's prescribed rate of return.

The Company has two reportable operating segments – a natural gas wholesale segment and a segment related to the Company's other business operations, primarily consisting of its natural gas exploration, development and production activities abroad. See note 5 to the Company's unaudited interim condensed consolidated financial statements, note 4 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020 and note 4 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019, included elsewhere in this offering circular.

Sales Price Adjustment Mechanism and Guaranteed Return

The government, among other things, supervises the Company's forecasting process for natural gas demand, approves the Company's LNG supply contracts, and influences the Company's operating income and cash flow by regulating the Company's natural gas sales prices. Prior to the beginning of each calendar year, the Ministry of Trade, Industry and Energy, after consultation with the Ministry of Economy and Finance and the Company, determines the unit "supply margin," which is based on the Company's target sales volume, estimated unit supply costs based on such target sales volume (including depreciation, selling, general and administrative expenses and labor costs) and a guaranteed return for the Company for the upcoming year. The guaranteed return amount is determined based on the Company's assets used in the distribution of natural gas, the Company's weighted average cost of capital and certain adjustments. The weighted average cost of capital is calculated by applying the Company's estimated borrowing rate as well as the Company's cost of equity calculated using a capital asset pricing model.

The Company adds the unit supply margin to the unit raw material costs (including LNG costs, transportation expenses, insurance costs and taxes and duties as well as reserves periodically allocated for the collection of the Company's outstanding receivables) to arrive at the Formula Price. This enables the Company to recover its supply costs, pass through its raw material costs and realize the guaranteed return. Such Formula Prices are adjusted periodically throughout the year to reflect fluctuations in raw material costs, which enables the Company to mitigate its commodity price risks and foreign exchange risks. In the case of raw material costs related to the Company's sales to power generating companies and to city gas companies for industrial end-users and other end-users, estimates for such costs are determined on a monthly basis and the Company is able to periodically settle any differences between its estimated costs and the actual costs it incurs. In the case of raw material costs related to the Company's sales to city gas companies for residential and business heating end-users, such costs are typically adjusted every two months if the fluctuations in the raw material costs exceed 3%. Any such differences not reflected in the Formula Prices and outstanding at the end of the fiscal year are taken into account in determining the unit supply margin applicable to the subsequent fiscal year. The Company at times charges different supply prices based on seasonality and the ultimate end user.

The sales price adjustment mechanism for city gas companies is implemented pursuant to the Supply of Natural Gas Regulation under the City Gas Business Act and is designed to enable the Company to recover its reasonable costs (including supply costs and raw material costs) plus a guaranteed return. Accordingly, unlike most companies, gross margin and operating margin, which rates decrease in times of increasing raw material costs, are not useful parameters that the Company uses to measure its operating performance.

Suspension of Sales Price Adjustments

The government reserves the right to suspend the periodic adjustments to the sales price described above. During periods of substantial fluctuations in the price of LNG and the value of the Won relative to the U.S. dollar, as part of the government's efforts to mitigate the impact of such fluctuations as well as concerns over inflation, the Ministry of Trade, Industry and Energy has temporarily suspended the periodic bi-monthly adjustments to the sales prices that the Company invoices to city gas companies. During such period, the amounts that the Company was entitled to collect from city gas companies based on the Formula Prices but was unable to collect due to the suspension of the adjustments were recorded as "current non-financial assets" (for amounts estimated to be collectible within one year subsequent to the statement of financial position date) or "non-current non-financial assets" (for amounts estimated to be collectible after one year subsequent to the statement of financial position date). For example, the Ministry of Trade, Industry and Energy temporarily suspended from March 2008 to February 2013 the periodic bi-monthly adjustments to the sales price that the Company invoices to city gas companies. "Other non-financial assets" include the underpaid amounts (with respect to both city gas companies and power generating companies) due to the actual raw material costs being higher than the raw material costs used to calculate the Formula Price, while the Company also records "other non-financial liabilities" regarding the overpaid amounts (with respect to both city gas companies and power generating companies) due to the actual raw material costs being lower than the raw material costs used to calculate the Formula Price. Such suspension and the resulting inability by the Company to fully increase its invoice sales prices to city gas companies to reflect the Formula Prices in turn led to a substantial decrease in net cash inflows and a corresponding increase in the Company's borrowings during the suspension period.

In February 2013, the Ministry of Trade, Industry and Energy lifted the suspension of the periodic bi-monthly adjustments and reformulated the Formula Prices at a level that enabled the Company to recoup from February 2013 to October 2017 the accumulated Won 5,341 billion to which the Company was entitled but unable to collect during the suspension period. Following such reformulation of the Formula Prices, when the Company recognizes sales, it reduces the amounts in other non-financial assets accumulated during the suspension period by an amount equal to the portion of the Formula Prices allocated over the relevant period to the recoupment of the prior guaranteed return that was not collected due to the suspension until all such amounts accumulated during the suspension period were recouped. Following the lifting of the suspension in February 2013 and the reformulation of the Formula Price, the Company recouped all such amounts accumulated during the suspension period by October 2017.

From October 2018 to June 2019 and from July 2020 to March 2022, in order to mitigate the impact of increases in the price of LNG, the Ministry of Trade, Industry and Energy re-suspended the bi-monthly adjustments to the sales prices that the Company invoices to city gas companies. Such amounts that the Company was unable to collect due to the suspension and estimated to be collectible within one year subsequent to the statement of financial position date amounted to Won 843 billion as of December 31, 2019, Won 1,246 billion as of December 31, 2020, Won 1,628 billion as of December 31, 2021 and Won 2,182 billion as of March 31, 2022 and were recorded as "other current non-financial assets." Such amounts that the Company was unable to collect due to the suspension and estimated to be collectible after one year subsequent to the statement of financial position date amounted to Won 439 billion as of December 31, 2019, Won 237 billion as of December 31, 2020, Won 1,453 billion as of December 31, 2021 and Won 4,122 billion as of March 31, 2022 and were recorded as "other non-current non-financial assets." See note 11 to the Company's unaudited interim condensed consolidated financial statements, note 17 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020 and note 17 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019, included elsewhere in this offering circular. In April 2022, the Ministry of Trade, Industry and Energy lifted the suspension of the periodic bi-monthly adjustments and reformulated the Formula Prices, and the Company has begun to recoup the accumulated amounts.

No assurance can be given as to when the Company will be able to recoup the accumulated amounts to which the Company was entitled but unable to collect or that the Ministry of Trade, Industry and Energy will not change its policy or adopt other measures that may prevent or delay the Company from realizing its guaranteed return fully or at all.

Other Factors Affecting the Company's Results of Operations

In addition to the adjustments to natural gas sales prices described above, the Company's business, results of operations and financial condition have been affected, and may continue to be affected, by the following factors:

- the performance of the Korean economy;
- fluctuations in prices of natural gas, crude oil and other competing energy sources;
- the Company's overseas investments; and
- the Company's capital expenditure plans.

Dependence on the Performance of the Korean Economy

The Company's performance and successful implementation of its operational strategies are dependent on the health of the overall Korean economy and the resulting impact on the demand for energy generally and, in particular, for natural gas. In general, the rate of growth in energy demand in Korea has been closely correlated to the rate of growth in the overall economy, reflected in such metrics as GDP growth. In addition to growth in the overall economy, other factors such as environmental regulations are expected to have a significant positive impact on the growth of natural gas demand as regulations that promote or mandate "clean energy" have the effect of encouraging greater use of natural gas compared to other conventional fuel sources.

The Korean market and the Korean economy are influenced by economic and market conditions in other countries, including the United States, countries in Europe and emerging market countries in Asia. See "Risk Factors – Risks related to Korea – Unfavorable financial and economic developments in Korea may have an adverse effect on the Company."

Fluctuations in Prices of Natural Gas, Crude Oil and Other Competing Energy Sources

The Company's purchase price for LNG is primarily determined by crude oil prices, and the purchase price in Won terms is also affected by the exchange rate between the Won and the U.S. dollar. As a result of significant fluctuations in crude oil prices in recent years, the price of natural gas has also fluctuated significantly. The market price and supply of imported natural gas are subject to a variety of factors that are beyond the control of the Company, including political developments and instability in crude oil and natural gas producing regions (in particular the Middle East), activities of the OPEC and other petroleum and natural gas producing nations in setting and maintaining production levels, and the development, market prices and supply levels of alternative or substitute energy sources, including the discovery and extraction of a large reserve of shale oil and gas in the United States. See "Risk Factors – Risks related to the Company and its Natural Gas Import and Wholesale Business – The volatility in the prices of natural gas, crude oil and other competing energy sources could affect demand for natural gas as a fuel source."

Most of the gas currently sold by the Company is sold under long-term contracts and therefore, in the short term, demand for gas is not materially affected by price volatility. However, long-term demand is dependent upon the relative prices of natural gas and competing alternative energy sources. If there is an increase in the price of crude oil, leading to an increase in the Company's gas sales price, there may be less demand for the Company's gas. For instance, when natural gas prices are unusually high, power generating companies may switch from natural gas to cheaper sources of fuel. To the extent that the market price of alternative energy sources drops to, and is sustained at, a low level, or the Company's gas sales price increases as a result of an increase in the price of LNG procured under future contracts, there may be a reduction in demand for the Company's natural gas. Government policies may also impact the prices of natural gas and other competing energy sources. Although the Company's sales price adjustment mechanism enables the Company to pass on a substantial portion of the fluctuation in costs of natural gas imports to its customers through adjustments of the Formula Price, there can be no assurance that the Company will continue to be able to pass on increased costs without negatively impacting customer demand or the Company's long-term relationship with its customers. In addition, a substantial decline in the market prices of crude oil and natural gas may result in impairment of the Company's assets related to natural gas exploration, development and production activities that the Company engages in abroad, as described below.

The Company's Overseas Investments

As part of its efforts to diversify its operations and prepare for the potential restructuring and liberalization of the natural gas industry in Korea as well as in response to the government's policy to promote procurement of natural resources, the Company has participated in exploration, development and production of natural gas outside Korea. As part of a consortium or through acquisition of a minority interest, the Company engages in overseas gas exploration and development in various locations, including Australia, Iraq and Mozambique, as well as participates in LNG terminal operation and maintenance activities and invests in gas supply companies located abroad.

In more recent years, the Company's strategic goal has been to enhance profitability and financial soundness through debt reduction, including through disposition of non-core or unprofitable assets and issuance of equity and/or equity-linked securities, as well as various other cost-saving measures. Such strategic goal is in line with the Company's debt reduction plan submitted to the Ministry of Economy and Finance and as part of its plan to bolster its overall financial health. Accordingly, the Company plans to concentrate on its core business of LNG import-related operations and pursue selective new business opportunities abroad. In overseas gas exploration, development and production projects, the Company invested approximately Won 488 billion in 2019, Won 508 billion in 2020, Won 495 billion in 2021 and Won 119 billion in the first three months of 2022, and it expects to invest approximately Won 667 billion in such projects in the remainder of 2022, substantially all of which relate to committed capital expenditures on its existing projects.

Due to the risky nature of such projects, the Company may be subject to impairment loss, particularly during periods of expected decline in the market prices of crude oil and natural gas. The Company reviews its assets related to such projects 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 loss on its assets. Likewise, certain of the entities in which the Company has made equity investments may be required to recognize impairment loss 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 loss on property, plant and equipment of Won 460 billion in 2019 and Won 386 billion in 2020, and impairment loss on intangible assets of Won 74 billion in 2019 and Won 76 billion in 2020, primarily related to impairment of assets of the Company's wholly-owned subsidiaries (mainly attributable to KOGAS Prelude Pty. Ltd., KOGAS Australia Pty. Ltd., KOGAS Canada Ltd. and KOGAS Canada Energy Ltd.) that invested in various overseas gas exploration, development and production projects. The Company recognized a reversal of impairment loss on property, plant and equipment of Won 442 billion in 2021 mainly attributable to a reversal of impairment loss related to machinery of KOGAS Australia Pty. Ltd. and a reversal of impairment loss on intangible assets of Won 89 billion in 2021 mainly attributable to a reversal of impairment loss related to mineral rights of KOGAS Australia Pty. Ltd., in each case due to increases in forecasted prices of oil and gas and improvements in the business environment. The level of investments made by the Company for such projects, as well as the returns the Company is able to achieve on its investments, have affected and will continue to affect the Company's financial condition and results of operations. For additional details of the Company's consolidated subsidiaries that engage in overseas operations, including their total assets and liabilities, see note 1 to the Company's unaudited interim condensed consolidated financial statements, note 1 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020 and note 1 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019, included elsewhere in this offering circular.

The Company's Capital Expenditure Plans

The Company's business requires a significant amount of capital investment for the expansion, upgrading and maintenance of facilities and equipment on a timely and cost-effective basis. The Company plans to make additional capital expenditures to increase processing and storage capacity and further expand its pipeline network, and it anticipates that capital expenditures will represent a significant use of funds in the near future. The Company's cash outflows from acquisition of property, plant and equipment were Won 1,223 billion in 2019, Won 912 billion in 2020, Won 1,156 billion in 2021 and Won 228 billion in the first three months of 2022, primarily relating to the construction and maintenance of its pipeline network, expansion of its receiving terminals and overseas activities. The Company currently expects to incur capital expenditures of approximately Won 1,539 billion in the remainder of 2022 and Won 1,937 billion in 2023. The Company may adjust its future capital expenditures on an ongoing basis subject to market demand in Korea for natural gas, the production outlook of the global gas industry and global economic conditions in general. The level of capital expenditures made by the Company, as well as the returns the Company is able to achieve on its capital expenditure investments, have affected and will continue to affect the Company's financial condition and results of operations.

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 notes 2 and 3 to the unaudited interim condensed consolidated financial statements, notes 2 and 3 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020 and notes 2 and 3 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019, 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.

RECENT ACCOUNTING CHANGES AND PRONOUNCEMENTS

For recent changes in accounting policies, including new and amended standards and interpretations adopted by the Company, see note 2.1.1 to the Company's unaudited interim condensed consolidated financial statements and note 2.2.1 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020. For new standards and interpretations not yet adopted by the Company, see note 2.2.2 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020.

RESULTS OF OPERATIONS – FIRST THREE MONTHS OF 2021 COMPARED TO FIRST THREE MONTHS OF 2022

The following table presents selected statement of comprehensive income data and changes therein for first three months of 2021 and the first three months of 2022.

	For the three months ended March 31,		Changes	
	2021	2022	Amount	%
	(in billions of Won)			
Revenue	₩7,711	₩13,979	₩6,268	81.3
Cost of sales	6,838	12,958	6,120	89.5
Gross profit	873	1,021	148	16.9
Selling and administrative expenses	109	109	(0)	(0.2)
Operating profit	765	913	148	19.4
Other income	31	153	122	399.8
Other expenses	4	6	2	46.0
Other gains, net	4	6	2	56.6
Finance income	378	403	24	6.4
Finance costs	524	534	11	2.0
Gains on investments in associates and joint ventures, net	42	96	53	126.1
Profit before income tax	692	1,030	338	48.8
Income tax expenses	177	293	117	66.1
Profit for the period	₩ 515	₩ 736	₩ 221	42.9

Revenue

The Company's revenue increased by 81.3%, or Won 6,268 billion, from Won 7,711 billion in the first three months of 2021 to Won 13,979 billion in the first three months of 2022 primarily due to increase in revenue from the natural gas wholesale segment and, to a lesser extent, the others segment.

The following table presents a breakdown of the Company's revenue by segment and category of customers and changes therein for the first three months of 2021 and the first three months of 2022.

	For the three months ended March 31,		Changes	
	2021	2022	Amount	%
	(in billions of Won)			
Natural gas wholesale segment:				
City gas companies	₩4,591	₩ 6,412	₩1,820	39.6
Power generating companies	2,812	7,165	4,353	154.8
Others	103	162	59	57.3
Sub-total	7,506	13,738	6,232	83.0
Others segment	205	241	36	17.4
Total revenue	₩7,711	₩13,979	₩6,268	81.3

Natural Gas Wholesale Segment

Revenue from the natural gas wholesale segment increased by 83.0%, or Won 6,232 billion, from Won 7,506 billion in the first three months of 2021 to Won 13,738 billion in the first three months of 2022 primarily due to increases in revenue from sales to power generating companies and, to a lesser extent, revenue from sales to city gas companies.

Sales to power generating companies. Sales to power generating companies increased by 154.8%, or Won 4,353 billion, from Won 2,812 billion in the first three months of 2021 to Won 7,165 billion in the first three months of 2022, due to increases in the average Formula Price of natural gas sold to power generating companies and the total volume of natural gas sold to such customers.

- The average Formula Price of natural gas sold to power generating companies increased by 148.0%, or Won 853 thousand per metric ton, from Won 576 thousand per metric ton in the first three months of 2021 to Won 1,429 thousand per metric ton in the first three months of 2022 primarily due to an increase in the average Won price of raw materials reflecting a general increase in average LNG prices as well as an increase in our reliance on purchase of raw materials in the spot market in the first three months of 2022 compared to the first three months of 2021. The raw materials purchased in the spot market were mainly used for natural gas sold to power generating companies and the Company was not able to pass such costs to city gas companies. This was exacerbated by a depreciation of the Won against the dollar. The market average exchange rate, which was Won 1,088.0 to US$1.00 as of December 31, 2020, depreciated during the first quarter of 2021 to an average of Won 1,114.1 to US$1.00 in the first quarter of 2021. In addition, the market average exchange rate, which was Won 1,185.5 to US$1.00 as of December 31, 2021, depreciated during the first quarter of 2022 to an average of Won 1,205.0 to US$1.00 in the first quarter of 2022.

- The total volume of natural gas sold to power generating companies increased by 2.8%, or 135 thousand metric tons, from 4,879 thousand metric tons in the first three months of 2021 to 5,014 thousand metric tons in the first three months of 2022, reflecting a 4.5% increase in the sales volume to private sector power generating companies and a 0.1% increase in the sales volume to the five non-nuclear power generating subsidiaries of KEPCO. The Company's sales to private sector power generating companies increased primarily due to an increase in power generation reflecting the recovering global economic activity and rising mobility.

Sales to city gas companies. Revenue from sales to city gas companies increased by 39.6%, or Won 1,820 billion, from Won 4,591 billion in the first three months of 2021 to Won 6,412 billion in the first three months of 2022 due to an increases in the average Formula Price for natural gas sold to such customers and the total volume of natural gas sold to such customers.

- The average Formula Price for natural gas sold to city gas companies increased by 32.3%, or Won 205 thousand per metric ton, from Won 634 thousand per metric ton in the first three months of 2021 to Won 839 thousand per metric ton in the first three months of 2022 primarily due to an increase in the average Won price of raw materials reflecting a general increase in average LNG prices in the first three months of 2022 compared to the first three months of 2021, which was exacerbated by a depreciation of the Won against the dollar as described above.

- The total volume of natural gas sold to city gas companies increased by 5.5%, or 399 thousand metric tons, from 7,241 thousand metric tons in the first three months of 2021 to 7,640 thousand metric tons in the first three months of 2022, reflecting a 7.5% increase in the sales volume to residential and business heating end-users and a 12.8% increase in the sales volume to others, the impact of which was offset in part by a 1.6% decrease in sales volume to industrial end-users. The Company's sales volume to residential and business heating end-users increased primarily due to a recovery in commercial activities of business heating end-users in the first three months of 2022 after a slowdown in such activities in the first three months of 2021 due to the COVID-19 pandemic as well as colder weather during the traditional peak-demand winter months in the first three months of 2022 compared to those in the first three months of 2021. The Company's sales volume to others increased primarily due to recovery in operations of public facilities in the first three months of 2022 after a reduction in such operations in the first three months of 2021 due to the COVID-19 pandemic. The Company's sales volume to industrial end-users decreased primarily due to a decrease in price competitiveness of LNG compared to liquefied petroleum gas, an alternative fuel source for industrial end-users, in the first three months of 2022 compared to the first three months of 2021.

Others Segment

Revenue from the others segment, primarily consisting of revenue from wholly-owned subsidiaries that engage in natural gas exploration, development and production activities abroad, increased by 17.4%, or Won 36 billion, from Won 205 billion in the first three months of 2021 to Won 241 billion in the first three months of 2022 primarily due to an increase in revenue from KOGAS Australia Pty. Ltd., which was offset in part by decreases in revenue from KOGAS Prelude Pty. Ltd. and KOGAS International Pte. Ltd. Revenue from KOGAS Australia Pty. Ltd., which invested in the GLNG Project in Australia, increased by 139.2%, or Won 147 billion, from Won 106 billion in the first three months of 2021 to Won 253 billion in the first three months of 2022. In the first quarter of 2021, the Company recognized revenue of Won 68 billion from KOGAS Prelude Pty. Ltd. and revenue of Won 64 billion from KOGAS International Pte. Ltd., compared to no revenue from such subsidiaries in the first quarter of 2022, primarily due to temporary shutdowns at KOGAS Prelude Pty. Ltd. and a lack of LNG trading by KOGAS International Pte. Ltd.

Cost of Sales

The Company's cost of sales increased by 89.5%, or Won 6,120 billion, from Won 6,838 billion in the first three months of 2021 to Won 12,958 billion in the first three months of 2022 primarily due to an increase in the average purchase price of LNG in dollar terms, which is primarily determined by crude oil prices. The average market price of Japanese Crude Cocktail increased from U.S.$56.39 per barrel in the first three months of 2021 to U.S.$71.50 per barrel in the first three months of 2022. The impact of such increase in the average purchase price of LNG in dollar terms in the first three months of 2022 compared to the first three months of 2021 was exacerbated by a depreciation of the Won against the dollar in the first three months of 2022 and the first three months of 2021 as described above.

Selling and Administrative Expenses

Selling and administrative expenses decreased by 0.2%, or Won 0.2 billion, from Won 108.8 billion in the first three months of 2021 to Won 108.6 billion in the first three months of 2022, as decreases in salaries and severance benefits were mostly offset by increases in advertising and taxes and dues.

Salaries decreased by 8.1%, or Won 2 billion, from Won 27 billion in the first three months of 2021 to Won 25 billion in the first three months of 2022 primarily due to a decrease in the average salary paid to employees, as well as a decrease in the number of employees. Retirement benefits decreased by 35.5%, or Won 1 billion, from Won 3 billion in the first three months of 2021 to Won 2 billion in the first three months of 2022 primarily due to a decrease in the number of retiring employees.

Advertising expenses increased by 220.5%, or Won 2 billion, from Won 1 billion in the first three months of 2021 to Won 2 billion in the first three months of 2022 primarily due to an increase in the Company's advertising activities. Taxes and dues increased by 3.4%, or Won 1 billion, from Won 36 billion in the first three months of 2021 to Won 37 billion in the first three months of 2022 primarily due to increases in dues related to safety management in connection with the increase in total volume of natural gas sold as described above.

Operating Profit

As a result of the foregoing, the Company's operating profit increased by 19.4%, or Won 148 billion, from Won 765 billion in the first three months of 2021 to Won 913 billion in the first three months of 2022. However, the Company's operating profit margin decreased from 9.9% in the first three months of 2021 to 6.5% in the first three months of 2022, as the increase in cost of sales outpaced the increase in revenue.

The following table presents a breakdown of the Company's operating profit by segment for the first three months of 2021 and the first three months of 2022.

	For the three months ended March 31,		Changes	
	2021	2022	Amount	%
	(in billions of Won)			
Natural gas wholesale segment	₩710	₩866	₩156	21.9
Others segment	54	79	25	46.7
Intersegment adjustments	1	(32)	(33)	N.A.
Total operating profit	₩765	₩913	₩148	19.4

N.A. = not available.

Natural Gas Wholesale Segment

Operating profit of the Company's natural gas wholesale segment, prior to intersegment adjustments, increased by 21.9%, or Won 156 billion, from Won 710 billion in the first three months of 2021 to Won 866 billion in the first three months of 2022 primarily due to recovery of electricity demand in the first three months of 2022 after a slowdown in such demand in the first three months of 2021 exacerbated by the COVID-19 pandemic. However, operating profit margin of the natural gas wholesale segment decreased from 9.5% in the first three months of 2021 to 6.3% in the first three months of 2022, as the increase in segment cost of sales outpaced the increase in segment revenue.

Others Segment

Operating profit of the Company's others segment, prior to intersegment adjustments, increased by 46.7%, or Won 25 billion, from Won 54 billion in the first three months of 2021 to Won 79 billion in the first three months of 2022 primarily due to improvements in financial performance of certain of the Company's wholly-owned subsidiaries that have made investments in natural gas exploration, development and production activities abroad, particularly KOGAS Australia Pty. Ltd. Primarily as a result, the operating profit margin of the others segment increased from 26.1% in the first three months of 2021 to 32.6% in the first three months of 2022.

Other Income and Expenses

The Company's other income increased by 399.8%, or Won 122 billion, from Won 31 billion in the first three months of 2021 to Won 153 billion in the first three months of 2022 primarily due to an increase in compensation and indemnity gains. The Company's compensation and indemnity gains increased by 411.7%, or Won 123 billion, from Won 30 billion in the first three months of 2021 to Won 153 billion in the first three months of 2022 primarily related to indemnity gains in connection with certain lawsuits related to bids on constructions of pipelines.

The Company's other expenses increased by 46.0%, or Won 2 billion, from Won 4 billion in the first three months of 2021 to Won 6 billion in the first three months of 2022 primarily due to increases in compensation and indemnity losses and donations.

Other Gains, Net

The Company's net other gains increased by 56.6%, or Won 2 billion, from Won 4 billion in the first three months of 2021 to Won 6 billion in the first three months of 2022 primarily due to impairment losses relating to KOGAS Mansuriya B.V. in the first three months of 2021, compared to no such impairment losses in the first three months of 2022.

Finance Income and Costs

The following tables present a breakdown of the Company's finance income and costs and changes therein for the first three months of 2021 and the first three months of 2022.

	For the three months ended March 31,		Changes	
	2021	2022	Amount	%
	(in billions of Won)			
Interest income	₩ 5	₩ 9	₩ 4	79.4
Gains on valuation of derivative instruments	39	92	53	136.0
Gains on transactions of derivative instruments	86	105	19	22.0
Foreign currency translation gains	223	151	(71)	(32.0)
Foreign currency transaction gains	25	44	20	79.4
Total finance income	₩378	₩403	₩ 24	6.4

	For the three months ended March 31,		Changes	
	2021	2022	Amount	%
	(in billions of Won)			
Interest expense	₩165	₩179	₩ 13	8.1
Loss on valuation of derivative instruments	29	28	(1)	(3.3)
Loss on transaction of derivative instruments	19	30	11	55.7
Loss on foreign currency translation	219	171	(47)	(21.7)
Loss on foreign currency transaction	91	126	35	37.9
Total finance costs	₩524	₩534	₩ 11	2.0

The Company's net loss on foreign currency transaction increased by 22.5%, or Won 15 billion, from Won 67 billion in the first three months of 2021 to Won 82 billion in the first three months of 2022, as the value of the Won against the U.S. dollar depreciated in the first quarter of 2021 and the first quarter of 2022. In terms of the market average exchange rates announced by Seoul Money Brokerage Services, Ltd., the market average exchange rate, which was Won 1,088.0 to US$1.00 as of December 31, 2020, depreciated during the first quarter of 2021 to an average of Won 1,114.1 to US$1.00 in the first quarter of 2021. In addition, the market average exchange rate, which was Won 1,185.5 to US$1.00 as of December 31, 2021, depreciated during the first quarter of 2022 to an average of Won 1,205.0 to US$1.00 in the first quarter of 2022. The Company also recognized net gain on foreign currency translation of Won 5 billion in the first three months of 2021 compared to net loss on foreign currency translation of Won 19 billion in the first three months of 2022, as the Won depreciated against the U.S. dollar at quarter end in the first quarter of 2021 and the first quarter of 2022. In terms of the market average exchange rates, the Won depreciated against the U.S. dollar from Won 1,088.0 to US$1.00 as of December 31, 2020 to Won 1,133.5 to US$1.00 as of March 31, 2021, and further depreciated against the U.S. dollar from Won 1,185.5 to US$1.00 as of December 31, 2021 to Won 1,210.8 to US$1.00 as of March 31, 2022. Against such fluctuations, the Company's net gain on valuation of derivative instruments increased by 532.0%, or Won 54 billion, from Won 10 billion in the first three months of 2021 to Won 64 billion in the first three months of 2022, and its net gain on transaction of derivative instruments increased by 12.2%, or Won 8 billion, from Won 67 billion in the first three months of 2021 to Won 75 billion in the first three months of 2022.

The Company's interest expense increased by 8.1%, or Won 13 billion, from Won 165 billion in the first three months of 2021 to Won 179 billion in the first three months of 2022 primarily due to a general increase in interest rates in Korea during the first three months of 2022.

Gains on Investments in Associates and Joint Ventures, Net

Net gains on investments in associates and joint ventures increased by 126.1%, or Won 53 billion, from Won 42 billion in the first three months of 2021 to Won 96 billion in the first three months of 2022 primarily due to the Company's investments in Tomori E&P Limited and Korea Ras Laffan LNG Ltd. The Company recognized equity method loss of Won 5 billion in the first three months of 2021 related to its investment in Tomori E&P Limited, compared to equity method gain of Won 26 billion related to such investment in the first three months of 2022. The Company's equity method gain related to its investment in Korea Ras Laffan LNG Ltd. increased by 74.9%, or Won 16 billion, from Won 22 billion in the first three months of 2021 to Won 38 billion in the first three months of 2022.

Profit Before Income Tax

As a result of the foregoing, the Company's profit before income tax increased by 48.8%, or Won 338 billion, from Won 692 billion in the first three months of 2021 to Won 1,030 billion in the first three months of 2022.

Income Tax Expense

Income tax expense increased by 66.1%, or Won 117 billion, from Won 177 billion in the first three months of 2021 to Won 293 billion in the first three months of 2022 primarily due to an increase in the Company's profit before income tax as described above. The Company's effective tax rate (ratio of income tax expense to profit before income tax) increased from 25.5% in the first three months of 2021 to 28.5% in the first three months of 2022. See note 26 to the Company's unaudited interim condensed consolidated financial statements.

Profit for the Period

As a result of the foregoing, the Company's profit for the period increased by 42.9%, or Won 221 billion, from Won 515 billion in the first three months of 2021 to Won 736 billion in the first three months of 2022.

RESULTS OF OPERATIONS – 2020 COMPARED TO 2021

The following table presents selected statement of comprehensive income data and changes therein for 2020 and 2021.

	For the year ended December 31,		Changes	
	2020	2021	Amount	%
	(in billions of Won)			
Revenue	₩20,834	₩27,521	₩6,687	32.1
Cost of sales	19,513	25,859	6,346	32.5
Gross profit	1,320	1,662	342	25.9
Selling and administrative expenses	421	422	1	0.2
Operating profit	899	1,240	341	37.9
Other income	4	35	32	842.6
Other expenses	61	46	(15)	(24.7)
Other gains (losses), net	(448)	549	997	N.A.
Finance income	730	881	151	20.7
Finance costs	1,427	1,472	45	3.2
Gains on investments in associates and joint ventures, net	34	180	146	428.8
Profit (loss) before income tax	(269)	1,367	1,636	N.A.
Income tax expenses (benefit)	(108)	403	511	N.A.
Profit (loss) for the year	₩ (161)	₩ 965	₩1,125	N.A.

N.A. = not available.

Revenue

The Company's revenue increased by 32.1%, or Won 6,687 billion, from Won 20,834 billion in 2020 to Won 27,521 billion in 2021 primarily due to increases in revenue from the natural gas wholesale segment and, to a lesser extent, the others segment.

The following table presents a breakdown of the Company's revenue by segment and category of customers and changes therein for 2020 and 2021.

	For the year ended December 31,		Changes	
	2020	2021	Amount	%
	(in billions of Won)			
Natural gas wholesale segment:				
City gas companies	₩11,840	₩12,972	₩1,132	9.6
Power generating companies	7,697	12,716	5,019	65.2
Others	451	468	17	3.7
Sub-total	19,988	26,156	6,167	30.9
Others segment	846	1,365	520	61.5
Total revenue	₩20,834	₩27,521	₩6,687	32.1

Natural Gas Wholesale Segment

Revenue from the natural gas wholesale segment increased by 30.9%, or Won 6,167 billion, from Won 19,988 billion in 2020 to Won 26,156 billion in 2021 primarily due to increases in revenue from sales to power generating companies and, to a lesser extent, city gas companies.

Sales to power generating companies. Revenue from sales to power generating companies increased by 65.2%, or Won 5,019 billion, from Won 7,697 billion in 2020 to Won 12,716 billion in 2021, due to increases in the average Formula Price of natural gas sold to power generating companies and the total volume of natural gas sold to such customers.

- The average Formula Price of natural gas sold to power generating companies increased by 32.7%, or Won 178 thousand per metric ton, from Won 545 thousand per metric ton in 2020 to Won 723 thousand per metric ton in 2021 primarily due to an increase in the average Won price of raw materials reflecting a general increase in average LNG prices in 2021 compared to 2020, which was offset in part by an appreciation of the Won against the dollar from an average rate of Won 1,180.1 to U.S.$1.00 in 2020 to an average rate of Won 1,144.4 to U.S.$1.00 in 2021.

- The total volume of natural gas sold to power generating companies increased by 24.5%, or 3,462 thousand metric tons, from 14,120 thousand metric tons in 2020 to 17,582 thousand metric tons in 2021, reflecting a 34.7% increase in the sales volume to the five non-nuclear power generating subsidiaries of KEPCO and an 18.2% increase in the sales volume to the private sector power generating companies. The Company's sales to the five non-nuclear power generating subsidiaries of KEPCO and the Company's sales to private sector power generating companies increased primarily due to increases in power generation reflecting the recovering global economic activity and rising mobility.

Sales to city gas companies. Revenue from sales to city gas companies increased by 9.6%, or Won 1,132 billion, from Won 11,840 billion in 2020 to Won 12,972 billion in 2021 due to increases in the total volume of natural gas sold to such customers and, to a lesser extent, the average Formula Price of such sales.

- The total volume of natural gas sold to city gas companies increased by 5.9%, or 1,084 thousand metric tons, from 18,247 thousand metric tons in 2020 to 19,331 thousand metric tons in 2021, reflecting a 9.9% increase in the sales volume to industrial end-users, an 8.8% increase in sales volume to others, and a 1.9% increase in sales volume to residential and business heating end-users. The Company's sales volume to industrial end-users increased primarily due to an increase in price competitiveness of LNG compared to liquefied petroleum gas, an alternative fuel source for industrial end-users, in 2021 compared to 2020 as well as a recovery in production activities of such end-users in 2021 after a slowdown in such activities in 2020 exacerbated by the COVID-19 pandemic. The Company's sales volume to others increased primarily due to recovery in operations of public facilities in 2021 after a reduction in such operations in 2020 due to the COVID-19 pandemic. The Company's sales volume to residential and business heating end-users increased primarily due to supplies of natural gas to new geographic areas previously not covered by the Company.

- The average Formula Price for natural gas sold to city gas companies increased by 3.4%, or Won 22 thousand per metric ton, from Won 649 thousand per metric ton in 2020 to Won 671 thousand per metric ton in 2021 primarily due to an increase in the average Won price of raw materials reflecting a general increase in average LNG prices in 2021 compared to 2020, which was offset in part by an appreciation of the Won against the dollar as discussed above.

Others Segment

Revenue from the others segment increased by 61.5%, or Won 520 billion, from Won 846 billion in 2020 to Won 1,365 billion in 2021 primarily due to increases in revenue from KOGAS International Pte. Ltd. and KOGAS Prelude Pty. Ltd., two of the Company's wholly-owned subsidiaries that engage in natural gas exploration, development and production activities abroad. Revenue from KOGAS International Pte. Ltd., which mainly operates in LNG trading, increased by 451.7%, or Won 285 billion, from Won 63 billion in 2020 to Won 348 billion in 2021. Revenue from KOGAS Prelude Pty. Ltd. which invested in an LNG project in Australia, increased by 715.1%, or Won 251 billion, from Won 35 billion in 2020 to Won 287 billion in 2021.

Cost of Sales

The Company's cost of sales increased by 32.5%, or Won 6,346 billion, from Won 19,513 billion in 2020 to Won 25,859 billion in 2021 primarily due to an increase in the average purchase price of LNG in dollar terms, which is primarily determined by crude oil prices. The average market price of Japanese Crude Cocktail increased from U.S.$53.09 per ton in 2020 to U.S.$56.39 per ton in 2021. The impact of such increase in the average purchase price of LNG in dollar terms from 2020 to 2021 was offset in part by an appreciation of the Won against the dollar from an average rate of Won 1,180.1 to U.S.$1.00 in 2020 to an average rate of Won 1,144.4 to U.S.$1.00 in 2021.

Selling and Administrative Expenses

Selling and administrative expenses increased by 0.2%, or Won 1 billion, from Won 421 billion in 2020 to Won 422 billion in 2021 primarily due to an increase in commission expenses, which was offset in part by a decrease in research and development expenses.

Commission expenses increased by 11.4%, or Won 7 billion, from Won 58 billion in 2020 to Won 65 billion in 2021 primarily due to an increase in commission expense related to the maintenance and repair of our information systems.

Research and development expenses decreased by 6.6%, or Won 3 billion, from Won 53 billion in 2020 to Won 49 billion in 2021 mainly due to a decrease in execution expenses related to research projects and the Company's efforts to reduce expenses in general.

Operating Profit

As a result of the foregoing, the Company's operating profit increased by 37.9%, or Won 341 billion, from Won 899 billion in 2020 to Won 1,240 billion in 2021. The Company's operating profit margin was 4.3% in 2020 and 4.5% in 2021.

The following table presents a breakdown of the Company's operating profit by segment for 2020 and 2021.

	For the year ended December 31,		Changes	
	2020	2021	Amount	%
	(in billions of Won)			
Natural gas wholesale segment	₩951	₩1,002	₩ 51	5.4
Others segment.	(63)	233	297	N.A.
Intersegment adjustments	11	4	(7)	(61.4)
Total operating profit.	₩899	₩1,240	₩341	37.9

N.A. = not available.

Natural Gas Wholesale Segment

Operating profit of the Company's natural gas wholesale segment, prior to intersegment adjustments, increased by 5.4%, or Won 51 billion, from Won 951 billion in 2020 to Won 1,002 billion in 2021 primarily due to recovery of electricity demand in 2021 after a slowdown in such demand in 2020 due to the COVID-19 pandemic. However, operating profit margin of the natural gas wholesale segment decreased from 4.8% in 2020 to 3.8% in 2021, as the increase in segment cost of sales outpaced the increase in segment revenue.

Others Segment

The Company recognized operating loss of Won 63 billion in 2020 from the others segment compared to operating profit of Won 233 billion in 2021 primarily due to improvements in financial performance of certain of the Company's wholly-owned subsidiaries that have made investments in natural gas exploration, development and production activities abroad, particularly KOGAS Australia Pty. Ltd. and KOGAS Prelude Pty. Ltd. For its others segment, the Company recorded operating loss margin of 7.5% in 2020 compared to operating profit margin of 17.1% in 2021.

Other Income and Expenses

The Company's other income increased by 842.6%, or Won 32 billion, from Won 4 billion in 2020 to Won 35 billion in 2021 primarily due to an increase in compensation and indemnity gains. The Company's compensation and indemnity gains increased by 1,409.7%, or Won 29 billion, from Won 2 billion in 2020 to Won 32 billion in 2021 primarily related to indemnity gain from an unfulfilled supply contract in 2021.

The Company's other expenses decreased by 24.7%, or Won 15 billion, from Won 61 billion in 2020 to Won 46 billion in 2021 primarily due to the recognition of other bad debt expenses of Won 9 billion in 2020 related to write-downs of unrecoverable receivables in connection with certain business rights transferred to the Company's overseas subsidiaries, compared to no such expenses in 2021.

Other Gains and Losses, Net

The Company recognized net other losses of Won 448 billion in 2020 compared to net other gains of Won 549 billion in 2021 primarily due to a decrease in its losses on impairment of property, plant and equipment as well as a reversal of losses on impairment of property, plant and equipment in 2021 compared to no such reversal in 2020.

Losses on impairment of property, plant and equipment decreased by 96.0%, or Won 371 billion, from Won 386 billion in 2020 to Won 15 billion in 2021. In 2020, the Company recognized losses on impairment of property, plant and equipment related to KOGAS Australia Pty. Ltd., KOGAS Prelude Pty. Ltd. and KOGAS Canada Energy Ltd. as a result of decreases in the value in use of such assets.

The Company recorded reversal of losses on impairment of property, plant and equipment of Won 457 billion in 2021, which primarily related to KOGAS Australia Pty. Ltd. as a result of an increase in the value in use of such assets.

Finance Income and Costs

The following tables present a breakdown of the Company's finance income and costs and changes therein for 2020 and 2021.

	For the year ended December 31,		Changes	
	2020	2021	Amount	%
	(in billions of Won)			
Interest income	₩ 22	₩ 24	₩ 2	8.6
Gains on valuation of financial assets at fair value through profit or loss	0	1	0	186.9
Dividend income	0	0	–	0.0
Gains on valuation of derivative instruments	39	41	2	4.8
Gains on transactions of derivative instruments	103	220	117	114.0
Foreign currency translation gains	407	477	71	17.4
Foreign currency transaction gains	160	119	(41)	(25.9)
Total finance income	₩730	₩881	₩151	20.7

	For the year ended December 31,		Changes	
	2020	2021	Amount	%
	(in billions of Won)			
Interest expense	₩ 712	₩ 642	₩(70)	(9.9)
Loss on valuation of derivative instruments	107	75	(32)	(29.9)
Loss on transaction of derivative instruments	123	63	(59)	(48.4)
Loss on foreign currency translation	333	376	43	12.9
Loss on foreign currency transaction	152	316	164	107.9
Total finance costs	₩1,427	₩1,472	₩ 45	3.2

The Company's interest expense decreased by 9.9%, or Won 70 billion, from Won 712 billion in 2020 to Won 642 billion in 2021 primarily due to a decrease in the Company's average balance of interest bearing liabilities in 2021 compared to 2020, as well as a general decrease in interest rates in Korea in 2021 compared to 2020.

The Company recognized net gain on foreign currency transaction of Won 8 billion in 2020 compared to net loss on foreign currency transaction of Won 197 billion in 2021, as the average value of the Won against the U.S. dollar depreciated in 2020 but appreciated in 2021. In terms of the market average exchange rates announced by Seoul Money Brokerage Services, Ltd., the market average exchange rate, which was Won 1,157.8 to US$1.00 as of December 31, 2019, depreciated during 2020 to an average of Won 1,180.1 to US$1.00 in 2020 but appreciated during 2021 to an average of Won 1,144.4 to US$1.00 in 2021. In addition, the Company's net gain on foreign currency translation increased by 37.9%, or Won 28 billion, from Won 73 billion in 2020 to Won 101 billion in 2021, as the Won appreciated against the U.S. dollar at year end in 2020 but depreciated by year end 2021. In terms of the market average exchange rates, the Won appreciated against the U.S. dollar from Won 1,157.8 to US$1.00 as of December 31, 2019 to Won 1,088.0 to US$1.00 as of December 31, 2020, but depreciated to Won 1,185.5 to US$1.00 as of December 31, 2021. Against such fluctuations, the Company recognized net loss on transaction of derivative instruments of Won 20 billion in 2020 compared to net gain on transaction of derivative instruments of Won 157 billion in 2021, and its net loss on valuation of derivative instruments decreased by 49.9%, or Won 34 billion, from Won 68 billion in 2020 to Won 34 billion in 2021.

Gains on Investments in Associates and Joint Ventures, Net

Net gains on investments in associates and joint ventures increased by 428.8%, or Won 146 billion, from Won 34 billion in 2020 to Won 180 billion in 2021 primarily due to the Company's investment in Korea Ras Laffan LNG Ltd., in which the Company recognized equity method loss of Won 47 billion in 2020 compared to equity method gain of Won 76 billion in 2021.

Profit (Loss) Before Income Tax

As a result of the foregoing, the Company recognized loss before income tax of Won 269 billion in 2020 compared to profit before income tax of Won 1,367 billion in 2021.

Income Tax Benefit (Expense)

The Company recognized income tax benefit of Won 108 billion in 2020 compared to income tax expense of Won 403 billion in 2021, as the Company recognized loss before income tax of Won 269 billion in 2020 compared to profit before income tax of Won 1,367 billion in 2021. The Company recorded effect of change of temporary differences of Won (111) billion in 2020 compared to Won 374 billion in 2021, and its utilization of previously unrecognized tax loss carryforwards, tax credit and temporary difference from prior years was Won 31 billion in 2020 compared to Won (8) billion in 2021. The Company's effective tax rate was not calculated in 2020 due to net loss before income tax as described above. The Company's effective tax rate (ratio of income tax expense to profit before income tax) was 29.5% in 2021. See note 44 to the Company's audited consolidated financial statements of and for the years ended December 31, 2021 and 2020.

Profit (Loss) for the Year

As a result of the foregoing, the Company recognized loss for year of Won 161 billion in 2020 compared to profit for the year of Won 965 billion in 2021.

RESULTS OF OPERATIONS – 2019 COMPARED TO 2020

The following table presents selected statement of comprehensive income data and changes therein for 2019 and 2020.

	For the year ended December 31,		Changes	
	2019	2020	Amount	%
	(in billions of Won)			
Revenue	₩24,983	₩20,834	₩(4,149)	(16.6)
Cost of sales	23,227	19,513	(3,714)	(16.0)
Gross profit	1,756	1,320	(435)	(24.8)
Selling and administrative expenses	421	421	0	0.1
Operating profit	1,335	899	(436)	(32.6)
Other income	3	4	1	26.4
Other expenses	58	61	3	5.0
Other losses, net	(466)	(448)	18	(3.8)
Finance income	451	730	280	62.0
Finance costs	1,253	1,427	174	13.9
Gains on investments in associates and joint ventures, net	105	34	(71)	(67.4)
Profit (loss) before income tax	116	(269)	(385)	N.A.
Income tax benefit (expenses)	(58)	108	166	N.A.
Profit (loss) for the year	₩ 58	₩ (161)	₩ (219)	N.A.

N.A. = not available.

Revenue

The Company's revenue decreased by 16.6%, or Won 4,149 billion, from Won 24,983 billion in 2019 to Won 20,834 billion in 2020 primarily due to decreases in revenue from the natural gas wholesale segment and, to a lesser extent, the others segment.

The following table presents a breakdown of the Company's revenue by segment and category of customers and changes therein for 2019 and 2020.

	For the year ended December 31,		Changes	
	2019	2020	Amount	%
	(in billions of Won)			
Natural gas wholesale segment:				
City gas companies	₩12,981	₩11,840	₩(1,141)	(8.8)
Power generating companies	10,326	7,697	(2,629)	(25.5)
Others	417	451	34	8.2
Sub-total	23,724	19,988	(3,736)	(15.7)
Others segment	1,259	846	(413)	(32.8)
Total revenue	₩24,983	₩20,834	₩(4,149)	(16.6)

Natural Gas Wholesale Segment

Revenue from the natural gas wholesale segment decreased by 15.7%, or Won 3,736 billion, from Won 23,724 billion in 2019 to Won 19,988 billion in 2020 primarily due to decreases in revenue from sales to power generating companies and city gas companies.

Sales to power generating companies. Sales to power generating companies decreased by 25.5%, or Won 2,629 billion, from Won 10,326 billion in 2019 to Won 7,697 billion in 2020, due to a decrease in the average Formula Price of natural gas sold to power generating companies, as well as a decrease in the total volume of natural gas sold to power generating companies.

- The average Formula Price of natural gas sold to power generating companies decreased by 22.0%, or Won 154 thousand per metric ton, from Won 699 thousand per metric ton in 2019 to Won 545 thousand per metric ton in 2020 primarily due to a decrease in the average Won price of raw materials, which was offset in part by a depreciation of the Won against the dollar from an average rate of Won 1,165.7 to U.S.$1.00 in 2019 to an average rate of Won 1,180.1 to U.S.$1.00 in 2020.

- The total volume of natural gas sold to power generating companies decreased by 4.4%, or 655 thousand metric tons, from 14,775 thousand metric tons in 2019 to 14,120 thousand metric tons in 2020, reflecting a 8.9% decrease in the sales volume to private sector power generating companies, which was partially offset by a 3.8% increase in the sales volume to the five non-nuclear power generating subsidiaries of KEPCO. The Company's sales to private sector power generating companies decreased primarily due to weak electricity demand stemming from the global COVID-19 pandemic in 2020. The Company's sales to the five non-nuclear power generating subsidiaries of KEPCO increased primarily due to increased generation capacity resulting from the completion of construction of additional generation units of the non-nuclear power generating subsidiaries of KEPCO.

Sales to city gas companies. Revenue from sales to city gas companies decreased by 8.8%, or Won 1,141 billion, from Won 12,981 billion in 2019 to Won 11,840 billion in 2020 due to decreases in the total volume of natural gas sold to such customers and, to a lesser extent, the average Formula Price of such sales.

- The total volume of natural gas sold to city gas companies decreased by 3.1%, or 575 thousand metric tons, from 18,822 thousand metric tons in 2019 to 18,247 thousand metric tons in 2020, reflecting a 8.3% decrease in the sales volume to industrial end-users, which was partially offset by a 3.7% increase in sales volume to residential and business heating end-users. The Company's sales volume to industrial end-users decreased primarily due to reduced production of such end-users in large part caused by weak demand stemming from the global COVID-19 pandemic in 2020 as well as reduced operations of public facilities due to the global COVID-19 pandemic in 2020. The Company's sales volume to residential and business heating end-users increased primarily due to colder weather during the traditional peak-demand winter months in 2020 compared to those in 2019.

- The average Formula Price for natural gas sold to city gas companies decreased by 5.9%, or Won 41 thousand per metric ton, from Won 690 thousand per metric ton in 2019 to Won 649 thousand per metric ton in 2020 primarily due to a decrease in the average Won price of raw materials reflecting a general decrease in average LNG prices in 2020 compared to 2019, which was offset in part by a depreciation of the Won against the dollar as discussed above.

Others Segment

Revenue from the others segment decreased by 32.8%, or Won 413 billion, from Won 1,259 billion in 2019 to Won 846 billion in 2020 primarily due to decreases in revenue from KOGAS Australia Pty. Ltd. and KOGAS Badra B.V., two of the Company's wholly-owned subsidiaries that engage in natural gas exploration, development and production activities abroad. Revenue from KOGAS Australia Pty. Ltd., which invested in the GLNG Project in Australia, decreased by 19.0%, or Won 119 billion, from Won 623 billion in 2019 to Won 504 billion in 2020, and revenue from KOGAS Badra B.V., which invested in the Badra oilfield in Iraq, decreased by 45.4%, or Won 93 billion, from Won 206 billion in 2019 to Won 112 billion in 2020.

Cost of Sales

The Company's cost of sales decreased by 16.0%, or Won 3,714 billion, from Won 23,227 billion in 2019 to Won 19,513 billion in 2020 primarily due to a decrease in the average purchase price of LNG in dollar terms, which is primarily determined by crude oil prices. The average market price of Japanese Crude Cocktail decreased from U.S.$69.89 per ton in 2019 to U.S.$53.09 per ton in 2020. The impact of such decrease in the average purchase price of LNG in dollar terms in 2020 compared to 2019 was offset by a depreciation of the Won against the dollar in 2020 compared to 2019 as described above.

Selling and Administrative Expenses

Selling and administrative expenses remained relatively constant at Won 421 billion in 2019 and 2020 primarily due to increases in salaries and other expenses, which were offset by a decrease in research and development expenses.

Salaries increased by 10.6%, or Won 10 billion, from Won 91 billion in 2019 to Won 100 billion in 2020 primarily due to an increase in the average salary paid to employees, as well as an increase in the number of employees. Other expenses (including rewards, resource and development, mining operations, miscellaneous expenses and research referral service costs) increased by 23.0%, or Won 7 billion, from Won 30 billion in 2019 to Won 36 billion in 2020 primarily due to an increase in management expenses related to KG Mozambique.

On the other hand, research and development expenses decreased by 21.0%, or Won 14 billion, from Won 67 billion in 2019 to Won 53 billion in 2020 mainly due to reduced travel related expenses stemming from the global COVID-19 pandemic in 2020.

Operating Profit

As a result of the foregoing, the Company's operating profit decreased by 32.6%, or Won 436 billion, from Won 1,335 billion in 2019 to Won 899 billion in 2020. The Company's operating profit margin decreased from 5.3% in 2019 to 4.3% in 2020.

The following table presents a breakdown of the Company's operating profit by segment for 2019 and 2020.

	For the year ended December 31,		Changes	
	2019	2020	Amount	%
	(in billions of Won)			
Natural gas wholesale segment	₩1,186	₩951	₩(235)	(19.8)
Others segment	142	(63)	(205)	N.A.
Intersegment adjustments	7	11	4	59.5
Total operating profit	₩1,335	₩899	₩(436)	(32.6)

N.A. = not available.

Natural Gas Wholesale Segment

Operating profit of the Company's natural gas wholesale segment, prior to intersegment adjustments, decreased by 19.8%, or Won 235 billion, from Won 1,186 billion in 2019 to Won 951 billion in 2020 primarily due to weak electricity demand stemming from the global COVID-19 pandemic in 2020, including reduced production of industrial end-users in connection with such weak demand, as well as reduced operations of public facilities due to the global COVID-19 pandemic in 2020 as described above. Due to such factors, operating profit margin of the segment decreased from 5.0% in 2019 to 4.8% in 2020.

Others Segment

The Company recognized operating profit of Won 142 billion in 2019 from the others segment compared to operating loss of Won 63 billion in 2020 primarily due to operating losses of certain of the Company's wholly-owned subsidiaries that have made investments in natural gas exploration, development and production activities abroad. Operating loss of KOGAS Prelude Pty. Ltd., which invested in the LNG project in Australia, increased by 352.3%, or Won 89 billion, from Won 25 billion in 2019 to Won 114 billion in 2020, while operating profit of KOGAS Australia Pty. Ltd., which invested in the GLNG Project in Australia, decreased by 85.9%, or Won 74 billion, from Won 86 billion in 2019 to Won 12 billion in 2020. Due to such factors, the others segment recorded operating profit margin of 11.2% in 2019 compared to operating loss margin of 7.5% in 2020.

Other Income and Expenses

The Company's other income increased by 26.4%, or Won 1 billion, from Won 3 billion in 2019 to Won 4 billion in 2020.

The Company's other expenses increased by 5.0%, or Won 3 billion, from Won 58 billion in 2019 to Won 61 billion in 2020 primarily due to the recognition of other bad debt expenses of Won 9 billion in 2020 related to write-downs related to unrecoverable receivables in connection with certain business rights transferred to the Company's overseas subsidiaries.

Other Losses, Net

The Company's net other losses decreased by 3.8%, or Won 18 billion, from Won 466 billion in 2019 to Won 448 billion in 2020 primarily due to a decrease in loss on impairment of property, plant and equipment, which was partially offset by a decrease in other miscellaneous gains.

Loss on impairment of property, plant and equipment decreased by 16.1%, or Won 74 billion, from Won 460 billion in 2019 to Won 386 billion in 2020. In 2019 and 2020, the Company recognized loss on impairment of property, plant and equipment related to KOGAS Australia Pty. Ltd., KOGAS Prelude Pty. Ltd. and KOGAS Canada Energy Ltd. as a result of decreases in the value in use of such assets.

Other miscellaneous gains decreased by 60.4%, or Won 69 billion, from Won 115 billion in 2019 to Won 46 billion in 2020 primarily due to certain compensation income recognized in connection with investment costs relating to KOGAS Akkas B.V. in 2019, which were not repeated in 2020.

Finance Income and Costs

The following tables present a breakdown of the Company's finance income and costs and changes therein for 2019 and 2020.

	For the year ended December 31,		Changes	
	2019	2020	Amount	%
	(in billions of Won)			
Interest income	₩ 33	₩ 22	₩(11)	(33.5)
Gains on valuation of financial assets at fair value through profit or loss	–	0	0	N.A.
Dividend income	0	0	(0)	(23.1)
Gains on valuation of derivative instruments	1	39	38	3,845.5
Gains on transactions of derivative instruments	123	103	(20)	(16.3)
Foreign currency translation gains	181	407	226	124.8
Foreign currency transaction gains	114	160	46	40.8
Total finance income	₩451	₩730	₩ 280	62.0

	For the year ended December 31,		Changes	
	2019	2020	Amount	%
	(in billions of Won)			
Interest expense	₩ 805	₩ 712	₩(92)	(11.5)
Loss on disposal of financial assets	0	–	(0)	(100.0)
Loss on valuation of financial assets at fair value through profit or loss	1	–	(1)	(100.0)
Loss on valuation of derivative instruments	95	107	11	12.0
Loss on transaction of derivative instruments	93	123	30	31.9
Loss on foreign currency translation	86	333	247	286.4
Loss on foreign currency transaction	173	152	(21)	(12.1)
Total finance costs	₩1,253	₩1,427	₩ 174	13.9

N.A. = not available.

The Company recognized net loss on foreign currency transaction of Won 59 billion in 2019 compared to net gain on foreign currency transaction of Won 8 billion in 2020, and its net gain on foreign currency translation decreased by 22.6%, or Won 21 billion, from Won 95 billion in 2019 to Won 73 billion in 2020, as the Won depreciated against the dollar in 2019 but appreciated in 2020. In terms of the market average exchange rates announced by Seoul Money Brokerage Services, Ltd., the Won depreciated from Won 1,118.1 to US$1.00 as of December 31, 2018 to Won 1,157.8 to US$1.00 as of December 31, 2019, but appreciated to Won 1,088.0 to US$1.00 as of December 31, 2020. Against such fluctuations, the Company recognized net gain on transaction of derivative instruments of Won 30 billion in 2019 compared to net loss on transaction of derivative instruments of Won 20 billion in 2020, and its net loss on valuation of derivative instruments decreased by 28.2%, or Won 27 billion, from Won 94 billion in 2019 to Won 68 billion in 2020.

The Company's interest income decreased by 33.5%, or Won 11 billion, from Won 33 billion in 2019 to Won 22 billion in 2020 primarily due to a decrease in its interest-earning assets as well as a general decrease in interest rates in Korea in 2020 compared to 2019. The Company's interest expense decreased by 11.5%, or Won 92 billion, from Won 805 billion in 2019 to Won 712 billion in 2020 primarily due to a decrease in the Company's outstanding interest bearing liabilities in 2020 compared to 2019, as well as a general decrease in interest rates in Korea in 2020 compared to 2019.

Gains on Investments in Associates and Joint Ventures, Net

Net gains on investments in associates and joint ventures decreased by 67.4%, or Won 71 billion, from Won 105 billion in 2019 to Won 34 billion in 2020 primarily due to decreases in equity method gain of Kor-Uz Gas Chemical Investment Ltd. from Won 104 billion in 2019 to Won 43 billion in 2020 and equity method gain of Tomori E&P Limited from Won 17 billion in 2019 to Won 5 billion in 2020.

Profit (Loss) Before Income Tax

As a result of the foregoing, the Company recognized profit before income tax of Won 116 billion in 2019 compared to loss before income tax of Won 269 billion in 2020.

Income Tax Benefit (Expense)

The Company recognized income tax expense of Won 58 billion in 2019 compared to income tax benefit of Won 108 billion in 2020 primarily due to the recognition of profit before income tax in 2019 compared to loss before income tax in 2020 as described above. The Company recorded effect of change of temporary differences of Won 49 billion in 2019 compared to Won (111) billion in 2020, and its adjustment on prior year tax returns increased by 47.4%, or Won 23 billion, from Won 48 billion in 2019 to Won 70 billion in 2020. The Company's effective tax rate (ratio of income tax expense to profit before income tax) was 49.93% in 2019 while the average effective tax rate was not calculated in 2020 due to net loss before the current corporate tax revenue and corporate tax expense deduction. See note 41 to the Company's audited consolidated financial statements of and for the years ended December 31, 2020 and 2019.

Profit (Loss) for the Year

As a result of the foregoing, the Company recognized profit for year of Won 58 billion in 2019 compared to a loss for the year of Won 161 billion in 2020.

LIQUIDITY AND CAPITAL RESOURCES

Cash Flows

The following table sets forth a summary of the Company's cash flows for the periods indicated.

	For the year ended December 31,			For the three months ended March 31,	
	2019	2020	2021	2021	2022
	(in billions of Won)				
Net cash flows provided by (used in) operating activities . . .	W 1,986	W 3,251	W(2,071)	W(434)	W(2,556)
Net cash flows used in investing activities.	(1,397)	(972)	(1,170)	(149)	(221)
Net cash flows provided by (used in) financing activities . . .	(582)	(2,190)	3,476	748	2,928
Net increase in cash and cash equivalents	17	75	233	177	188
Cash and cash equivalents at the beginning of the year/period . . .	240	257	332	332	565
Cash and cash equivalents at the end of the year/period	257	332	565	509	752

Net Cash Flows Provided by (Used in) Operating Activities

The Company's net cash flows used in operating activities increased by 488.6%, or Won 2,122 billion, from Won 434 billion in the first three months of 2021 to Won 2,556 billion in the first three months of 2022. The Company's gross cash flow from its sales activities increased as discussed above. However, the Company's cash outflow related to increase in other non-financial assets increased significantly from Won 250 billion in the first three months of 2021 to Won 4,288 billion in the first three months of 2022, which negatively impacted net cash flows from operating activities. Such significant increase related primarily to a suspension of sales price adjustments. In addition, the Company's cash outflow related to increase in trade receivables increased from Won 715 billion in the first three months of 2021 to Won 1,537 billion in the first three months of 2022, which negatively impacted net cash flows from operating activities. Partially offsetting such impact, the Company recognized cash outflow related to increase in inventories (primarily consisting of raw materials and goods in transit) of Won 302 billion in the first three months of 2021 compared to cash inflow related to decrease in inventories of Won 779 billion in the first three months of 2022, which positively impacted net cash flows from operating activities.

The Company recognized net cash flows provided by operating activities of Won 3,251 billion in 2020 compared to net cash flows used in operating activities of Won 2,071 billion in 2021. The Company's gross cash flows from its sales activities increased as discussed above. However, the Company recognized cash inflow related to decrease in inventories (primarily consisting of raw materials and goods in transit) of Won 1,256 billion in 2020 compared to cash outflow related to increase in inventories of Won 2,202 billion in 2021, which negatively impacted net cash flows from operating activities. The Company also recognize cash inflow related to decrease in trade receivables of Won 891 billion in 2020 compared to cash outflow related to increase in trade receivables of Won 2,526 billion in 2021, which further negatively impacted net cash flows from operating activities. Partially offsetting such impact, the Company recognized cash outflow related to decrease in trade payables of Won 495 billion in 2020 compared to cash inflow related to increase in trade payables of Won 1,830 billion in 2021, which positively impacted net cash flows from operating activities.

Net cash flows provided by operating activities increased from Won 1,986 billion in 2019 to Won 3,251 billion in 2020. The Company's gross cash flow from its sales activities decreased as discussed above. However, the Company's cash inflow related to decrease in inventories (primarily consisting of raw materials and goods in transit) increased from Won 497 billion in 2019 to Won 1,256 billion in 2020, which positively impacted cash provided by operating activities. The Company's decrease in trade receivables increased from Won 211 billion in 2019 to Won 891 billion in 2020, which further positively impacted net cash provided by operating activities. In addition, the Company's decrease in other operating payables decreased from Won 662 billion in 2019 to Won 51 billion in 2020, which also had a positive impact on net cash provided by operating activities. Partially offsetting such impact, the Company's decrease in trade payables increased from Won 137 billion in 2019 to Won 495 billion in 2020, which negatively impacted net cash provided by operating activities.

Net Cash Flows Used in Investing Activities

The Company's net cash flows used in investing activities increased from Won 149 billion in the first three months of 2021 to Won 221 billion in the first three months of 2022 primarily due to the recognition of proceeds from disposal of equity or debt instruments of Won 54 billion in the first three months of 2021 in connection with Sulawesi LNG Development Limited compared to no such recognition in the first three months of 2022, as well as an increase in acquisition of property plant and equipment from Won 192 billion in the first three months of 2021 to Won 228 billion in the first three months of 2022.

The Company's net cash flows used in investing activities increased from Won 972 billion in 2020 to Won 1,170 billion in 2021 primarily due to an increase in acquisition of property plant and equipment from Won 912 billion in 2020 to Won 1,156 billion in 2021.

The Company's net cash flows used in investing activities decreased from Won 1,397 billion in 2019 to Won 972 billion in 2020 primarily due to a decrease in acquisition of property plant and equipment from Won 1,223 billion in 2019 to Won 912 billion in 2020. Such decrease primarily reflected the completion of certain construction projects in 2019. In addition, the Company's cash outflow related to acquisition of financial assets at amortized cost decreased from Won 79 billion in 2019 to Won 26 billion in 2020.

Net Cash Flows Provided by (Used in) Financing Activities

The Company's net cash flows provided by financing activities increased from Won 748 billion in the first three months of 2021 to Won 2,928 billion in the first three months of 2022 primarily due to an increase in net proceeds from borrowings from Won 847 billion in the first three months of 2021 to Won 2,758 billion in the first three months of 2022. In addition, the Company recorded net repayments of debentures of Won 50 billion in the first three months of 2021 compared to proceeds from issuance of debentures of Won 230 billion in the first three months of 2022.

The Company recognized net cash flows used in financing activities of Won 2,190 billion in 2020 compared to net cash flows provided by financing activities of Won 3,476 billion in 2021 primarily due to net repayments of borrowings of Won 366 billion in 2020 compared to net proceeds from borrowings of Won 4,007 billion in 2021, as well as a decrease in net repayments of debentures from Won 1,441 billion in 2020 to Won 693 billion in 2021.

The Company's net cash flows used in financing activities increased from Won 582 billion in 2019 to Won 2,190 billion in 2020 primarily due to an increase in net repayments of debentures from Won 11 billion in 2019 to Won 1,441 billion in 2020. The Company also recorded net repayments of borrowings of Won 366 billion in 2020 compared to net proceeds from borrowings of Won 349 billion in 2019. Partially offsetting such impact, the Company's dividends paid decreased from Won 134 billion in 2019 to Won 51 billion in 2020.

Capital Requirements

Historically, the Company's capital requirements have consisted primarily of financing its operating activities, including purchases of LNG, as well as capital expenditures relating to the construction and maintenance of receiving terminals and nation-wide pipeline network, repayments of outstanding debt, investments related to exploration, development and production of natural gas outside Korea and dividend payments. In recent years, the Company's strategic goal has been to enhance profitability and financial soundness through debt reduction, including through disposition of non-core or unprofitable assets and issuance of equity and/or equity-linked securities, as well as various other cost-saving measures. Accordingly, the Company plans to concentrate on its core business of LNG import-related operations and pursue selective new business opportunities abroad.

The Company anticipates that capital expenditures and repayments of outstanding debt will represent the most significant uses of funds for the next several years. For acquisition of property, plant and equipment, the Company incurred cash outflows of Won 1,223 billion in 2019, Won 912 billion in 2020, Won 1,156 billion in 2021 and Won 228 billion in the first three months of 2022. The Company expects that investment in its receiving terminals in Korea and in extending the length of the Company's pipelines primarily to increase the natural gas penetration rate throughout the country will continue to account for the majority of its capital expenditures. In addition, the Company expects to make additional investments in its liquid hydrogen production and supply business, new overseas projects and pursuant to committed capital expenditures on its existing overseas gas exploration, development and production projects.

The following table sets out the Company's planned capital expenditures from 2022 until 2024 in Korea and abroad.

	Year ended December 31,		
	2022	**2023**	**2024**
	(in billions of Won)		
Korea	₩ 937	₩1,415	₩1,482
Abroad	786	522	359
Total planned capital expenditures	₩1,723	₩1,937	₩1,841

The Company may adjust its capital expenditure plans on an on-going basis subject to market demand for its products, the production outlook of the global natural gas industry and global economic conditions in general. The Company may delay or not implement some of its current capital expenditure plans based on its assessment of such market conditions.

Contractual Obligations

Payments of contractual obligations and commitments will also require considerable resources. In the ordinary course of its business, the Company routinely enters into commercial commitments for various aspects of its operations, as well as provides, from time to time, payment guarantees primarily in connection with the Company's investments in LNG supply companies and project financing relating to overseas gas exploration, development and production projects to which it has committed. As of March 31, 2022, the Company provided guarantees for others, excluding related parties, on the payment of debts amounting to U.S.$74.5 million, EUR1.5 million, CAD1,600.6 million, Won 55,400 million and KWD 26 thousand. See note 36 to the unaudited interim condensed consolidated financial statements included elsewhere in this offering circular.

The following table sets forth the amount of short-term borrowings and long-term debt obligations and minimum lease payments as of March 31, 2022.

	Payments Due by Period			
Contractual Obligations	**Total**	**Less than 1 Year**	**1 to 5 Years**	**After 5 Years**
	(in billions of Won)			
Short-term borrowings and long-term debt obligations[1]	₩29,479	₩12,730	₩8,973	₩7,776
Minimum lease payments[2]	2,411	296	803	1,312
Total	₩31,890	₩13,026	₩9,776	₩9,088

(1) Stated at principal amount before discounts.

(2) Stated at book value translated into Won amount at the market average exchange rate of Won 1,210.8 to U.S.$1.00 on March 31, 2022 as announced by the Seoul Money Brokerage Services, Ltd.

In addition, the Company has substantial purchase obligations under long-term contracts to purchase LNG. These contracts generally have terms of 20 years and provide for periodic price adjustments. See note 35 to the unaudited interim condensed consolidated financial statements included elsewhere in this offering circular. The Company also has entered into long-term transportation contracts for the exclusive use of 30 LNG delivery ships. Starting in 2011, in compliance with Korean IFRS, the Company began recognizing its lease obligations in LNG transporting vessels as capital leases.

Capital Resources and Liquidity

The Company operates in an industry with significant financing requirements and has historically financed its operations primarily through short-term and long-term borrowings from Korean banks and Korea Energy Agency, issuances of debentures and cash generated from operations. The Company expects that these sources will continue to be its principal sources of cash in the future.

Total long-term borrowings and debentures (less discount) were Won 16,703 billion as of March 31, 2022, Won 16,420 billion as of December 31, 2021, Won 17,046 billion as of December 31, 2020 and Won 18,243 billion as of December 31, 2019 and total short-term borrowings and current portion of debentures (less discount) were Won 12,730 billion as of March 31, 2022, Won 9,766 billion as of December 31, 2021, Won 5,114 billion as of December 31, 2020 and Won 6,147 billion as of December 31, 2019.

The Company periodically increases its short-term borrowings and adjusts its long-term debt financing levels depending on changes in its capital requirements. In particular, the Company has increased its outstanding debt substantially from time to time in recent years in order to address additional funding needs resulting from periodic suspensions of the periodic adjustments to sales prices invoiced to city gas companies, and to a lesser extent, to fund its overseas exploration, development and production activities.

The Company had working capital (deficit) (current assets minus current liabilities) of Won (2,818) billion as of March 31, 2022, Won (874) billion as of December 31, 2021, Won 315 billion as of December 31, 2020 and Won 332 billion as of December 31, 2019. The Company intends to meet its working capital and other capital requirements principally through debt financings.

MARKET RISKS

Market risk generally represents the risk that losses may occur in the values of financial instruments as a result of movements in interest rates and foreign exchange rates as well as risks related to raw material prices.

The Company is exposed to various market risks in its ordinary course business transactions.

Interest Rate Risk

The Company's debt consists of fixed and variable rate debt obligations with original maturities typically ranging from less than one year to 30 years. An increase in interest rates would adversely affect the Company's ability to service its existing debt and incur new debt for its operations and its ability to make payments on loans that it has guaranteed.

The Company's interest rate risk is mitigated through application by the Ministry of Trade, Industry and Energy of the Company's estimated borrowing rate when calculating the Company's Formula Prices, which is subject to approval from the government. From time to time, the Company also uses interest rate swaps and currency swaps to reduce the impact of interest rate and exchange rate volatility on the Company's debentures issued overseas. A 100 basis point increase in interest rates for each of the years ended December 31, 2019, 2020 and 2021 and the three months ended March 31, 2022, with all other variables held constant, would have decreased the Company's profit before income tax by Won 7 billion, Won 7 billion, Won 7 billion and Won 8 billion, respectively, with a 100 basis point decrease in interest rates having the opposite effect. See note 33 to the Company's unaudited interim condensed consolidated financial statements, note 48 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020 and note 45 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019, included elsewhere in this offering circular.

Foreign Currency Risk

Anticipated foreign currency payments, which represent a substantial sum and are mostly denominated in U.S. dollars, relate primarily to imported raw material costs, transportation costs and interest and principal payments on the Company's foreign currency-denominated debt. With respect to the Company's exposure to foreign currency risks related to raw material costs and freight costs, such risks to the Company are mitigated because the Ministry of Trade, Industry and Energy generally allows the Company to pass through its raw material costs (including transportation costs) by periodically adjusting the Company's Formula Prices. As for the Company's exposure to foreign currency risks related to foreign currency-denominated debt, the Company utilizes currency forward contracts as well as interest rate swaps and currency swap contracts mentioned above. See note 33 to the unaudited interim condensed consolidated financial statements included elsewhere in this offering circular.

For the years ended December 31, 2019, 2020 and 2021 and for the three months ended March 31, 2022, a 10% increase in exchange rates of all foreign currencies, with all other variables held constant, would have decreased the Company's profit before income tax by Won 48 billion, Won 29 billion, Won 18 billion and Won 101 billion, respectively, with a 10% decrease in exchange rates having the opposite effect. See note 33 to the Company's unaudited interim condensed consolidated financial statements, note 48 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020 and note 45 to the Company's audited consolidated financial statements as of December 31, 2020 and 2019, included elsewhere in this offering circular.

Commodity Price Risk

The Company's operations are affected by price fluctuations of LNG. However, the Company's exposure to LNG price risk is mitigated because the Ministry of Trade, Industry and Energy generally allows the Company to pass through its raw material costs by periodically adjusting the Company's Formula Prices. The Company does not use any derivative instruments to manage its commodity price risks. The Company purchases a substantial portion of its LNG from overseas sources, including Australia, Indonesia, Malaysia, Oman, Qatar and the United States.

In order to ensure a stable source of supply, the Company selectively enters into long-term supply contracts typically for 20 years, and certain of such contracts generally provide for periodic price adjustments. The Company's long-term supply contracts for LNG are summarized in "The Company – Business – LNG Supply – LNG Sales and Purchase Agreements." See note 35 to the unaudited interim condensed consolidated financial statements included elsewhere in this offering circular.

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. 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 applicable Korean laws including the Korean Commercial Code as well as the Company's Articles of Incorporation and the Board of Directors' Regulations and include calling a general meeting of shareholders, approving financial statements and issuing bonds or debentures.

Until October 1997, the Company was a government-owned entity and the Chairman of the Board and the President were appointed by the President of Korea upon the recommendation of the Ministry of Trade, Industry and Energy. The other directors were appointed by the Ministry of Trade, Industry and Energy upon the recommendation of the Chairman of the Board. In October 1997, the Company became a government-invested entity and, as a result of the change in status, the Chairman and the other directors are now selected by a general meeting of shareholders. Representation on the board of directors is not at present proportional to share ownership.

Under the Company's Articles of Incorporation, the President, who serves as the Company's chief executive, is recommended by the Executive Recommending Committee comprised of five members, a majority of whom must be non-standing directors. The Executive Recommending Committee recommends a pool of candidates, which is then deliberated by the Committee for Management of Public Institutions pursuant to the Act on Management of Public Institutions. After being appointed by the shareholders at a general meeting of shareholders and upon recommendation by the Minister of Trade, Industry and Energy, the President is appointed by the President of Korea. 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 (in a form approved by the shareholders) 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, if the President fails to meet such performance level, then the board of directors may submit a resolution to discharge the President to the shareholders.

Other than the President, the standing directors who are not members of the Audit Committee are appointed by the President after being selected by the shareholders at a general meeting of shareholders. The standing directors who are members of the Audit Committee are appointed by the President of Korea, upon recommendation by the Minister of Economy and Finance, after selection by the shareholders at a general meeting of shareholders from a pool of candidates nominated after deliberation by the Committee for Management of Public Institutions and recommendation by the Executive Recommending Committee. The standing directors assist the President and act on his 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 shareholders at a general meeting of shareholders from a pool of candidates recommended by the Executive Recommending Committee subsequent to deliberation by the Committee for Management of Public Institutions. The board of directors may establish sub-committees to delegate some of its management functions pursuant to the Articles of Incorporation of the Company, and the board of directors has established three committees, which consist of the Audit Committee, the ESG Committee and the Overseas Operations Committee.

The Audit Committee is comprised of three committee members, two of whom must be non-standing directors and at least one member must be an accounting or financial professional, as determined in accordance with the relevant provisions of the Enforcement Decree of the Korean Commercial Code. The Audit Committee is responsible for auditing the accounting records and practices and business activities of the Company, examining proposals and documents to be submitted to the shareholders and, pursuant to determining whether any matters violate the Articles of Incorporation of the Company or any applicable laws and regulations, submitting its opinion to the shareholders.

The Company's address is 120 Cheomdan-ro, Dong-gu, Daegu, 41062, Korea. Summary biographical information regarding the Company's directors is set out below.

STANDING DIRECTORS

Hee-Bong Chae, age 57, was appointed as a standing director and as the president and chief executive officer of the Company on July 9, 2019. Mr. Chae previously served as the deputy minister of the Office of Energy and Resources at the Ministry of Trade, Industry and Energy and the presidential secretary for industrial policy at the Office of the President.

Young-Joo Nam, age 66, was appointed as a standing director on January 13, 2020. Mr. Nam is currently serving as a standing member of the Audit Committee. Mr. Nam previously served as the presidential secretary for civil affairs at the Office of the President and the secretary general of the Anti-Corruption and Civil Rights Commission.

Seung Lee, age 61, was appointed as a standing director on October 13, 2020. Mr. Lee is currently a senior executive vice president of Management of the Company. Mr. Lee previously served as the director of the Incheon District Department of the Company and the director of the Office of the Auditor of the Company.

Young-Kew Sung, age 62, was appointed as a standing director on November 19, 2019. Mr. Sung is currently a senior executive vice president of Safety & Technology of the Company. Mr. Sung previously served as the director of the Busan Gyeongnam District Department of the Company and the director of the LNG Terminal Department of the Company.

NON-STANDING DIRECTORS

Hong-Bok Ahn, age 57, was appointed as a non-standing director on November 21, 2019. Mr. Ahn is currently a professor at Keimyung University. Mr. Ahn previously served as the vice president of the Korean Association of Tax & Accounting.

Su-Yi Kim, age 55, was appointed as a non-standing director on February 15, 2021. Ms. Kim is currently a professor at Hongik University. Ms. Kim previously served as the vice president of the Korean Resource Economics Association.

SangHeon Jeon, age 52, was appointed as a non-standing director on February 15, 2021. Mr. Jeon is currently a professor at Suseong University. Mr. Jeon previously served as a spokesperson for the Presidential Committee for Balanced National Development.

Sun-Hee Oh, age 50, was appointed as a non-standing director on February 15, 2021. Ms. Oh is currently an attorney at Hyemyung law firm. Ms. Oh previously served as a prosecutor at the Supreme Prosecutor's Office.

Moon-Kyou Song, age 58, was appointed as a non-standing director on April 1, 2021. Mr. Song is currently a professor at Wonkwang University. Mr. Song previously served as a member of the Fiscal Project Evaluation Committee at the Ministry of Economy and Finance.

HyonJin Kim, age 55, was appointed as a non-standing director on April 1, 2021. Ms. Kim is currently a professor at the Seoul School of Integrated Sciences & Technologies. Ms. Kim previously served as a member of the Energy Committee at the Ministry of Trade, Industry and Energy.

YoungMin Kim, age 52, was appointed as a non-standing director on April 1, 2021. Mr. Kim is currently an attorney at Banseok law firm.

DongMi Shin, age 49, was appointed as a non-standing director on January 10, 2022. Ms. Shin is currently an attorney at Duksu law office and a professor at Yonsei University.

Principal Shareholders

The following table describes the Company's shareholders as of March 31, 2022 (the latest date such information is available).

Name	Amount of Paid in Capital	Number of Shares	Percentage
	(millions of Won)		
The Republic of Korea	₩120,722	24,144,353	26.15%
KEPCO(1)	94,500	18,900,000	20.47%
Local governments	36,606	7,321,122	7.93%
National pension service	42,645	8,528,960	9.24%
Employee stock ownership association	10,959	2,191,889	2.37%
Others	123,703	24,740,626	26.80%
Treasury stock	32,430	6,486,050	7.03%
Total	₩461,565	92,313,000	100.00%

(1) The government directly and indirectly holds 51.10% of equity interest in KEPCO.

Under the KOGAS Act, the government is allowed, but has no obligation, to guarantee bonds issued by the Company. The Company has never received any guarantees from the government. The government is not required under Korean law or by contract or its shareholding position to maintain the solvency of the Company.

The Company is dedicated to a policy of maintaining a high dividend payout ratio and a high dividend yield ratio. The Company declared dividends on its common stock Won 33 billion in respect of 2019 and Won 234 billion in respect of 2021.

The Korean Commercial Code requires the Company to appropriate as a legal reserve an amount equal to at least 10% of the cash dividends for each accounting period until the reserve equals 50% of its paid-in capital. The KOGAS Act further requires the Company to appropriate as a legal reserve an amount equal to at least 10% of its net profits for each accounting period until the reserve reaches 50% of its paid-in capital. The legal reserve is not available for cash dividends; however, the reserve may be (i) credited to paid-in capital, (ii) credited to accumulated deficit by resolution of the Company's board of directors or (iii) reduced and transferred into profit available for dividend by resolution of the Company's shareholders if the amount of the accumulated legal reserve is over 1.5 times the amount of paid-in capital.

In addition to the legal reserve and prior to the distribution of dividends, the KOGAS Act also requires the Company to appropriate profits for an accident compensation reserve in the amount equal to at least 10% of net profits for each accounting period until it reaches the same amount as its paid-in capital.

Related Party Transactions

The Company engages in a variety of transactions with related parties.

The Company sold LNG to the power generating companies owned by KEPCO, which owns 20.5% of the Company's outstanding shares, amounting to Won 3,788 billion in 2019, Won 3,068 billion in 2020, Won 5,389 billion in 2021 and Won 2,788 billion for the three months ended March 31, 2022, which amounts include special consumption tax.

The table below provides a breakdown of the Company's sales to the five non-nuclear power generating subsidiaries of KEPCO for the periods indicated:

	For the year ended December 31,			For the three months ended March 31,
	2019[1]	2020[1]	2021[1]	2022[1]
	(in billions of Won)			
Korea Southern Power Co., Ltd.	₩1,142	₩987	₩1,715	₩861
Korea Midland Power Co., Ltd..	535	580	1,040	504
Korea Western Power Co., Ltd.	953	641	1,393	580
Korea East-West Power Co., Ltd..	817	608	897	535
Korea South-East Power Co., Ltd.	341	252	344	308

(1) Special consumption tax amounts are included.

The table below provides a breakdown of the Company's trade receivables from the five non-nuclear power generating subsidiaries of KEPCO for the periods indicated:

	For the year ended December 31,			For the three months ended
	2019	2020	2021	March 31, 2022
	(in billions of Won)			
Korea Southern Power Co., Ltd.	₩119	₩117	₩221	₩384
Korea Midland Power Co., Ltd..	88	78	157	201
Korea Western Power Co., Ltd.	102	96	157	264
Korea East-West Power Co., Ltd..	92	72	142	199
Korea South-East Power Co., Ltd.	49	45	98	88

The Company also receives dividend income from its subsidiaries and affiliates. The Company received dividend income of Won 61 billion in 2019, Won 39 billion in 2020, Won 60 billion in 2021 and Won 35 billion for the three months ended March 31, 2022 from its associate, Korea Ras Laffan LNG Ltd. The Company also received dividend income of Won 16 billion in 2019, Won 9 billion in 2020, Won 11 billion in 2021 and Won 4 billion for the three months ended March 31, 2022 from its associate, Korea LNG Ltd.

For further information relating to the Company's transactions with related parties, see note 34 to the unaudited interim condensed consolidated financial statements, note 49 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2021 and 2020 and note 46 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019 included elsewhere in this offering circular.

GUARANTEED ISSUERS

A subsidiary of the Company may become a Guaranteed Issuer by executing an accession agreement pursuant to the terms of the Agency Agreement. By executing the accession agreement, such subsidiary agrees to be bound by all the terms of the Program.

REGULATION OF THE KOREAN GAS INDUSTRY

The Company was established as a juridical entity under the KOGAS Act, and it is subject to the rules and regulations of that Act and the Act on the Improvement of Managerial Structure and Privatization of Public Enterprises (the "**Privatization Act**"). The Company is also subject to all general rules and regulations applicable to corporations under the Korean Commercial Code ("**KCC**"), unless otherwise provided for in the KOGAS Act and the Privatization Act.

Under the KOGAS Act and the City Gas Business Act, the Company is licensed by the Ministry of Trade, Industry and Energy as a "wholesale gas supplier." Under the City Gas Business Act, a wholesale gas supplier has the right to supply natural gas on a wholesale basis to the city gas companies and bulk purchasing customers. At present, the Company is the only entity that is licensed as such, and the Company retains effective monopoly rights to supply gas on a wholesale basis to all city gas companies and all substantial power generating companies throughout Korea.

In Korea, primary legislation is supported by a presidential decree or ordinance, which in turn is supported by regulations. This section examines the legislation concerning the regulation of the gas industry in Korea. It does not consider any other facets of regulation such as company law and taxation.

CURRENT FRAMEWORK

The main regulatory bodies of the gas industry in Korea are the Ministry of Trade, Industry and Energy and the Ministry of Economy and Finance. At present, the Ministry of Trade, Industry and Energy is responsible for the primary regulation of the Company while local governments are responsible for the primary regulation of the city gas companies. In addition, the Ministry of Economy and Finance is involved in planning amendments to the broad principles of the regulatory environment insofar as this impacts the government's dual goals of market liberalization and revenue maximization from the privatization program.

KOGAS ACT OF 1982 (AS LAST AMENDED IN AUGUST 2019)

Under the KOGAS Act, the Company is established as a statutory juridical entity for the purpose of "preparing a basis for long-term supply of natural gas, promoting the convenience and benefit of national life and contributing to the promotion of public welfare." To achieve these objectives, the Act allows the Company to undertake the following activities:

- manufacture and supply natural gas and refine and sell by-products;
- construct and operate natural gas receiving terminals and supply networks;
- develop, export and import natural gas;
- develop, export and import LPG;
- manufacture and supply hydrogen energy pursuant to the Act on the Promotion of the Development, Use and Diffusion of New and Renewable Energy (the "**New and Renewable Energy Act**");
- develop, export and import hydrogen energy pursuant to the New and Renewable Energy Act;
- research and develop gas-related technologies relevant to the above activities;
- engage in incidental activities relevant to the above activities;
- engage in other activities entrusted by the nation or local autonomous bodies; and
- engage in the business of developing and exploring oil resources (other than natural gas and LPG) and other related business subject to the approval of the Ministry of Trade, Industry and Energy when it is deemed necessary taking into consideration international oil market conditions.

Under Article 16 of the KOGAS Act, the Ministry of Trade, Industry and Energy is granted the power to direct and supervise the Company's activities relating to its business plan to supply natural gas throughout the country, its investment plan for safety control, matters relating to the use of the Company's gas pipeline network by other parties and matters relating to participation in overseas natural gas development activities and long-term import of natural gas.

The Company is required to obtain approval from the Ministry of Trade, Industry and Energy of its business plan under Article 16-2 of the KOGAS Act. This approval by the Ministry of Trade, Industry and Energy is deemed as approval of the related activities falling under various laws concerning land use and resource planning regarding public facilities. Public notice of such approval is also deemed as a public notice of approval of such related activities.

CITY GAS BUSINESS ACT (AS LAST AMENDED IN FEBRUARY 2022)

The purpose of the City Gas Business Act is to develop the city gas business while protecting consumer interest by devising rational and sound strategies and ensuring public safety by prescribing matters on the installation, maintenance and safety management of gas services and facilities that use gas as a fuel source. It classifies city gas business into four types: wholesale gas supply business, city gas supply business, city gas charge business and business of producing byproduct gas from naphtha or biogas and producing synthetic natural gas. Under Article 3 of the City Gas Business Act, the Ministry of Trade, Industry and Energy is responsible for the licensing of wholesale gas suppliers while local or municipal governments are responsible for licensing city gas companies. The Company is at present the only entity in Korea with a wholesale license.

All wholesale natural gas prices are regulated under the City Gas Business Act. In setting prices, the Company prepares a proposal using traditionally accepted formula that is based on the Company's costs. The proposal is submitted to the Ministry of Trade, Industry and Energy followed by discussions with the Ministry of Economy and Finance under the Price Stabilization Act. Although not required by the Act, the Ministry of Trade, Industry and Energy's practice is to allow the Ministry of Economy and Finance to review the pricing proposal to determine its acceptability to the public and with a view to managing its impact on inflation. The Company's wholesale pricing mechanism is further described in "The Company – Business – Sales – Wholesale Pricing of Natural Gas."

General license conditions for wholesale gas suppliers are set out in Article 5 of the City Gas Business Act Enforcement Rule. For a gas wholesaler, such conditions are as follows:

- the geographic supply area granted to a licensee cannot overlap with the geographic supply area of another licensee;

- the business plan provides for the licensee to maintain at least a 30% equity capital ratio for the first operating year and at least a 20% equity capital ratio thereafter; and

- the business plan provides for the stable procurement of raw materials and construction of main distribution pipelines.

Under Article 2 of the City Gas Business Act, the Company, as a holder of a wholesale license, is permitted to supply gas to city gas companies and bulk purchasing customers, as designated by the Ministry of Trade, Industry and Energy. The regulations define bulk purchasing customers as:

- users who buy through pipelines at least 100,000 cubic meters of natural gas per month and are located outside the geographic supply areas covered by the city gas companies or are refused supply of natural gas for a justifiable reason by the city gas companies under the City Gas Business Act even though such users are located in the geographic supply areas covered by city gas companies;

- users of natural gas for the purpose of power generation with installed generation capacity of 100 megawatts or more;

- users of natural gas for the purpose of power and heat generation;

- users of high pressure natural gas with pressure of at least one mega pascal for the purpose of hydrogen generation to be supplied to fuel cells installed in the facilities specified under the Act on the Promotion of Hydrogen Economy and Safety of Hydrogen and the regulation thereunder; or

- users who are equipped with storage facilities for LNG.

The City Gas Business Act also sets the technical standards for each gas distribution facility and determines the safety obligations of the city gas companies.

LONG-TERM SUPPLY-DEMAND PLAN

Under Article 18-2 of the City Gas Business Act, the Ministry of Trade, Industry and Energy is required every year to establish a gas supply-demand plan (the "**Gas Plan**") for the next five years and every two years to establish a Long-Term Plan for the next ten or more years.

The Gas Plan must include:

- a supply-demand plan for city gas (including by region);

- a plan for expanding gas service facilities and facility investments;

- a plan for importing city gas and a plan for gas storage in preparation for emergencies;

- current status of the city gas business and a plan for fostering the city gas business (including fundraising plans);

- a plan for promoting the supply of city gas; and

- a plan to manage the demand of city gas.

The Long-Term Plan must include:

- long-term prospects for the supply and demand of natural gas;

- an equipment supply plan; and

- a plan for investing in natural gas.

POWERS GRANTED TO THE MINISTRY OF TRADE, INDUSTRY AND ENERGY

The City Gas Business Act endows the Ministry of Trade, Industry and Energy with extensive regulatory powers over the Company. Under Article 40 of the City Gas Business Act, the Ministry of Trade, Industry and Energy has the power to order the Company to make various "adjustments" deemed necessary for balanced demand and supply. An order of adjustment may apply to the following items:

- gas service facilities construction plans;

- gas service (supply) plan;

- service areas, if the service area extends to two or more municipalities or provinces;

- service conditions including gas prices;

- calorific value, pressure and flammability of gas;

- joint usage of gas supply and delivery facilities;

- timing and quantities of LNG imports and exports; and

- sale of surplus gas to gas wholesalers made by persons who import gas for their own use.

Under Article 41 of the City Gas Business Act, the Company may be required to report to the Ministry of Trade, Industry and Energy on implementation of the adjustment order.

ENERGY USAGE RATIONALIZATION ACT (AS LAST AMENDED IN SEPTEMBER 2021)

The Energy Usage Rationalization Act (the "**Energy Act**") was established to "contribute to the sound growth of the national economy, the national welfare and the international efforts to minimize global warming by securing a stable supply and demand of energy, facilitating the rationalized and efficient usage of energy and reducing environmental deterioration caused by energy consumption." Article 3 of the Energy Act assigns to the government the ultimate responsibility for ensuring stable and efficient energy usage and reducing the emission of greenhouse gases while the participation and co-operation of energy users and suppliers is called for in the formulation of energy policy.

Under Article 4 of the Energy Act, the Ministry of Trade, Industry and Energy is required to prepare the Energy Usage Plan, the contents of which are to include plans relating to:

- conversion to an energy-conserving economic structure;
- increasing efficiency in energy use;
- development of technology to promote rational and efficient energy use;
- education and public awareness campaigns to promote rational and efficient energy use;
- interfuel substitution;
- safe handling of heat bearing or heat using materials;
- providing a system for forecasting prices in order to promote rational and efficient energy use;
- measures to reduce greenhouse gas emissions through efficient energy use; and
- any other matters determined by the Ministry of Trade, Industry and Energy as necessary to promote efficient use of energy.

Similarly, under Article 6 of the Energy Act, plans for rational and efficient energy use are produced by municipal governments to implement relevant policies at the local and regional levels.

Under Article 9 of the Energy Act, the Company is required to submit an annual investment plan to the Ministry of Trade, Industry and Energy outlining demand, management initiatives, and covering issues including improving efficiency in production, conversion, transportation, storage and use of energy, decreasing energy consumption and reducing the emission of greenhouse gases. Upon review, the Ministry of Trade, Industry and Energy may request the Company to revise or supplement such plan.

ENERGY USE RATIONALIZATION BASIC PLAN

Pursuant to the requirements of the Energy Act, an Energy Usage Plan is required to be formulated and issued every five years by the Ministry of Trade, Industry and Energy. In order for the plan to be issued, the relevant central administrative agencies must be consulted and the plan also has to pass a review conducted by the National Committee for Promoting Energy Conservation.

The most recent Energy Usage Plan was issued in 2020 and included plans relating to the following:

- improvement of energy efficiency through expanding energy-related investments and local government participation;
- management of energy consumption through digitalization and public participation; and
- introduction of energy regulations promoting energy conversion.

The most recent Energy Usage Plan establishes policies for improving energy efficiency by promoting energy-related investments and local government participation. It also establishes policies in response to climate change issues by, among others, managing energy demand flexibly.

Details of the Energy Usage Plan was announced as a subsidiary plan of third Basic Plan. Among a total of eight subsidiary plans, the Energy Usage Plan, Basic Plan for Electricity Supply and Demand, Plan for Long-term Natural Gas Supply and Demand, Basic Plan for Integrated Energy Supply, Regional Energy Plan, Basic Plan for Overseas Resource Development and Energy Technology Development Plan have been announced.

FRAMEWORK ACT ON CARBON NEUTRALITY AND GREEN GROWTH TO COPE WITH THE CLIMATE CRISIS (ENACTED IN SEPTEMBER 2021)

The objective of the Framework Act on Carbon Neutrality and Green Growth to Cope with the Climate Crisis (the "**Carbon Neutrality Act**") is (i) to facilitate greenhouse gas reduction and strengthen adaptation measures to prevent material impact of the climate crisis, (ii) to resolve economic, environmental and social inequalities that may arise in the process of transitioning to a carbon-neutral society, (iii) to promote the congruous development of the economy and the environment through fostering, promoting and revitalizing green technology and green industries and (iv) to ultimately contribute to the sustainable development of the international community by improving the quality of life of the present and future generations and protecting the ecosystem and climate system.

The Carbon Neutrality Act allows the government to support local governments in transforming their entire energy production, delivery and consumption system to respond to the climate crisis and pursue environmental protection, safety, energy security and sustainability.

BASIC NATIONAL ENERGY PLAN

A Basic Plan is formulated and announced every five years after obtaining the consent of central administrative agencies and passing the review of the National Energy Commission under the Green Act. Each Basic Plan contains a long-term strategy to implement the plan over a period of 20 years. The Basic Plan also includes more specific energy-related plans, including the Long-Term Plan and the Energy Usage Plan. Due to administrative errors in the law amendment process, the statute that stipulates the establishment and amendment procedure of the Basic Plan is currently absent, but the Korean government is planning to resolve this issue through amendments in the near future.

The Basic Plan issued in June 2019 provides for, among other things, the following:

- reducing energy consumption by 18.6% from the currently expected energy demand for 2040 through innovating the structure of energy consumption;
- expanding the usage of non-electricity energy through, among others, establishing a national heat utilization platform and a regional connection system for non-utilized heat and enlarging gas cooling facilities;
- increasing power generation by renewable energy to 30%~35% of total energy production by 2040 and reducing nuclear power generation through increases in power generation by LNG and hydrogen power; and
- reducing greenhouse gas emission to 536 million tons by 2030.

ENVIRONMENTAL LEGISLATION

Air Environment Preservation Act (as last amended in September 2021)

The purpose of the Air Environment Preservation Act (the "**Air Act**") is to protect public health and prevent environmental damage arising from air pollution.

Articles 41 and 42 of the Air Act provide for the Ministry of Environment to determine standards for the sulphur content of fuel and that 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 Article 43 of the Enforcement Decree issued in connection with Article 42 of the Air Act, in the areas that fail, or are likely to fail, to meet minimum air quality standards, only clean energy such as LNG may be used.

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, U.S. expatriates, nonresident alien individuals present in the United States for more than 182 days in a taxable year, persons that will hold Notes as a position in a "straddle" or conversion transaction, or as part of a "synthetic security" or other integrated financial transaction or persons that have a "functional currency" other than the U.S. dollar. Except as specifically set forth below, any special U.S. federal income tax considerations relevant to a particular issue of Notes, including any Floating Rate Notes, Index Linked Notes, Dual Currency Notes, or Zero Coupon Notes will be provided in the applicable Pricing Supplement.

This summary does not discuss tax considerations relevant to the ownership and disposal of Bearer Notes. In addition, this summary does not address the tax consequences of a redenomination. If an 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 special timing rules prescribed under section 451(b) of the U.S. Internal Revenue Code of 1986, as amended (the "**Code**"), 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 of Interest

Payments of "qualified stated interest" (as defined below under "– Original Issue Discount") on a Note, including any taxes withheld and any additional amounts paid in respect thereof, 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).

If such payments of interest are made with respect to a Note denominated in a single currency other than the U.S. dollar (a "**Foreign Currency Note**"), the amount of interest income realized by a United States holder that uses the cash method of tax accounting will be the U.S. dollar value of the Specified Currency payment based on the exchange rate in effect on the date of receipt regardless of whether the payment in fact is converted into U.S. dollars. A United States holder that uses the accrual method of accounting for tax purposes will accrue interest income on the Note in the Specified Currency and translate the amount accrued into U.S. dollars based on the average exchange rate in effect during the interest accrual period (or portion thereof within the United States holder's taxable year), or, at the accrual basis United States holder's election, at the spot rate of exchange on the last day of the accrual period (or the last day of the taxable year within such accrual period if the accrual period spans more than one taxable year), or at the spot rate of exchange on the date of receipt, if such date is within five business days of the last day of the accrual period. A United States holder that makes such election must apply it consistently to all debt instruments from year to year and cannot change the election without the consent of the Internal Revenue Service (the "**IRS**"). A United States holder that uses the accrual method of accounting for tax purposes will recognize foreign currency gain or loss, as the case may be, on the receipt of an interest payment made with respect to a Foreign Currency Note if the exchange rate in effect on the date the payment is received differs from the rate applicable to a previous accrual of that interest income regardless of whether the payment is in fact converted into U.S. dollars. Amounts attributable to pre-issuance accrued interest will generally not be includable in income, except to the extent of foreign currency gain or loss attributable to any changes in exchange rates during the period between the date the United States holder acquired the Note and the first Interest Payment Date. This foreign currency gain or loss will be treated as U.S. source ordinary income or loss but generally will not be treated as an adjustment to interest income received on the Note.

Subject to generally applicable limitations and conditions, any 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 new requirements recently adopted by the IRS 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 is eligible for, and properly elects, the benefits of the Treaty, any 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 for a United States holder or the United States holder does not elect to claim a foreign tax credit for any foreign income taxes paid or accrued in the same taxable year, 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. 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 will be the U.S. dollar value of the foreign currency purchase price on the date of purchase. 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 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. 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. The election available to accrual basis United States holders in respect of the purchase and sale of Foreign Currency Notes traded on an established securities market, discussed above, must be applied consistently to all debt instruments from year to year and cannot be changed without the consent of the IRS.

Except as described below with respect to market discount, Short-Term Notes (as defined below) and foreign currency gain or loss, gain or loss recognized by a United States holder generally will be U.S. source long-term capital gain or loss if the United States holder has held the Note for more than one year at the time of disposition. Long-term capital gains recognized by a non-corporate holder (including an individual holder) generally are subject to tax at a lower rate than short-term capital gains or ordinary income. The deductibility of capital losses is subject to limitations.

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.

Under the new foreign tax credit requirements recently adopted by the IRS, any Korean tax imposed on the sale or other disposition of the Notes generally will not be treated as a creditable tax for U.S. foreign tax credit purposes. 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. 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.

Original Issue Discount

If an 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 Code 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. 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 generally will 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.

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 U.S. taxpayers. In addition, certain U.S. taxpayers may be subject to backup withholding tax in respect of such payments if they do not provide their taxpayer identification numbers or certifications of exempt status to the applicable withholding agent or fail to report all interest and dividends required to be shown on their U.S. federal income tax returns. Persons holding Notes who are not U.S. taxpayers may be required to comply with applicable certification procedures to establish that they are not U.S. taxpayers in order to avoid the application of such information reporting requirements and backup withholding tax. The amount of any backup withholding from a payment to a U.S. or non-U.S. taxpayer will be allowed as a credit against the holder's U.S. federal income tax liability and may entitle the holder to a refund, provided that the required information is timely furnished to the IRS.

Information with Respect to Foreign Financial Assets

Certain United States holders that own "specified foreign financial assets" with an aggregate value in excess of US$50,000 on the last day of the taxable year or US$75,000 at any time during the taxable year are generally required to file an information statement along with their tax returns, currently on IRS Form 8938, with respect to such assets. "Specified foreign financial assets" include any financial accounts held at a non-U.S. financial institution, as well as securities issued by a non-U.S. issuer (which would include the Notes) that are not held in accounts maintained by financial institutions. Higher reporting thresholds apply to certain individuals living abroad and to certain married individuals. Regulations extend this reporting requirement to certain entities that are treated as formed or availed of to hold direct or indirect interests in specified foreign financial assets based on certain objective criteria. United States holders who fail to report the required information could be subject to substantial penalties. In addition, the statute of limitations for assessment of tax would be suspended, in whole or part. Prospective investors should consult their own tax advisors concerning the application of these rules to their investment in the Notes, including the application of the rules to their particular circumstances.

Reportable Transactions

A U.S. taxpayer that participates in a "reportable transaction" will be required to disclose its participation to the IRS. The scope and application of these rules is not entirely clear. A United States holder may be required to treat a foreign currency exchange loss from 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. Prospective investors should consult their own tax advisors regarding the application of these rules to the acquisition, ownership or disposition of Foreign Currency Notes.

KOREAN TAXATION

Republic of Korea

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 on the Senior Notes

Interest on the Senior Notes paid to Non-Residents (except for their permanent establishments in Korea), being foreign currency denominated bonds issued by the Company and/or its Korean subsidiaries outside of 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 Senior Notes paid by the Company and its Korean subsidiary, 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 beneficial owner of the income. The relevant tax treaties are discussed below.

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 Senior 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 Senior Notes issued by the Company and/or its Korean subsidiaries are currently exempt from taxation by virtue of the STTCL, provided that the issuance of the Senior Notes issued by the Company and/or its Korean subsidiaries is deemed to be an overseas issuance 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 Senior Note issued by the Company and/or its Korean subsidiaries) 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 Senior Notes issued by Korean companies. The purchaser or any other designated withholding agent of the Senior Notes issued by the Company and/or its Korean subsidiaries 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 a resident of Korea and (b) all property located in Korea that passes on death (irrespective of whether or not the deceased was a resident of Korea). 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 Senior Notes issued by the Company and/or its Korean subsidiaries 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 in connection with the issue of the Senior 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 Senior 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 15% (including local income tax), and the tax on capital gains is often eliminated.

Each Holder should inquire whether he is entitled to the benefit of a tax treaty with respect to any transaction involving the Senior 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 Senior 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 Senior 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.

Payment of the Guarantee

On January 14, 2016, the Supreme Court of Korea held that interest income paid by a guarantor who is a resident of Korea to a non-Resident of Korea or a creditor who is a foreign corporation, for the benefit of the principal obligor who is a non-resident of Korea, is a domestic source income and that, therefore, such Korea resident guarantor is required to withhold corporate tax. Based on this ruling, interest paid by the Guarantor to a Non-Resident under the Guarantee would be subject to Korean withholding tax (which, if applicable, would be at the rate of 22% (including the local income tax) or such lower rate as is applicable under the tax treaty between Korea and the country in which the Non-Resident resides). In the event that any withholding or deduction is imposed on such interest paid under the Guarantee by law or by any Korean tax authority, the Issuer has agreed that such payment shall be increased by such amount as may be necessary to ensure that the Non-Resident receives a net amount, free and clear of all Korean taxes, equal to the full amount which such Non-Resident would have received had such payment not been subject to such taxes, subject to certain exceptions.

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

With respect to the Company's unaudited interim condensed consolidated financial statements as of March 31, 2022 and for the three months ended March 31, 2022 and 2021 included elsewhere in this offering circular, Ernst & Young Han Young reported that they have conducted their review in accordance with the review standards for interim financial statements in the Republic of Korea. A review of interim financial information consists of making inquiries, primarily of persons responsible for financial and accounting matters and applying analytical and other review procedures. However, their separate report on review of interim condensed consolidated financial statement dated May 16, 2022 appearing herein states that they did not audit and they do not express an opinion on such unaudited interim condensed consolidated financial statements. Accordingly, the degree of reliance on their report on review of interim condensed consolidated financial statements dated May 16, 2022 on such information should be restricted in light of the limited nature of the review procedures applied.

The Company's consolidated financial statements as of and for the year ended December 31, 2019, December 31, 2020 and December 31, 2021, included elsewhere in this offering circular, have been audited by Ernst & Young Han Young, independent auditors, as stated in their independent auditor's reports dated March 21, 2022 and March 17, 2021 appearing herein.

SUBSCRIPTION AND SALE AND TRANSFER AND SELLING RESTRICTIONS

The Dealers have, in a program agreement dated September 30, 2010, as further amended, supplemented and/or restated from time to time (the "**Program Agreement**"), agreed with the Issuer and the Guarantor a basis upon which they or any of them may from time to time agree to purchase Notes or, in the case of Definitive IAI Registered Notes, procure purchasers of Notes. Any such agreement will extend to those matters stated under "Form of the Notes" and "Terms and Conditions of the Notes" above. In the Program Agreement, the Company and Guaranteed Issuers have agreed to reimburse the Dealers for certain of their expenses in connection with the establishment of the Program and the issue of Notes under the Program and to indemnify the Dealers against certain liabilities incurred by them in connection therewith.

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 during and after the offering of the Tranche. 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. Stabilization activities are subject to certain prescribed time limits in certain jurisdictions.

CERTAIN RELATIONSHIPS

Certain of the Dealers and their affiliates may from time to time perform various investment banking, commercial banking or advisory services for the Issuer, the Guarantor and their respective affiliates, for which they have received and may in the future receive customary compensation. The Dealers or their affiliates may own securities issued by the Issuer or the Guarantor. The Dealers or their affiliates may purchase the Notes and be allocated Notes for asset management and/or proprietary purposes but not with a view to distribution. Such persons do not intend to disclose the extent of any such investment or transactions otherwise than in accordance with any legal or regulatory obligation to do so.

The Dealers or their respective affiliates may purchase Notes for its or their own account and enter into transactions, including credit derivatives, such as asset swaps, repackaging and credit default swaps relating to Notes and/or other securities of the Issuer, the Guarantor or their respective subsidiaries or associates at the same time as the offer and sale of Notes or in secondary market transactions. Such transactions would be carried out as bilateral trades with selected counterparties and separately from any existing sale or resale of Notes to which this Offering Circular relates (notwithstanding that such selected counterparties may also be purchasers of Notes).

If a jurisdiction requires that an offering of Notes 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, such offering shall be deemed to be made by the Dealers or such affiliate on behalf of the Issuer or the Guarantor in such jurisdiction.

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) will be deemed to have acknowledged, represented and agreed as follows (terms used in this paragraph that are defined in Rule 144A or in Regulation S are used herein as defined therein):

(i) that either: (a) 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 (b) it is an Institutional Accredited Investor, that, prior to its purchase of the Notes has delivered to the Registrar an IAI Investment Letter in the form as set forth below or (c) it is outside the United States and is not a U.S. person;

(ii) 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;

(iii) 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 (a) to the Issuer or any affiliate thereof, (b) 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, (c) outside the United States in compliance with Rule 903 or Rule 904 under the Securities Act, (d) pursuant to the exemption from registration provided by Rule 144 under the Securities Act (if available) or (e) pursuant to an effective registration statement under the Securities Act, in each case in accordance with all applicable U.S. state securities laws;

(iv) 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 (iii) above, if then applicable;

(v) 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;

(vi) that the Notes, other than the Regulation S Global Notes, will bear a legend to the following effect unless otherwise agreed to by the Company and Guaranteed Issuers:

"THE NOTES [AND THE RELATED GUARANTEE] ([COLLECTIVELY,] THE "SECURITIES") HAVE 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 AS SET FORTH IN THE FOLLOWING SENTENCE. BY ITS ACQUISITION HEREOF, THE HOLDER (A) REPRESENTS THAT (1) 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 (2) 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 (1) TO THE ISSUER OR ANY AFFILIATE THEREOF, (2) 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, (3) OUTSIDE THE UNITED STATES IN COMPLIANCE WITH RULE 903 OR RULE 904 UNDER THE SECURITIES ACT, (4) PURSUANT TO THE EXEMPTION FROM REGISTRATION PROVIDED BY RULE 144 UNDER THE SECURITIES ACT (IF AVAILABLE) OR (5) 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 THESE SECURITIES IS TRANSFERRED A NOTICE SUBSTANTIALLY TO THE EFFECT OF THIS LEGEND.

THESE SECURITIES 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 THESE SECURITIES 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 THESE SECURITIES SHALL BE DEEMED, BY THEIR 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 THESE SECURITIES AND ANY SECURITIES ISSUED IN EXCHANGE OR SUBSTITUTION THEREFOR, WHETHER OR NOT ANY NOTATION THEREOF IS MADE HEREON).";

(vii) 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 (a)(i) outside the United States in compliance with Rule 903 or Rule 904 under the Securities Act or (ii) to a QIB in compliance with Rule 144A and (b) 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:

"THE NOTES [AND THE RELATED GUARANTEE] ([COLLECTIVELY,] THE "SECURITIES") HAVE NOT BEEN AND WILL NOT BE REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED, 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 A PART"; and

(viii) that the Company, the Guaranteed Issuers 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 the Guarantor; 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.

Persons 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 deliver to certain transfer certificate in the form attached to the Agency Agreement.

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:

(i) that the Institutional Accredited Investor has received a copy of this offering circular and such other information as it deems necessary in order to make its investment decision;

(ii) that the Institutional Accredited Investor understands that any subsequent transfer of the Notes is subject to certain restrictions and conditions set forth in this 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;

(iii) that, in the normal course of its business, the Institutional Accredited Investor invests in or purchases securities similar to the Notes;

(iv) 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 that is an institution 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;

(v) 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

(vi) 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.$500,000 (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.$200,000 (or its foreign currency equivalent) principal amount or, in the case of sales to Institutional Accredited Investors, U.S.$500,000 (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.$200,000 (or its foreign currency equivalent) or, in the case of sales to Institutional Accredited Investors, U.S.$500,000 (or its foreign currency equivalent) principal amount of Registered Notes.

SELLING RESTRICTIONS

United States of America

1.1 The Notes have not been and will not be registered under the Securities Act and the Notes 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 Regulation S or pursuant to an exemption from the registration requirements of the Securities Act. Each Relevant Dealer represents that it has offered and sold, and agrees that it will offer and sell, Notes of any Tranche (i) as part of their distribution at any time and (ii) otherwise until 40 days after the completion of the distribution of an identifiable tranche of which such Notes are a part, as determined and certified to the Agent by such Relevant Dealer (or in the case of a sale of an identifiable tranche of Notes to or through more than one Relevant Dealer, by such Relevant Dealers with respect to the Notes of an identifiable tranche purchased by or through it, in which case the Agent shall notify each Relevant Dealer when all such Relevant Dealers have so certified), only in accordance with Rule 903 of Regulation S or Rule 144A. Accordingly, neither it, its affiliates nor any persons acting on its or their behalf have engaged or will engage in any directed selling efforts with respect to the Notes, and it and they have complied and will comply with the offering restrictions requirement of Regulation S. Each Relevant Dealer and its affiliates also agree that, at or prior to confirmation of sale of Notes (other than a sale pursuant to Rule 144A), it will have sent to each distributor, dealer or person receiving a selling concession, fee or other remuneration that purchases Notes from it during the distribution compliance period a confirmation or notice to substantially the following effect:

"The securities covered hereby have not been registered under the U.S. Securities Act of 1933 (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 (i) as part of their distribution at any time or (ii) otherwise until 40 days after the completion of the distribution of an identifiable tranche of which such Notes are a part, except in either case in accordance with Regulation S or Rule 144A under the Securities Act. Terms used above have the meanings given to them by Regulation S under the Securities Act."

Terms used in this paragraph have the meanings given to them by Regulation S.

1.2 Each Relevant Dealer represents that it has not entered and agrees that it will not enter into any contractual arrangement with any distributor (as that term is defined in Regulation S) with respect to the distribution or delivery of the Notes, except with its affiliates or with the prior written consent of the Issuer.

In addition:

(1) except to the extent permitted under U.S. Treas. Reg. §1.163- 5(c)(2)(i)(D) (or any successor rules in substantially the same form that are applicable for purposes of Section 4701 of the U.S. Internal Revenue Code of 1986, as amended (the "**Code**")) (the "**D Rules**"), each Relevant Dealer (a) represents that it has not offered or sold, and agrees that during the restricted period it will not offer or sell, Notes to a person who is within the United States or its possessions or to a United States person, and (b) represents that it has not delivered and agrees that it will not deliver within the United States or its possessions definitive Notes that are sold during the restricted period;

(2) each Relevant Dealer represents that it has and agrees that throughout the restricted period it will have in effect procedures reasonably designed to ensure that its employees or agents who are directly engaged in selling Notes are aware that such Notes may not be offered or sold during the restricted period to a person who is within the United States or its possessions or to a United States person, except as permitted by the D Rules;

(3) if a Relevant Dealer is a United States person, such Relevant Dealer represents that it is acquiring the Notes for purposes of resale in connection with their original issue and if it retains Notes for its own account, it will only do so in accordance with the requirements of U.S. Treas. Reg. §1.163-5(c)(2)(i)(D)(6); and

(4) with respect to each affiliate that acquires from it Notes for the purpose of offering or selling such Notes during the restricted period, each Relevant Dealer either (a) repeats and confirms the representations and agreements contained in clauses (1), (2) and (3) on its behalf or (b) agrees that it will obtain from such affiliate for the benefit of the Issuer the representations and agreements contained in clauses (1), (2) and (3).

Terms used in this paragraph have the meanings given to them by the Code, as amended, and regulations thereunder, including the D Rules.

1.3 In respect of Notes that are expressed in the applicable Pricing Supplement to be subject to the C Rules, the following applies:

Under U.S. Treas. Reg. § 1.163-5(c)(2)(i)(C) (or any successor rules in substantially the same form that are applicable for purposes of Section 4701 of the Code (the "**C Rules**")), to set out the criteria for "foreign targeted obligations" that are exempt from the excise tax under Section 4701(b)(1)(B) of the Code, Notes in bearer form must be issued and delivered outside the United States and its possessions in connection with their original issuance. Each Relevant Dealer represents and agrees that it has not offered, sold or delivered, and will not offer, sell or deliver, directly or indirectly, Notes in bearer form within the United States or its possessions in connection with their original issuance. In connection with the original issuance of Notes in bearer form, each Relevant Dealer represents that it has not communicated, and will not communicate, directly or indirectly, with a prospective purchaser if either of them is within the United States or its possessions, and will not otherwise involve its U.S. office in the offer and sale of Notes in bearer form. Terms used in this paragraph have the meanings given to them by the Code, as amended, and regulations thereunder, including the C Rules and Notice 2012-20.

1.4 Notwithstanding anything above to the contrary, it is understood that Registered Notes may be offered and sold pursuant to a private placement in the United States, and in connection therewith, each Relevant Dealer, severally and not jointly, represents and agrees:

(a) offers, sales, resales and other transfers of Notes made in the United States made or approved by a Relevant Dealer (including offers, resales or other transfers made or approved by a Relevant Dealer in connection with secondary trading) shall be made with respect to Registered Notes only and shall be effected pursuant to an exemption from the registration requirements of the Securities Act;

(b) offers, sales, resales and other transfers of Notes made in the United States will be made only in private transactions to (1) a limited number of Institutional Accredited Investors that have executed and delivered to a Dealer an IAI Investment Letter (attached to the Agency Agreement as Schedule 3 thereto), or (2) institutional investors that are reasonably believed to qualify as QIBs;

(c) the Notes will be offered in the United States only by approaching prospective purchasers on an individual basis. No general solicitation or general advertising within the meaning of Rule 502(c) under the Securities Act will be used in connection with the offering of the Notes in the United States;

(d) no sale of the Notes in the United States to any one purchaser will be for less than (in the case of an Institutional Accredited Investor) US$500,000 (or its foreign currency equivalent) principal amount and (in the case of a QIB) US$100,000 (or its foreign currency equivalent) principal amount and no 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 US$100,000 (or its foreign currency equivalent) principal amount of the Notes; and

(e) each Note sold as a part of a private placement in the United States shall contain a legend stating that such Note has not been, and will not be, registered under the Securities Act,

that any resale or other transfer of such Note or any interest therein may be made only:

(i) to a Relevant Dealer;

(ii) to a qualified institutional buyer in a transaction which meets the requirements of Rule 144A;

(iii) outside the United States pursuant to Regulation S under the Securities Act;

(iv) pursuant to an exemption from registration under the Securities Act provided by Rule 144 thereunder (if available); or

(v) pursuant to an effective registration statement under the Securities Act.

Resale or secondary market transfer of Notes in the United States may be made in the manner and to the parties specified above and to qualified institutional buyers in transactions which meet the requirements of Rule 144A.

1.5 The Issuer and the Guarantor, jointly and severally, represent and agree that any resale or other transfer, or attempted resale or other transfer of Notes sold as part of a private placement in the United States made other than in compliance with the restrictions set out in paragraph 1.4 above shall not be recognized by the Issuer, the Guarantor or any agent of any of them and shall be void. The certificates for the Notes sold in the United States shall bear a legend to this effect.

1.6 An issuance of index-, commodity- or currency-linked Notes may be subject to such additional U.S. selling restrictions as the Relevant Dealer(s) may agree with the Issuer as a term of the issuance and purchase or, as the case may be, subscription of such Notes. Each Relevant Dealer agrees that it shall offer, sell and deliver such Notes only in compliance with such additional U.S. selling restrictions.

1.7 Each Relevant Dealer, severally and not jointly, represents and agrees that neither it nor any affiliate nor any person acting on behalf of either of them has engaged or will engage in any form of general solicitation or general advertising (within the meaning of Regulation D under the Securities Act) in connection with any offer or sale of the Notes in the United States.

European Economic Area

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

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

Unless the final terms (or Pricing Supplement, as the case may be) in respect of any Series of Notes specifies "Prohibition of Sales to EEA 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 the 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.

The EEA selling restrictions described above are in addition to any other applicable selling restriction set out below.

United Kingdom

The final terms (or the Pricing Supplement, as the case may be) in respect of any Series of Notes may include information 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 the 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 the 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.

Italy

The offering of the Notes has not been registered with the Commissione Nazionale per le Società e la Borsa ("**CONSOB**") pursuant to Italian securities legislation and, accordingly, no Notes may be offered, sold or delivered, nor may copies of the 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 Relevant Dealer represents and agrees that it has not offered, sold or delivered, and will not offer, sell or deliver any Notes or distribute any copy of the 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;

(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 the 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. 16190 of 29 October 2007, 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.

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 Relevant Dealer represents and agrees that it has not, directly or indirectly, offered or sold and will not, directly or indirectly, offer or sell any Notes in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan) or to others for re-offering or re-sale, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Act and other relevant laws and regulations of Japan.

Singapore

Each Dealer has acknowledged, and each further Dealer appointed under the Program will be required to acknowledge, that this offering circular has not been and will not be registered as a prospectus with the Monetary Authority of Singapore under the Securities and Futures Act 2001 of Singapore (the "**SFA**"). 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 any Notes to be made the subject of an invitation for subscription or purchase and will not offer or sell any Notes or cause any Notes to be made the subject of an invitation for subscription or purchase, and has not circulated or distributed, nor will it circulate or distribute, this offering circular or any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the Notes, whether directly or indirectly, to any person in Singapore other than (i) to an institutional investor under Section 274 of the SFA; (ii) to a relevant person pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA and (where applicable) Regulation 3 of the Securities and Futures (Classes of Investors) Regulations 2018 of Singapore; or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the Notes are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

(a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor, securities or securities-based derivatives contracts (each term as defined in the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the Notes pursuant to an offer made under Section 275 of the SFA except:

(i) to an institutional investor or to a relevant person defined in Section 275(2) of the SFA or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(c)(ii) of the SFA;

(ii) where no consideration is or will be given for the transfer;

(iii) where the transfer is by operation of law;

(iv) as specified in Section 276(7) of the SFA; or

(v) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018 of Singapore.

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.

Taiwan

The offer of the Notes has not been and will not be registered with the Financial Supervisory Commission of the Republic of China (the "**ROC**") pursuant to relevant securities laws and regulations and may not be sold, issued or offered within the ROC through a public offering or in a circumstance which constitutes an offer within the meaning of the Securities and Exchange Act of the ROC that requires a registration or approval of the Financial Supervisory Commission of the ROC. No person or entity in the ROC has been authorized to offer, sell, give advice regarding or otherwise intermediate the offering and sale of any Notes in the ROC.

Korea

Each Dealer has represented and agreed and each further Dealer appointed under the Program will be required to represent and agree that the 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.

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 this 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, the Guarantor nor any other Dealer shall have any responsibility therefor.

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.

Neither the Company, the Guaranteed Issuers 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 such sale.

With regard to each Tranche, the Relevant Dealer will be required to comply with such other additional restrictions as the Issuer, the Guarantor 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 (each a "**Clearing System**" and together, the "**Clearing Systems**") currently in effect. The information in this section concerning the Clearing Systems has been obtained from sources that the Issuer and the Guarantor believe to be reliable, but none of the Company, the Guaranteed Issuers 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 Company, the Guaranteed Issuers, the Arranger, any Dealer 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. The relevant Pricing Supplement will specify the Clearing System(s) applicable for each Series.*

BOOK-ENTRY SYSTEMS

DTC

DTC has advised the Company and the Guaranteed Issuers 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 member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code and a "clearing agency" registered pursuant to Section 17A of the Exchange Act. DTC holds securities that its participants ("**Participants**") deposit with DTC. DTC also facilitates the post-trade settlement among Direct Participants of sales and other securities transactions in deposited securities through electronic computerized book-entry transfers and pledges between Direct 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. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation ("**DTCC**"). DTCC is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC System is also available to others such as securities brokers and dealers, banks, trust companies and clearing corporations 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 U.S. 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 Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co, or such other name as may be requested by an authorized representative of DTC. The deposit of DTC Notes with DTC and their registration in the name of Cede & Co. or such other DTC nominee do not effect any 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 DTC. 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. (nor any other DTC nominee) will consent or vote with respect to DTC Notes unless authorized by a Direct Participant in accordance with DTC's MMI Procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the Issuer and the Guarantor 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 Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit Direct Participants' accounts upon DTC's receipt of funds and corresponding detail information from the Issuer, the Guarantor or the Principal Paying Agent on the due date for payment in accordance with their respective holdings shown on DTC's records. 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, the Issuer or the Guarantor, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of principal and interest to Cede & Co. (or such other nominee as may be requested by an authorized representative of DTC) is the responsibility of the Issuer (and failing whom, the Guarantor), 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 world-wide 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 and the Guarantor 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 and the Guarantor expect 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 and the Guarantor also expect 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, the Issuer or the Guarantor. Payment of principal, premium, if any, and interest, if any, on Notes to DTC is the responsibility of the Issuer (and failing whom, the Guarantor).

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 Guarantor, 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.

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EY 한영
Building a better working world

Report on review of interim condensed consolidated financial statements

The Stockholders and Board of Directors
Korea Gas Corporation

We have reviewed the accompanying interim condensed consolidated financial statements of Korea Gas Corporation (the "Corporation") and its subsidiaries (collectively referred to as the "Group"), which comprise the interim condensed consolidated statement of financial position as of March 31, 2022, and the related interim condensed consolidated statements of comprehensive income, interim condensed consolidated statements of changes in equity and interim condensed consolidated statements of cash flows for the three-month periods ended March 31, 2022 and 2021, and a summary of significant accounting policies and other explanatory information.

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

Auditor's responsibility
Our responsibility is to express a conclusion on these interim condensed consolidated financial statements based on our review.

We conducted our review in accordance with the review standards for interim financial statements in the Republic of Korea. A review of interim financial information consists of making inquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures. A review is substantially less in scope than an audit conducted in accordance with Korean Auditing Standards ("KGAAS") and, consequently, does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

Conclusion
Based on our review, nothing has come to our attention that causes us to believe that the accompanying interim condensed consolidated financial statements are not prepared, in all material respects, in accordance with KIFRS 1034 *Interim Financial Reporting*.

Other matter
We have audited the consolidated statement of financial position of the Group as of December 31, 2021, and the related consolidated statement of comprehensive income, consolidated statement of changes in equity and consolidated statement of cash flows for the year then ended in accordance with KGAAS (not presented herein), and our report dated March 21, 2022 expressed an unqualified opinion thereon. The accompanying consolidated statement of financial position as of December 31, 2021 presented for comparative purposes is not different, in all material respects, from the above audited consolidated statement of financial position.

Ernst & Young Han Young

May 16, 2022

This review report is effective as of May 16, 2022, the independent auditor's review report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the independent auditor's review report date to the time this review report is used. Such events and circumstances could significantly affect the accompanying interim condensed consolidated financial statements and may result in modifications to this review report.

Korea Gas Corporation and its subsidiaries
Interim condensed consolidated statements of financial position
as of March 31, 2022 and December 31, 2021
(Korean won in millions)

	Notes		March 31, 2022 (Unaudited)		December 31, 2021
Assets					
Current assets:					
Cash and cash equivalents	6,32	₩	752,204	₩	564,523
Current financial assets	6,7,32		133,467		88,601
Trade and other receivables	8,32,34		8,766,741		6,979,471
Short-term contract assets	14		7,458		6,506
Inventories	9		2,805,713		3,582,845
Current tax assets			39,314		39,533
Current non-financial assets	10,11		3,750,355		1,886,259
			16,255,252		13,147,738
Non-current assets:					
Non-current financial assets	6,7,32		850,174		788,540
Long-term trade and other receivables	8,32,34		215,172		210,387
Property, plant and equipment	13,19		23,527,587		23,580,754
Intangible assets other than goodwill	15		1,768,563		1,745,695
Goodwill	16		145		145
Investments in associates and joint ventures	5,12		1,827,826		1,720,112
Net defined benefit assets	20		41,026		27,362
Deferred tax assets			951,989		942,197
Non-current non-financial assets	10,11		4,338,954		1,506,972
			33,521,436		30,522,164
Total assets		**₩**	**49,776,688**	**₩**	**43,669,902**

(Continued)

Korea Gas Corporation and its subsidiaries
Interim condensed consolidated statements of financial position
as of March 31, 2022 and December 31, 2021 (cont'd)
(Korean won in millions)

	Notes		March 31, 2022 (Unaudited)		December 31, 2021
Liabilities					
Current liabilities:					
Trade and other payables	17,19,32,34	₩	4,319,372	₩	3,576,069
Current financial liabilities	7,18,32		12,752,335		9,772,279
Short-term contract liabilities	14		94,397		79,982
Current tax liabilities			38,688		29,886
Current non-financial liabilities	11,22		1,735,527		437,399
Current provisions	21		133,079		126,048
			19,073,398		14,021,663
Non-current liabilities:					
Long-term trade and other payables	17,19,32,34		1,763,211		1,777,711
Non-current financial liabilities	7,18,32		16,807,606		16,521,037
Non-current non-financial liabilities	22		51,350		53,717
Net defined benefit liabilities	20		328		3,033
Deferred tax liabilities			2,273,276		2,007,361
Non-current provisions	21		150,000		166,044
			21,045,771		20,528,903
Total liabilities			**40,119,169**		**34,550,566**
Equity					
Share capital	1,23		461,565		461,565
Share premium	23		1,303,548		1,303,548
Hybrid bonds	25		334,520		334,520
Retained earnings	24		6,692,656		6,185,268
Other components of equity			628,530		584,241
Equity attributable to owners of the parent			9,420,819		8,869,142
Non-controlling interests			236,700		250,194
Total equity			**9,657,519**		**9,119,336**
Total liabilities and equity		₩	**49,776,688**	₩	**43,669,902**

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

Korea Gas Corporation and its subsidiaries
Interim condensed consolidated statements of comprehensive income
for the three-month periods ended March 31, 2022 and 2021
(Korean won in millions, except for earnings per share)

	Notes		2022 (Unaudited)		2021 (Unaudited)
Revenue	4,5,34	₩	13,979,499	₩	7,711,406
Cost of sales	27,34		12,958,277		6,838,005
Gross profit			1,021,222		873,401
Selling and administrative expenses	27,34		108,635		108,814
Operating profit	5		912,587		764,587
Other income	28		153,100		30,631
Other expenses	28		6,470		4,432
Other gains	29		6,048		3,861
Finance income	30,34		402,819		378,474
Finance costs	31,34		534,333		523,714
Gains on investments in associates and joint ventures, net	12		95,765		42,357
Profit before income tax			1,029,516		691,764
Income tax expenses	26		293,405		176,689
Profit for the period		₩	736,111	₩	515,075
Other comprehensive income (loss) for the period, net of tax					
Items that will not be reclassified subsequently to profit or loss					
Remeasurement of deifned benefit plans	20		9,777		2,936
Net gain on valuation of equity instruments at fair value through other comprehensive income			14,405		10,048
Share of other comprehensive income of associates and joint ventures	12		7,282		5,103
Items that may be reclassified subsequently to profit or loss					
Net loss on cash flow hedges	7		(24,708)		(53,661)
Exchange differences on translation of foreign operations			69,563		101,551
Net loss on hedge of net investments in foreign operations			(48,830)		(73,634)
Share of other comprehensive income of associates and joint ventures	12		29,576		48,617
			57,065		40,960
Total comprehensive income for the period, net of tax		₩	793,176	₩	556,035

(Continued)

(Korean won in millions, except for earnings per share)

	Notes	2022 (Unaudited)	2021 (Unaudited)
Profit for the period attributable to:			
Owners of the parent		₩ 733,459	₩ 512,963
Non-controlling interests		2,652	2,112
		736,111	515,075
Total comprehensive income attributable to:			
Owners of the parent		787,525	548,198
Non-controlling interests		5,651	7,837
		793,176	556,035
Earnings per share in Korean won from continuing operations			
Basic earnings per share		₩ 8,526	₩ 5,977
Diluted earnings per share		₩ 7,945	₩ 5,977

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

Korea Gas Corporation and its subsidiaries
Interim condensed consolidated statements of changes in equity
for the three-month periods ended March 31, 2022 and 2021
(Korean won in millions)

	Share capital and share premium	Retained earnings	Hybrid bonds	Other components of equity	Equity attributable to owners of the parent	Non-controlling interests	Total equity
As of January 1, 2021	**₩ 1,765,113**	**₩ 5,190,805**	**-**	**₩ 525,122**	**₩ 7,481,040**	**₩ 254,116**	**₩ 7,735,156**
Comprehensive income							
Profit for the period	-	512,963	-	-	512,963	2,112	515,075
Other comprehensive income (loss)							
Remeasurement gain of defined benefit plans	-	2,936	-	-	2,936	-	2,936
Gain on valuation of equity instruments at fair value through other comprehensive income	-	-	-	10,048	10,048	-	10,048
Net loss on cash flow hedges	-	-	-	(53,661)	(53,661)	-	(53,661)
Net loss on hedge of net investments in foreign operations	-	-	-	(73,634)	(73,634)	-	(73,634)
Share of other comprehensive income of associates and joint ventures	-	-	-	53,720	53,720	-	53,720
Exchange differences on translation of foreign operations	-	-	-	95,826	95,826	5,724	101,550
Transactions with the owners of the parent							
Dividends paid	-	-	-	-	-	(2,242)	(2,242)
Capital increase of subsidiaries	-	-	-	-	-	7,470	7,470
Capital reduction of subsidiaries	-	-	-	-	-	(12,571)	(12,571)
As of March 31, 2021 (Unaudited)	**₩ 1,765,113**	**₩ 5,706,704**	**₩ -**	**₩ 557,421**	**₩ 8,029,238**	**₩ 254,609**	**₩ 8,283,847**
As of January 1, 2022	**₩ 1,765,113**	**₩ 6,185,268**	**334,520**	**₩ 584,241**	**₩ 8,869,142**	**₩ 250,194**	**₩ 9,119,336**
Comprehensive income							
Profit for the period	-	733,459	-	-	733,459	2,652	736,111
Other comprehensive income (loss)							
Remeasurement gain of defined benefit plans	-	9,777	-	-	9,777	-	9,777
Gain on valuation of equity instruments at fair value through other comprehensive income	-	-	-	14,405	14,405	-	14,405
Net loss on cash flow hedges	-	-	-	(24,708)	(24,708)	-	(24,708)
Net loss on hedge of net investments in foreign operations	-	-	-	(48,830)	(48,830)	-	(48,830)
Share of other comprehensive income of associates and joint ventures	-	-	-	36,858	36,858	-	36,858
Exchange differences on translation of foreign operations	-	-	-	66,564	66,564	2,999	69,563
Transactions with the owners of the parent							
Dividends paid	-	(234,136)	-	-	(234,136)	(3,562)	(237,698)
Capital increase of subsidiaries	-	-	-	-	-	-	-
Capital reduction of subsidiaries	-	-	-	-	-	(15,583)	(15,583)
Others							
Interest payment of hybrid bonds	-	(1,712)	-	-	(1,712)	-	(1,712)
As of March 31, 2022 (Unaudited)	**₩ 1,765,113**	**₩ 6,692,656**	**₩ 334,520**	**₩ 628,530**	**₩ 9,420,819**	**₩ 236,700**	**₩ 9,657,519**

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

Korea Gas Corporation and its subsidiaries
Interim condensed consolidated statements of cash flows
for the three-month periods ended March 31, 2022 and 2021
(Korean won in millions)

		2022 (Unaudited)		2021 (Unadutied)
Cash flows from operating activities:				
Profit for the period	₩	736,111	₩	515,075
Adjustments to reconcile profit for the period to net cash flows used in operating activities:				
Income tax expenses		293,405		176,689
Interest expenses		178,844		165,401
Depreciation and amortization		426,656		413,098
Loss (gain) on foreign currency translation, net		19,332		(4,794)
Gain on fair value		(64,263)		(10,169)
Gain on disposal of non-current assets		(13)		(210)
Interest income		(9,132)		(5,090)
Others, net		(58,157)		16,961
Changes in operating assets and liabilities:				
Decrease (increase) in inventories		778,964		(302,013)
Increase in trade receivables		(1,536,997)		(715,157)
Increase in other receivables		(172,366)		(13,377)
Decrease (increase) in financial assets at fair value through profit or loss		11,306		(4,994)
Increase in other non-financial assets		(4,288,484)		(250,266)
Increase in other operating assets		(36,007)		(8,582)
Increase (decrease) in trade payables		615,113		(78,518)
Decrease in other payables		(43,048)		(62,501)
Decrease in financial liabilities at fair value through profit or loss		(3,398)		(75,815)
Increase in other current liabilities		860,853		3,755
Increase (decrease) in other non-current non-financial liabilities		(19,396)		1,706
Increase (decrease) in other operating liabilities		(43,358)		3,268
Cash generated from operations		(2,354,035)		(235,533)
Dividends received		21,858		19,821
Interest paid		(228,950)		(223,657)
Interest received		4,966		3,083
Income taxes refunded		404		2,108
Net cash flows used in operating activities		(2,555,757)		(434,178)
Cash flows from investing activities:				
Proceeds from disposal of equity or debt instruments		-		53,551
Acquisition of equity or debt instruments		-		(1,943)
Proceeds from disposal of property, plant and equipment		552		290
Acquisition of property, plant and equipment		(227,725)		(191,679)
Receipt of government grants		8,414		346
Acquisition of intangible assets		(10,047)		(854)
Proceeds from disposal of financial assets at amortized cost		28,290		5
Acquisition of financial assets at amortized cost		(14,895)		(2,000)
Increase in advanced payments and loans		(10,872)		(17,711)
Receipt of advanced payments and loans		6,999		5,572
Others, net		(1,754)		5,840
Net cash flows used in investing activities		(221,038)		(148,583)

(Continued)

Korea Gas Corporation and its subsidiaries
Interim condensed consolidated statements of cash flows
for the three-months periods ended March 31, 2022 and 2021 (cont'd)
(Korean won in millions)

	2022 (Unaudited)	2021 (Unadutied)
Cash flows from financing activities:		
Proceeds from borrowings	24,113,679	10,113,376
Repayments of borrowings	(21,355,222)	(9,265,949)
Proceeds from issuance of debentures	230,000	100,000
Repayments of debentures	-	(150,000)
Payments of lease liabilities	(39,723)	(34,801)
Decrease in equity of non-controlling interests	(15,583)	(12,428)
Dividends paid	(3,562)	(2,251)
Interest payment of hybrid bonds	(1,713)	-
Net cash flows provided by financing activities	2,927,876	747,947
Effects of exchange rate changes on cash and cash equivalents	36,600	12,303
Net increase in cash and cash equivalents	187,681	177,489
Cash and cash equivalents at the beginning of the period	564,523	331,761
Cash and cash equivalents at the end of the period	₩ 752,204	₩ 509,250

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

1. General information

Korea Gas Corporation ("KOGAS" or the "Corporation") was incorporated as a government-invested entity on August 18, 1983, under the *Korea Gas Corporation Act* to engage in the development, production, and distribution of liquefied natural gas (LNG). Under the Articles 3 and 5 of the supplementary provisions of the *Act on the Management of Public Institution*, the Corporation was designated as "Market-type Public Corporation" on April 2, 2007.

The Corporation's share was listed on the Korea Stock Exchange since December 15, 1999, and share capital as of March 31, 2022 amounts to ₩461,565 million. The shareholders of the Corporation and their shareholdings as of March 31, 2022 are as follows:

Shareholders	Number of shares	Percentage of ownership (%)
Government of the Republic of Korea	24,144,353	26.2%
Korea Electric Power Corporation	18,900,000	20.5%
Local governments	7,321,122	7.9%
Treasury share[1]	6,486,050	7.0%
Others	35,461,475	38.4%
	92,313,000	100.0%

[1]Exchangeable shares for hybrid bonds issued by the Corporation are deposited with the Korea Securities Depository as of March 31, 2022

1. General information (cont'd)

(1) Details of the consolidated subsidiaries as of March 31, 2022 and December 31, 2021, are as follows:

				Percentage of ownership (%)	
Subsidiary	Business	Country of incorporation	Country of domicile	March 31, 2022	December 31, 2021
Korea Gas Technology Corporation	Construction & service	Korea	Korea	100.00%	100.00%
KOGAMEX Investment Manzanillo B.V.	Service	Netherlands	Mexico	100.00%	100.00%
KOMEX-GAS, S.de R.L. de C.V.	LNG terminal construction	Mexico	Mexico	99.97%	99.97%
KOGAS Iraq B.V.	Resource development	Netherlands	Iraq	100.00%	100.00%
KOGAS Badra B.V.	Resource development	Netherlands	Iraq	100.00%	100.00%
KOGAS Akkas B.V.	Resource development	Netherlands	Iraq	100.00%	100.00%
KOGAS Mansuriya B.V.	Resource development	Netherlands	Iraq	100.00%	100.00%
KOGAS Canada Energy Ltd.	Resource development & LNG plant management	Canada	Canada	100.00%	100.00%
KOGAS Australia Pty. Ltd.	Resource development	Australia	Australia	100.00%	100.00%
KOGAS Prelude Pty. Ltd.	Resource development	Australia	Australia	100.00%	100.00%
KG Timor Leste Ltd.	Resource development	Marshall Islands	Timor Leste	100.00%	100.00%
KG Krueng Mane Ltd.	Resource development	Marshall Islands	Indonesia	100.00%	100.00%
KG Mozambique Ltd.	Resource development	Marshall Islands	Mozambique	100.00%	100.00%
KOGAS Mozambique, Lda.	Construction & service	Mozambique	Mozambique	99.99%	99.99%
KGLNG E&P Pty Ltd.	Resource development	Australia	Australia	100.00%	100.00%
KGLNG E&P II Pty Ltd.	Resource development	Australia	Australia	100.00%	100.00%
KGLNG Liquefaction Pty Ltd.	LNG plant management	Australia	Australia	100.00%	100.00%
KOGAS Cyprus Ltd.	Resource development	Cyprus	Cyprus	100.00%	100.00%
KC LNG Tech Co.,Ltd.	Engineering	Korea	Korea	50.20%	50.20%
KG-SEAGP Company Limited[1]	Resource development	Hong Kong	Myanmar	66.37%	65.27%
KG Myanmar Ltd.[2]	Resource development and others	Korea	Myanmar	100.00%	100.00%
KOGAS International Pte. Ltd.	LNG trading	Singapore	Singapore	100.00%	100.00%
Kogas Canada Partner Ltd.	LNG plant management	Canada	Canada	100.00%	100.00%
Kogas Canada LNG Partnership	LNG plant management	Canada	Canada	99.99%	99.99%
Kogas Canada E&P Partnership	Resource development	Canada	Canada	99.99%	99.99%
Korea LNG Bunkering Co.,Ltd.	LNG Bunkering	Korea	Korea	100.00%	100.00%
KOREA LNG BUNKERING LINES Ltd[3]	Ship rental	Liberia	Korea	100.00%	100.00%

[1] The Corporation has the right to exercise 66.37% voting rights at the shareholders' meeting of KG-SEAGP Company Limited. However, voting rights ratio and ownership share may be different according to the shareholders agreement. The ownership share is calculated based on the ratio of cash flows expected to be distributed during the investment period, and the ownership share of the Corporation is 20%.
[2] The Corporation has the right to exercise 100% voting rights at the shareholders' meeting of KG Myanmar Ltd. However, voting rights ratio and ownership share may be different according to the shareholders agreement. The ownership share is calculated based on the ratio of cash flows expected to be distributed during the investment period, and the ownership share of the Corporation is 37.85%.
[3] It was newly established as a subsidiary of Korea LNG Bunkering Co., Ltd. on December 16, 2021.

1. General information (cont'd)

(2) Summarized financial information of consolidated subsidiaries as of March 31, 2022 and December 31, 2021 and for the three-month periods ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	March 31, 2022			
Subsidiary	Total assets	Total liabilities	Sales	Profit (loss) for the period
Korea Gas Technology Corporation	₩ 311,667	₩ 172,086	₩ 58,732	₩ (1,839)
KOGAMEX Investment Manzanillo B.V.	130,725	88,599	-	2,538
KOMEX-GAS, S. de R.L. de C.V.	2,191	310	-	(160)
KOGAS Iraq B.V.	1,151,803	166,934	79,895	7,413
KOGAS Badra B.V.	506,291	32,835	49,129	7,837
KOGAS Akkas B.V.	17,208	12,659	-	(235)
KOGAS Mansuriya B.V.	147	-	-	(25)
KOGAS Canada Energy Ltd. [1]	1,061,051	636,985	4,183	547
KOGAS Australia Pty. Ltd. [2]	4,178,672	3,587,822	252,543	53,728
KOGAS Prelude Pty. Ltd.	2,096,639	1,555,191	-	(28,760)
KG Timor Leste Ltd.	15	55,649	-	(377)
KG Krueng Mane Ltd.	-	79,752	-	(520)
KG Mozambique Ltd.	1,149,690	772,880	-	(3,348)
KOGAS Mozambique, Lda	16,642	49	50	1,302
KOGAS Cyprus Ltd.	33,855	18	-	(279)
KC LNG Tech Co.,Ltd.	12,309	13,034	2,566	(514)
KG-SEAGP Company Limited	185,695	28	-	2,922
KG Myanmar Ltd.	244,761	1,630	-	917
KOGAS International Pte. Ltd.	12,832	2,348	-	(188)
Korea LNG Bunkering Co.,Ltd. [3]	39,141	7,802	3,027	(70)

[1] The interim condensed statements of financial position and comprehensive income of KOGAS Canada Energy Ltd. include financial information of KOGAS Canada Partner Ltd., KOGAS Canada LNG Partnership., and KOGAS Canada E&P Partnership.
[2] The interim condensed statements of financial position and comprehensive income of KOGAS Australia Pty. Ltd. include financial information of KGLNG E&P Pty Ltd., KGLNG E&PⅡ Pty Ltd., and KGLNG Liquefaction Pty Ltd.
[3] The interim condensed statements of financial position and comprehensive income of Korea LNG Bunkering Co Ltd. include financial information of KOREA LNG BUNKERING LINES Ltd.

	December 31, 2021		March 31, 2021	
Subsidiary	Total assets	Total liabilities	Sales	Profit (loss) for the period
Korea Gas Technology Corporation	₩ 274,456	₩ 141,776	₩ 63,835	₩ (77)
KOGAMEX Investment Manzanillo B.V.	122,430	85,868	-	1,946
KOMEX-GAS, S. de R.L. de C.V.	2,255	308	1,675	794
KOGAS Iraq B.V.	1,080,909	123,912	69,845	7,667
KOGAS Badra B.V.	487,088	31,236	35,013	1,483
KOGAS Akkas B.V.	17,167	12,482	-	(6,148)
KOGAS Mansuriya B.V.	200	33	-	(6,090)
KOGAS Canada Energy Ltd. [1]	993,601	579,437	2,838	960
KOGAS Australia Pty. Ltd. [2]	4,011,755	3,486,112	105,569	(8,851)
KOGAS Prelude Pty. Ltd.	2,173,891	1,615,461	67,931	19,851
KG Timor Leste Ltd.	15	54,115	-	(339)
KG Krueng Mane Ltd.	-	77,574	-	(468)
KG Mozambique Ltd.	1,118,284	766,052	-	(3,983)
KOGAS Mozambique, Lda	21,855	6,849	70	1,880
KOGAS Cyprus Ltd.	34,074	13	-	(58)
KC LNG Tech Co.,Ltd.	13,283	13,494	8	(1,156)
KG-SEAGP Company Limited	183,860	24	-	3,689
KG Myanmar Ltd.	267,789	2,430	-	(424)
KOGAS International Pte. Ltd.	166,425	155,974	64,425	1,797
Korea LNG Bunkering Co.,Ltd. [3]	65,393	33,984	2,449	5

[1] The interim condensed statements of financial position and comprehensive income of KOGAS Canada Energy Ltd. include financial information of KOGAS Canada Partner Ltd., KOGAS Canada LNG Partnership., and KOGAS Canada E&P Partnership.
[2] The interim condensed statements of financial position and comprehensive income of KOGAS Australia Pty. Ltd. include financial information of KGLNG E&P Pty Ltd., KGLNG E&PⅡ Pty Ltd., and KGLNG Liquefaction Pty Ltd.
[3] The interim condensed statements of financial position and comprehensive income of Korea LNG Bunkering Co Ltd. include financial information of KOREA LNG BUNKERING LINES Ltd.

1. General information (cont'd)

(3) Information on non-controlling interests

(Korean won in millions)

	As of March 31, 2022 and for the three-month periods ended March 31, 2022				
	KC LNG Tech Co.,Ltd.	KG-SEAGP Company Limited	KG Myanmar Ltd.	Others	Total
Voting rights ratio [1]	50.20%	66.37%	100%	-	-
Current assets	₩ 2,062	₩ 8,103	₩ 47,530	₩ 4,365	₩ 62,060
Non-current assets	10,247	177,592	197,231	14,468	399,538
Current liabilities	12,293	28	293	359	12,973
Non-current liabilities	741	-	1,337	-	2,078
Net assets	(725)	185,667	243,131	18,474	446,547
Carrying amount of non-controlling interests	(361)	98,699	138,360	2	236,700
Revenue	2,566	-	-	50	2,616
Net profit (loss) for the year	(514)	2,922	917	1,142	4,467
Profit (loss) for the year attributable to non-controlling interests	(256)	2,338	570	-	2,652
Cash flows from operating activities	(176)	237	3,368	(76)	3,353
Cash flows from investing activities	(9)	2,079	19,783	8,277	30,130
Cash flows from financing activities prior to payment of non-controlling interest dividends	(24)	(4,806)	(19,782)	(6,843)	(31,455)
Dividends paid to non-controlling interests	-	(198)	(3,364)	-	(3,562)
Net foreign exchange difference	-	93	-	115	208
Net increase in cash and cash equivalents	(209)	(2,595)	5	1,473	(1,326)

[1] Non-controlling interests of KG-SEAGP Company Limited and KG Myanmar Ltd. are calculated based on ownership interest ratio, not voting rights ratio.

(Korean won in millions)

	As of December 31, 2021 and for the three-month periods ended March 31, 2021				
	KC LNG Tech Co.,Ltd.	KG-SEAGP Company Limited	KG Myanmar Ltd.	Others	Total
Voting rights ratio [1]	50.20%	65.27%	100%	-	-
Current assets	₩ 2,726	₩ 12,624	₩ 47,029	₩ 11,190	₩ 73,569
Non-current assets	10,557	171,236	220,760	12,920	415,473
Current liabilities	12,737	24	378	424	13,563
Non-current liabilities	757	-	2,052	6,733	9,542
Net assets	(211)	183,836	265,359	16,953	465,937
Carrying amount of non-controlling interests	(105)	97,274	153,023	2	250,194
Revenue	8	-	-	1,744	1,752
Net profit (loss) for the year	(1,156)	3,689	(424)	2,675	4,784
Profit (loss) for the year attributable to non-controlling interests	(576)	2,951	(264)	-	2,111
Cash flows from operating activities	(3,338)	519	1,954	605	(260)
Cash flows from investing activities	(2,023)	2,754	15,342	-	16,073
Cash flows from financing activities prior to payment of non-controlling interest dividends	5,987	(2,083)	(15,342)	-	(11,438)
Dividends paid to non-controlling interests	-	(286)	(1,956)	-	(2,242)
Net foreign exchange difference	-	196	-	29	225
Net increase in cash and cash equivalents	626	1,100	(2)	634	2,358

[1] Non-controlling interests of KG-SEAGP Company Limited and KG Myanmar Co., Ltd. are calculated based on ownership interest ratio, not voting rights ratio.

2. Basis of preparation and significant accounting policies

2.1 Basis of presentation

The Corporation and its subsidiaries (collectively referred to as the "Group") maintains its accounting records in Korean won and prepares statutory financial statements in the Korean language in accordance with Korean International Financial Reporting Standards ("KIFRS"). The accompanying interim condensed consolidated financial statements have been condensed, restructured and translated into English from the Korean language financial statements. The interim condensed consolidated financial statements for the three-month period ended March 31, 2022, have been prepared in accordance with KIFRS 1034 *Interim Financial Reporting*. These interim condensed consolidated financial statements have been prepared in accordance with KIFRS which is effective or early adopted as of March 31, 2022.

2.1.1 New and amended standards and interpretations

The accounting policies adopted in the preparation of the interim condensed consolidated financial statements are consistent with those followed in the preparation of the Group's annual consolidated financial statements for the year ended December 31, 2021, except for the adoption of new standards effective as of January 1, 2022.

(1) Amendments to KIFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets* – Costs of fulfilling onerous contract

An onerous contract is a contract in which the unavoidable costs required to perform the contractual obligations exceed the economic benefits expected to be received from the contract. In this amendment, when judging whether a contract is an onerous contract, the costs directly related to the contract to provide goods or services should include all the incremental costs of implementing the contract (e.g., material and labor costs) and other cost allocations (e.g., allocation of depreciation expenses for items of property, plant and equipment or costs for managing and supervising the contract). General and administrative costs do not relate directly to a contract and are excluded unless they are explicitly chargeable to the counterparty under the contract. These amendments had no material impact on the interim condensed consolidated financial statements of the Group.

(2) Amendments to KIFRS 1103 *Business combinations – Reference to the Conceptual Framework*

The amendments are intended to replace a reference to the *Framework for the Preparation and Presentation* of Financial Statements, issued in 1989, with a reference to the Conceptual Framework for Financial Reporting issued in March 2018 without significantly changing its requirements.

The Board also added an exception to the recognition principle of KIFRS 1103 to avoid the issue of potential 'day 2' gains or losses arising for liabilities and contingent liabilities that would be within the scope of KIFRS 1037 or KIFRS 2121 Levies, if incurred separately. At the same time, the Board decided to clarify existing guidance in KIFRS 1103 for contingent assets that would not be affected by replacing the reference to the Framework for the Preparation and Presentation of Financial Statements. These amendments had no material impact on the interim condensed consolidated financial statements of the Group.

(3) Amendments to KIFRS 1016 *Property, Plant and Equipment* – Proceeds before Intended Use

The amendment prohibits entities deducting from the cost of an item of property, plant and equipment, any proceeds from selling items produced while bringing that asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Instead, an entity recognizes the proceeds from selling such items, and the costs of producing those items, in profit or loss. These amendments had no material impact on the interim condensed consolidated financial statements of the Group.

(4) Amendments to KIFRS 1101 *First-time Adoption of International Financial Reporting Standards* – Subsidiary as a first-time adopter

The amendment permits a subsidiary that elects to apply paragraph D16(a) of KIFRS 1101 to measure cumulative translation differences using the amounts reported by the parent, based on the parent's date of transition to KIFRS. This amendment is also applied to an associate or joint venture that elects to apply paragraph D16(a) of KIFRS 1101. These amendments had no material impact on the interim condensed consolidated financial statements of the Group.

(5) Amendments to KIFRS 1109 *Financial Instruments* – Fees in the '10 percent' test for derecognition of financial liabilities

The amendment clarifies the fees that an entity includes when assessing whether the terms of a new or modified financial liability are substantially different from the terms of the original financial liability. These fees include only those paid or received between the borrower and the lender, including fees paid or received by either the borrower or lender on the other's behalf. These amendments had no material impact on the interim condensed consolidated financial statements of the Group.

(6) Amendments to KIFRS 1041 *Agriculture* – Taxation in fair value measurements

The amendment removes the requirement in paragraph 22 of KIFRS 1041 that entities exclude cash flows for taxation when measuring the fair value of assets within the scope of KIFRS 1041. These amendments had no material impact on the interim condensed consolidated financial statements of the Group.

3. Significant accounting estimates and assumptions

The preparation of the interim condensed consolidated financial statements requires management to make estimates and assumptions that affect amounts reported therein. Estimations and assumptions are continuously evaluated with consideration to factors such as events reasonably predictable in the foreseeable future within the present circumstance according to historical experience. The resulting accounting estimates will, by definition, seldom equal the related actual results.

These estimations and assumptions have been consistently applied to all the periods presented, except for the estimation method to determine income tax.

4. Revenue from contracts with customers

(1) The Group's revenue for the three-month periods ended March 31, 2022 and 2021 can be categorized as follows (Korean won in millions):

Classification		2022 (Unaudited)		2021 (Unaudited)
Revenue from contracts with customers	₩	13,978,671	₩	7,711,020
Revenue from government subsidies		800		386
Revenue from construction charges		28		-
	₩	13,979,499	₩	7,711,406

(2) The Group's revenue from contracts with customers for the three-month periods ended March 31, 2022 and 2021 can be categorized as follows (Korean won in millions):

	2022 (Unaudited)				2021 (Unaudited)			
Classification		Domestic		Overseas		Domestic		Overseas
Revenue by product/services								
Revenue from sale of goods								
Power generating	₩	7,165,193	₩	-	₩	2,811,880	₩	-
City gas		6,411,507		-		4,591,381		-
Direct supply		48,500		-		25,498		-
Individual charge		36,718		-		-		-
Use of plumbing facilities		25		-		25		-
Others		6,143		-		3,866		-
Overseas operations		-		112,525		-		94,366
Subtotal		13,668,086		112,525		7,432,650		94,366
Revenue from other than sale of goods								
Revenue - Services		845		129,272		197		107,274
Revenue - Construction		10,006		242		15,699		684
Other revenue		54,075		3,620		59,570		580
Subtotal		64,926		133,134		75,466		108,538
	₩	13,733,012	₩	245,659	₩	7,508,116	₩	202,904
Timing of revenue recognition								
At a point in time		13,668,240		112,525		7,432,883		94,366
Over a period of time		64,772		133,134		75,233		108,538
	₩	13,733,012	₩	245,659	₩	7,508,116	₩	202,904

Details of an external customer which accounted for more than 10% of revenue for three-month periods ended March 31, 2022 and 2021 are as follows :

		2022 (Unaudited)		2021 (Unaudited)
Customer 1	₩	1,136,064	₩	771,545

4. Revenue from contracts with customers (cont'd)

(3) Seasonality of operations

The Group's operations are highly cyclical as the revenue is generally higher in winter season due to the demand of heating gas in the cities. The Group expects revenue and operating profit in the winter season to be higher than those of the summer season in 2022.

5. Segment information

(1) Details of reportable segments are as follows:

Operating segments	Activity
Natural gas wholesale	Import, production and wholesale of LNG, Compressed Natural Gas, Natural Gas
Others	Supply of power and heat, equipment conservation, terminal management, labor force management, exploration, development and production of gas and oil

(2) Details of segment results for the three-month periods ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	2022 (Unaudited)				
	Total revenue	Inter-segment revenue	External revenue	Operating profit[1]	Depreciation and amortization[1]
Natural gas wholesale	₩ 13,746,886	₩ (8,562)	₩ 13,738,324	₩ 865,759	₩ 284,266
Others	450,125	(208,950)	241,175	78,719	144,047
Adjustments[1]	-	-	-	(31,891)	(1,526)
	₩ 14,197,011	₩ (217,512)	₩ 13,979,499	₩ 912,587	₩ 426,787

[1] Changes from elimination of intra-group transactions in reportable segment operating income and depreciation are presented as adjustments.

	2021 (Unaudited)				
	Total revenue	Inter-segment revenue	External revenue	Operating profit[1]	Depreciation and amortization[1]
Natural gas wholesale	₩ 7,507,688	₩ (1,689)	₩ 7,505,999	₩ 710,187	₩ 285,753
Others	413,658	(208,251)	205,407	53,671	128,863
Adjustments[1]	-	-	-	729	(1,518)
	₩ 7,921,346	₩ (209,940)	₩ 7,711,406	₩ 764,587	₩ 413,098

[1] Changes from elimination of intra-group transactions in reportable segment operating income and depreciation are presented as adjustments.

5. Segment information (cont'd)

(3) Details of assets and liabilities about operating segments as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)			
	Assets	Investments in associates and joint ventures[1]	Acquisition of non-current assets	Liabilities
Natural gas wholesale	₩ 47,158,956	₩ 1,580,553	₩ 136,738	₩ 39,336,679
Others	11,151,334	247,273	139,606	7,186,610
Adjustments[2]	(8,533,602)	-	-	(6,404,120)
	₩ 49,776,688	₩ 1,827,826	₩ 276,344	₩ 40,119,169

[1] Investments in associates and joint ventures represent the amounts after the assessment of invested shares included in reportable segment assets.
[2] Changes from elimination of intra-group transactions in reportable segment assets and liabilities are presented as adjustments.

	December 31, 2021			
	Assets	Investments in associates and joint ventures[1]	Acquisition of non-current assets	Liabilities
Natural gas wholesale	₩ 41,031,613	₩ 1,484,926	₩ 662,317	₩ 33,606,011
Others	11,034,730	235,186	586,374	7,187,132
Adjustments[2]	(8,396,441)	-	-	(6,242,577)
	₩ 43,669,902	₩ 1,720,112	₩ 1,248,691	₩ 34,550,566

[1] Investments in associates and joint ventures represent the amounts after the assessment of invested shares included in reportable segment assets.
[2] Changes from elimination of intra-group transactions in reportable segment assets and liabilities are presented as adjustments.

5. Segment information (cont'd)

(4) Details of external revenue for the three-month periods ended March 31, 2022 and 2021 and details of non-current assets as of March 31, 2022 and December 31, 2021 by geographic locations are as follows (Korean won in millions):

	External revenue				Non-current assets[1]			
	2022 (Unaudited)		2021 (Unaudited)		March 31, 2022 (Unaudited)		December 31, 2021	
Korea	₩	13,737,093	₩	7,510,011	₩	18,055,607	₩	18,222,594
Mexico		-		1,675		-		-
Australia		90,183		75,857		4,414,023		4,366,402
Canada		4,183		2,838		894,751		827,144
Iraq		129,024		104,857		974,736		987,526
Mozambique		50		70		711,807		691,576
Cyprus		-		-		27,112		26,791
Singapore		-		-		629		678
Myanmar		18,966		16,098		234,478		222,236
	₩	13,979,499	₩	7,711,406	₩	25,313,143	₩	25,344,947

[1] Non-current assets represent the aggregate amounts of property, plant and equipment, and intangible assets before elimination of intra-group transactions.

6. Restricted financial assets

Restricted cash and cash equivalents and financial instruments as of March 31, 2022 and December 31, 2021 are as follows (Korean won in millions):

	Description	March 31, 2022 (Unaudited)		December 31, 2021	
Cash and cash equivalents	Restriction in use for special purpose business	₩	86,711	₩	66,125
Long-term financial instruments	Restriction in use		90,016		90,016
		₩	176,727	₩	156,141

7. Derivative instruments

(1) Details of derivative instruments as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)		December 31, 2021	
	Current	Non-current	Current	Non-current
Derivative financial assets				
Foreign currency forwards	₩ 79,079	₩ 316	₩ 26,852	₩ -
Foreign currency swaps	-	86,057	-	79,718
Interest rate swaps	218	34,311	137	10,544
Subtotal[1]	₩ 79,297	₩ 120,684	₩ 26,989	₩ 90,262
Derivative financial liabilities				
Foreign currency forwards	₩ (22,117)	₩ -	₩ (5,985)	₩ (10)
Foreign currency swaps	-	(104,600)	-	(99,652)
Interest rate swaps	-	-	-	(933)
Subtotal[1]	₩ (22,117)	₩ (104,600)	₩ (5,985)	₩ (100,595)

[1]Contains derivatives for trading purposes and cash flow hedges.

(2) Details of foreign currency swap contracts as of March 31, 2022, are as follows (Korean won and Japanese yen in millions and US dollars, Euro, Confoederatio Helvetica Franc and HK dollars in thousands):

Purpose	Financial institution	Contract period	Amount of contract: Sell		Amount of contract: Buy		Interest rate of contract: Sell	Interest rate of contract: Buy	Exchange rate of contract
Trading	DBS	2013.06~2028.06	USD	50,196	KRW	55,788	4.28%	3.30%	USD 1 = KRW 1,111.4
	KEB Hana	2013.07~2023.07	USD	65,325	KRW	74,601	4.27%	3.17%	USD 1 = KRW 1,142.0
	BNP Paribas	2013.08~2023.08	USD	82,910	KRW	92,635	4.27%	3.54%	USD 1 = KRW 1,117.3
	BNP Paribas	2013.08~2023.08	USD	41,133	KRW	46,049	4.24%	3.68%	USD 1 = KRW 1,119.5
	KDB	2018.08~2023.08	USD	100,832	KRW	112,861	3.56%	1.83%	USD 1 = KRW 1,119.3
	SOGE	2018.08~2023.08	USD	100,832	KRW	112,861	3.56%	1.83%	USD 1 = KRW 1,119.3
	BNP Paribas	2019.03~2023.11	USD	201,086	KRW	228,172	3.11%	1.70%	USD 1 = KRW 1,134.7
	KDB	2019.03~2023.11	USD	100,543	KRW	114,086	3.11%	1.70%	USD 1 = KRW 1,134.7
	BNP Paribas	2020.07~2027.07	USD	58,065	HKD	450,000	1.35%	1.42%	USD 1 = HKD 7.75
Cash flow hedge	DBS	2013.06~2028.06	KRW	55,788	EUR	38,000	3.30%	3.02%	EUR 1 = KRW 1,468.1
	KEB Hana	2013.07~2023.07	KRW	74,601	EUR	50,000	3.17%	3.00%	EUR 1 = KRW 1,492.0
	BNP Paribas	2013.08~2023.08	KRW	92,635	JPY	8,000	3.54%	1.46%	JPY 1 = KRW 11.58
	BNP Paribas	2013.08~2023.08	KRW	46,049	JPY	4,000	3.68%	1.46%	JPY 1 = KRW 11.51
	KDB	2018.08~2023.08	KRW	112,861	CHF	100,000	1.83%	0.21%	CHF 1 = KRW 1,128.6
	SOGE	2018.08~2023.08	KRW	112,861	CHF	100,000	1.83%	0.21%	CHF 1 = KRW 1,128.6
	BNP Paribas	2019.03~2023.11	KRW	228,172	CHF	200,000	1.70%	0.00%	CHF 1 = KRW 1,140.9
	KDB	2019.03~2023.11	KRW	114,086	CHF	100,000	1.70%	0.00%	CHF 1 = KRW 1,140.9

7. Derivative instrument (cont'd)

(3) Details of the interest rate swap contracts as of March 31, 2022 are as follows (Korean won in millions):

Purpose	Financial institution	Contract period	Amount		Interest rate of contract	
					Sell	Buy
Trading	KEB Hana	2018.10 ~2023.10	KRW	100,000	2.35%	3M CD + 0.21%
	KEB Hana	2019.05 ~2023.05	KRW	100,000	1.78%	3M CD + 0.13%
	KEB Hana	2019.10 ~2022.10	KRW	100,000	1.54%	3M CD + 0.21%
	KEB Hana	2020.09 ~2025.09	KRW	100,000	1.29%	3M CD + 0.31%
	KEB Hana	2020.10 ~2025.10	KRW	200,000	1.30%	3M CD + 0.30%
	KEB Hana	2021.05 ~2026.05	KRW	100,000	1.77%	3M CD + 0.23%
	KEB Hana	2021.10 ~2026.10	KRW	300,000	2.07%	3M CD + 0.20%

(4) Details of foreign currency forward contracts as of March 31, 2022 are as follows (Korean won in millions and US dollars and Canadian dollars in thousands):

Purpose	Financial institution	Contract date	Maturity date	Amount				Exchange rate of contract
				Sell		Buy		
Trading	KEB Hana Bank	2022.03.15	2022.04.01	KRW	49,688	USD	40,000	1,242.20
	Woori Bank	2022.03.15	2022.04.01	KRW	48,446	USD	39,000	1,242.20
	Daegu Bank	2022.03.16	2022.04.01	KRW	54,597	USD	44,000	1,240.84
	SOGE	2022.03.17	2022.04.01	KRW	122,107	USD	100,000	1,221.07
	CREDIT AGRICOLE	2022.03.17	2022.04.01	KRW	36,632	USD	30,000	1,221.07
	ANZ	2022.03.17	2022.04.01	KRW	12,210	USD	10,000	1,221.03
	ANZ	2022.03.17	2022.04.04	KRW	109,895	USD	90,000	1,221.06
	MIZUHO	2022.03.17	2022.04.04	KRW	122,105	USD	100,000	1,221.05
	BNP Paribas	2022.03.17	2022.04.04	KRW	122,110	USD	100,000	1,221.10
	KEB Hana Bank	2022.03.17	2022.04.04	KRW	61,054	USD	50,000	1,221.07
	KEB Hana Bank	2022.03.17	2022.04.05	KRW	122,109	USD	100,000	1,221.09
	KEB Hana Bank	2022.03.17	2022.04.06	KRW	122,110	USD	100,000	1,221.10
	NH Bank	2022.03.18	2022.04.07	KRW	36,346	USD	30,000	1,211.53
	Daegu Bank	2022.03.18	2022.04.07	KRW	42,404	USD	35,000	1,211.53
	KEB Hana Bank	2022.03.22	2022.04.07	KRW	26,877	USD	22,000	1,221.66
	Daegu Bank	2022.03.22	2022.04.07	KRW	122,187	USD	100,000	1,221.87
	HSBC	2022.03.24	2022.04.05	KRW	140,248	USD	115,000	1,219.55
	KB Bank	2022.03.24	2022.04.07	KRW	121,962	USD	100,000	1,219.62
	Woori Bank	2022.03.24	2022.04.08	KRW	121,965	USD	100,000	1,219.65
	Shinhan Bank	2022.03.24	2022.04.08	KRW	42,686	USD	35,000	1,219.60
	KEB Hana Bank	2022.03.25	2022.04.05	KRW	48,742	USD	40,000	1,218.55
	KEB Hana Bank	2022.03.25	2022.04.11	KRW	69,464	USD	57,000	1,218.66
	KEB Hana Bank	2022.03.29	2022.04.05	KRW	36,623	USD	30,000	1,220.77
	KEB Hana Bank	2022.03.29	2022.04.12	KRW	189,244	USD	155,000	1,220.93
	Daegu Bank	2022.03.29	2022.04.13	KRW	122,094	USD	100,000	1,220.94
	KEB Hana Bank	2022.03.30	2022.04.05	KRW	48,442	USD	40,000	1,211.04
	KDB	2022.03.30	2022.04.13	KRW	121,125	USD	100,000	1,211.25
	City Bank	2022.03.30	2022.04.14	KRW	121,130	USD	100,000	1,211.30
	Shinhan Bank	2022.03.30	2022.04.15	KRW	121,127	USD	100,000	1,211.27
	KEB Hana Bank	2022.03.30	2022.04.26	KRW	63,001	USD	52,000	1,211.56
	KEB Hana Bank	2022.03.31	2022.04.05	KRW	60,542	USD	50,000	1,210.84
	KEB Hana Bank	2022.03.31	2022.04.14	KRW	130,800	USD	108,000	1,211.11
	Daegu Bank	2022.03.31	2022.04.15	KRW	242,224	USD	200,000	1,211.12
	MIZUHO	2022.03.31	2022.04.18	KRW	60,562	USD	50,000	1,211.23

7. Derivative instrument (cont'd)

(4) Details of foreign currency forward contracts as of March 31, 2022 are as follows (Korean won in millions and US dollars in thousands) (cont'd):

				Amount				
Purpose	Financial institution	Contract date	Maturity date	Sell		Buy		Exchange rate of contract
	KEB Hana Bank	2021.10.05	2022.04.01	KRW	98,559	USD	82,803	1,190.28
	HSBC	2021.10.07	2022.04.05	KRW	39,620	USD	33,202	1,193.30
	KEB Hana Bank	2021.10.07	2022.04.05	KRW	47,694	USD	39,968	1,193.30
	KEB Hana Bank	2021.10.08	2022.04.05	KRW	74,377	USD	62,309	1,193.68
	HSBC	2021.10.08	2022.04.05	KRW	39,574	USD	33,151	1,193.75
	KEB Hana Bank	2021.10.08	2022.04.05	KRW	82,729	USD	69,306	1,193.68
	DBS	2021.10.12	2022.04.08	KRW	72,627	USD	60,536	1,199.73
	HSBC	2021.10.15	2022.04.13	KRW	39,156	USD	32,936	1,188.85
	KEB Hana Bank	2021.10.18	2022.04.15	KRW	46,086	USD	38,844	1,186.46
	Daegu Bank	2021.10.18	2022.04.15	KRW	31,284	USD	26,369	1,186.40
	Shinhan Bank	2021.10.19	2022.04.15	KRW	41,013	USD	34,475	1,189.65
	HSBC	2021.10.20	2022.04.18	KRW	93,455	USD	79,008	1,182.85
	KEB Hana Bank	2021.10.20	2022.04.18	KRW	51,929	USD	43,900	1,182.91
	HSBC	2021.10.21	2022.04.19	KRW	104,365	USD	88,487	1,179.45
	KEB Hana Bank	2021.10.21	2022.04.19	KRW	40,554	USD	34,384	1,179.45
	KEB Hana Bank	2021.10.22	2022.04.20	KRW	44,279	USD	37,482	1,181.32
	KEB Hana Bank	2021.10.26	2022.04.22	KRW	201,357	USD	171,403	1,174.76
	KEB Hana Bank	2021.10.26	2022.04.22	KRW	40,546	USD	34,515	1,174.76
	KEB Hana Bank	2021.10.26	2022.04.22	KRW	33,756	USD	28,734	1,174.76
	KEB Hana Bank	2021.10.27	2022.04.25	KRW	98,301	USD	83,964	1,170.75
	KEB Hana Bank	2021.10.27	2022.04.25	KRW	42,777	USD	36,540	1,170.70
	HSBC	2021.10.28	2022.04.26	KRW	102,090	USD	86,822	1,175.85
	Shinhan Bank	2021.10.29	2022.04.27	KRW	74,176	USD	63,088	1,175.75
	KEB Hana Bank	2021.11.01	2022.04.29	KRW	97,226	USD	82,563	1,177.60
	KEB Hana Bank	2021.11.01	2022.04.29	KRW	42,307	USD	35,930	1,177.50
Trading	HSBC	2021.11.04	2022.05.03	KRW	40,811	USD	34,429	1,185.35
	KEB Hana Bank	2021.11.04	2022.05.03	KRW	39,011	USD	32,911	1,185.37
	DBS	2021.11.08	2022.05.06	KRW	50,201	USD	42,207	1,189.40
	Shinhan Bank	2021.11.08	2022.05.06	KRW	44,561	USD	37,464	1,189.45
	Shinhan Bank	2021.11.08	2022.05.06	KRW	41,164	USD	34,608	1,189.45
	KEB Hana Bank	2021.11.08	2022.05.06	KRW	103,860	USD	87,328	1,189.30
	Shinhan Bank	2021.11.10	2022.05.09	KRW	40,854	USD	34,543	1,182.70
	KEB Hana Bank	2021.11.10	2022.05.12	KRW	237,638	USD	200,510	1,185.17
	SC Bank	2021.11.15	2022.05.13	KRW	44,044	USD	37,230	1,183.03
	KEB Hana Bank	2021.11.18	2022.05.17	KRW	41,923	USD	35,330	1,186.60
	ANZ	2021.11.24	2022.05.23	KRW	78,988	USD	66,208	1,193.02
	ANZ	2021.11.26	2022.05.25	KRW	155,945	USD	130,585	1,194.20
	KEB Hana Bank	2021.11.30	2022.05.27	KRW	70,250	USD	58,797	1,194.80
	MIZUHO	2021.12.07	2022.06.03	KRW	89,164	USD	75,102	1,187.24
	KEB Hana Bank	2021.12.08	2022.06.03	KRW	47,595	USD	40,282	1,181.55
	Shinhan Bank	2021.12.13	2022.06.10	KRW	32,773	USD	27,768	1,180.25
	KEB Hana Bank	2022.01.13	2022.07.12	KRW	117,990	USD	98,872	1,193.36
	KEB Hana Bank	2022.01.13	2022.07.13	KRW	239,517	USD	200,705	1,193.38
	KEB Hana Bank	2022.01.14	2022.07.13	KRW	187,267	USD	157,096	1,192.05
	DBS	2022.02.11	2022.08.12	KRW	35,291	USD	29,386	1,200.95
	DBS	2022.02.15	2022.08.12	KRW	67,837	USD	56,579	1,198.98
	KEB Hana Bank	2022.02.22	2022.08.19	KRW	45,066	USD	37,690	1,195.70
	KEB Hana Bank	2022.02.22	2022.08.19	KRW	53,996	USD	45,159	1,195.70
	HSBC	2022.02.23	2022.08.22	KRW	116,980	USD	97,990	1,193.79
	KEB Hana Bank	2022.02.23	2022.08.22	KRW	44,739	USD	37,478	1,193.76
	HSBC	2022.03.11	2022.09.06	KRW	48,788	USD	39,530	1,234.18

(4) Details of foreign currency forward contracts as of March 31, 2022 are as follows (Korean won in millions and US dollars in thousands) (cont'd):

Purpose	Financial institution	Contract date	Maturity date	Amount				Exchange rate of contract
				Sell		Buy		
Trading	DBS	2022.03.14	2022.09.08	KRW	88,811	USD	71,708	1,238.50
	KEB Hana Bank	2022.03.24	2022.09.20	KRW	48,215	USD	39,654	1,215.90
	DBS	2022.03.24	2022.09.21	KRW	48,405	USD	39,731	1,218.30
	KEB Hana Bank	2022.01.27	2022.07.29	USD	27,862	KRW	33,571	1,204.90
Cash flow hedge	KEB Hana Bank	2018.11.07	2023.08.04	USD	3,912	CAD	5,000	1.28
	KEB Hana Bank	2018.11.07	2023.06.02	USD	3,909	CAD	5,000	1.28
	KEB Hana Bank	2018.11.07	2023.04.04	USD	3,907	CAD	5,000	1.28
	KEB Hana Bank	2018.11.07	2023.03.03	USD	3,905	CAD	5,000	1.28
	KEB Hana Bank	2018.11.07	2023.01.04	USD	3,902	CAD	5,000	1.28
	KEB Hana Bank	2018.11.07	2022.08.04	USD	3,896	CAD	5,000	1.28
	KEB Hana Bank	2018.11.07	2022.06.30	USD	3,894	CAD	5,000	1.28
	KEB Hana Bank	2018.11.07	2022.06.03	USD	3,892	CAD	5,000	1.28
	KEB Hana Bank	2018.11.07	2022.04.04	USD	3,889	CAD	5,000	1.29

7. Derivative instrument (cont'd)

(5) Gains or losses on valuation of derivatives for the three-month periods ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	Valuation gain (loss)		Transaction gain (loss)		Changes in accumulated other comprehensive income (loss)	
	2022 (Unaudited)	2021 (Unaudited)	2022 (Unaudited)	2021 (Unaudited)	2022 (Unaudited)	2021 (Unaudited)
Foreign currency forwards	₩ 43,461	₩ 31,577	₩ 75,038	₩ 67,873	₩ 511	₩ (264)
Foreign currency swaps	(3,980)	(27,837)	-	-	1,963	(409)
Interest rate swaps	24,782	6,429	-	(1,007)	-	-
	₩ 64,263	₩ 10,169	₩ 75,038	₩ 66,866	₩ 2,474	₩ (673)

As of March 31, 2022, gains(losses) on valuation of derivatives amounting to ₩1,861 million (December 31, 2021: ₩(-)107 million) in accumulated other comprehensive income are presented net of income tax.

(6) Hedging on non-financial items

The Group currently uses LNG ships that were built specifically for the Group's use for stable LNG supply through the long-term lease contract in US dollars with the lessor. As the lease expense is recovered through the sales price as a component of shipping expense, the lease expense and raw material cost, which are also denominated in US dollars, form part of the selling price and have the same exposure to foreign currency change.

In order for the Group to hedge the risk of foreign exchange rate change on its foreign revenue from the natural gas for power generation, only foreign currency revenue with the same maturity date as the lease liability has been distinguished from long-term supply contract to be designated as the hedged item, and the payment of lease liability has been designated as hedging instrument of non-financial items to apply the hedge accounting.

For the three-month periods ended March 31, 2022and 2021, losses on hedging instruments amount to ₩(-)36,794million and ₩(-)73,242million, respectively, and gains on hedging instruments recognized in other comprehensive income are net of tax effect amounting to ₩10,118 million and ₩20,142 million, respectively.

(7) Hedges of net investments in a foreign operation

In order for the Group to hedge the risk of exchange rate fluctuation caused by the foreign currency translation, hedge accounting has been applied to the net investment of overseas business regarding the difference in foreign exchange which arose between the functional currency of overseas business and of the Corporation.

The amounts recognized in the interim condensed consolidated statements of comprehensive income for the three-month periods ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	2022 (Unaudited)	2021 (Unaudited)
Net loss on hedge of net investments in foreign operations, net of income tax	₩ (48,830)	₩ (73,634)

8. Trade and other receivables

(1) Trade and other receivables as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022(Unaudited)				December 31, 2021			
	Principal	Allowance for doubtful accounts	Present value discount	Book value	Principal	Allowance for doubtful accounts	Present value discount	Book value
Current:								
Trade receivables	₩ 8,224,993	₩ (20,198)	₩ -	₩ 8,204,795	₩ 6,675,746	₩ (19,705)	₩ -	₩ 6,656,041
Other receivables	563,029	(1,083)	-	561,946	324,489	(1,060)	-	323,429
	8,788,022	(21,281)	-	8,766,741	7,000,235	(20,765)	-	6,979,470
Non-current:								
Other receivables	221,862	-	(6,691)	215,171	217,104	-	(6,717)	210,387
	₩ 9,009,884	₩ (21,281)	₩ (6,691)	₩ 8,981,912	₩ 7,217,339	₩ (20,765)	₩ (6,717)	₩ 7,189,857

(2) Other receivables as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022(Unaudited)				December 31, 2021			
	Principal	Allowance for doubtful accounts	Present value discount	Book value	Principal	Allowance for doubtful accounts	Present value discount	Book value
Current:								
Non-trade receivables	₩ 562,756	₩ (1,083)	₩ -	₩ 561,673	₩ 324,060	₩ (1,060)	₩ -	₩ 323,000
Accrued income	129	-	-	129	281	-	-	281
Deposits provided	144	-	-	144	148	-	-	148
	563,029	(1,083)	-	561,946	324,489	(1,060)	-	323,429
Non-current:								
Non-trade receivables	81,028	-	(5,171)	75,857	78,431	-	(5,573)	72,858
Accrued income	21,711	-	-	21,711	21,300	-	-	21,300
Deposits provided	119,123	-	(1,520)	117,603	117,373	-	(1,144)	116,229
	221,862	-	(6,691)	215,171	217,104	-	(6,717)	210,387
	₩ 784,891	₩ (1,083)	₩ (6,691)	₩ 777,117	₩ 541,593	₩ (1,060)	₩ (6,717)	₩ 533,816

9. Inventories

Details of inventories as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022(Unaudited)			December 31, 2021		
	Acquisition cost	Valuation allowance	Book value	Acquisition cost	Valuation allowance	Book value
Raw materials	₩ 1,828,116	₩ -	₩ 1,828,116	₩ 2,757,395	₩ -	₩ 2,757,395
Finished goods	118,121	-	118,121	115,110	-	115,110
Merchandise	-	-	-	319	-	319
Supplies	96,624	-	96,624	88,339	-	88,339
Goods in transit	762,852	-	762,852	621,682	-	621,682
	₩ 2,805,713	₩ -	₩ 2,805,713	₩ 3,582,845	₩ -	₩ 3,582,845

10. Non-financial assets

(1) Details of non-financial assets as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022(Unaudited)		December 31, 2021	
	Current	Non-current	Current	Non-current
Advanced payments	₩ 60,939	₩ -	₩ 90,273	₩ -
Prepaid expenses	23,383	70	14,420	70
Greenhouse gas emission rights	1,756	-	-	-
Other non-financial assets	3,664,277	4,338,884	1,781,566	1,506,902
	₩ 3,750,355	₩ 4,338,954	₩ 1,886,259	₩ 1,506,972

(2) Details of other non-financial assets as of March 31, 2022 and December 31, 2021 are as follows (Korean won in millions):

	March 31, 2022(Unaudited)		December 31, 2021	
	Current	Non-current	Current	Non-current
Special consumption tax	₩ 85,371	₩ -	₩ 104,727	₩ -
Deposits	4,103	-	4,104	-
Others[1,2]	3,574,803	4,338,884	1,672,735	1,506,902
	₩ 3,664,277	₩ 4,338,884	₩ 1,781,566	₩ 1,506,902

[1] Assets due to settlement gains and losses on natural gas sales charges amounting to ₩6,304,686 million as of March 31, 2022 and ₩3,081,450 million as of December 31, 2021 are included in others. (Note 11)
[2] Assets due to execution of an agreement signed with facility users on the exchange of natural gas supplies, in order to stabilize domestic supply and demand during the winter, amounting to ₩1,198,644 million as of March 31, 2022 are included in others.

11. Natural gas sales charge settlement gains and losses

In accordance with the standard for natural gas supply price and the guidelines for raw material cost pass-through adjustment system for city gas supply and power generation, the settled income, the difference (hereafter "settlement") between actual cost incurred and current year's revenues, is reflected in the following year's rate upon the approval of the government.

The Group adjusts settlement gains and losses approved by the government in cost of sales and recognizes the related assets and liabilities as other non-financial assets and non-financial liabilities, respectively.

Details of other non-financial assets and liabilities arising from of the settlement on natural gas sales as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022(Unaudited)						
	Raw material cost				Supply cost		
	City gas (civilian demand)	City gas (commercial demand)	City gas (power generating)	Power generating	City gas	Power generating	Total
Other current non-financial assets	₩ 975,251	₩ 383,983	₩ 16,248	₩ 770,103	₩ 36,681	₩ -	₩ 2,182,266
Other non-current non-financial assets	3,534,371	59,349	-	528,700	-	-	4,122,420
Other current non-financial liabilities	-	-	-	-	-	(449,819)	(449,819)
	₩ 4,509,622	₩ 443,332	₩ 16,248	₩ 1,298,803	₩ 36,681	₩ (449,819)	₩ 5,854,867

	December 31, 2021						
	Raw material cost				Supply cost		
	City gas (civilian demand)	City gas (commercial demand)	City gas (power generating)	Power generating	City gas	Power generating	Total
Other current non-financial assets	₩ 471,169	₩ 321,335	₩ 23,912	₩ 660,167	₩ 151,578	₩ -	₩ 1,628,161
Other non-current non-financial assets	1,294,456	119,614	7,982	31,237	-	-	1,453,289
Other current non-financial liabilities	-	-	-	-	-	(374,382)	(374,382)
	₩ 1,765,625	₩ 440,949	₩ 31,894	₩ 691,404	₩ 151,578	₩ (374,382)	₩ 2,707,068

12. Investments in associates and joint ventures

(1) Details of investments in associates and joint ventures as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions, except percentage of ownership):

					March 31, 2022 (Unaudited)		
	Business	Country of in corporation	Country of domicile	Fiscal year end	Percentage of ownership	Acquisition cost	Book value
Korea Ras Laffan LNG Ltd.[2]	Resource development	Bermuda	Qatar	December 31	60.00%	₩ 19,532	₩ 307,516
Korea LNG Ltd.	Resource development	Bermuda	Oman	December 31	24.00%	3,298	41,352
Hyundai Yemen LNG Company Limited	Resource development	Bermuda	Yemen	December 31	49.00%	482	32,012
Korea LNG Trading Co., Ltd.	Shipping industry	Korea	Korea	December 31	28.00%	601	2,164
Kor-Uz Gas Chemical Investment Ltd.	Resource development	Malaysia	Uzbekistan	December 31	45.00%	347,451	704,977
South-East Asia Gas Pipeline Company Limited [3,6]	Pipe construction	Hong Kong	Myanmar	September 31	4.17%	16,154	42,179
Sulawesi LNG Development Limited[4]	Liquefaction business investment	United Kingdom	Indonesia	December 31	25.00%	136,726	235,636
TOMORI E&P Limited	Resource development	United Kingdom	Indonesia	December 31	49.00%	126,847	225,571
Coral South FLNG S.A.[3]	Resource development	Mozambique	Mozambique	December 31	10.00%	182	60,243
Coral South FLNG DMCC[1,3]	Resource development	UAE	UAE	December 31	10.00%	15	16
Hydrogen Energy Network Co, Ltd.	Hydrogen infrastructure construction and operation	Korea	Korea	December 31	28.52%	25,800	22,683
Rovuma LNG S.A.[1,3,]	Resource development	Mozambique	Mozambique	December 31	10.00%	185	194
Rovuma LNG Investments (DIFC) Ltd. [1,3]	Resource development	Mozambique	Mozambique	December 31	10.00%	6	6
Kor-Uz Gas cylinder Investment Ltd.	Cylinder business investment	Korea	Uzbekistan	December 31	40.38%	5,790	1,616
Kor-Uz Gas C&G Investment Ltd.	Charge business investment	Korea	Uzbekistan	December 31	38.85%	2,542	181
TERMINAL KMS de GNL, S. De R.L. De C.V.	LNG terminal construction & management	Mexico	Mexico	December 31	25.00%	34,945	127,824
GLNG Operations Pty. Ltd. [1,5]	LNG Plant management	Australia	Australia	December 31	15.00%	17	15
GLNG Property Pty Ltd. [1,5]	Property lease	Australia	Australia	December 31	15.00%	26	-
ENH - KOGAS, SA.[2]	Pipe construction	Mozambique	Mozambique	June 30	70.00%	78	14,457
LNG Canada Development Inc.[1,5]	LNG Plant construction	Canada	Canada	December 31	5.00%	-	-
Manzanillo Gas Tech, S. de R.L. de C.V. [2]	LNG terminal maintenance & management	Mexico	Mexico	December 31	51.00%	60	2,089
KLBV1 S.A	LNG bunkering ship operation	Panama	Netherlands	December 31	40.00%	5,978	6,095
Korea Superfreeze Incheon Inc. [1]	LNG cold-heat refrigerated & frozen logistics warehouse	Korea	Korea	December 31	20.00%	1,000	1,000
						₩ 727,715	₩ 1,827,826

12. Investments in associates and joint ventures (cont'd)

	Business	Country of in corporation	Country of domicile	Fiscal year end	December 31, 2021 Percentage of ownership	Acquisition cost	Book value
Korea Ras Laffan LNG Ltd.[2]	Resource development	Bermuda	Qatar	December 31	60.00%	₩ 19,532	₩ 298,432
Korea LNG Ltd.	Resource development	Bermuda	Oman	December 31	24.00%	3,298	37,632
Hyundai Yemen LNG Company	Resource development	Bermuda	Yemen	December 31	49.00%	482	24,424
Korea LNG Trading Co., Ltd.	Shipping industry	Korea	Korea	December 31	28.00%	601	2,102
Kor-Uz Gas Chemical Investment Ltd.	Resource development	Malaysia	Uzbekistan	December 31	45.00%	347,451	675,865
South-East Asia Gas Pipeline Company Limited [3,6]	Pipe construction	Hong Kong	Myanmar	September 31	4.17%	16,154	39,924
Sulawesi LNG Development Limited[4]	Liquefaction business investment	United Kingdom	Indonesia	December 31	25.00%	136,726	221,305
TOMORI E&P Limited	Resource development	United Kingdom	Indonesia	December 31	49.00%	126,847	194,995
Coral South FLNG S.A.[3]	Resource development	Mozambique	Mozambique	December 31	10.00%	182	59,572
Coral South FLNG DMCC[1,3]	Resource development	UAE	UAE	December 31	10.00%	15	16
Hydrogen Energy Network Co, Ltd.	Hydrogen infrastructure construction and operation	Korea	Korea	December 31	28.52%	25,800	23,142
Rovuma LNG S.A.[1,3,]	Resource development	Mozambique	Mozambique	December 31	10.00%	185	190
Rovuma LNG Investments (DIFC) Ltd. [1,3]	Resource development	Mozambique	Mozambique	December 31	10.00%	6	6
Kor-Uz Gas cylinder Investment Ltd.	Cylinder business investment	Korea	Uzbekistan	December 31	40.38%	5,790	992
Kor-Uz Gas C&G Investment Ltd.	Charge business investment	Korea	Uzbekistan	December 31	38.85%	2,542	143
TERMINAL KMS de GNL, S. De R.L. De C.V.	LNG terminal construction & management	Mexico	Mexico	December 31	25.00%	34,945	120,137
GLNG Operations Pty. Ltd. [1,5]	LNG Plant management	Australia	Australia	December 31	15.00%	17	15
GLNG Property Pty Ltd. [1,5]	Property lease	Australia	Australia	December 31	15.00%	26	-
ENH - KOGAS, SA.[2]	Pipe construction	Mozambique	Mozambique	June 30	70.00%	78	12,827
LNG Canada Development Inc.[1,5]	LNG Plant construction	Canada	Canada	December 31	5.00%	-	-
Manzanillo Gas Tech, S. de R.L. de C.V. [2]	LNG terminal maintenance & management	Mexico	Mexico	December 31	51.00%	60	1,498
KLBV1 S.A	LNG bunkering ship operation	Panama	Netherlands	December 31	40.00%	5,978	5,895
Korea Superfreeze Incheon Inc. [1]	LNG cold-heat refrigerated & frozen logistics warehouse	Korea	Korea	December 31	20.00%	1,000	1,000
						₩ 727,715	₩ 1,720,112

12. Investments in associates and joint ventures (cont'd)

[1] The associates and joint ventures did not apply the equity method as the difference between the book value and the net asset value is not significant.

[2] The associates and joint ventures are excluded from the consolidated subsidiaries since the Group is unable to exercise control in several cases such as unanimous approval required when making significant decisions.

[3] Although the percentage of ownership of the associates is less than 20%, the Group has significant influence considering the Group's right to participate in the investee's board of directors and shareholder constitution.

[4] The capital reduction occurred in relation to investment in Sulawesi LNG Development Limited in 2021, which resulted in a recognition of a gain on disposal of ₩70 million in 2021.

[6] In relation to the investment equity of South-East Asia Pipeline Company Limited, paid-in capital reduction was conducted in 2021.

12. Investments in associates and joint ventures (cont'd)

(2) Changes in investments in associates and joint ventures for the three-month period ended March 31, 2022 and for the year ended December 31, 2021, are as follows (Korean won in millions):

	2022 (Unaudited)							
	Beginning balance	Acquisition	Disposal	Dividends received	Gain (loss) on equity method	Equity adjustments of investments in associates and joint ventures	Others	Ending balance
Korea Ras Laffan LNG Ltd.	₩ 298,432	₩ -	₩ -	₩ (35,200)	₩ 37,855	₩ 6,429	₩ -	₩ 307,516
Korea LNG Ltd.	37,632	-	-	(4,437)	4,425	3,732	-	41,352
Hyundai Yemen LNG Company Limited[1]	24,424	-	-	-	(57)	7,645	-	32,012
Korea LNG Trading Co., Ltd.	2,102	-	-	-	17	45	-	2,164
Kor-Uz Gas Chemical Investment Ltd.	675,865	-	-	-	14,775	14,337	-	704,977
South-East Asia Gas Pipeline Company Limited.	39,924	-	-	-	1,396	-	859	42,179
Sulawesi LNG Development Limited.	221,305	-	-	-	9,561	4,770	-	235,636
TOMORI E&P Limited.	194,995	-	-	-	25,560	5,016	-	225,571
Coral South FLNG S.A.	59,572	-	-	-	(2,378)	-	3,049	60,243
Coral South FLNG DMCC.	16	-	-	-	-	-	-	16
Hydrogen Energy Network Co, Ltd.	23,142	-	-	-	(459)	-	-	22,683
Rovuma LNG S.A.[1]	190	-	-	-	-	-	4	194
Rovuma LNG Investments (DIFC Ltd.	6	-	-	-	-	-	-	6
Kor-Uz Gas cylinder Investment Ltd.	992	-	-	-	172	452	-	1,616
Kor-Uz Gas C&G Investment Ltd.[3]	143	-	-	-	1	37	-	181
TERMINAL KMS de GNL, S. De R.L. De C.V.	120,137	-	-	-	2,877	2,221	2,589	127,824
GLNG Operations Pty. Ltd.	15	-	-	-	-	-	-	15
GLNG Property Pty Ltd. [2]	-	-	-	-	-	-	-	-
ENH - KOGAS, SA.	12,827	-	-	-	1,390	-	240	14,457
LNG Canada Development Inc.	-	-	-	-	-	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	1,498	-	-	-	556	-	35	2,089
KLBV1 S.A	5,895	-	-	-	74	126	-	6,095
Korea Superfreeze Incheon Inc.	1,000	-	-	-	-	-	-	1,000
	₩ 1,720,112	₩ -	₩ -	₩ (39,637)	₩ 95,765	₩ 44,810	₩ 6,776	₩ 1,827,826

[1] Although the percentage of ownership of the Group in the above equity securities is 49%, the equity method is applied considering the contractual terms regarding uneven dividends.
[2] The Group discontinued recognizing changes in investments in the associate as the book value of the equity securities fell below zero.

12. Investments in associates and joint ventures (cont'd)

	2021							
	Beginning balance	**Acquisition**	**Disposal**	**Dividends received**	**Gain (loss) on equity method**	**Equity adjustments of investments in associates and joint ventures**	**Others**	**Ending balance**
Korea Ras Laffan LNG Ltd.	₩ 258,712	₩ -	₩ -	₩ (59,907)	₩ 75,905	₩ 23,722	₩ -	₩ 298,432
Korea LNG Ltd.	29,129	-	-	(11,017)	11,000	8,520	-	37,632
Hyundai Yemen LNG Company Limited[1]	22,341	-	-	-	(1,272)	3,355	-	24,424
Korea LNG Trading Co., Ltd.	1,953	-	-	-	(21)	170	-	2,102
Kor-Uz Gas Chemical Investment Ltd.	569,619	-	-	-	53,076	53,170	-	675,865
South-East Asia Gas Pipeline Company Limited.	33,042	-	(4,651)	-	8,372	-	3,161	39,924
Sulawesi LNG Development Limited.	248,687	-	(70,381)	-	23,219	19,780	-	221,305
TOMORI E&P Limited.	173,568	-	-	-	5,927	15,500	-	194,995
Coral South FLNG S.A.	51,513	-	-	-	(7,962)	-	16,021	59,572
Coral South FLNG DMCC.	15	-	-	-	-	-	1	16
Hydrogen Energy Network Co, Ltd.	14,153	10,500	-	-	(1,354)	(157)	-	23,142
Rovuma LNG S.A.[1]	174	-	-	-	-	-	16	190
Rovuma LNG Investments (DIFC Ltd.	5	-	-	-	-	-	1	6
Kor-Uz Gas cylinder Investment Ltd.	1,221	-	-	-	(14)	(215)	-	992
Kor-Uz Gas C&G Investment Ltd.[3]	769	-	-	-	14	(68)	(572)	143
TERMINAL KMS de GNL, S. De R.L. De C.V.	102,182	-	-	(3,147)	7,762	3,878	9,462	120,137
GLNG Operations Pty. Ltd.	13	-	-	-	1	-	1	15
GLNG Property Pty Ltd. [2]	-	-	-	-	-	-	-	-
ENH - KOGAS, SA.	11,375	-	-	(7,927)	6,154	-	3,225	12,827
LNG Canada Development Inc.	-	-	-	-	-	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	1,205	-	-	-	178	-	115	1,498
KLBV1 S.A	3,056	2,922	-	-	(146)	63	-	5,895
Korea Superfreeze Incheon Inc.	-	1,000	-	-	-	-	-	1,000
	₩ 1,522,732	₩ 14,422	₩ (75,032)	₩ (81,998)	₩ 180,839	₩ 127,718	₩ 31,431	₩ 1,720,112

[1] Although the percentage of ownership of the Group in the above equity securities is 49%, the equity method is applied considering the contractual terms regarding uneven dividends.

[2] The Group discontinued recognizing changes in investments in the associate as the book value of the equity securities fell below zero.

[3] In relation to Kor-Uz Gas C&G Investment Ltd.'s investment interest, the recoverable amount of investment interest decreased significantly. The Group recognized impairment loss of ₩ 572 million in 2021, which included in 'Gains on investments in associates and joint ventures' of the consolidated comprehensive income statement.

12. Investments in associates and joint ventures (cont'd)

(3) Summarized financial information of associates and joint ventures as of March 31, 2022 and December 31, 2021, and for the three-month periods ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	2022 (Unaudited)			
	Assets	Liabilities	Sales	Profit (loss) for the period
Korea Ras Laffan LNG Ltd.	₩ 512,694	₩ 168	₩ 59,239	₩ 63,092
Korea LNG Ltd.	172,522	223	18,978	18,439
Hyundai Yemen LNG Company Limited	189,245	107,085	-	(117)
Korea LNG Trading Co., Ltd.	521,314	513,587	33,827	62
Kor-Uz Gas Chemical Investment Ltd.	1,589,342	22,726	-	39,415
South-East Asia Gas Pipeline Company Limited	1,822,727	646,522	92,030	33,448
Sulawesi LNG Development Ltd.	942,689	146	-	38,245
TOMORI E&P Limited	563,138	113,049	52,495	19,977
Coral South FLNG S.A.	8,985,135	8,117,461	-	(1,202)
Coral South FLNG DMCC	5,016,001	5,015,837	-	-
Hydrogen Energy Network Co, Ltd.	98,185	18,651	2,052	(1,493)
Rovuma LNG S.A.	1,898	-	-	-
Rovuma LNG Investments (DIFC) Ltd.	625	857	-	-
Kor-Uz Gas cylinder Investment Ltd.	4,018	15	-	(8)
Kor-Uz Gas C&G Investment Ltd.	1,937	1	-	(1)
TERMINAL KMS de GNL, S. De R.L. De C.V.	1,007,867	496,571	24,665	11,508
GLNG Operations Pty. Ltd.	105	1	-	-
GLNG Property Pty Ltd.	-	-	-	-
ENH - KOGAS, SA.	26,190	5,537	9,912	1,986
LNG Canada Development Inc.	1	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	4,951	855	2,487	135
KLBV1 S.A	79,793	64,556	575	(78)
Korea Superfreeze Incheon Inc.	4,570	1,193	-	(1,370)

	2021			
	Assets	Liabilities	Sales	Profit (loss) for the period
Korea Ras Laffan LNG Ltd.	₩ 497,612	₩ 227	₩ 30,144	₩ 36,066
Korea LNG Ltd.	157,018	217	9,135	8,601
Hyundai Yemen LNG Company Limited	166,791	103,878	-	(138)
Korea LNG Trading Co., Ltd.	519,740	512,234	27,080	(192)
Kor-Uz Gas Chemical Investment Ltd.	1,523,173	21,252	-	40,675
South-East Asia Gas Pipeline Company Limited	1,817,870	699,149	109,419	48,411
Sulawesi LNG Development Ltd.	885,334	113	-	28,579
TOMORI E&P Limited	460,587	72,898	84,829	461
Coral South FLNG S.A.	8,605,156	7,764,924	-	3,778
Coral South FLNG DMCC	4,726,640	4,726,478	-	-
Hydrogen Energy Network Co, Ltd.	93,287	12,145	795	(742)
Rovuma LNG S.A.	1,859	-	-	-
Rovuma LNG Investments (DIFC) Ltd.	612	839	-	-
Kor-Uz Gas cylinder Investment Ltd.	2,473	15	-	(11)
Kor-Uz Gas C&G Investment Ltd.	1,840	-	-	(2)
TERMINAL KMS de GNL, S. De R.L. De C.V.	994,807	514,260	24,906	11,491
GLNG Operations Pty. Ltd.	103	1	-	-
GLNG Property Pty Ltd.	-	-	-	-
ENH - KOGAS, SA.	23,616	5,291	8,444	2,546
LNG Canada Development Inc.	1	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	5,572	2,635	2,675	130
KLBV1 S.A	32,940	18,203	-	(34)
Korea Superfreeze Incheon Inc.	4,867	120	-	-

13. Property, plant, and equipment

Changes in property, plant and equipment for the three-month period ended March 31, 2022 and for the year ended December 31, 2021, are as follows (Korean won in millions):

	2022 (Unaudited)							
	Beginning balance	Acquisitions	Disposals	Depreciation	Impairment	Others	Changes in the scope of consolidation	Ending balance
Land	₩ 3,234,947	₩ 77	₩ -	₩ -	₩ -	₩ 3,458	₩ -	₩ 3,238,482
Buildings	743,519	233	-	(10,337)	-	1,739	-	735,154
(Government grant)	(2,640)	-	-	30	-	-	-	(2,610)
Structures	3,961,196	106	-	(60,310)	-	3,867	-	3,904,859
(Government grant)	(1,439)	-	-	26	-	-	-	(1,413)
Machinery	9,613,665	27	(503)	(166,032)	-	84,155	-	9,531,312
(Government grant)	(112,179)	-	-	1,651	-	-	-	(110,528)
Computerized facility	17,756	16	-	(1,593)	-	45	-	16,224
(Government grant)	(17)	-	-	4	-	-	-	(13)
Vehicles	13,783	104	-	(995)	-	3	-	12,895
(Government grant)	(2,589)	-	-	82	-	2	-	(2,505)
Office equipment	10,425	185	(1)	(1,013)	-	165	-	9,761
(Government grant)	(25)	-	-	2	-	-	-	(23)
Tools and instruments	9,317	106	-	(994)	-	48	-	8,477
(Government grant)	(209)	-	-	33	-	-	-	(176)
Timber	55,174	-	-	-	-	36	-	55,210
Construction in progress	1,316,241	184,600	-	-	-	(40,789)	-	1,460,052
(Government grant)	(22,409)	(100)	-	-	-	(6,019)	-	(28,528)
Right-of-use assets	2,325,724	3,596	(245)	(66,609)	-	299	-	2,262,765
Others	2,420,514	77,348	-	(104,480)	-	44,810	-	2,438,192
	₩ 23,580,754	₩ 266,298	₩ (749)	₩ (410,535)	₩ -	₩ 91,819	₩ -	₩ 23,527,587

	2021							
	Beginning balance	Acquisitions[1]	Disposals	Depreciation	Impairment[2]	Others	Changes in the scope of consolidation	Ending balance
Land	₩ 3,051,451	₩ 1,929	₩ (1,802)	₩ -	₩ -	₩ 183,369	₩ -	₩ 3,234,947
Buildings	771,711	4,253	(1,560)	(41,242)	-	10,357	-	743,519
(Government grant)	(1,811)	(937)	-	108	-	-	-	(2,640)
Structures	4,183,391	549	(332)	(241,090)	-	18,678	-	3,961,196
(Government grant)	(1,543)	-	-	104	-	-	-	(1,439)
Machinery	9,706,671	22,733	(7,130)	(648,362)	258,451	281,302	-	9,613,665
(Government grant)	(111,229)	(7,652)	-	6,609	-	93	-	(112,179)
Computerized facility	18,079	6,100	(8)	(6,215)	-	(200)	-	17,756
(Government grant)	(38)	-	-	21	-	-	-	(17)
Vehicles	11,159	6,376	(23)	(3,747)	-	18	-	13,783
(Government grant)	(635)	(1,976)	-	180	-	(158)	-	(2,589)
Office equipment	11,497	2,693	(39)	(4,081)	-	355	-	10,425
(Government grant)	(35)	-	-	10	-	-	-	(25)
Tools and instruments	10,677	2,651	(1)	(4,270)	-	260	-	9,317
(Government grant)	(346)	-	-	137	-	-	-	(209)
Timber	55,117	-	(30)	-	-	87	-	55,174
Construction in progress	699,464	843,134	-	-	-	(226,357)	-	1,316,241
(Government grant)	(4,233)	(17,729)	-	-	-	(447)	-	(22,409)
Right-of-use assets	2,573,468	27,624	(2,814)	(273,748)	-	1,194	-	2,325,724
Others	2,161,329	326,220	(1,424)	(423,624)	183,465	174,548	-	2,420,514
	₩ 23,134,144	₩ 1,215,968	₩ (15,163)	₩ (1,639,210)	₩ 441,916	₩ 443,099	₩ -	₩ 23,580,754

[1] Assets acquired as a result of business combination are included (Note 38)

[2] Reversal of impairment loss amounting to ₩ 457,276 million is recognized in machinery and other property in 2021, plant or equipment of KOGAS Australia Pty. Ltd., and impairment loss amounting to ₩15,360 million is recognized in relation to other property, plant or equipment of KOGAS Canada Ltd. Both were included in other income(losses) in the consolidated statement of comprehensive income.

14. Construction and service contracts

(1) Changes in the outstanding construction and service contracts for the three-month periods ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	Beginning balance	Increase[1]	Revenue recognized[2]	Ending balance
2022 (Unaudited)	₩ 204,349	₩ 54,129	₩ 11,254	₩ 247,224
2021 (Unaudited)	120,569	178,428	94,648	204,349

[1] For the three-month periods ended March 31, 2022 and 2021, the increase in construction and service contracts amounted to ₩54,257 million and ₩16,902 million, respectively, due to the new contracts and the decrease in construction and service contracts amounted to ₩128 million and ₩1,345 million, respectively, due to the change in size of existing construction contracts.
[2] The current revenue recognition includes ₩ 1,006 million as of March 31, 2022 and ₩ 4,241 million as of December 31, 2021 of revenue from service.

(2) Accumulated revenues and costs of construction in progress as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	Accumulated revenue	Accumulated costs	Accumulated profit or loss	Contract assets	Contract liabilities
As of March 31, 2022 **(Unaudited)**	₩ 110,363	₩ 96,239	₩ 14,124	₩ 7,422	₩ 94,397
As of December 31, 2021	113,862	99,797	14,065	6,500	79,982

(3) Contract assets and liabilities, unbilled amount and overbilled amount arising from construction and service contracts as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

March 31, 2022 (Unaudited)		December 31, 2021	
Contract assets[1]	Contract liabilities	Contract assets[1]	Contract liabilities
₩ 7,422	₩ 94,397	₩ 6,500	₩ 79,982

[1] Contract assets irrelevant to construction contracts are excluded.

15. Intangible assets other than goodwill

(1) Changes in intangible assets other than goodwill for the three-month period ended March 31, 2022 and for the year ended December 31, 2021, are as follows (Korean won in millions):

	2022 (Unaudited)						
	Beginning balance	Acquisition/ capital expenditure	Disposal	Amortization	Impairment	Others	Ending balance
Intangible exploration and evaluation assets	₩ 476,341	₩ 4,242	₩ -	₩ -	₩ -	₩ 9,587	₩ 490,170
Computer software	17,261	560	-	(1,610)	-	15	16,226
(Government grant)	(2,010)	-	-	111	-	1	(1,898)
Copyright, patent, and other industrial property right	6,630	9	-	(168)	-	-	6,471
(Government grant)	(28)	-	-	3	-	-	(25)
Development costs	22	-	-	(2)	-	-	20
Intangible assets under development	7,603	1,785	-	-	-	-	9,388
Right to contributed assets	276,365	-	-	(1,718)	-	(1,154)	273,493
Land use rights	1,744	-	-	(33)	-	-	1,711
Mineral rights	921,295	3,450	-	(9,747)	-	19,845	934,843
Others	40,472	-	-	(3,088)	-	780	38,164
	₩ 1,745,695	₩ 10,046	₩ -	₩ (16,252)	₩ -	₩ 29,074	₩ 1,768,563

	2021						
	Beginning balance	Acquisition/ capital expenditure	Disposal	Amortization	Impairment[1]	Others	Ending balance
Intangible exploration and evaluation assets	₩ 412,686	₩ 20,944	₩ -	₩ -	₩ 2,087	₩ 40,624	₩ 476,341
Computer software	15,993	7,646	(14)	(6,422)	-	58	17,261
(Government grant)	(116)	(2,010)	-	116	-	-	(2,010)
Copyright, patent, and other industrial property right	4,637	14	-	(981)	(4,706)	7,666	6,630
(Government grant)	(40)	(2)	-	14	-	-	(28)
Development costs	29	-	-	(7)	-	-	22
Intangible assets under development	3,244	4,276	-	-	-	83	7,603
Right to contributed assets	286,700	-	-	(5,663)	-	(4,672)	276,365
Land use rights	1,839	49	(7)	(137)	-	-	1,744
Mineral rights	824,569	1,788	-	(60,711)	90,188	65,461	921,295
Others	45,171	18	-	(9,827)	1,706	3,404	40,472
	₩ 1,594,712	₩ 32,723	₩ (21)	₩ (83,618)	₩ 89,275	₩ 112,624	₩ 1,745,695

[1]The reversal impairment loss of ₩ 93,981 million for the year ended December 31, 2021 was recognized in relation to intangible exploration and evaluation assets and Mineral rights of KOGAS Australia Pty. Ltd. The impairment loss of ₩4,706 million was recognized in relation to patent of KC LNG Tech Co., Ltd. The reversal impairment loss and impairment loss were included in other income(losses) in consolidated statement of comprehensive income or loss.

15. Intangible assets other than goodwill (cont'd)

(2) Details of individually significant intangible assets as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)			
	Details		Amount	Remaining amortization period
Intangible exploration and evaluation assets	Acquisition in exploration phase	₩	490,170	Exploration phase
Right to contributed assets	Harbor facility usage right and others		273,493	26.56 years
	Mining rights		139,230	Development phase
Mineral rights	Mining rights		277,366	21.75 years
	Mining rights		35,754	16.77 years
	Mining rights		482,493	24.75 years

	December 31, 2021			
	Details		Amount	Remaining amortization period
Intangible exploration and evaluation assets	Acquisition in exploration phase	₩	476,341	Phase in exploration
Right to contributed assets	Harbor facility usage right and others		276,365	26.81 years
	Mining rights		135,403	Phase in development
Mineral rights	Mining rights		271,571	22.00 years
	Mining rights		33,355	17.02 years
	Mining rights		480,966	25.00 years

15. Intangible assets other than goodwill (cont'd)

(3) The Group's property, plant and equipment and intangible assets include its share of joint assets arising from participation of joint operations. The details of the Group's significant joint operations as of March 31, 2022 are as follows:

	Main business	Interest of investments	Location
Mozambique Area 4 mining area	Area 4 mining exploration, development and production	10.0%	Mozambique
Zubair Oil Field	Oil field development and production	23.8%	Iraq
Badra Contract Area	Oil field development and production	22.5%	Iraq
Mansuriya Contract Area	Gas field development and production	15.0%	Iraq
Akkas Contract Area	Gas field development and production	75.0%	Iraq
GLNG Project	Gas field development and production, sales	15.0%	Australia
Prelude in Australia	Development of mining area, gas production and sales	10.0%	Australia
Myanmar A-1 and A-3	Development of mining area, gas production and pipeline operation	8.5%	Myanmar
LNG Canada	LNG development	5.0%	Canada
Canadian Horn River	Mining Development and Gas Production	50.0%	Canada
Canadian West Cut Bank, Umiak	Mining Development and Gas Production	20.0%	Canada
Cyprus maritime fields	Resource Development	20.0%	Cyprus

15. Intangible assets other than goodwill (cont'd)

(4) The main items related to recognition of impairment loss of property, plant and equipment and intangible assets recognized as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

There is no impairment loss recognized for property, plant and equipment and intangible assets for the three-month period ended March 31, 2022.

2021			
Country	Korea	Canada	Australia
Operating segment		Other segment[1]	
Nature of assets	Operating asset related to LNG cargo hold development and others	Property, plant and equipment, and intangible assets including assets for resource development	
Assets to be recognized for impairment	Cash-generating units and individual assets		
Calculation of recoverable amount	Present value of expected cash flows		
Assumptions used			
Post-tax discount rate[2]	15.40%	10.50%	6.50%
Applied unit price	Unit price of technical fees under the agreement	International Index[3,4]	International Index[3,4]
Production	Estimated order volume based on ship order volume of external forecasting agency	Estimated output based on reserve report	Estimated output based on reserve report
Recoverable amount	-	20,088	2,679,230
Reversal of impairment loss(Impairment loss)	(4,706)	(15,360)	551,258
Reason for impairment/reversal	Uncertainty of additional ship orders	Decrease in future economic feasibility due to downscale of development plan	Improvements in business environment, long- term increase in oil price and others
Sensitivity analysis of recoverable amount from changes of discount rate			
1% increase	-	(763)	(220,905)
1% decrease	-	792	253,211
Sensitivity analysis of recoverable amount from changes of applied unit price			
1% increase	-	5,111	372,548
1% decrease	-	(5,112)	(378,267)

[1] Cash generating unit of other segment is each mining area and project.
[2] Weighted average cost of capital considering risk of cash-generating units
[3] Applied trends in oil and gas price are based on long-term forecast of major foreign research institutes.
[4] After the forecast period, a 2% increase rate was applied.

16. Goodwill

(1) Goodwill as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)		December 31, 2021	
Acquisition cost	₩	145	₩	145
Accumulated impairment loss		-		-
	₩	145	₩	145

(2) Changes in goodwill for the three-month periods ended March 31, 2022 and for the year ended December 31, 2021, are as follows (Korean won in millions):

	2022 (Unaudited)		2021	
Beginning Balance	₩	145	₩	-
Acquisition[1]		-		145
Ending Balance	₩	145	₩	145

[1] Acquired as a result of a business combination during the previous year (Note 38).

17. Trade and other payables

Trade and other payables as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)		December 31, 2021	
	Current	Non-current	Current	Non-current
Trade payables	₩ 3,336,679	₩ -	₩ 2,815,234	₩ –
Non-trade payables	260,125	198	258,871	190
Accrued expenses	194,385	-	229,020	-
Lease liabilities	291,101	1,763,013	268,784	1,777,521
Dividend payable	234,136	-	-	-
Others	2,946	-	4,160	-
Total	₩ 4,319,372	₩ 1,763,211	₩ 3,576,069	₩ 1,777,711

18. Borrowings and debentures

(1) Borrowings and debentures as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)	December 31, 2021
Current		
Short-term borrowings	₩ 10,686,111	₩ 7,832,479
Current portion of debentures	2,044,320	1,934,200
Less: discount on debentures	(213)	(385)
	12,730,218	9,766,294
Non-current		
Long-term borrowings	184,216	179,480
Debentures, net of current portion	16,563,989	16,287,703
Less: discount on debentures	(45,200)	(46,740)
	16,703,005	16,420,443
	₩ 29,433,223	₩ 26,186,737

(2) Repayment schedules of borrowings and debentures as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)		
	Borrowings	Debentures	Total
1 year or less	₩ 10,686,111	₩ 2,044,320	₩ 12,730,431
1 ~ 5 years	5,965	8,966,575	8,972,540
More than 5 years	178,252	7,597,414	7,775,666
	₩ 10,870,328	₩ 18,608,309	₩ 29,478,637

	December 31, 2021		
	Borrowings	Debentures	Total
1 year or less	₩ 7,832,479	₩ 1,934,200	₩ 9,766,679
1 ~ 5 years	3,075	8,753,806	8,756,881
More than 5 years	176,405	7,533,897	7,710,302
	₩ 8,011,959	₩ 18,221,903	₩ 26,233,862

18. Borrowings and debentures (cont'd)

(3) The Group's short-term borrowings as of March 31, 2022 and December 31, 2021 are as follows (Korean won in millions):

Lender	Interest rate	Maturity	March 31, 2022	December 31, 2021
Local currency borrowings (asset backed short-term debentures)				
NH Bank	-	-	₩ -	₩ 99,000
KEB Hana Bank	-	-	-	953,000
IBK Bank	-	-	-	49,000
DB Securities Co., Ltd.	-	-	-	400,000
KTB Investment & Securities Co., Ltd.	-	-	-	810,000
Kyobo Securities Co., Ltd	-	-	-	20,000
Bookook Securities Co., Ltd	-	-	-	260,000
BNK Securities Co., Ltd	-	-	-	140,000
Woori Investment Bank Co., Ltd.	-	-	-	180,000
Eugene Investment & Securities Co., Ltd.	-	-	-	70,000
Cape Investment & Securities Co., Ltd	-	-	-	110,000
DB Securities Co., Ltd.	1.13%~1.71%	2022.04~2022.07	916,000	-
KTB Investment & Securities Co., Ltd.	1.51%~1.71%	2022.04~2022.07	80,000	-
SK Securities Co., Ltd	1.64%~1.76%	2022.04~2022.09	200,000	-
Kyobo Securities Co., Ltd	1.66%~1.76%	2022.04~2022.09	120,000	-
Bookook Securities Co., Ltd	1.51%~1.76%	2022.04~2022.09	520,000	-
BNK Securities Co., Ltd	1.56%~1.76%	2022.04~2022.09	220,000	-
Woori Investment Bank Co., Ltd.	1.13%~1.76%	2022.04~2022.09	710,000	-
Eugene Investment & Securities Co., Ltd.	1.56%~1.65%	2022.04	40,000	-
Cape Investment & Securities Co., Ltd	1.13%~1.71%	2022.04~2022.07	620,000	-
Hanyang Securities Co., Ltd	1.13%~1.76%	2022.04~2022.09	1,530,000	-
KDB	12.36%	2022.11	963	963
KEB Hana Bank	-	-	-	100,000
KEB Hana Bank	-	-	-	100,000
KEB Hana Bank	-	-	-	100,000
KEB Hana Bank	-	-	-	100,000
KEB Hana Bank	-	-	-	200,000
KEB Hana Bank	-	-	-	100,000
KEB Hana Bank	-	-	-	300,000
SK Securities Co., Ltd	1.61%	2022.05	10,000	-
Bookook Securities Co., Ltd	1.61%	2022.05	20,000	-
Woori Investment Bank Co., Ltd.	1.61%	2022.05	30,000	-
Cape Investment & Securities Co., Ltd	1.61%	2022.05	50,000	-
Hanyang Securities Co., Ltd	1.61%	2022.05	240,000	-
KEB Hana Bank	3M CD+0.23%	2022.05	100,000	-
KEB Hana Bank	3M CD+0.21%	2022.04	100,000	-
KEB Hana Bank	3M CD+0.21%	2022.04	100,000	-
KEB Hana Bank	3M CD+0.13%	2022.05	100,000	-
KEB Hana Bank	3M CD+0.31%	2022.04	100,000	-
KEB Hana Bank	3M CD+0.20%	2022.05	300,000	-
KEB Hana Bank	3M CD+0.30%	2022.04	200,000	-
			6,306,963	4,091,963

-

Lender	Interest rate	Maturity	March 31, 2022	December 31, 2021
Foreign currency borrowings				
ANZ	-	-	-	232,686
BNP Paribas	-	-	-	285,966
DBS	-	-	-	691,814
HSBC	-	-	-	117,468
KB Bank	-	-	-	89,368
KDB	-	-	-	1,178,320
MIZUHO	-	-	-	88,747
SC Bank	-	-	-	465,115
The export-import Bank of Korea	-	-	-	237,100
Shinhan Bank	-	-	-	353,932
ANZ	0.52%~0.53%	2022.05	237,652	-
BNP Paribas	0.41%~1.69%	2022.04~2022.09	256,896	-
DBS	0.41%~1.66%	2022.04~2022.09	649,894	-
HSBC	0.41%~1.48%	2022.04~2022.09	285,449	-
KB Bank	0.58%~1.38%	2022.05~2022.08	236,169	-
KDB	0.45%~0.51%	2022.04~2022.05	1,203,466	-
MIZUHO	0.65%	2022.06	90,641	-
SC Bank	0.40%~0.52%	2022.04~2022.05	264,331	-
The export-import Bank of Korea	0.51%~0.70%	2022.05~2022.07	484,320	-
Shinhan Bank	0.45%~0.57%	2022.04~2022.06	361,485	-
SOGE	0.79%	2022.07	119,244	-
Citi Bank	0.64%	2022.07	189,601	-
			4,379,148	3,740,516
			₩ 10,686,111	₩ 7,832,479

(4) The Group's long-term borrowings as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions and US dollars in thousands):

Lender	Interest rate	Maturity	March 31, 2022 (Unaudited) Foreign currency (USD)	March 31, 2022 (Unaudited) Local currency (KRW)	December 31, 2021 Foreign currency (USD)	December 31, 2021 Local currency (KRW)
Foreign currency borrowings:						
Korea Energy Agency [1]	-	- [2]	USD 152,145	₩ 184,216	USD 151,396	₩ 179,480
			USD 152,145	₩ 184,216	USD 151,396	₩ 179,480

[1] As of March 31, 2022, the Group has provided 15 blank notes to the Korea Energy Agency as collaterals for the Group's borrowings.
[2] These are the conditional loan which will be repaid only if the related developments are available as commercial.

18. Borrowings and debentures (cont'd)

(5) Debentures as of March 31, 2022 and December 31, 2021, are as follows (Korean won and Japanese yen in millions, and US dollars, HK dollars, Euro, and Swiss Franc in thousands) (cont'd):

List	Interest rate	Maturity	March 31, 2022			December 31, 2021		
			Foreign currency		Local currency (KRW)	Foreign currency		Local currency (KRW)
304th	4.26%	2022.04		-	140,000		-	140,000
305th	4.19%	2022.05		-	120,000		-	120,000
307th	4.13%	2022.05		-	140,000		-	140,000
310~311st	4.02%~4.03%	2022.08~2022.09		-	290,000		-	290,000
313rd	3.97%	2022.04		-	100,000		-	100,000
315~316th	3.86%	2022.05~2022.06		-	230,000		-	230,000
318th	3.28%	2027.07		-	170,000		-	170,000
320th	3.12%	2025.09		-	120,000		-	120,000
322~323rd	3.10%~3.13%	2024.09~2025.04		-	170,000		-	170,000
325~340th	2.94%~3.86%	2023.04~2028.08		-	1,830,000		-	1,830,000
344~345th	3.66%~3.71%	2029.04		-	230,000		-	230,000
347~350th	3.73%~3.87%	2024.05~2033.11		-	430,000			430,000
352~363rd	3.18%~4.02%	2024.03~2034.05		-	1,410,000		-	1,410,000
367~375th	2.17%~2.93%	2024.10~2030.08		-	1,270,000		-	1,270,000
377~380th	1.77%~2.75%	2030.07~2036.06		-	360,000		-	360,000
383rd	2.79%	2023.02		-	100,000		-	100,000
385~388th	2.61%~2.90%	2023.04~2038.05		-	450,000		-	450,000
390~395th	1.63%~2.16%	2027.04~2039.03		-	800,000		-	800,000
396th	1.44%	2022.07		-	110,000		-	110,000
397~398th	1.42%~1.57%	2028.09		-	170,000		-	170,000
399th	1.44%	2022.10		-	130,000		-	130,000
400th	1.60%	2039.10		-	110,000		-	110,000
403rd	1.70%	2039.11		-	40,000		-	40,000
404~409th	1.39%~1.74%	2027.05~2040.02		-	630,000		-	630,000
410~411st	1.01%~1.05%	2022.11		-	200,000		-	200,000
412~415th	1.68%~2.18%	2026.03~2031.08		-	400,000		-	400,000
417~418th	2.69%~2.70%	2027.02~2027.03		-	230,000		-	-
Global 4th	6.25%	2042.01	USD	750,000	908,100	USD	750,000	889,125
MTN 13rd	3.02%	2028.06	EUR	38,000	51,343	EUR	38,000	51,009
MTN 15th	3.00%	2023.07	EUR	50,000	67,557	EUR	50,000	67,117
MTN 16th	1.46%	2023.08	JPY	8,000	79,419	JPY	8,000	82,419
MTN 16th(2)	1.46%	2023.08	JPY	4,000	39,710	JPY	4,000	41,210
MTN 17th	4.00%	2024.01	USD	200,000	242,160	USD	200,000	237,100
Global 7th	3.88%	2024.02	USD	500,000	605,400	USD	500,000	592,750

18. Borrowings and debentures (cont'd)

(5) Debentures as of March 31, 2022 and December 31, 2021, are as follows (Korean won and Japanese yen in millions and US dollars, HK dollars, Euro, and Swiss Franc in thousands) (cont'd):

			March 31, 2022 (Unaudited)			December 31, 2021		
List	Interest rate	Maturity	Foreign currency		Local currency (KRW)	Foreign currency		Local currency (KRW)
Global 8th	3.50%	2026.07	USD	500,000	605,400	USD	500,000	592,750
MTN 18th	3.58%	2029.07	USD	100,000	121,080	USD	100,000	118,550
MTN 19th	3.58%	2029.07	USD	150,000	181,620	USD	150,000	177,825
MTN 20th	3.58%	2029.07	USD	100,000	121,080	USD	100,000	118,550
MTN 21st	3.50%	2029.10	USD	100,000	121,080	USD	100,000	118,550
MTN 22nd	3.13%	2025.10	USD	200,000	242,160	USD	200,000	237,100
MTN 23rd	3.30%	2025.11	USD	50,000	60,540	USD	50,000	59,275
MTN 24th	3.30%	2025.11	USD	50,000	60,540	USD	50,000	59,275
Global 9th	3.50%	2025.07	USD	500,000	605,400	USD	500,000	592,750
MTN 25th	2.83%	2026.03	USD	100,000	121,080	USD	100,000	118,550
MTN 26th	2.80%	2026.03	USD	100,000	121,080	USD	100,000	118,550
MTN 27th	2.70%	2026.05	USD	100,000	121,080	USD	100,000	118,550
Global 10-2nd	2.25%	2026.07	USD	400,000	484,320	USD	400,000	474,200
Global 11-1st	2.75%	2022.07	USD	400,000	484,320	USD	400,000	474,200
Global 11-2nd	3.13%	2027.07	USD	400,000	484,320	USD	400,000	474,200
CHF 5th	0.21%	2023.08	CHF	200,000	262,348	CHF	200,000	259,494
CHF 6th	0.00%	2023.11	CHF	300,000	393,522	CHF	300,000	389,241
GLOBAL 12nd	2.88%	2029.07	USD	500,000	605,400	USD	500,000	592,750
MTN 28th	1.42%	2027.07	HKD	450,000	69,610	HKD	450,000	68,414
Global 13-1st	1.13%	2026.07	USD	450,000	544,860	USD	450,000	533,474
Global 13-2nd	2.00%	2031.07	USD	350,000	423,780	USD	350,000	414,925
Total			USD	6,000,000	₩ 18,608,309	USD	6,000,000	₩ 18,221,903
			CHF	500,000		CHF	500,000	
			JPY	12,000		JPY	12,000	
			EUR	88,000		EUR	88,000	
			HKD	450,000		HKD	450,000	
Less: Discount on debentures			USD	(38,200)	(45,413)	USD	(39,525)	₩ (47,125)
			CHF	(957)		CHF	(1,116)	
			HKD	(704)		HKD	(7,312)	
Balance after deduction			USD	5,961,800	18,562,896	USD	5,960,475	₩ 18,174,778
			CHF	499,043		CHF	498,884	
			JPY	12,000		JPY	12,000	
			EUR	88,000		EUR	88,000	
			HKD	449,296		HKD	442,688	
Less: current portion					(2,044,320)			₩ (1,934,200)
Less: current portion of discount on debentures					213			₩ 385
Total					16,518,789			₩ 16,240,963

19. Leases

(1) Details of lease liabilities as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)		December 31, 2021	
	Minimum lease payments	Present value of minimum lease payments	Minimum lease payments	Present value of minimum lease payments
Long-term transportation contract lease				
1 year or less	₩ 276,751	₩ 272,262	₩ 251,649	₩ 248,995
1~5 years	748,262	692,790	671,018	642,330
More than 5 years	1,209,283	937,922	1,163,174	1,002,152
	₩ 2,234,296	₩ 1,902,974	₩ 2,085,841	₩ 1,893,477
Lease other than long-term transportation contract				
1 year or less	₩ 19,193	₩ 18,839	₩ 20,298	₩ 19,789
1~5 years	55,200	52,060	55,379	51,864
More than 5 years	102,386	80,241	₩ 104,065	₩ 81,175
	₩ 176,779	₩ 151,140	179,742	152,828
Total				
1 year or less	₩ 295,944	₩ 291,101	₩ 271,947	₩ 268,784
1~5 years	803,462	744,850	726,397	694,194
More than 5 years	1,311,669	1,018,163	1,267,239	1,083,327
	₩ 2,411,075	₩ 2,054,114	₩ 2,265,583	₩ 2,046,305

(2) Changes in right-of-use assets for the three-month period ended March 31, 2022 and for the year ended December 31, 2021, are as follows (Korean won in millions):

	2022 (Unaudited)				
	Beginning balance	Increase	Depreciation	Others	Ending balance
Right-of-use assets					
Land	₩ 120,757	₩ 2,076	₩ (2,473)	₩ (123)	₩ 120,237
Buildings	11,202	1,367	(1,279)	48	11,338
Structures	2,567	-	(16)	55	2,606
Machinery	15,006	-	(394)	6	14,618
Vehicles	3,269	153	(892)	-	2,530
Office equipment	2	-	-	(2)	-
Vessel	2,172,685	-	(61,438)	66	2,111,313
Aircrafts	232	-	(117)	4	119
Software	4	-	-	-	4
	₩ 2,325,724	₩ 3,596	₩ (66,609)	₩ 54	₩ 2,262,765

19. Leases (cont'd)

(2) Changes in right-of-use assets for the three-month period ended March 31, 2022 and for the year ended December 31, 2021, are as follows (Korean won in millions) (cont'd) :

	2021				
	Beginning balance	Increase	Depreciation	Others	Ending balance
Right-of-use assets					
Land	₩ 121,443	₩ 11,278	₩ (10,031)	₩ (1,933)	₩ 120,757
Buildings	9,419	5,999	(4,469)	(149)	10,800
Structures	2,412	-	(59)	214	2,567
Machinery	7,726	8,825	(1,566)	21	15,006
Vehicles	6,205	1,104	(3,899)	(141)	3,269
Office equipment	4	-	(2)	-	2
Vessel	2,425,603	413	(253,255)	326	2,173,087
Aircrafts	643	-	(452)	41	232
Software	13	5	(15)	1	4
	₩ 2,573,468	₩ 27,624	₩ (273,748)	₩ (1,620)	₩ 2,325,724

(3) Amounts recognized in the interim condensed consolidated statements of comprehensive income in relation to leases for the three-month periods ended March 31, 2022 and 2021 are as follows:

	2022 (Unaudited)	2021 (Unaudited)
Right-of-use assets' depreciation expenses		
Land	₩ 2,473	₩ 2,327
Buildings	1,279	1,009
Structures	16	14
Machinery	394	276
Vehicles	892	994
Vessel	61,438	63,659
Aircrafts	117	108
Software	-	3
	₩ 66,609	₩ 68,390
Interest expenses on lease liabilities (finance costs)	₩ 5,186	₩ 7,980
Interest income on present value discount of deposits (finance income)	356	347
Short-term lease payments (included in cost of sales and administrative expenses)	482	540
Low-value lease payments (included in cost of sales and administrative expenses)	282	300

20. Retirement benefits

The Group operates both defined contribution and defined benefit pension plans.

(Defined Contribution Pension Plan)

- For defined contribution plan, the mandatory contribution amount of the Group is set on contractual or voluntary basis. The Group has no further payment obligation once the contribution has been paid.
- Employees select a publicly or privately administered pension insurance plan based on the rule of the plan and bear the risk.
- The pensionable right of employees is guaranteed in the plan as the contribution is accumulated in each employee's name, independently from the Group.

(Defined Benefit Pension Plan)

- For defined benefit plan, the benefit amount of the employees is set, depending on their age, periods of service or salary levels.
- Employees expect their own post-employment benefit amount reasonably, and the Group bears the risk.

(1) Defined contribution plan

Details of recognized expense related to the defined contribution plan for the three-month periods ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	2022 (Unaudited)	2021 (Unaudited)
Cost of sales	₩ 1,847	₩ 1,472
Selling and administrative expenses	293	1,015
Others	43	11
	₩ 2,183	₩ 2,498

20. Retirement benefits (cont'd)

(2) Defined benefit plan

According to the defined benefit plan, employees will receive their average salaries for the past three months multiplied by the rate of payment considering the year of service on their retirement. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method.

(3) Changes in the carrying amount of defined benefit obligations for the three-month periods ended March 31, 2022 and for the year ended December 31, 2021, are as follows (Korean won in millions):

	2022 (Unaudited)	2021
Beginning balance	₩ 369,312	₩ 400,245
Current service cost	9,513	45,223
Interest expense	3,590	13,510
Remeasurements	(13,091)	(64,537)
Benefits paid	(2,698)	(8,944)
Conversion to defined contribution	(19,141)	(16,208)
Foreign exchange difference	6	23
Ending balance	₩ 347,491	₩ 369,312

(4) Changes in the fair value of plan assets for the three-month period ended March 31, 2022 and for the year ended December 31, 2021, are as follows (Korean won in millions):

	2022 (Unaudited)	2021
Beginning balance	₩ 393,641	₩ 397,687
Interest income	3,858	12,646
Remeasurements	(557)	(5,210)
Employer's contributions	-	10,617
Benefits paid	(2,698)	(5,891)
Conversion to defined contribution	(6,054)	(16,208)
Ending balance	₩ 388,190	₩ 393,641

(5) The amounts recognized in profit or loss for the three-month periods ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	2022 (Unaudited)	2021 (Unaudited)
Current service cost	₩ 9,513	₩ 11,418
Interest expenses	3,590	3,315
Interest income	(3,858)	(3,313)
	₩ 9,245	₩ 11,420

21. Provisions

(1) Details of provisions as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)			December 31, 2021		
	Current	Non-current	Total	Current	Non-current	Total
Provision for employee benefits	₩ 109,470	₩ 2,425	₩ 111,895	₩ 96,885	₩ 19,003	₩ 115,888
Provision for greenhouse gas	4,182	1,422	5,604	4,182	-	4,182
Provision for financial guarantee	-	14,678	14,678	-	15,789	15,789
Provision for lawsuit	18,565	528	19,093	18,382	528	18,910
Provision for post-processing restoration and purification	-	126,227	126,227	-	125,952	125,952
Provision for onerous contracts	862	-	862	1,117	-	1,117
Others	-	4,720	4,720	5,481	4,772	10,253
	₩ 133,079	₩ 150,000	₩ 283,079	₩ 126,047	₩ 166,044	₩ 292,091

22. Non-financial liabilities

Details of non-financial liabilities as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)		December 31, 2021	
	Current	Non-Current	Current	Non-Current
Advances received	₩ 4,326	₩ -	₩ 3,801	₩ -
Unearned revenues	23,083	-	22,689	-
Withholdings	20,687	-	22,464	-
Deferred income	2,963	3,416	826	3,218
Others [1,2]	1,684,468	47,934	387,619	50,499
	₩ 1,735,527	₩ 51,350	₩ 437,399	₩ 53,717

[1] Others include liabilities recognized from natural gas sales charge settlement gain and loss of ₩ 449,819 million as of March 31, 2021 (Note 11).
[2] In order to stabilize domestic supply and demand during the winter season, the corporation signed an agreement on the exchange of natural gas with facility users and carried out the exchange, and as of March 31, 2022, KRW 1,219,640 million in liabilities were included.

23. Equity

(1) Details of share capital as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions except par value in Korean won):

	Total shares authorized	Total shares issued	Par value	March 31, 2022 (Unaudited) Government	Non-government	Total	December 31, 2021 Government	Non-government	Total
Common share	200,000,000 shares	92,313,000 shares	₩ 5,000	₩ 120,722	₩ 340,843	₩ 461,565	₩ 120,722	₩ 340,843	₩ 461,565

(2) Changes in the number of shares outstanding for the three-month period ended March 31, 2022 and for the year ended December 31, 2021, are as follows:

	2022 (Unaudited) Common share	2021 Common share
Beginning shares	85,826,950	85,826,950
Acquisition of treasury shares	-	-
Ending shares	85,826,950	85,826,950

(3) Details of share premium as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)	December 31, 2021
Share premium	₩ 1,303,548	₩ 1,303,548

24. Retained earnings

(1) Retained earnings as of March 31, 2022 and December 31, 2021, consist of (Korean won in millions):

	March 31, 2022 (Unaudited)	December 31, 2021
Legal reserve[1]	₩ 230,783	₩ 230,782
Other reserves	4,325,884	3,931,676
Unappropriated retained earnings	2,135,989	2,022,810
	₩ 6,692,656	₩ 6,185,268

[1] The *Korea Gas Corporation Act* requires the Corporation to appropriate as a legal reserve an amount equal to a minimum of 10% of its profits for each reporting period until the reserve equals 50% of its share capital. The legal reserve may be used to reduce a deficit or may be transferred to share capital in connection with a free issuance of shares.

(2) Other reserves as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)	December 31, 2021
Business expansion	₩ 3,556,426	₩ 3,183,794
Dividend equalization	219,282	219,282
Business rationalization	792	792
Accident compensation	461,565	439,989
Improvement of financial structure	87,819	87,819
	₩ 4,325,884	₩ 3,931,676

(3) Changes in retained earnings for the three-month period ended March 31, 2022 and for the year ended December 31, 2021, are as follows (Korean won in millions):

	2022 (Unaudited)	2021
Beginning balance	₩ 6,185,268	₩ 5,190,805
Profit attributable to owners of the parent	733,459	950,757
Dividends paid	(234,136)	-
Remeasurement of defined benefit plans	9,778	43,706
Interest payment of hybrid bonds	(1,713)	-
Ending balance	₩ 6,692,656	₩ 6,185,268

(4) Dividends paid for the three-month period ended March 31, 2022 and for the year ended December 31, 2021, are as follows (Korean won):

	March 31, 2022				
	Total shares issued	Treasury stock	Shares eligible for dividends	Dividends per share	Total dividends
Common share	92,313,000	6,486,050	85,826,950	₩ 2,728	₩ 234,135,919,600

	December 31, 2021				
	Total shares issued	Treasury stock	Shares eligible for dividends	Dividends per share	Total dividends
Common share	92,313,000	6,486,050	85,826,950	₩ -	₩ -

25. Hybrid bonds

Details of hybrid bonds as of March 31, 2022 are as follows (Korean won):

Terms	Details of the terms
Issued amount	335,328,785,000
Maturity	The principal of this bond is repaid on the maturity date of November 16, 2051. If the principal repayment date falls on a bank holiday, repayment is made on the next business day, and interest after the principal repayment date is not calculated. However, the issuer may continuously extend the maturity of the bond under the same issuance conditions by notifying the Korea Securities Depository five business days before the expiration date, and the bond creditor cannot offset the bond as an automatic bond.
Interest rate	(A) The interest rate on the bonds in this case shall be 2.043% per annum. (B) The interest rate obtained by adding the additional interest rate prescribed in item (ii)(c) to the interest rate prescribed in item (i)(a) shall be applied from the time when five years have elapsed since the issuance of the bonds. (C) The additional interest rate shall be the average interest rate (Truncation of 4 decimal places) of the 5-year unguaranteed bonds of each issuer evaluated two business days before the date on which the KOREA ASSET PRICING Co., KIS PRICING INC., NICE P&I INC., and FnPricing Inc.(if the names of the above credit rating companies are changed for any reason, including merger or spin-off, after the date of conclusion of this contract, applicable corporations will be included as well.) should calculate or recalculate. The additional interest rate shall be recalculated every five years after the initial calculation when five years have elapsed since the issuance of the bonds.
Interest payment terms	Interest is paid in installments by 1/4 of the annual interest rate every 3 months from the issuance date of this bond to the redemption date. However, if the interest payment date falls on a bank holiday, interest is paid on the next business day, and interest after the interest payment date is not calculated. After the issuance date of the bond, the issuer may defer the payment of interest, in entirety or partially, to the next interest payment term, if necessary.
Dividend terms	(A) After the issuance date of this bond, the issuer may, at its option, defer payment of all or part of interest (including interest for which the interest payment date has already been deferred pursuant to this subparagraph) until the next interest payment date. (B) Even if the issuer suspends payment of all or part of the interest pursuant to item (A), the issuer shall, at the option of the issuer, on the subsequent interest payment date, pay interest withdeffered payment following its decision (hereinafter referred to as “deferred interest”) and the accumulated interests, and no resolution on cash and stock dividends shall be made until the full amount of interest to be paid on the date of interest payment and deferred interest is paid. In case where the resolution on cash and stock dividend is made violating the aforementioned term, the interest payment date preceding the dividend resolution shall be considered as the due date for the accumulated interest including the deferred amount. In addition, if the issuer exercises the prepayment right pursuant to the Article 20, the accumulated interest including the deferred interest should be paid by the issuer on the date when the prepayment right is exercised. However, if the applicable interest payment date falls on bank holiday, repayment is made on the next business day, and interest after the interest payment date is not calculated.
Exchange terms	Exchange of treasury stock held by the company for 1 share for every 51,700 KRW of electronically registered debentures
Exchange request period	December 16, 2021 ~ October 16, 2051
Other terms	1. Early redemption right of the issuing company (Call Option): ① After 5 years have elapsed from the issuance date of this bond, the entire bond can be repaid in advance on the day corresponding to each interest payment date. ② Notwithstanding ①, the external auditor’s opinion statement stating that the debentures in this case cannot be recognized as capital for accounting due to changes in the Korean International Financial Reporting Standards (KIFRS) or changes in laws, regulations, guidelines of related organizations or accounting firms Alternatively, if the issuer submits an external auditor's external audit (review) report that reflects the above information to investors, the issuer may prepay the bonds on the interest payment date immediately following the occurrence of the cause. However, the issuing company may make a prepayment in accordance with this regulation only after the effective date of the change in accounting standards. ③ When the issuer exercises the redemption right in accordance with ① or ②, the issuer pays the entire principal amount of the bonds by paying the entire face value without a separate discount or surcharge, and the full amount of unpaid interest. ④ When the issuer exercises the prepayment right pursuant to ① or ②, the issuing company must notify the principal and interest payment agency and Korea Securities Depository of its intention at least 5 business days prior to the date of exercising the prepayment right. 2. Investor’s right to claim redemption in advance (Put Option): Not applicable

As the aforementioned Hybrid bonds do not substantially bear the contractual payment obligation, the Group classified the Hybrid bonds as equity, and recognized ₩334,520 million as equity, deducting issuance costs from the issuance amount for the period ended December 31, 2021.

26. Income tax

Income tax expense was calculated by adjusting the adjustments recognized for the three-month period ended March 31, 2022 in relation to the income tax for the year ended December 31, 2021, changes in deferred tax due to temporary differences, and income tax expenses in relation to items recognized other than profit or loss. For the three-month periods ended March 31, 2022 and 2021, the estimated weighted average effective tax rate (income tax expense ÷ profit before income tax) is 28.50% and 25.54%, respectively.

27. Expenses by nature

Details of expenses by nature for the three-month periods ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	2022 (Unaudited)			
	Changes in inventories	Selling and administrative expenses	Cost of sales	Total
Changes in inventories:				
Finished goods	₩ (4,796)	₩ -	₩ -	₩ (4,796)
Merchandise	-	-	487	487
Raw materials used	-	-	12,061,762	12,061,762
Salaries	-	24,553	75,717	100,270
Retirement benefits	-	2,099	8,539	10,638
Employee welfare benefits	-	2,755	8,711	11,466
Insurance	-	515	3,331	3,846
Depreciation	-	4,313	401,650	405,963
Amortization	-	718	15,595	16,313
Bad debt expenses	-	86	-	86
Commission	-	13,700	18,041	31,741
Advertising expenses	-	2,263	29	2,292
Training expenses	-	1,256	501	1,757
Vehicles maintenance expenses	-	63	943	1,006
Periodicals and printing expenses	-	98	60	158
Business promotion expenses	-	44	36	80
Rental expenses	-	1,055	2,702	3,757
Communication expenses	-	169	291	460
Taxes and dues	-	36,861	2,676	39,537
Supplies expenses	-	148	217	365
Utilities	-	416	90,890	91,306
Repairs and maintenance expenses	-	108	6,462	6,570
Research and development expenses	-	10,005	1	10,006
Travel and transportation	-	589	479	1,068
Clothing expenses	-	82	41	123
Association fee	-	259	69	328
Sales promotion costs	-	214	-	214
Promotional expenses	-	83	-	83
Outsourcing	-	-	5,575	5,575
Facility management	-	-	57,908	57,908
Other expenses[1]	-	6,183	200,360	206,543
	₩ (4,796)	₩ 108,635	₩ 12,963,073	₩ 13,066,912

[1] The settlement amount of supply cost is included in cost of sales classified as other expenses, and the related details are described in Note 11.

27. Expenses by nature(cont'd)

	2021 (Unaudited)			
	Changes in inventories	**Selling and administrative expenses**	**Cost of sales**	**Total**
Changes in inventories:				
Finished goods	₩ (6,487)	₩ -	₩ -	₩ (6,487)
Merchandise	-	-	5,600	5,600
Raw materials used	-	-	5,957,918	5,957,918
Salaries	-	26,707	103,407	130,114
Retirement benefits	-	3,256	9,870	13,126
Employee welfare benefits	-	2,624	7,825	10,449
Insurance	-	874	2,886	3,760
Depreciation	-	3,972	382,871	386,843
Amortization	-	1,246	20,455	21,701
Commission	-	14,098	29,691	43,789
Advertising expenses	-	706	7	713
Training expenses	-	1,448	191	1,639
Vehicles maintenance expenses	-	41	868	909
Periodicals and printing expenses	-	105	69	174
Business promotion expenses	-	33	34	67
Rental expenses	-	936	3,411	4,347
Communication expenses	-	178	277	455
Freight	-	-	18	18
Taxes and dues	-	35,654	2,963	38,617
Supplies expenses	-	110	222	332
Utilities	-	387	54,060	54,447
Repairs and maintenance expenses	-	175	9,642	9,817
Research and development expenses	-	9,974	5	9,979
Travel and transportation	-	381	531	912
Clothing expenses	-	35	40	75
Association fee	-	240	368	608
Sales promotion costs	-	779	-	779
Promotional expenses	-	78	-	78
Outsourcing	-	-	2,613	2,613
Facility management	-	-	46,869	46,869
Other expenses[1]	-	4,777	201,780	206,557
	₩ (6,487)	₩ 108,814	₩ 6,844,491	₩ 6,946,818

[1] The settlement amount of supply cost is included in cost of sales classified as other expenses, and the related details are described in Note 11.

28. Other income and expenses

(1) Details of other income for the three months ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	2022 (Unaudited)		2021 (Unaudited)	
Reversal of other provisions	₩	24	₩	16
Earnings from construction charges (non-operating)		-		23
Earnings from government grant(non-operating)		10		-
Compensation and indemnity gains		152,612		29,824
Rental income		245		768
Other income		209		-
	₩	153,100	₩	30,631

(2) Details of other expenses for the three months ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	2022 (Unaudited)		2021 (Unaudited)	
Depreciation of idle assets	₩	4,243	₩	4,243
Donations		1,137		189
Compensation and indemnity losses		1,090		-
	₩	6,470	₩	4,432

29. Other gains and losses

Details of other gains (losses) for the three months ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	2022 (Unaudited)		2021 (Unaudited)	
Gains on disposal of property, plant, and equipment		49		221
Other gains		6,638		4,787
Losses on disposal of property, plant, and equipment		(36)		(11)
Other losses		(603)		(1,136)
	₩	6,048	₩	3,861

30. Finance income

Details of finance income for the three months ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	2022 (Unaudited)		2021 (Unaudited)	
Interest income	₩	9,132	₩	5,090
Gains on valuation of derivative instruments		92,216		39,073
Gains on transaction of derivative instruments		105,307		86,304
Foreign currency translation gains		151,838		223,297
Foreign currency transaction gains		44,326		24,710
	₩	402,819	₩	378,474

31. Finance costs

Details of finance costs for the three months ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	2022 (Unaudited)		2021 (Unaudited)	
Interest expenses	₩	178,844	₩	165,401
Losses on valuation of derivative instruments		27,953		28,904
Losses on transaction of derivative instruments		30,269		19,438
Losses on foreign currency translation		171,170		218,503
Losses on foreign currency transactions		126,097		91,468
	₩	534,333	₩	523,714

32. Financial instruments by category

(1) Details of financial instruments by categories as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

1) 2022

① Current financial assets

	March 31, 2022(Unaudited)						
				Financial assets measured at FVTPL			
Current financial assets:	**Debt instruments at amortized cost**	**Debt instruments at FVOCI**	**Equity instruments at FVOCI**	**Derivatives not designated as hedging instruments**	**Derivatives designated as hedging instruments**	**Others**	**Total**
Cash and cash equivalents	₩ 752,204	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 752,204
Financial assets at fair value through profit or loss	-	-	-	78,526	771	-	79,297
Financial assets at amortized cost	613	-	-	-	-	-	613
Current financial assets	47,650	-	-	-	-	-	47,650
Loans	5,906	-	-	-	-	-	5,906
Trade and other receivables [1]	8,766,742	-	-	-	-	-	8,766,742
Total	₩ 9,573,115	₩ -	₩ -	₩ 78,526	₩ 771	₩ -	₩ 9,652,412

[1] Contract assets are excluded.

32. Financial instruments by category (cont'd)

② Non-current financial assets

	March 31, 2022(Unaudited)						
				Financial assets measured at FVTPL			
Non-current financial assets:	Debt instruments at amortized cost	Debt instruments at FVOCI	Equity instruments at FVOCI	Derivatives not designated as hedging instruments	Derivatives designated as hedging instruments	Others	Total
Financial assets at fair value through profit or loss	₩ -	₩ -	₩ -	₩ 34,794	₩ 85,890	₩ 2,674	₩ 123,358
Financial assets at fair value through other comprehensive income	-	-	89,455	-	-	-	89,455
Financial assets at amortized cost	459	-	-	-	-	-	459
Long-term financial instruments	16	-	-	-	-	-	16
Loans	546,887	-	-	-	-	-	546,887
Trade and other receivables [1]	215,172	-	-	-	-	-	215,172
Other non-current financial assets	90,000	-	-	-	-	-	90,000
	₩ 852,534	₩ -	₩ 89,455	₩ 34,794	₩ 85,890	₩ 2,674	₩ 1,065,347

[1] Contract assets are excluded.

32. Financial instruments by category (cont'd)

③ Current financial liabilities

	March 31, 2022(Unaudited)				
		Financial liabilities at fair value through profit or loss			
Current financial liabilities	Financial liabilities at amortized cost	Derivatives not designated as hedging instruments	Hedging derivative instruments	Others	Total
Trade and other receivables	₩ 4,319,372	₩ -	₩ -	₩ -	₩ 4,319,372
Financial liabilities at fair value through profit or loss	-	22,117	-	-	22,117
Short-term borrowing	10,686,111	-	-	-	10,686,111
Debentures	2,044,107	-	-	-	2,044,107
	₩ 17,049,590	₩ 22,117	₩ -	₩ -	₩ 17,071,707

(*) Provisions for financial guarantee are excluded.

④ Non-current financial liabilities

	March 31, 2022(Unaudited)				
		Financial liabilities at fair value through profit or loss			
Non-current financial liabilities	Financial liability at amortized cost	Derivatives not designated as hedging instruments	Hedging derivative instruments	Others	Total
Trade and other receivables	₩ 1,763,211	₩ -	₩ -	₩ -	₩ 1,763,211
Financial liabilities at fair value through profit or loss	-	76,554	28,046	-	104,600
Long-term borrowing	184,216	-	-	-	184,216
Bonds	16,518,789	-	-	-	16,518,789
	₩ 18,466,216	₩ 76,554	₩ 28,046	₩ -	₩ 18,570,816

(*) Provisions for financial guarantee are excluded.

32. Financial instruments by category (cont'd)

2) 2021

① Current financial assets

	December 31, 2021						
				Financial assets measured at FVTPL			
Current financial assets:	**Debt instruments at amortized cost**	**Debt instruments at FVOCI**	**Equity instruments at FVOCI**	**Derivatives not designated as hedging instruments**	**Derivatives designated as hedging instruments**	**Others**	**Total**
Cash and cash equivalents	₩ 564,523	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 564,523
Financial assets at fair value through profit or loss	-	-	-	26,759	230	-	26,989
Financial assets at amortized cost	8,758	-	-	-	-	-	8,758
Current financial assets	44,379	-	-	-	-	-	44,379
Loans	8,476	-	-	-	-	-	8,476
Trade and other receivables [1]	6,979,470	-	-	-	-	-	6,979,470
Total	₩ 7,605,606	₩ -	₩ -	₩ 26,759	₩ 230	₩ -	₩ 7,632,595

[1] Contract assets are excluded.

32. Financial instruments by category (cont'd)

② Non-current financial assets

	December 31, 2021						
				Financial assets measured at FVTPL			
Non-current financial assets:	**Debt instruments at amortized cost**	**Debt instruments at FVOCI**	**Equity instruments at FVOCI**	**Derivatives not designated as hedging instruments**	**Derivatives designated as hedging instruments**	**Others**	**Total**
Financial assets at fair value through profit or loss	₩ -	₩ -	₩ -	₩ 10,774	₩ 79,488	₩ 2,634	₩ 92,896
Financial assets at fair value through other comprehensive income	-	-	69,585	-	-	-	69,585
Financial assets at amortized cost	454	-	-	-	-	-	454
Long-term financial instruments	7,891	-	-	-	-	-	7,891
Loans	527,714	-	-	-	-	-	527,714
Trade and other receivables [1]	210,387	-	-	-	-	-	210,387
Other non-current financial assets	90,000	-	-	-	-	-	90,000
	₩ 836,446	₩ -	₩ 69,585	₩ 10,774	₩ 79,488	₩ 2,634	₩ 998,927

[1] Contract assets are excluded.

32. Financial instruments by category (cont'd)

③ Current financial liabilities

	December 31, 2021				
		Financial liabilities at fair value through profit or loss			
Current financial liabilities	**Financial liabilities at amortized cost**	**Derivatives not designated as hedging instruments**	**Hedging derivative instruments**	**Others**	**Total**
Trade and other receivables	₩ 3,576,069	₩ -	₩ -	₩ -	₩ 3,576,069
Financial liabilities at fair value through profit or loss	-	5,985	-	-	5,985
Short-term borrowing	7,832,479	-	-	-	7,832,479
Debentures	1,933,815	-	-	-	1,933,815
	₩ 13,342,363	₩ 5,985	₩ -	₩ -	₩ 13,348,348

(*) Provisions for financial guarantee are excluded.

④ Non-current financial liabilities

	December 31, 2021				
		Financial liabilities at fair value through profit or loss			
Non-current financial liabilities	**Financial liability at amortized cost**	**Derivatives not designated as hedging instruments**	**Hedging derivative instruments**	**Others**	**Total**
Trade and other receivables	₩ 1,777,711	₩ -	₩ -	₩ -	₩ 1,777,711
Financial liabilities at fair value through profit or loss	-	73,255	27,340	-	100,595
Long-term borrowing	179,480	-	-	-	179,480
Bonds	16,240,963	-	-	-	16,240,963
	₩ 18,198,154	₩ 73,255	₩ 27,340	₩ -	₩ 18,298,749

(*) Provisions for financial guarantee are excluded.

32. Financial instruments by category (cont'd)

(2)Net gains or losses on each category of financial instruments for the three-month periods ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	2022	2021
Cash and cash equivalents		
Interest income	₩ 560	₩ 101
Gains (losses) on foreign currency transactions	(147)	98
Gains on foreign currency translation	1,322	608
Debt instruments measured at amortized cost		
Interest income	8,572	4,852
Gains on foreign currency transactions	8,421	269
Gains on foreign currency translation	123,280	219,432
Financial assets at fair value through profit or loss		
Interest income	-	137
Gains on foreign currency transactions	1,045	1,242
Gains on valuation of derivative instruments	90,613	24,504
Gains on transaction of derivative instruments	105,307	86,303
Gains on foreign currency translation	-	14
Equity instruments measured at FVOCI		
Comprehensive income recognized during the period	19,869	13,859
Financial liabilities at fair value through profit or loss		
Losses on foreign currency transactions	(360)	(1,668)
Gains on valuation of derivative instruments	1,604	14,570
Losses on valuation of derivative instruments	(27,953)	(28,904)
Losses on transaction of derivative instruments	(30,269)	(19,437)
Financial liabilities measured at amortized cost		
Interest expense	(174,335)	(163,908)
Losses on foreign currency transactions	(90,729)	(66,700)
Losses on foreign currency translation	(143,934)	(215,259)
Comprehensive loss recognized during the period	(36,794)	(73,242)
Derivative liabilities designated as hedging instruments		
Interest expense	(14,396)	(8,294)
Comprehensive income (loss) recognized during the period	2,474	(673)
Others		
Capitalization of borrowing costs	9,887	6,800
	₩ (145,963)	₩ (205,296)

33. Risk management

(1) Risk management framework

The Group manages various risks that may incur by each business unit, and the main risks are capital risk, credit risk, liquidity risk, currency risk, interest rate risk, and others. These risks are recognized, measured, controlled and reported in accordance with the basic policy for risk management determined by the Group.

The Group's risk management policies are established to identify and analyze the risks faced by the Group, to set appropriate risk limits and controls, and to monitor risks and adherence to limits.

Risk management policies and systems are reviewed regularly to reflect changes in market conditions and the Group's activities. The Group's Audit Committee oversees how management monitors compliance with the Group's risk management policies and procedures and reviews the adequacy of the risk management framework in relation to the risks faced by the Group.

(2) Capital risk management

The Group's objectives when managing capital are to safeguard the Group's ability to continue as a going concern, so the Group can continue to provide returns for shareholders and benefits for other stakeholders, and to maintain an optimal capital structure to reduce the cost of capital.

In order to maintain or adjust the capital structure, the Group may adjust the amounts of dividends paid to shareholders, return capital to shareholders, issue new shares or sell assets to reduce debt.

Consistent with others in the industry, the Group monitors capital on the basis of the capital procurement ratio. This ratio is calculated as net debt divided by total capital. Net debt is total borrowings(including short-term and long-term borrowings in the interim condensed consolidated statement of financial position) less cash equivalents, and total capital is the addition of net debt to the "equity" in the interim condensed consolidated statement of financial position.

The capital procurement ratio as of March 31, 2022 and December 31, 2021 are as follows (Korean won in millions, except net liabilities ratio):

	March 31, 2022 (Unaudited)	December 31, 2021
Total borrowings		
Short-term borrowings	₩ 10,686,111	₩ 7,832,479
Current portion of debentures	2,044,107	1,933,815
Current portion of lease liabilities	291,101	268,784
Long-term borrowings	184,216	179,480
Debentures, net of current portion	16,518,789	16,240,963
Lease liabilities, net of current portion	1,763,014	1,777,521
Total borrowings	31,487,338	28,233,042
Cash equivalents		
Cash and cash equivalents	752,204	564,523
Total cash equivalents	752,204	564,523
Net debt	30,735,134	27,668,519
Total equity	9,657,519	9,119,336
Total capital	₩ 40,392,653	₩ 36,787,855
Capital procurement ratio	76.09%	75.21%

33. Risk management (cont'd)

(3) Financial risk management

1) 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 and investment securities.

In order to control the risk arising from the default of the debtor, the Group has secured sufficient collateral in consideration of the credibility of the counterparty. The credit rating of the counterparty is based on the credit rating provided by an independent external credit rating agency, but if it is not possible to obtain the data, the credit rating is measured using the transaction information obtained with the counterparty, and the credit rating is continuously remeasured.

The Group's investments in debt instruments are considered to be low risk investments. The credit ratings of the investments are monitored for credit deterioration. The Group's credit risk has no significant concentration on individual customers, industries, regions, etc.

The Group has types of financial assets that are subject to the expected credit loss model as follow:

- trade and other receivables for sales of goods and rendering of services,
- loans to associates and others,
- debt instruments at fair value through profit or loss,
- debt instruments at fair value through other comprehensive income, and
- other financial assets at amortized cost.

While cash equivalents are also subject to the impairment requirement, the identified expected credit loss was immaterial.

The Group applies the simplified method to recognize loss allowance for all financial assets held based on lifetime expected credit losses.

The book value of financial assets means maximum exposure in respect of credit and counterparty risk. Meanwhile, financial guarantee contracts provided by the Group are recognized as provision for financial guarantee, and maximum exposure to credit risk of financial guarantee contracts is the maximum guaranteed amount that the Group should pay upon the guarantee's claims.

The maximum exposure to credit risk as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022	December 31, 2021
Cash and cash equivalents (excluding cash held)	₩ 752,168	₩ 564,489
Financial assets at FVTPL	202,655	119,885
Short-term and long-term financial assets	47,666	52,270
Financial assets at amortized cost	1,072	9,212
Loans and receivables	642,793	626,190
Trade and other receivables	8,981,914	7,189,857
Financial guarantee contracts[1]	1,407,815	1,324,463
	₩ 12,036,083	₩ 9,886,366

[1] The amount is the maximum guaranteed amount that the Group should pay upon the guarantee's claim.

33. Risk management (cont'd)

Details of financial guarantee contracts as of March 31, 2022 are as follows (Korean won in millions and US dollars in thousands):

	Total guaranteed amount			
	Foreign Currency		Local Currency (KRW)	
Related parties[1]				
Terminal KMS de GNL, S. De R.L. De C.V.	USD	18,708	₩	22,651
	USD	9,240		11,188
KLBV1.S.A.	USD	20,843		25,237
Coral FLNG S.A.	USD	572,295		692,935
Coral South FLNG DMCC	USD	487,470		590,229
Others[2]				
Empresa Nacional de Hidrocarbonetos, E.P	USD	54,158		65,575
Total	USD	1,162,714		1,407,815

[1] Details of these financial guarantee contracts are described in Note 34.(7)
[2] Details of these financial guarantee contracts are described in Note 36.(2)

33. Risk management (cont'd)

2) Liquidity risk

Liquidity risk is the risk that the Group will encounter difficulty in meeting the obligations associated with its financial liabilities that are settled by delivering cash or another financial asset. The Group's approach to managing liquidity is to ensure, as far as possible, that it will always have sufficient liquidity to meet its liabilities when due, under both normal and stressed conditions. Management of the Group believes that it is able to repay the financial liabilities by cash flows from operating activities and cash inflows from financial assets.

(1) The aggregate maturities of the Group's financial liabilities as of March 31, 2022, are as follows (Korean won in millions):

	Book value	Cash flows in contract	1 year or less	1 ~ 5 years	More than 5 years
Non-derivative financial liabilities					
Debentures	₩ 18,562,896	₩ 22,007,102	₩ 2,560,252	₩ 10,402,462	₩ 9,044,388
Borrowings	10,870,328	10,877,501	10,693,284	5,965	178,252
Lease liabilities	2,054,114	2,411,075	295,944	803,462	1,311,669
Trade and other payables[1]	4,028,468	4,028,468	4,028,271	197	-
Provision for financial guarantee[2]	14,678	1,407,815	1,407,815	-	-
	₩ 35,530,484	₩ 40,731,961	₩ 18,985,566	₩ 11,212,086	₩ 10,534,309
Derivative financial liabilities					
Derivative financial liabilities[3]	₩ 126,716	₩ 145,426	₩ 38,367	₩ 95,518	₩ 11,541

[1] Lease liabilities are excluded as they are presented separately.
[2] In case of finance guarantee contracts, the amount is distributed to the earliest period when the guarantee could be demanded.
[3] Derivatives for trading purpose and cash flow hedges are included.

(2) The aggregate maturities of the Group's financial liabilities as of December 31, 2021, are as follows (Korean won in millions):

	Book value	Cash flows in contract	1 year or less	1 ~ 5 years	More than 5 years
Non-derivative financial liabilities					
Debentures	₩ 18,174,778	₩ 21,683,451	₩ 2,453,303	₩ 10,211,377	₩ 9,018,771
Borrowings	8,011,959	8,018,168	7,838,689	5,504	173,975
Lease liabilities	2,046,305	2,265,583	271,947	726,397	1,267,239
Trade and other payables[1]	3,307,475	3,307,475	3,307,285	190	-
Provision for financial guarantee[2]	15,789	1,324,463	1,324,463	-	-
	₩ 31,556,306	₩ 36,599,140	₩ 15,195,687	₩ 10,943,468	₩ 10,459,985
Derivative financial liabilities					
Derivative financial liabilities[3]	₩ 106,580	₩ 123,906	₩ 24,774	₩ 88,615	₩ 10,517

[1] Lease liabilities are excluded because they are presented separately.
[2] In case of finance guarantee contract, the amount is distributed to the earliest period when the guarantee could be demanded.
[3] Derivatives for trading purpose and cash flow hedges are included.

33. Risk management (cont'd)

3) Currency risk

The Group is exposed to exchange risk for lending, purchasing, and borrowing in currency other than KRW, which is its functional currency. The main currencies in which these transactions are displayed are USD, EUR, JPY, CHF, etc. The Group is exposed to exchange rate fluctuations in recognition of foreign currency assets, liabilities and lease liabilities for LNG carriers. The Group uses derivatives such as currency forward contract to avoid the risk of exchange rate fluctuations arising from foreign currency liabilities.

In respect of other monetary assets and liabilities denominated in foreign currencies, the Group ensures that its net exposure is kept to an acceptable level by buying or selling foreign currencies at spot rates when necessary to address short-term imbalances.

The book values of foreign currency assets and liabilities as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022(Unaudited)					
	USD	EUR	AUD	CAD	JPY	CHF
Assets						
Cash and cash equivalents	₩ 7,059	₩ 277	₩ 68,340	₩ 10,061	₩ -	₩ -
Trade and other receivables	75,477	18	8,505	74,020	-	-
Financial assets at amortized cost	-	-	-	-	-	-
Loans and receivables	108,703	-	-	-	-	-
Financial instruments	-	-	-	-	-	-
Total assets	191,239	295	76,845	84,081	-	-
Liabilities						
Trade and other payables	2,794,186	2,745	(30,402)	15,696	256	361
Debentures	7,264,800	118,899	-	-	119,129	655,870
Borrowings	4,563,365	-	-	-	-	-
Lease liabilities	1,903,120	-	476	1,421	-	-
Other financial liabilities	14,678	-	-	-	-	-
Total liabilities	16,540,149	121,644	(29,926)	17,117	119,385	656,231
Net exposure	₩ (16,348,910)	₩ (121,349)	₩ 106,771	₩ 66,964	₩ (119,385)	₩ (656,231)

	March 31, 2022(Unaudited)						
	MXN	AED	MZN	SGD	KWD	HKD	VND
Assets							
Cash and cash equivalents	₩ 2	₩ 26	₩ 154	₩ 16	₩ 129	₩ -	₩ 139
Trade and other receivables	-	-	-	-	-	-	38
Financial assets at amortized cost	-	-	8,874	-	-	-	-
Loans and receivables	-	-	-	-	-	-	-
Financial instruments	-	16	-	-	-	-	-
Total assets	2	42	9,028	16	129	-	177
Liabilities							
Trade and other payables	-	-	-	-	-	663	-
Debentures	-	-	-	-	-	69,611	-
Borrowings	-	-	-	-	-	-	-
Lease liabilities	-	-	-	-	-	-	494
Other financial liabilities	-	-	-	-	-	-	-
Total liabilities	-	-	-	-	-	70,274	494
Net exposure	₩ 2	₩ 42	₩ 9,028	₩ 16	₩ 129	₩ (70,274)	₩ (317)

33. Risk management (cont'd)

	December 31, 2021						
	USD	EUR	AUD	CAD	JPY	CHF	MXN
Assets							
Cash and cash equivalents	₩ 3,384	₩ 567	₩ 24,646	₩ 9,851	₩ -	₩ -	₩ 4
Trade and other receivables	51,083	9	13,786	73,096	6	-	-
Financial assets measured at fair value through other comprehensive income	-	-	-	1,902	-	-	-
Financial assets at amortized cost	-	-	-	-	-	-	-
Financial assets	105,031	-	-	-	-	-	-
Loans and receivables	-	-	-	-	-	-	-
Other financial assets	-	-	510	-	-	-	-
Total assets	159,498	576	38,942	84,849	6	-	4
Liabilities							
Trade and other payables	2,285,739	1,846	(29,201)	41,048	716	223	-
Borrowings	3,919,996	-	-	-	-	-	-
Debentures	7,113,000	118,126	-	-	123,629	648,735	-
Lease liabilities	1,893,583	-	482	1,511	-	-	-
Other financial liabilities	15,789	-	-	-	-	-	-
Total liabilities	15,228,107	119,972	(28,719)	42,559	124,345	648,958	-
Net exposure	₩ (15,068,609)	₩ (119,396)	₩ 67,661	₩ 42,290	₩ (124,339)	₩ (648,958)	₩ 4

	December 31, 2021						
	AED	MZN	GBP	SGD	KWD	HKD	VND
Assets							
Cash and cash equivalents	₩ 13	₩ 89	₩ -	₩ 17	₩ 144	₩ -	₩ 23
Trade and other receivables	-	-	-	-	-	-	37
Financial assets measured at fair value through other comprehensive income	-	-	-	-	-	-	-
Financial assets at amortized cost	-	8,689	-	-	-	-	-
Financial assets	-	-	-	-	-	-	-
Loans and receivables	16	-	-	-	-	-	-
Other financial assets	-	-	-	-	-	-	-
Total assets	29	8,778	-	17	144	-	60
Liabilities							
Trade and other payables	-	-	45	-	-	413	-
Borrowings	-	-	-	-	-	-	-
Debentures	-	-	-	-	-	68,414	-
Lease liabilities	-	-	-	(1)	-	-	527
Other financial liabilities	-	-	-	-	-	-	-
Total liabilities	-	-	45	(1)	-	68,827	527
Net exposure	₩ 29	₩ 8,778	₩ (45)	₩ 18	₩ 144	₩ (68,827)	₩ (467)

33. Risk management (cont'd)

Foreign currency exchange rates as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)	December 31, 2021
USD	₩ 1,210.80	₩ 1,185.50
EUR	1,351.13	1,342.34
JPY	9.93	10.30
CAD	970.15	930.61
AUD	909.01	858.89
CHF	1,311.74	1,297.47
GBP	1,590.81	1,600.25
HKD	154.69	152.03
SGD	895.13	877.14
AED	329.64	322.75
MZN	19.02	18.62
MXN	60.91	57.94
KWD	3,986.17	3,918.75
VND	0.05	0.05

A sensitivity analysis of profit before income tax from changes in foreign exchange rates for the three-month period ended March 31, 2022, is as follows (Korean won in millions):

	10% Increase	10% Decrease
Profit (loss) before income tax	₩ 100,816	₩ (100,816)

4) Interest rate risk

The Group borrows funds at fixed and variable interest rates. Also, the Group's management monitors the level of interest rates and maintains the balance of borrowings at variable rates and fixed rates.

Financial instruments at variable interest rates[1] as of March 31, 2022 and December 31, 2021, are summarized as follows (Korean won in millions):

	March 31, 2022 (Unaudited)	December 31, 2021
Long-term borrowings	₩ 173,792	₩ 169,594
Lease liabilities	583,377	572,665
	₩ 757,169	₩ 742,259

[1] Financial instruments at variable interest rate that are fully hedged are excluded.

A sensitivity analysis of profit before income tax from changes of interest rate as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)		December 31, 2021	
	100bp Increase	100bp Decrease	100bp Increase	100bp Decrease
Profit (loss) before income tax	₩ (7,572)	₩ 7,572	₩ (7,423)	₩ 7,423

33. Risk management (cont'd)

(4) Fair value of financial assets and liabilities

1) The level of fair value hierarchy is as follows:

Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities
Level 2: All inputs other than quoted prices included in level 1 that are observable (either directly that is, prices, or indirectly that is, derived from prices) for the asset or liability
Level 3: Unobservable inputs for the asset or liability

The fair value measurements classified by fair value hierarchy as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)			
	Level 1	**Level 2**	**Level 3**	**Total**
Financial assets at fair value through other comprehensive income	₩ -	₩ -	₩ 89,455	₩ 89,455
Financial assets at fair value through profit or loss	-	199,981	2,674	202,655
Financial liabilities at fair value through profit or loss	-	126,716	-	126,716

	December 31, 2021			
	Level 1	**Level 2**	**Level 3**	**Total**
Financial assets at fair value through other comprehensive income	₩ -	₩ -	₩ 69,585	₩ 69,585
Financial assets at fair value through profit or loss	-	117,251	2,634	119,885
Financial liabilities at fair value through profit or loss	-	106,580	-	106,580

2) Unobservable inputs in the market

The valuation techniques used in the fair value measurements of financial instruments classified as Level 3 and significant but unobservable inputs as of March 31, 2022, are as follows (Korean won in millions):

	March 31, 2022 (Unaudited)				
	Valuation techniques	**Type**	**Book value**	**Inputs**	**Range of inputs**
Financial assets at FVOCI	Discounted cash flow method	Energy business stock	₩ 88,923	Weighted average cost of equity capital	24.04%
				Selling price	3.13 ~ 10.32 $/MMBTU

Changes in financial assets at fair value through other comprehensive income due to changes weighted average cost of equity capital used in fair value measurements of financial assets as of March 31, 2022, are as follows (Korean won in millions):

	Changes in the value of books	**1% decrease**	**1% increase**
Changes in weighted average cost of equity capital	Increase (decrease) in financial assets at fair value through other comprehensive income	₩ 7,503	₩ (6,786)

34. Related party transactions

(1) Details of the Group's related parties as of March 31, 2022, are as follows:

Relationship	Related parties
Ultimate parent	Government of the Republic of Korea [1]
Subsidiaries	Korea Gas Technology Corporation.
	KOGAMEX Investment Manzanillo B.V.
	KOMEX-GAS,S.de R.L de C.V
	KOGAS Iraq B.V.
	KOGAS Badra B.V.
	KOGAS Akkas B.V.
	KOGAS Mansuriya B.V.
	KOGAS Canada Energy Ltd.
	KOGAS Australia Pty Ltd.
	KOGAS Prelude Pty Ltd.
	KG Timor Leste Ltd.
	KG Krueng Mane Ltd.
	KG Mozambique Ltd.
	KOGAS Mozambique Lda.
	KOGAS Cyprus Ltd.
	KC LNG Tech Co., Ltd.
	KG-SEAGP Company Limited
	KG Myanmar Ltd.
	KOGAS International Pte Ltd.
	KGLNG E&P Pty Ltd. [2]
	KGLNG Liquefaction Pty Ltd. [2]
	KGLNG E&P II Pty Ltd. [2]
	KOGAS Canada Partner Ltd. [9]
	KOGAS Canada E&P Partnership [9]
	KOGAS Canada LNG Partnership [9]
	Korea LNG Bunkering Co., Ltd.
	KOREA LNG BUNKERING LINES LTD[10]
Associates	Korea Ras Laffan LNG Ltd.
	Korea LNG Ltd.
	Korea LNG Trading Co., Ltd.
	South-East Asia Gas Pipeline Company Limited [3]
	Hydrogen Energy Network Co, Ltd.
	Kor-Uz Gas cylinder Investment Ltd.
	Kor-Uz Gas C&G Investment Ltd.
	Coral FLNG S.A. [4]
	Coral South FLNG DMCC [4]
	Rovuma LNG, S.A. [4]
	Rovuma LNG Investments (DIFC) Ltd. [4]
Joint ventures	Kor-Uz Gas Chemical Investment Ltd.
	Sulawesi LNG Development Limited
	TOMORI E&P LIMITED
	Hyundai Yemen LNG Company Limited
	KLBV1 S.A.
	TERMINAL KMS de GNL, S. De R.L. De C.V. [5]
	Manzanillo Gas Tech, S. de R.L. de C.V. [5]
	GLNG Operations Pty Ltd [6]
	GLNG Property Pty Ltd [6]
	ENH-KOGAS, SA. [7]
	LNG Canada development Inc [8]
	Korea Superfreeze Incheon Inc
Other related parties [11]	Korea Electric Power Corporation
	Korea Southern Power Co., Ltd.
	Korea Midland Power Co., Ltd.
	Korea Western Power Co., Ltd
	Korea East-West Power Co., Ltd.
	Korea South-East Power Co., Ltd
	KOSPO Youngnam Power Co., Ltd.

34. Related party transactions (cont'd)

[1] The government of the Republic of Korea can exercise control in making decision, there are unpaid dividends amounts to ₩65,866 million on March 31, 2022.
[2] A subsidiary of KOGAS Australia Pty. Ltd.
[3] An associate of KG-SEAGP Company Limited.
[4] An associate of KG Mozambique Ltd.
[5] A joint venture of KOGAMEX Investment Manzanillo B.V.
[6] A joint venture of KOGAS Australia Pty. Ltd.
[7] A joint venture of KOGAS Mozambique Lda.
[8] A joint venture of KOGAS Canada Energy Ltd.
[9] A subsidiary of KOGAS Canada Energy Ltd.
[10] A subsidiary of Korea LNG Bunkering Co.,Ltd.
[11] KEPCO, which can exercise significant influences on the Group, and its subsidiaries who often engage in transactions with the Group

34. Related party transactions (cont'd)

(2) All inter-company transactions are eliminated as part of the consolidation process and are not disclosed in the notes to the interim condensed consolidated financial statements. Transactions which occurred during the normal course of business with related parties for the three-month periods ended March 31, 2022 and 2021, are as follows (Korean won in millions):

		Sales and other income		Purchases and other expense	
Related party	Transaction	2022 (Unaudited)	2021 (Unaudited)	2022 (Unaudited)	2021 (Unaudited)
Korea Ras Laffan LNG Ltd.	Dividends	₩ 35,200	₩ 17,766	₩ -	₩ -
Korea LNG Ltd.	Dividends	4,437	2,056	-	-
Hyundai Yemen LNG Company Limited	Interest income	37	15	-	-
Korea LNG Trading Co., Ltd.	Costs of sales	-	-	32,699	23,718
	Interest expense	-	-	1,128	1,169
Terminal KMS de GNL, S. de R.L. de C.V	Miscellaneous income	90	74	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	Service revenue	-	2,085	-	-
	Miscellaneous income	1,484	-	-	-
LNG Canada Development	Miscellaneous income and others	12	279	-	-
Sulawesi LNG Development Limited	Gain on disposal of investments in associates	-	63	-	-
ENH-KOGAS, SA.	Service revenue	50	70	-	-
South-East Asia Gas Pipeline Company Limited	Interest income	313	532	-	-
Korea Electric Power Corporation	Miscellaneous income and others	6	23	-	-
	Commissions	-	-	15	-
	Utility expenses and others	-	-	29,249	28,626
Korea Southern Power Co., Ltd.	Revenue [1]	861,217	338,404	-	-
	Rental income	-	287	-	-
	Miscellaneous income	-	17	-	-
	Lease payment	-	-	4	4
	Interest expense	-	-	2	2
	Rental expense	-	-	-	31
Korea Midland Power Co., Ltd.	Revenue [1]	503,593	242,071	-	-
	Miscellaneous income	23	27	-	-
	Rental income	-	4	-	-
	Utility expenses	-	-	-	-
	Lease payment	-	-	369	374
	Interest expense	-	-	22	20
Korea Western Power Co., Ltd.	Revenue [1]	579,913	232,617	-	-
	Rental expense	-	-	-	71
	Utility expenses and others	-	-	649	248
	Lease payment	-	-	136	98
	Interest expense	-	-	5	6
Korea East-West Power Co., Ltd.	Revenue [1]	534,791	205,907	-	-
	Rental income	-	10	-	-
	Miscellaneous income	-	17	-	-
	Maintenance costs	-	-	-	89
	Lease payment	-	-	168	162
	Interest expense	-	-	3	4
Korea South-East Power Co., Ltd.	Revenue [1]	307,760	119,870	-	-
	Maintenance costs and others	-	-	26	58
KOSPO Youngnam Power Co., Ltd.	Revenue [1]	109,301	58,766	-	-

[1] Special consumption taxes are included.

34. Related party transactions (cont'd)

(3) Account balances, excluding loans and borrowings, with related parties as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

		Receivables		Payables	
Related Party	**Account**	**March 31, 2022 (Unaudited)**	**December 31, 2021**	**March 31, 2022 (Unaudited)**	**December 31, 2021**
LNG Canada development	Non-trade receivables	₩ 14	₩ 68	₩ -	₩ -
Korea Ras laffan LNG Ltd.	Non-trade receivables	17,087	-	-	-
Korea LNG Ltd.	Non-trade receivables	1,728	-	-	-
Korea LNG Trading Co., Ltd.	Lease liabilities	-	-	426,357	417,449
	Current portion of lease liabilities	-	-	48,421	62,836
	Trade payables	-	-	14,493	13,452
	Accrued expense	-	-	709	6,410
	Prepaid expense	1,012	546	-	-
Hyundai Yemen LNG Company	Accrued income	13,819	13,537	-	-
Terminal KMS de GNL, S. de R.L. de C.V	Long-term non-trade receivables	207	230	-	-
ENH-KOGAS, SA.	Non-trade receivables	151	99	-	-
Korea Electric Power Group	Dividends payables	-	-	51,573	-
	Non-trade payables	-	-	5	4
	Accrued expense	-	-	7,010	10,134
	Lease liabilities	-	-	3	3
Korea Southern Power Co., Ltd.	Trade receivables	383,615	220,767	-	-
	Lease liabilities	-	-	420	419
Korea Midland Power Co., Ltd.	Non-trade receivables	12,620	-	-	-
	Trade receivables	201,202	156,944	-	-
	Other current assets	134,592	-	-	-
	Other current liabilities	-	-	190,074	-
	Non-trade payables	-	-	9,197	-
	Lease liabilities	-	-	5,862	6,266
Korea Western Power Co., Ltd.	Trade receivables	263,782	156,725	-	-
	Non-trade payables	-	-	35	-
	Lease liabilities	-	-	1,134	1,445
Korea East-West Power Co., Ltd.	Trade receivables	199,091	142,264	-	-
	Lease liabilities	-	-	800	930
Korea South-East Power Co., Ltd.	Trade receivables	88,317	98,156	-	-
	Non-trade payables	-	-	7	5
KOSPO Youngnam Power Co., Ltd.	Trade receivables	43,854	28,292	-	-

34. Related party transactions (cont'd)

(4) Loans to related parties as of March 31, 2022 and December 31, 2021, are as follows (Korean won in millions):

		March 31, 2022 (Unaudited)	December 31, 2021
Associates	South-East Asia Gas Pipeline Company Limited	₩ 11,180	₩ 13,105
	Coral FLNG S.A.	228,703	218,712
	Rovuma LNG Investments (DIFC) Ltd	61	47
Joint ventures	Hyundai Yemen LNG Company	42,445	41,302
		₩ 282,389	₩ 273,166

(5) Limits of financial commitments for loans to related parties as of March 31, 2022 are as follows (US dollars in thousands):

		Loan limit	
		March 31, 2022 (Unaudited)	
Joint ventures	Hyundai Yemen LNG Company Limited	USD	93,500
Associates	Coral FLNG S.A	USD	371,200
	Rovuma LNG Investments (DIFC) Ltd	USD	200
	South-East Asia Gas Pipeline Company Limited	USD	58,721

(6) Fund transactions with related parties for the three-month period ended March 31, 2022 and for the year ended December 31, 2021, are as follows (Korean won in millions):

		2022 (Unaudited)	
		Loan transactions	
Relationship	Related party	Loans	Collections
Associates	Coral FLNG S.A.	₩ 4,820	₩ -
	Rovuma LNG Investments (DIFC) Ltd.	12	-
	South-East Asia Gas Pipeline Company Ltd.	-	(2,079)
Joint ventures	Hyundai Yemen LNG	300	-

34. Related party transactions (cont'd)

(6) Fund transactions with related parties for the three-month period ended March 31, 2022 and for the year ended December 31, 2021, are as follows (Korean won in millions) (cont'd):

		2021			
		Loan transactions		Cash contribution	
Relationship	Related party	Loans	Collections	Acquisition	Disposal
Associates	Hydrogen Energy Network Co., Ltd.	₩ -	₩ -	₩ 10,500	₩ -
	Coral FLNG S.A.	42,916	-	-	-
	Rovuma LNG Investments (DIFC) Ltd.	46	-	-	-
	South-East Asia Gas Pipeline Company Ltd.	-	(7,620)	-	(4,651)
Joint ventures	Sulawesi LNG Development Limited	-	-	-	(70,381)
	Hyundai Yemen LNG	2,734	-	-	-
	KLBV1 S.A	-	-	2,922	-
	Korea Superfreeze Incheon Inc	-	-	1,000	-
	ENH-KOGAS, SA.	-	(7,272)	-	-

The Group enters into a funding arrangement proportional to its share ratio under a joint arrangement between KOGAS, its subsidiaries and associates in relation to the development of foreign resources as of March 31, 2022 and December 31, 2021.

34. Related party transactions (cont'd)

(7) The payment guarantees provided to related parties as of March 31, 2022, are as follows (US dollars in thousands):

Guarantor	Related party[1]	Detail	Amount		Beneficiary
KOGAS	Terminal KMS de GNL, S.de R.L. de C.V.	Operation and maintenance expense guarantee	USD	18,708	Manzanillo Gas Tech, S. de R.L. de C.V.
KOGAS	Terminal KMS de GNL, S.de R.L. de C.V.	PF repayment guarantee	USD	9,240	KEB Hana
KOGAS	Coral FLNG S.A.	Guarantee payment for outstanding debt indicated in FLNG EPCIC contract [2]	USD	572,295	TJS Consortium
KOGAS	Coral South FLNG DMCC	Guarantee payment for repayment duty of Coral South FLNG business related project financing principal and interest[3]	USD	487,470	Sumitomo Mitsui Banking Corporation
KOGAS	KLBV1 S.A.	Guarantee payment for ship financing contract	USD	20,843	Bank of America

[1] The related parties are the Corporation's subsidiaries, or the Corporation's associates or joint ventures, or the Corporation's subsidiaries' associates or joint ventures.
[2] Guarantee obligation is effective if the aggregate outstanding debt is more than USD 50 million.
[3] Guarantee obligation on the actual withdrawn principal and interest occur in the event of a default, and the guarantee is provided until the financial completion date (planned on January 31, 2024).

34. Related party transactions (cont'd)

(8) The performance guarantees provided to related parties as of March 31, 2022, are as follows (US dollars in thousands):

Guarantor	Related party [1]	Detail	Amount		Beneficiary
KOGAS	Sulawesi LNG Development Limited	Guarantee from KOGAS in the percentage of Sulawesi LNG development (SLD) ownership (25%) on SLD's obligation to provide finance to DSLNG.	USD	13,762	DSLNG, Pertamina, Medco
KOGAS	Sulawesi LNG Development Limited	KOGAS bears obligation in its ownership percentage (25%) of SLD in relation to funding resolution arising as the result of share acquisition, and execution of funding in accordance with DSLNG's shareholder contract.	USD	13,762	DSLNG
KOGAS	Sulawesi LNG Development Limited	In the event that SLD fails to comply with its obligation to guarantee the amount of operating funds, KOGAS shall be liable for the share of SLD (25%)	USD	2,995	MUFG UNION BANK, N.A
KOGAS	Terminal KMS de GNL, S.de R.L. de C.V.	Guarantee of contract performance [2]	USD	42,500	KEB Hana Bank / HSBC Mexico

[1] The related parties are associates or joint ventures of the Group.
[2] Counter-guarantee through granting credit by KEB Hana Bank

(9) Collaterals guarantees provided to related parties by the Group as of March 31, 2022, are as follows (Korean won in millions and US dollars in thousands):

Beneficiary	Contract date	Maturity date	Collateralized amount		Carrying amount		Collateral
Sumitomo Mitsui Banking Corporation	2017.05.31	2033.05.26	USD	487,470	USD	49,755	Provided as collateral to LNG sales revenue account, Coral South FLNG S.A and Coral South FLNG DMCC shares owned by KG Mozambique Ltd to the project finance lender [1]
	2017.09.20				USD	14	
KEXIM and 7 others[2]	2009.09.16	2029.08.31	USD	48,800	₩	25	Shares invested in KOGAMEX Investment Manzanillo B.V. and all related rights

[1] This collateral is provided from the date of the related collateral agreement to the completion date of repayment of syndicated lenders' principal and interest. The effect of the collateral agreement is forfeited when principal and interests are fully repaid at the request of the syndicated lenders before the financial completion date.
[2] The shares invested in KOGAMEX Investment Manzanillo B.V which is owned by the Group, are provided as collateral for non-resident transactions of Terminal KMS at GNL, S. de R.L. de CV

(10) Key management compensation for the three-month periods ended March 31, 2022 and 2021, consists of (Korean won in millions):

	2022 (Unaudited)		2021 (Unaudited)	
Short-term employee benefits	₩	572	₩	620
Retirement benefits		22		23
	₩	594	₩	643

35. Purchase agreements

(1) As of March 31, 2022, the Group has acquisition commitments for up to ₩722,759 million (₩716,271 million as of December 31, 2021) for major construction projects and does not have an acquisition commitment in relation to right-of-use assets of vessels.

(2) The Group's inventory purchase contracts as of March 31, 2022, are as follows (Tons in thousands):

	Contract period	Total contract quantity
Malaysia LNG SDN. BHD.	2008~2028	2,000
Rasgas Company Limited	1999~2024	4,920
	2007~2026	2,100
	2013~2032	2,000
	2025~2044	2,000
Oman LNG LLC	2000~2024	4,060
Sakhalin Energy Investment Company Ltd.	2008~2028	1,500
Petronas LNG	2023~2039	1,155
Gladstone LNG	2016~2036	3,500
Shell Eastern Trading (Pte.) Ltd.	2013~2038	3,640
TOTAL Gas & Power Limited	2014~2031	2,000
	2021~2025	200
Sabine Pass LNG	2017~2037	2,800
PT Donggi Senoro LNG	2015~2027	700

(3) As of March 31, 2022, the shareholders of KG-SEAGP Company Limited, the subsidiary of the Group, consist of the Corporation and PEF. The Group can exercise the redemption right to preferred stock of PEF after 7 years. If the right is not executed, the PEF has a right to sell its preferred stock and also the common stock owned by the Group to a third party.

(4) As of March 31, 2022, the shareholders of KG Myanmar Ltd., the subsidiary of the Group, consist of the Corporation and trustees. The Group can exercise the redemption right to the preferred stock of trustees after 7 years (expected in 2024). If the right is not executed, trustees have a right to sell their preferred stock and also the common stock owned by the Group to a third party.

(5) As of March 31, 2022, the Group has purchase agreements in relation to overseas resource development business.

36. Commitments and contingencies

(1) The Group is involved in various lawsuits and claims for alleged damages totaling to ₩ 114,500 million, AUD 213 million and USD 6 million as of March 31, 2022, and ₩ 134,023 million, AUD 213 million and USD 6 million as of December 31, 2021 which arose in connection with the Group's ordinary course of business.

(2) On October 16, 2020, as a result of the first trial, the consolidated entity lost the lawsuit and raised KRW 10,328 million as a provision for lawsuit.

(3) The consolidated company accounted KRW 27,097 million as a provision for employee benefits related to the normal wage lawsuits as of March 31, 2022.

(4) As the result of 2nd trial pending in the Harris Country District Court, Santos Australia Pty Ltd. lost the lawsuit of royalty calculations on March 11 2021. Accordingly, the Group accounted KRW 8,765 million as provision for lawsuits for the JVP share and the litigation is a lawsuit for the payment related to the royalty calculation.

(5) As of March 31, 2022, except for 36.(2)~(4) above, there is no amount recognized as a provision in connection with the above litigation case. Although the results of the above litigation are not expected to have a significant impact on the interim condensed consolidated financial statements, further losses may occur depending on the outcome of the lawsuit in the future.

(6) As of March 31, 2022, the Group has provided guarantees to others, excluding related parties, for the payment of debts amounting to ₩ 55,400 million, USD 74,522 thousand, KWD 26 thousand, CAD 1,600,578 thousand and EUR 1,540 thousand (₩ 55,400 million, USD 74,484 thousand, KWD 26 thousand, CAD 1,600,578 thousand and EUR 1,540 thousand as of December 31, 2021).

(7) Details of collateralized amounts of the Group as of March 31, 2022, are as follows (Korean won in millions and US dollars in thousands):

Beneficiary	Commence-ment date	Maturity date	Collateralized amount		Carrying amount		Remark
ING Bank N.V	2013.01.14	2027.06.20	USD	310,140[1]	₩	704,977	In connection with borrowings from syndicated lenders for Uz-Kor Gas chemical LLC invested by Kor-Uz Gas chemical Investment Ltd., The Corporation provides shares of Kor-Uz Gas chemical Investment Ltd. and all rights thereof as collateral[2]
Bank of Tokyo Mitsubishi	2008.05.19	Until the completion of the obligation performance (2027 is the expected year.)	USD	2		88,923[3]	Providing guarantees to perform obligations related to PF of YLNG (The PF balance, which is equivalent to the construction share at the end of March 31, 2022, is USD 77,041 thousand)
			Equity Funding			56,559[4]	
Shell Canada Energy and others	2014.05.01	Until the end of the guarantee obligation	USD	767,384	USD	761,072	Providing project tangible and intangible assets as guarantees to partner company of LNG Canada business
The Korea Development Bank	2021.11.29	2022.11.29	₩	1,160	₩	963	Provision of patent security for interest rate reduction purposes upon loan

[1] The collateralized amount is subject to change based on the future investment plan.
[2] The lenders are under negotiation between stakeholders as a delay of opening letters of credit and overdue of payments relating to gas sales and purchase transactions between Uz-Kor Gas Chemical LLC, a seller, and Uztransgaz, a buyer, fall under a default condition.
[3] The book amount of the equity instrument as of March 31, 2022, which is classified to non-current financial assets at fair value through other comprehensive income, is evaluated at fair value.
[4] The book amount of the loan as of March 31, 2022

36. Commitments and contingencies (cont'd)

(8) Details of commitments held by the Group as of March 31, 2022, are as follows (Korean won and Japanese yen in millions, US dollars, Canadian dollars, Euros, and Australian dollars in thousands):

	Financial institution	Limit		Amount	
Corporate card	KEB Hana Bank and other	KRW	4,680	KRW	548
Foreign currency loan	The Korea Development Bank and other	USD	5,648,000	USD	3,616,740
Daily bank overdraft	KEB Hana Bank	KRW	200,000	KRW	-
Bank overdraft	KEB Hana Bank and other	KRW	350,000	KRW	-
General loan	Daegu Bank and other	KRW	1,017,000	KRW	-
Foreign currency commitment	KEB Hana Bank and other	CAD	6,148	CAD	6,148
		USD	673,754	USD	573,083
				KWD	26
		EUR	1,540	EUR	1,540
Commitment to acquire commercial paper	KEB Hana Bank	KRW	1,000,000	KRW	1,000,000
Commitments to letter of credit	KEB Hana Bank and other	USD	352,000	EUR	1,297
		CAD	2,908	CAD	2,908
Win-win growth E-bond discount limit	KEB Hana Bank	KRW	13,000	KRW	-
Performance guarantees	Seoul Guarantee Insurance Company and other	USD	11,276	USD	11,276
		AUD	81,947	AUD	51,039
		KRW	113,075	KRW	60,477
Industrial operation loan	The Korea Development Bank	KRW	1,763	KRW	963
Win-win payment loan	Industrial Bank of Korea	KRW	3,000	KRW	-

36. Commitments and contingencies (cont'd)

(9) As of March 31, 2022, the Group has provided LOU (Letter of Undertaking) for 13 of the transports currently in operation. If the transporter fails to fulfill the requirements under the contract, the Group will be liable for any obligations related to execution of the contract. The Group recognizes lease liabilities of ₩1,902,974 million related to the contract of long-term transportation as of March 31, 2022.

(10) Uncertainty related to COVID-19

The Group's business performance and related activities, customers and suppliers' business performance, and related activities are significantly affected by economic factors beyond our control, such as crude oil and natural gas market conditions, long-term price forecasts, credit spread, risk-free interest rates, and market risk premiums. These economic factors are significantly affected by the global economic downturn due to global public health threats, such as the World Health Organization's Pandemic Declaration on Covid-19 in March 2020, and the oil price war between oil-producing countries. The Group conducts continuous monitoring of uncertainty-causing factors such as Covid-19, and we will immediately reflect the impact of these factors on financial statements if they are reasonably and reliably estimated.

(11) Uncertainty related to staging a coup in Myanmar

In February 2021, the Myanmar military detained a number of senior government officials, including state advisor Aung San Suu Kyi, and declared a state of emergency for one year. In this regard, in preparation for emergencies, the Group maintains a system of constant contact with the operator and conducts normal business activities by reinforcing local situation monitoring. The financial impact of this is difficult to estimate reasonably and not reflected in the interim condensed consolidated financial statements.

(12) Uncertainty of the impact of the Ukraine crisis

The armed conflict in Ukraine, which occurred in February 2022, and related sanctions against Russia by the international community, will affect not only the companies subjected to sanctions, but also companies directly or indirectly doing business with Ukraine or Russia and being exposed by the industry or economy of Ukraine or Russia.

The Group imports some of the LNG imports from Russia through long-term contracts. Currently, the contract is being implemented normally, but the Group is continuously monitoring the situation that may have an impact, such as additional financial sanctions from the international community. In addition, the financial impact cannot be reasonably estimated.

The operation of the Iraqi oil field business, in which our subsidiary KOGAS Badra B.V. participates, is operated by Gazprom Neft Badra B.V., a grand-child company of Gazprom Neft, an economically sanctioned company. The subsidiary's future operations are expected to be affected by the expansion of sanctions against Russia due to the Ukraine crisis, but the financial impact cannot be estimated reasonably.

The Group's joint venture Kor-Uz Gas Chemical Investment Ltd.'s polymer sales in Russia and imports of raw and subsidiary materials are expected to be affected by the Ukraine crisis, and in the process of switching sales and suppliers, but the financial impact cannot be reasonably estimated.

(13) Uncertainties related economic and financial sanctions against Myanmar State Oil and Gas Company (MOGE) by EU

In February 2022, the European Union's economic and financial sanctions were announced against the Myanmar State Oil and Gas Company (MOGE), which owns a 15% stake in the Myanmar A-1/A-3 gas field business. The business, in which the Group holds an 8.5% stake, is operating normally, and the Group is continuously monitoring the situation that may have an impact, such as additional economic and financial sanctions from the international community. In addition, the financial impact cannot be reasonably estimated.

(14) MRV, the operator of the Mozambique Area 4 project involving the Group, has notified the Mozambique government of force majeure against some of the obligations of the Area 4 mining rights except Coral FLNG due to worsening security conditions in northern Mozambique's Cabodelgado area.

36. Commitments and contingencies (cont'd)

(15) Due to the approval of the East Timor government on June 24, 2021 and the revision of the PSC on August 20, 2021, the Group was obligated to pay the withdrawal share under the agreement. The limit of amount is USD 3.5 million and it is valid until December 27, 2026.

(16) The Group entered into a settlement agreement (March 2, 2020) with Samsung Engineering for USD 10,000,000 (KOGAS Badra B.V. USD 3,000,000) in connection with Samsung Engineering's claim on CPF-2 (gas treatment facilities). However, under the joint operation agreement, the Group's payment obligation is not determined until the consultation between the Iraq government and the operator is finalized.

(17) KGLNG E&P and KGLNG E&P II have signed a Royalty payment contract with Tri-Star Petroleum Company and one other company in connection with the Australian GLNG mine, and some mining rights and book value of 51,975 million won are required to be agreed upon at disposal.

(18) In March 2019, Ovintiv Inc. (formerly 'Encana'), the business operator of the Hon River project, claimed a refund of the Infrastructure royalty credit (CAD 4,800,000) of which Encana paid in advance to the Group in 2011, as the Infrastructure royalty credit is not feasible. However, the Group and its legal counsel decided that there is no obligation for the Group to refund of the amount.

(19) The Group has signed an agreement with the Canadian government to subsidize a total of 11 million CAD over a four-year period in exchange for promising to manufacture, transport, install and connect four LMS wind turbines, compressor packages and related auxiliary equipment to LNG facilities. The Canadian government may demand repayment of subsidies if certain conditions are not met, and as of March 31, 2022, about 7.15 million CAD of debt could be incurred if consolidated companies have to repay subsidies.

(20) On September 27, 2018, the Group had entered into a second option contract with Rio Tinto Alcan Inc. in order to secure the LNG project's sites and facilities, but terminated it on April 15, 2022. The Group paid USD 2.5 million for the termination fee of the option contract.

(21) On October 31, 2019, the Group has entered into a MERRF (Marine Emergency Response Research Facility) funding agreement with Gitga'at for the compensation to natives in order proceed the LNG project. The termination fee amounts to CAD 25 million and paid 14.5 million out of 25 million as of March 31, 2022.

(22) In February 2020, the Group signed a contract with General Electric in order to maintain and repair LNG plants, and the termination fee amounts to USD 500,000.

(23) In October 2019, the Group participated in Phase 2 Define phase 2 of LNG Canada joint venture, which began operations in November 2019, and if Phase 2 FID fails, contingency obligations amounting to CAD 160,000 are existed in related to Phase 2 Define withdrawal.

(24) The Group are required to acquire Marine services during the execution phase of LNG Canada projects to support the operational phase. A written resolution has been signed for the contract signed in 2019, and the accidental liability of the consolidated company for the tugboat is CAD 2 million as of March 31, 2022.

(25) As of March 31, 2022, the minimum expenditure obligation of the Group for overseas resource development projects including Cyprus amounts to approximately EUR 15.4 million.

37. Adjustment in liabilities arising from financing activities

Details of adjustment in liabilities arising from financing activities for the three-month periods ended March 31, 2022 and 2021, are as follows (Korean won in millions):

	2022 (Unaudited)				
	Current portion of lease liabilities	Non-current portion of lease liabilities	Short-term borrowings	Current portion of long-term borrowings	Current portion of debentures
Beginning balance	₩ 273,991	₩ 1,777,521	₩ 7,832,479	₩ -	₩ 1,933,815
Cash flows	(39,723)	-	2,758,456	-	-
Acquisition – New lease	-	(2,569)	-	-	-
Foreign exchange differences	191	39,831	95,176	-	10,120
Other non-financial changes	56,642	(51,769)	-	-	100,172
Ending balance	₩ 291,101	₩ 1,763,014	₩ 10,686,111	₩ -	₩ 2,044,107

	2022 (Unaudited)				
	Long-term borrowings	Debentures	Current portion of derivative liabilities (assets)	Non-current portion of derivative liabilities (assets)	Total
Beginning balance	₩ 179,480	₩ 16,240,964	₩ -	₩ (52,157)	₩ 28,186,093
Cash flows	-	230,000	-	-	2,948,733
Acquisition – New lease	-	-	-	-	(2,569)
Foreign exchange differences	3,832	146,286	-	(5,371)	290,065
Other non-financial changes	905	(98,461)	-	-	7,489
Ending balance	₩ 184,217	₩ 16,518,789	₩ -	₩ (57,528)	₩ 31,429,811

	2021 (Unaudited)				
	Current portion of lease liabilities	Non-current portion of lease liabilities	Short-term borrowings	Current portion of long-term borrowings	Current portion of debentures
Beginning balance	₩ 208,108	₩ 1,792,939	₩ 3,110,297	₩ -	₩ 2,003,645
Cash flows	(34,801)	-	847,690	-	(150,000)
Acquisition – New lease	433	5,040	-	-	-
Foreign exchange differences	(14,008)	90,429	74,214	-	22,750
Other non-financial changes	57,136	(58,649)	-	-	160
Ending balance	₩ 216,868	₩ 1,829,759	₩ 4,032,201	₩ -	₩ 1,876,555

	2021 (Unaudited)				
	Long-term borrowings	Debentures	Current portion of derivative liabilities (assets)	Non-current portion of derivative liabilities (assets)	Total
Beginning balance	₩ 760,983	₩ 16,285,136	₩ -	₩ (10,867)	₩ 24,150,241
Cash flows	(263)	100,000	-	-	762,626
Acquisition – New lease	-	-	-	-	5,473
Foreign exchange differences	6,726	219,325	-	20,131	419,567
Other non-financial changes	787	1,432	-	-	866
Ending balance	₩ 768,233	₩ 16,605,893	₩ -	₩ 9,264	₩ 25,338,773

38. Business combinations

(1) As of June 9, 2021, the Group acquired all rights and obligations related to Incheon Electronic Land Elephants Basketball Team for ₩500 million from SYS Retail Co., Ltd. for the purpose of enhancing corporate image, promoting new businesses, and creating benefits to local economy and community.

(2) Consideration transferred arising from the business combination for the year ended December 31, 2021, is as follows (Korean won in millions):

		Fair value
Cash	₩	500

(3) The fair value of assets transferred or liabilities assumed as part of the consideration transferred in the business combination at the acquisition date are as follows (Korean won in millions):

		Fair value
Current assets		
Advance payments	₩	224
Non-current assets		
Office equipment		83
Vehicles		48
	₩	355

[1] In relation to basketball team, the Corporation has not assumed any liabilities to third parties.

(4) Goodwill arising from the business combination for the year ended December 31, 2021, is as follows (Korean won in million):

		Fair value
Consideration transferred	₩	500
Fair value of identified assets		(355)
Goodwill	₩	145

(5) Net cash outflows in the business combination for three-month periods ended March 31, 2022 and for the year ended December 31, 2021 are as follows (Korean won in million):

		March 31, 2022 (Unaudited)		December 31, 2021
Consideration paid in cash	₩	-	₩	500
Less: Acquired cash and cash equivalents		-		-
	₩	-	₩	500

39. Events after the reporting period

In April 2022, after the reporting period, the Group signed a contract for new LNG imports of 1.58 million tons per year for up to 18 years (January 2025 to December 2042) with BP Singapore Pte Ltd.

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Independent auditor's report

The Shareholders and Board of Directors
Korea Gas Corporation

Opinion

We have audited the consolidated financial statements of Korea Gas Corporation and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statements of financial position as of December 31, 2021 and 2020, and the consolidated statements of comprehensive income(loss), consolidated statements of changes in equity and consolidated statements of cash flows for the years then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2021 and 2020, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with Korean International Financial Reporting Standards ("KIFRS").

Basis for opinion

We conducted our audit in accordance with Korean Auditing Standards ("KGAAS"). Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the consolidated financial statements section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in the Republic of Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key audit matters

Key audit matters are those matters that, in our professional judgment, were of the most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

(1) Recognition of gains and losses related to the settlement of raw material cost pass-through system and supply costs

As mentioned in Note 17 to the consolidated financial statements, in accordance with the standard for natural gas supply price and the guidelines for raw material cost pass-through adjustment system for city gas and power generation, the settled income, which is the difference between the actual cost incurred and current year's revenues (gains and losses on settlement), is reflected in the following year's pricing under the approval of Korean government.

The Group adjusts gains and losses on settlement from the current year's cost of sales and recognizes the related assets and liabilities as other non-financial assets and other non-financial liabilities, respectively.

Gains and losses on settlement are calculated at the end of every month and each year based on raw material costs and supply costs, both of which are approved by the Ministry of Trade, Industry and Energy. Therefore, gains and losses on settlement are determined based on the difference between the estimated oil price, foreign currency exchange rate, supply volume and budget reflected in the raw material cost and supply cost approved by the Ministry of Trade, Industry and Energy in the previous year and the actual oil price, foreign currency exchange rate, supply volume and actual supply cost. Due to highly complex calculation of the gains and losses on settlement, human error is highly probable in the calculation procedures.

We selected the accuracy of calculation for gains and losses on settlement as our key audit matter due to the materiality of its amount in the Group's consolidated financial statements and the likelihood of misstatements arising from complexity of procedures in calculating gains and losses on settlement.

We performed the following audit procedures to review the accuracy of gains and losses on settlement:

- Inquiring the relevant departments to understand calculation procedures, logic and accounting treatment related to gains and losses on settlement.
- Testing design and operation effectiveness of related internal controls.
- Reviewing closing journal entries for gains and losses on settlement to adjust the difference between the amount in the settlement report for raw material costs and supply costs of city gas/power generation at the end of year and the corresponding amount recognized during the current period.
- Recalculating of relevant assets and liabilities related to gains and losses on settlement and comparison of it to the corresponding amount provided by the Group.

(2) Impairment reversals of property, plant and equipment and intangible assets, which are related to the resource development projects of KOGAS Australia Pty Ltd. (hereinafter referred to as "Australia GLNG").

As of December 31, 2021, property, plant and equipment and intangible assets related to the Australia GLNG resource development projects amount to ₩2,777,365million.

As described in Note 3 (6) to the consolidated financial statements, the Group assesses at the end of each reporting period whether there is an indication that property, plant and equipment and intangible assets related to the resource development projects may be impaired, and when there is an indication of impairment (reversal), the Group estimates the recoverable amount of the assets to determine the amount of (reversal of) impairment losses.

The recoverable amount of non-financial assets related to the resource development projects is calculated based on complex assumptions and judgments. The future cash flows are sensitive to fluctuations in assumptions, such as future oil and gas prices, reserves, production quantity and expenses.

Considering the necessity of judgments, materiality of amount, and the complexity of the assumptions used by management in calculating the recoverable amount of individual assets related to the resource development projects, we selected the impairment testing of those property, plant and equipment and intangible assets as our key audit matter.

We understood the Group's impairment testing process of property, plant and equipment and intangible assets. We involved the component auditors to obtain accurate understanding of the business environment, such as local law and taxation, in a place of business related to the Australia GLNG resource development projects. We directed and supervised the following audit procedures to the component auditors through the group audit instructions:

- Review and assessment of management's evaluation on whether there is an indication of impairment reversal.
- Review on whether the assumptions used in the valuation report (future cash flow model) are consistent with the approved budget and business plan of the Group.
- Comparison and reconciliation of whether the future estimates of short-term and long-term oil prices used in the valuation report are consistent with the forecast data provided by an independent external institution.
- Comparison and reconciliation of the forecast quantities of production used in the valuation report are consistent with the data from the reserves report issued by the external expert.
- Independent recalculation of the discount rate used in estimated cash flow discount, and subsequently, comparison and reconciliation of it with the discount rate used in the impairment testing.

Responsibilities of management and those charged with governance for the consolidated financial statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with KIFRS, and for such internal control as management determines is necessary to enable the preparation of the consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's responsibilities for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with KGAAS will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with KGAAS, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partner on the audit resulting in this independent auditor's report is Jung Chul Yun.

Ernst & Young Han Young

March 21, 2022

This audit report is effective as of March 21, 2022, the independent auditor's report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the independent auditor's report date 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 Gas Corporation and its subsidiaries
Consolidated statements of financial position
as of December 31, 2021 and 2020
(Korean won in millions)

	Notes		2021		2020
Assets					
Current assets:					
Cash and cash equivalents	5,6,47,48	₩	564,523	₩	331,761
Current financial assets	6,7,11,12,13,47,48		88,601		49,679
Trade and other receivables	9,47,48,49		6,979,471		4,244,755
Short-term contract assets	20		6,506		5,581
Inventories	15		3,582,845		1,390,282
Current tax assets			39,533		2,822
Current non-financial assets	16,17		1,886,259		1,502,999
			13,147,738		7,527,879
Non-current assets:					
Non-current financial assets	6,7,8,10,11,12,13,14,47,48		788,540		622,049
Long-term trade and other receivables	9,47,48,49		210,387		201,207
Property, plant and equipment	19,26		23,580,754		23,134,144
Intangible assets other than goodwill	21		1,745,695		1,594,712
Goodwill	22,54		145		-
Investments in associates and joint ventures	4,18		1,720,112		1,522,734
Net defined benefit assets	27		27,362		9,452
Deferred tax assets	44		942,197		1,025,195
Non-current non-financial assets	16,17		1,506,972		272,403
			30,522,164		28,381,896
Total assets		₩	**43,669,902**	₩	**35,909,775**

(Continued)

Korea Gas Corporation and its subsidiaries
Consolidated statements of financial position
as of December 31, 2021 and 2020 (cont'd)
(Korean won in millions)

	Notes	2021	2020
Liabilities			
Current liabilities:			
Trade and other payables	24,26,47,48,49	₩ 3,576,069	₩ 1,736,775
Current financial liabilities	8,23,25,47,48	9,772,279	5,219,051
Short-term contract liabilities	20	79,982	57,214
Current tax liabilities		29,886	26,295
Current non-financial liabilities	30,32	437,399	67,937
Current provisions	28,29	126,048	105,546
		14,021,663	7,212,818
Non-current liabilities:			
Long-term trade and other payables	24,26,47,48,49	1,777,711	1,793,767
Non-current financial liabilities	7,8,23,25,47,48	16,521,037	17,087,914
Non-current non-financial liabilities	30,31,32	53,717	54,720
Net defined benefit liabilities	27	3,033	12,011
Deferred tax liabilities	44	2,007,361	1,830,521
Non-current provisions	28	166,044	182,868
		20,528,903	20,961,801
Total liabilities		**34,550,566**	**28,174,619**
Equity:			
Share capital	1,33	461,565	461,565
Share premium	33	1,303,548	1,303,548
Hybrid bonds	36	334,520	-
Retained earnings	34,35	6,185,268	5,190,805
Other components of equity	37	584,241	525,122
Equity attributable to owners of the parent		8,869,142	7,481,040
Non-controlling interests	1	250,194	254,116
Total equity		**9,119,336**	**7,735,156**
Total liabilities and equity		**₩ 43,669,902**	**₩ 35,909,775**

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

Korea Gas Corporation and its subsidiaries
Consolidated statements of comprehensive income (loss)
for the years ended December 31, 2021 and 2020
(Korean won in millions)

	Notes		2021		2020
Revenue	4,20,31,38	₩	27,520,756	₩	20,833,722
Cost of sales	45		25,859,008		19,513,499
Gross profit			1,661,748		1,320,223
Selling and administrative expenses	39,45		422,049		421,368
Operating profit			1,239,699		898,855
Other income	40		35,349		3,750
Other expenses	40		45,797		60,818
Other gains (losses)	19,21,41		548,719		(448,165)
Finance income	42		881,472		730,492
Finance costs	43		1,472,443		1,427,114
Gains on investments in associates and joint ventures, net	18		180,335		34,102
Profit (loss) before income tax			1,367,334		(268,898)
Income tax expenses (benefits)	44		402,812		(108,215)
Profit (loss) for the year		₩	964,522	₩	(160,683)
Other comprehensive income (loss) for the year, net of tax					
Items that will not be reclassified subsequently to profit or loss					
Remeasurement gain (loss) of deifned benefit plans	27		43,706		(1,540)
Net gain (loss) on valuation of equity instruments at fair value through other comprehensive income			6,197		(47,060)
Share of other comprehensive income (loss) of associates and joint ventures			5,260		(31,375)
Items that may be reclassified subsequently to profit or loss					
Net gain (loss) on cash flow hedges			(103,166)		83,422
Exchange differences on translation of foreign operations			217,577		(149,475)
Net gain (loss) on hedge of investments in foreign operations			(159,667)		99,142
Share of other comprehensive income (loss) of associates and joint ventures			105,113		(78,640)
			115,020		(125,526)
Total comprehensive income (loss) for the year, net of tax		₩	1,079,542	₩	(286,209)

(Continued)

Korea Gas Corporation and its subsidiaries
Consolidated statements of comprehensive income (loss)
for the years ended December 31, 2021 and 2020 (cont'd)
(Korean won in millions)

	Notes	2021		2020	
Profit (loss) for the year attributable to:					
Owners of the parent		₩	950,757	₩	(172,060)
Non-controlling interests			13,765		11,377
			964,522		(160,683)
Total comprehensive income (loss) attributable to:					
Owners of the parent			1,053,582		(289,003)
Non-controlling interests			25,960		2,794
			1,079,542		(286,209)
Earnings (loss) per share in Korean won from continuing operations	46				
Basic earnings (loss) per share		₩	11,078	₩	(1,989)
Diluted earnings (loss) per share		₩	10,973	₩	(1,989)

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

Korea Gas Corporation and its subsidiaries
Consolidated statements of changes in equity
for the years ended December 31, 2021 and 2020
(Korean won in millions)

	Share capital and share premium	Retained earnings	Hybrid bonds	Other components of equity	Equity attributable to owners of the parent	Non-controlling interests	Total equity
As of January 1, 2020	**₩ 1,765,113**	**₩ 5,397,707**	**₩ -**	**₩ 690,525**	**₩ 7,853,345**	**₩ 293,176**	**₩ 8,146,521**
Comprehensive income (loss)							
Loss for the year	-	(172,060)	-	-	(172,060)	11,377	(160,683)
Other comprehensive income (loss):							
Remeasurement of loss on defined benefit plans	-	(1,540)	-	-	(1,540)	-	(1,540)
Loss on valuation of equity instruments at fair value through other comprehensive income	-	-	-	(47,060)	(47,060)	-	(47,060)
Net profit on cash flow hedges	-	-	-	83,422	83,422	-	83,422
Net gain on hedge of investments in foreign operations	-	-	-	99,142	99,142	-	99,142
Share of other comprehensive loss of associates and joint ventures	-	-	-	(110,015)	(110,015)	-	(110,015)
Exchange differences on translation of foreign operations	-	-	-	(140,892)	(140,892)	(8,583)	(149,475)
Transactions with owners of the parent:							
Dividends paid	-	(33,302)	-	-	(33,302)	(18,133)	(51,435)
Capital reduction of subsidiaries	-	-	-	-	-	(23,721)	(23,721)
Acquisition of treasury shares	-	-	-	(50,000)	(50,000)	-	(50,000)
As of December 31, 2020	**₩ 1,765,113**	**₩ 5,190,805**	**₩ -**	**₩ 525,122**	**₩ 7,481,040**	**₩ 254,116**	**₩ 7,735,156**
As of January 1, 2021	**₩ 1,765,113**	**₩ 5,190,805**	**₩ -**	**₩ 525,122**	**₩ 7,481,040**	**₩ 254,116**	**₩ 7,735,156**
Comprehensive income (loss)							
Profit for the year	-	950,757	-	-	950,757	13,765	964,522
Other comprehensive income (loss):							
Remeasurement of gain on defined benefit plans	-	43,706	-	-	43,706	-	43,706
Gain on valuation of equity instruments at fair value through other comprehensive income	-	-	-	6,197	6,197	-	6,197
Net loss on cash flow hedges	-	-	-	(103,167)	(103,167)	-	(103,167)
Net loss on hedge of investments in foreign operations	-	-	-	(159,668)	(159,668)	-	(159,668)
Share of other comprehensive income of associates and joint ventures	-	-	-	110,373	110,373	-	110,373
Exchange differences on translation of foreign operations	-	-	-	205,384	205,384	12,194	217,578
Transactions with owners of the parent:							
Dividends paid	-	-	-	-	-	(7,512)	(7,512)
Capital increase of subsidiaries	-	-	-	-	-	7,470	7,470
Capital reduction of subsidiaries	-	-	-	-	-	(29,839)	(29,839)
Others							
Issuance of hybrid bonds	-	-	334,520	-	334,520	-	334,520
As of December 31, 2021	**₩ 1,765,113**	**₩ 6,185,268**	**₩ 334,520**	**₩ 584,241**	**₩ 8,869,142**	**₩ 250,194**	**₩ 9,119,336**

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

Korea Gas Corporation and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2021 and 2020
(Korean won in millions)

	2021	2020
Cash flows from operating activities:		
Profit (loss) for the year	₩ 964,522	₩ (160,683)
Adjustments to reconcile profit (loss) for the year to net cash flow provided by (used in) operating activities:		
Income tax expenses (benefits)	402,812	(108,215)
Interest expenses	641,960	712,405
Depreciation and amortization	1,722,329	1,636,715
Gain on foreign currency translation, net	(101,030)	(73,242)
Impairment loss recongnized in profit or loss	20,637	461,713
Reversal of impairment loss recongnized in profit or loss	(551,258)	-
Loss on fair value	33,299	67,631
Loss on disposal of non-current assets	4,272	12,505
Interest income	(23,534)	(21,680)
Others, net	(44,563)	154,360
Changes in operating assets and liabilities:		
Decrease (increase) in inventories	(2,201,752)	1,256,223
Decrease (increase) in trade receivables	(2,525,520)	890,880
Decrease (increase) in other receivables	(170,709)	3,761
Decrease in financial assets at fair value through profit or loss	12,206	3,291
Increase in other non-financial assets	(1,286,056)	(143,198)
Increase in other operating assets	(8,945)	(66,329)
Increase (decrease) in trade payables	1,829,758	(495,432)
Increase (decrease) in other payables	(113,786)	102,834
Decrease in financial liabilities at fair value through profit or loss	(105,108)	(40,292)
Increase in other current liabilities	485	6
Increase (decrease) in other non-current non-financial liabilities	41,822	(181,032)
Decrease in other operating payables	(42,486)	(51,223)
	(1,500,645)	3,960,998
Dividends received	82,008	63,223
Interest paid	(649,315)	(745,170)
Interest received	40,585	9,695
Income taxes paid	(43,173)	(37,722)
Net cash flows provided by (used in) operating activities	(2,070,540)	3,251,024
Cash flows from investing activities:		
Proceeds from disposal of equity or debt instruments	75,038	45,507
Acquisition of equity or debt instruments	(14,422)	(12,124)
Proceeds from disposal of property, plant and equipment	8,078	190
Acquisition of property, plant and equipment	(1,156,241)	(912,058)
Receipt of government grants	29,497	3,383
Proceeds from disposal of intangible assets	1	8
Acquisition of intangible assets	(31,424)	(82,570)
Proceeds from disposal of financial assets at amortized cost	24,796	94,763
Acquisition of financial assets at amortized cost	(23,040)	(26,177)
Increase in advanced payments and loans	(106,295)	(104,187)
Receipt of advanced payments and loans	23,210	34,413
Net cash flow from business combinations	(500)	-
Others, net	1,029	(13,024)
Net cash flows used in investing activities	(1,170,273)	(971,876)

(Continued)

Korea Gas Corporation and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2021 and 2020 (cont'd)
(Korean won in millions)

	2021	2020
Cash flows from financing activities:		
Issuance of hybrid bonds	334,520	-
Proceeds from borrowings	46,719,031	29,648,364
Repayments of borrowings	(42,712,216)	(30,014,249)
Proceeds from issuance of debentures	1,310,741	898,001
Repayments of debentures	(2,004,000)	(2,339,334)
Payments of lease liabilities	(135,037)	(223,113)
Dividends paid	(7,569)	(51,408)
Decrease in non-controlling interest equity	(29,839)	(23,786)
Acquisition of treasury shares	-	(50,000)
Contract expiration of current portion of derivative financial liabilities	-	(34,426)
Net cash flows provided by (used in) financing activities	3,475,631	(2,189,951)
Net foreign exchange difference	(2,056)	(14,537)
Net increase in cash and cash equivalents	232,762	74,660
Cash and cash equivalents at the beginning of the year	331,761	257,101
Cash and cash equivalents at the end of the year	₩ 564,523	₩ 331,761

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

1. General information

Korea Gas Corporation ("KOGAS" or the "Corporation") was incorporated as a government-invested entity on August 18, 1983, under the *Korea Gas Corporation Act* to engage in the development, production and distribution of liquefied natural gas (LNG). Under the Articles 3 and 5 of the supplementary provisions of the *Act on the Management of Public Institution*, the Corporation was designated as "Market-type Public Group" on April 2, 2007.

The Corporation's share was listed on the Korea Stock Exchange since December 15, 1999, and share capital as of December 31, 2021 amounts to ₩461,565 million. The shareholders of the Corporation and their shareholdings as of December 31, 2021 are as follows:

Shareholders	Number of shares	Percentage of ownership (%)
Government of the Republic of Korea	24,144,353	26.2%
Korea Electric Power Group	18,900,000	20.5%
Local governments	7,321,122	7.9%
Treasury stock[1]	6,486,050	7.0%
Others	35,461,475	38.4%
	92,313,000	100.0%

[1] Shares subject to exchange for hybrid capital securities issued by the Company are deposited with the Korea Securities Depository as of December 31, 2021.

1. General information (cont'd)

(1) Details of the consolidated subsidiaries as of December 31, 2021 and 2020, are as follows:

Subsidiary	Business	Country of incorporation	Country of domicile	Percentage of ownership (%)	
				2021	2020
Korea Gas Technology Group	Construction & service	Korea	Korea	100.00%	100.00%
KOGAMEX Investment Manzanillo B.V.	Service	Netherlands	Mexico	100.00%	100.00%
KOMEX-GAS, S.de R.L. de C.V.	LNG terminal construction	Mexico	Mexico	99.97%	99.97%
KOGAS Iraq B.V.	Resource development	Netherlands	Iraq	100.00%	100.00%
KOGAS Badra B.V.	Resource development	Netherlands	Iraq	100.00%	100.00%
KOGAS Akkas B.V.	Resource development	Netherlands	Iraq	100.00%	100.00%
KOGAS Mansuriyah B.V.	Resource development	Netherlands	Iraq	100.00%	100.00%
KOGAS Canada Energy Ltd.	Resource development	Canada	Canada	100.00%	100.00%
KOGAS Australia Pty. Ltd.	Resource development	Australia	Australia	100.00%	100.00%
KOGAS Prelude Pty. Ltd.	Resource development	Australia	Australia	100.00%	100.00%
KG Timor Leste Ltd.	Resource development	Marshall Islands	Timor Leste	100.00%	100.00%
KG Krueng Mane Ltd.	Resource development	Marshall Islands	Indonesia	100.00%	100.00%
KG Mozambique Ltd.	Resource development	Marshall Islands	Mozambique	100.00%	100.00%
KOGAS Mozambique, Lda.	Construction & service	Mozambique	Mozambique	99.99%	99.99%
KGLNG E&P Pty Ltd.	Resource development	Australia	Australia	100.00%	100.00%
KGLNG E&P II Pty Ltd.	Resource development	Australia	Australia	100.00%	100.00%
KGLNG Liquefaction Pty Ltd.	Resource development	Australia	Australia	100.00%	100.00%
KOGAS Cyprus Ltd.	LNG plant management	Cyprus	Cyprus	100.00%	100.00%
KC LNG Tech Co.,Ltd.	Engineering	Korea	Korea	50.20%	50.20%
KG-SEAGP Company Limited[1]	Resource development	Hong Kong	Myanmar	65.27%	62.54%
KG Myanmar Ltd.[2]	Resource development and others	Korea	Myanmar	100.00%	100.00%
KOGAS International Pte. Ltd.	LNG trading	Singapore	Singapore	100.00%	100.00%
Kogas Canada Partner Ltd.	LNG plant management	Canada	Canada	100.00%	100.00%
Kogas Canada LNG Partnership	LNG plant management	Canada	Canada	99.99%	99.99%
Kogas Canada E&P Partnership	Resource development	Canada	Canada	99.99%	99.99%
Korea LNG Bunkering Co.,Ltd.	LNG Bunkering	Korea	Korea	100.00%	100.00%

[1] The Corporation has the right to exercise 65.27% voting rights at the shareholders' meeting of KG-SEAGP Company Limited. However, voting rights ratio and ownership share may be different according to the shareholders agreement. The ownership share is calculated based on the ratio of cash flows expected to be distributed during the investment period, and the ownership share of the Corporation is 20%.
[2] The Corporation has the right to exercise 100% voting rights at the shareholders' meeting of KG Myanmar Ltd. However, voting rights ratio and ownership share may be different according to the shareholders agreement. The ownership share is calculated based on the ratio of cash flows expected to be distributed during the investment period, and the ownership share of the Corporation is 37.07%.

1. General information (cont'd)

(2) Summarized financial information of consolidated subsidiaries as of December 31, 2021 and 2020, and the year ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021			
Subsidiary	Total assets	Total liabilities	Revenue	Profit (loss) for the year
Korea Gas Technology Group	₩ 274,456	₩ 141,776	₩ 301,544	₩ 2,591
KOGAMEX Investment Manzanillo B.V.	122,430	85,868	-	4,073
KOMEX-GAS, S. de R.L. de C.V.	2,255	308	4,125	1,762
KOGAS Iraq B.V.	1,080,909	123,912	375,742	64,627
KOGAS Badra B.V.	487,088	31,236	150,009	8,418
KOGAS Akkas B.V.	17,167	12,482	-	(6,406)
KOGAS Mansuriya B.V.	200	33	-	(6,463)
KOGAS Canada Energy Ltd. [1]	993,601	579,437	12,160	(12,848)
KOGAS Australia Pty. Ltd. [2]	4,011,755	3,486,112	603,234	392,989
KOGAS Prelude Pty. Ltd.	2,173,891	1,615,461	286,500	4,071
KG Timor Leste Ltd.	15	54,115	-	(1,540)
KG Krueng Mane Ltd.	-	77,574	-	(1,974)
KG Mozambique Ltd.	1,118,284	766,052	-	(19,198)
KOGAS Mozambique, Lda	21,855	6,849	286	6,140
KOGAS Cyprus Ltd.	34,074	13	-	(484)
KC LNG Tech Co.,Ltd.	13,283	13,494	5,131	(8,598)
KG-SEAGP Company Limited	183,860	24	-	14,908
KG Myanmar Ltd.	267,789	2,430	-	9,725
KOGAS International Pte. Ltd.	166,425	155,974	348,025	8,035
Korea LNG Bunkering Co.,Ltd.	65,393	33,984	3,493	2,458

[1] The condensed statements of financial position and comprehensive income of KOGAS Canada Energy Ltd. includes financial information of Kogas Canada Partner Ltd., Kogas Canada LNG Partnership., Kogas Canada E&P Partnership.

[2]Financial information of KGLNG E&P Pty Ltd., KGLNG E&P Ⅱ Pty Ltd., and KGLNG Liquefaction Pty Ltd. are included in the condensed statements of financial position and the condensed statements of comprehensive income of KOGAS Australia Pty. Ltd..

	2020			
Subsidiary	Total assets	Total liabilities	Revenue	Profit (loss) for the year
Korea Gas Technology Group	₩ 244,655	₩ 124,191	₩ 272,235	₩ 1,107
KOGAMEX Investment Manzanillo B.V.	103,820	77,824	-	4,930
KOMEX-GAS, S. de R.L. de C.V.	3,840	727	6,738	3,098
KOGAS Iraq B.V.	950,983	134,134	298,694	42,239
KOGAS Badra B.V.	495,021	30,208	112,268	(5,117)
KOGAS Akkas B.V.	22,979	11,502	-	(3,726)
KOGAS Mansuriya B.V.	6,321	23	-	6,592
KOGAS Canada Energy Ltd. [1]	681,832	376,841	8,358	(50,546)
KOGAS Australia Pty. Ltd. [2]	3,388,821	3,261,863	504,203	(229,941)
KOGAS Prelude Pty. Ltd.	1,874,525	1,365,892	35,150	(154,297)
KG Timor Leste Ltd.	-	48,187	-	(10,111)
KG Krueng Mane Ltd.	-	69,317	-	(1,960)
KG Mozambique Ltd.	902,954	671,205	-	(30,057)
KOGAS Mozambique, Lda	19,474	13,623	295	5,301
KOGAS Cyprus Ltd.	34,461	88	-	(758)
KC LNG Tech Co.,Ltd.	11,824	18,437	1,235	(17,894)
KG-SEAGP Company Limited	167,520	7	-	14,981
KG Myanmar Ltd.	296,837	1,839	-	13,274
KOGAS International Pte. Ltd.	2,266	313	63,083	401
Korea LNG Bunkering Co.,Ltd.	28,997	46	-	(49)

[1] The condensed statements of financial position and comprehensive income of KOGAS Canada Energy Ltd. includes financial information of Kogas Canada Partner Ltd., Kogas Canada LNG Partnership., Kogas Canada E&P Partnership.

[2]Financial information of KGLNG E&P Pty Ltd., KGLNG E&P Ⅱ Pty Ltd., and KGLNG Liquefaction Pty Ltd. are included in the condensed statements of financial position and the condensed statements of comprehensive income of KOGAS Australia Pty. Ltd..

1. General information (cont'd)

(3) Information on non-controlling interests

(Korean won in millions)

	2021				
	KC LNG Tech Co.,Ltd.	KG-SEAGP Company Limited	KG Myanmar Ltd.	Others	Total
Voting rights ratio [1]	50.20%	65.27%	100%	-	-
Current assets	₩ 2,726	₩ 12,624	₩ 47,029	₩ 11,190	₩ 73,569
Non-current assets	10,557	171,236	220,760	12,920	415,473
Current liabilities	12,737	24	378	424	13,563
Non-current liabilities	757	-	2,052	6,733	9,542
Net assets	(211)	183,836	265,359	16,953	465,937
Carrying amount of non-controlling interests	(105)	97,274	153,023	2	250,194
Revenue	5,131	-	-	4,411	9,542
Net profit (loss) for the year	(8,598)	14,908	9,725	7,902	23,937
Profit (loss) for the year attributable to non-controlling interests	(4,282)	11,926	6,120	1	13,765
Cash flows from operating activities	(3,628)	1,700	6,557	9,110	13,739
Cash flows from investing activities	(183)	12,206	32,806	(103)	44,726
Cash flows from financing activities prior to payment of non-controlling interest dividends	5,412	(12,674)	(32,806)	(10,656)	(50,724)
Dividends paid to non-controlling interests	-	(967)	(6,558)	(1)	(7,526)
Net foreign exchange difference	-	396	-	168	564
Net increase in cash and cash equivalents	1,601	661	(1)	(1,482)	779

[1] Non-controlling interests of KG-SEAGP Company Limited and KG Myanmar Ltd. are calculated based on ownership interest ratio, not voting rights ratio.

(Korean won in millions)

	2020				
	KC LNG Tech Co.,Ltd.	KG-SEAGP Company Limited	KG Myanmar Ltd.	Others	Total
Voting rights ratio [1]	50.20%	62.54%	100%	-	-
Current assets	₩ 2,390	₩ 11,557	₩ 39,504	₩ 11,779	₩ 65,230
Non-current assets	9,434	155,963	257,333	11,535	434,265
Current liabilities	17,035	7	614	1,993	19,649
Non-current liabilities	1,402	-	1,225	12,357	14,984
Net assets	(6,613)	167,513	294,998	8,964	464,862
book amount of non-controlling interests	(3,293)	84,263	173,145	1	254,116
Revenue	1,235	-	-	7,033	8,268
Net profit (loss) for the year	(17,894)	14,981	13,274	8,399	18,760
Profit (loss) for the year attributable to non-controlling interests	(8,911)	11,985	8,302	1	11,377
Cash flows from operating activities	(2,209)	10,799	12,068	3,134	23,792
Cash flows from investing activities	(146)	9,575	28,199	2,715	40,343
Cash flows from financing activities prior to payment of non-controlling interest dividends	(131)	(10,554)	(30,044)	(6,509)	(47,238)
Dividends paid to non-controlling interests	-	(7,886)	(10,220)	(1)	(18,107)
Net foreign exchange difference	-	(313)	-	(224)	(537)
Net increase in cash and cash equivalents	(2,486)	1,621	3	(885)	(1,747)

[1] Non-controlling interests of KG-SEAGP Company Limited and KG Myanmar Co., Ltd. are calculated based on ownership interest ratio, not voting rights ratio.

2. Basis of preparation and significant accounting policies

The principal accounting policies applied in the preparation of these consolidated financial statements are set out below. These policies have been consistently applied to all the years presented, unless otherwise stated.

2.1 Basis of presentation

The Corporation and its subsidiaries (the "Group") maintains its accounting records in Korean won and prepares statutory financial statements in the Korean language in accordance with Korean International Financial Reporting Standards("KIFRS"). The accompanying consolidated financial statements have been condensed, restructured and translated into English from the Korean language consolidated financial statements.

Certain information attached to the Korean language consolidated financial statements, but not required for a fair presentation of the Group's financial position, financial performance or cash flows, is not presented in the accompanying consolidated financial statements.

The consolidated financial statements of the Group have been prepared in accordance with KIFRS. These are the standards, subsequent amendments and related interpretations issued by the International Accounting Standards Board ("IASB") that have been adopted by the Republic of Korea.

The preparation of consolidated financial statements requires the use of critical accounting estimates. Management also needs to exercise judgement in applying the Group's accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements are disclosed in Note 3.

2.2 Changes in accounting policy and disclosures

2.2.1 New and amended standards adopted by the Group

The Group applied for the first time certain standards and amendments, which are effective for annual reporting period beginning on or after January 1, 2021.

(1) Financial Reporting Impact of Interbank Loan Interest Rate (IBOR) Reform Step 2 (KIFRS 1109 *Financial Instruments*, KIFRS 1039 *Financial Instrument Recognition and Measurement*, KIFRS 1107 *Financial Instrument Disclosure*, KIFRS 1104 *Insurance Contract* and KIFRS 1116 *Lease*)

This amendment focuses on the impact on financial reporting as a result of interest rate indicator reforms. These impacts include changes in contractual cash flows or hedging relationships due to the conversion of interest rate indicators to alternative interest rate indicators. The amendments substantially simplified requirements related to hedging accounting and changing in the contractual cash flow calculation criteria for financial assets, financial liabilities, and lease liabilities in KIFRS 1109 *Financial Instruments*, KIFRS 1039 *Financial Instrument Recognition and Measurement*, KIFRS 1107 *Financial Instrument Disclosure*, KIFRS 1104 *Insurance Contract*, and KIFRS 1116 *Lease*. There is no significant impact of the amendments to the Standard on the consolidated financial statements.

(2) Amendments of KIFRS 1116 *Lease* - Discounts on rental fees related to COVID-19 that will be provided beyond June 30, 2021

In 2020, the IASB issued *Covid-19-Related Rent Concessions* - amendment to KIFRS 1116 *Leases*. The amendments provide relief to lessees from applying KIFRS 1116 guidance on lease modification accounting for rent concessions arising as a direct consequence of the Covid-19 pandemic. As a practical expedient, a lessee may elect not to assess whether a Covid-19 related rent concession from a lessor is a lease modification. A lessee that makes this election accounts for any change in lease payments resulting from the Covid-19 related rent concession the same way it would account for the change under KIFRS 1116 if the change were not a lease modification.

2.2.1 New and amended standards adopted by the Group (cont'd)

The amendment was intended to apply until June 30, 2021, but as the impact of the Covid-19 pandemic is continuing, the IASB extended the period of application of the practical expedient to June 30, 2022. The amendment applies to annual reporting periods beginning on or after April 1, 2021. The Group has not received Covid-19-related rent concessions, but plans to apply the practical expedient if it becomes applicable within allowed period of application.

2.2.2 Standards and interpretations issued but not yet adopted by the Group

The new and amended standards and interpretations that are issued, but not yet effective as of January 1, 2021, which the Group has not early adopted are as follows.

(1) Amendments to KIFRS 1001: *Classification of Liabilities as Current or Non-current*

The amendments to paragraphs 69 to 76 of 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
- That only if an embedded derivative in a convertible liability is itself an equity instrument would the terms of a liability not impact its classification

The amendments are effective for annual reporting periods beginning on or after January 1, 2023 and must be applied retrospectively. The Group is currently assessing the impact the amendments will have on current practice and whether existing loan agreements may require renegotiation.

(2) Amendments to KIFRS 1001 *Presentation of Financial Statements - Disclosure of Accounting Policy*

These amendments provide requirements and guidance 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 to KIFRS 1001 *Presentation of Financial Statements* are applicable for annual periods beginning on or after January 1, 2023 with earlier application permitted. These amendments are not expected to have a material impact on the Group.

(3) Amendments of KIFRS 1008 *Accounting Policy, Changes in Accounting Estimates and Errors - Definition of Accounting Estimates*

The amendments clarify the distinction between changes in accounting estimates and accounting policies and the correction of errors. Also, they clarify how entities use measurement techniques and inputs to develop accounting estimates. The amendments are effective for annual reporting periods beginning on or after January 1, 2023 and apply to changes in accounting policies and changes in accounting estimates that occur on or after the start of that period. Earlier application is permitted as long as this fact is disclosed. The amendments are not expected to have a material impact on the Group.

(4) Amendments to KIFRS 1012 *Corporate Tax - Deferred tax on assets and liabilities arising from a single transaction*

The amendments added requirement as a transaction that does not generate a taxable temporary difference and a deductible temporary difference at the same time, to the initial recognition exception for a transaction in which an asset or liability is recognized for the first time. These amendments are effective for fiscal years beginning on or after January 1, 2023, and early application is permitted. The Group is assessing the impact of the amendments on the consolidated financial statements.

2.2.2 Standards and interpretations issued but not yet adopted by the Group (cont'd)

(5) Amendments to KIFRS 1103 *Business combinations – Reference to the Conceptual Framework*

The amendments are intended to replace a reference to the *Framework for the Preparation and Presentation of Financial Statements*, issued in 1989, with a reference to the *Conceptual Framework for Financial Reporting* issued in March 2018 without significantly changing its requirements.

The Board also added an exception to the recognition principle of KIFRS 1103 to avoid the issue of potential 'day 2' gains or losses arising for liabilities and contingent liabilities that would be within the scope of KIFRS 1037 or KIFRS 2121 *Levies,* if incurred separately. At the same time, the Board decided to clarify existing guidance in KIFRS 1103 for contingent assets that would not be affected by replacing the reference to the Framework for the Preparation and Presentation of Financial Statements. The amendments are effective for annual reporting periods beginning on or after January 1, 2022 and apply prospectively.

(6) Amendments to KIFRS 1016 *Property, Plant and Equipment – Proceeds before Intended Use*

The amendment prohibits entities deducting from the cost of an item of property, plant and equipment, any proceeds from selling items produced while bringing that asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Instead, an entity recognizes the proceeds from selling such items, and the costs of producing those items, in profit or loss.

The amendment is effective for annual reporting periods beginning on or after January 1, 2022 and must be applied retrospectively to items of property, plant and equipment made available for use on or after the beginning of the earliest period presented when the entity first applies the amendment. The amendments are not expected to have a material impact on the Group.

(7) Amendments to KIFRS 1037 *Onerous Contracts* – Costs of fulfilling onerous contract

The amendment to KIFRS 1037 specifies which costs an entity needs to include when assessing whether a contract is onerous or loss-making. The amendments apply a "directly related cost approach". The costs that relate directly to a contract to provide goods or services include both incremental costs and an allocation of costs directly related to contract activities. General and administrative costs do not relate directly to a contract and are excluded unless they are explicitly chargeable to the counterparty under the contract. The amendments are effective for annual reporting periods beginning on or after January 1, 2022. The Group will apply these amendments to contracts for which it has not yet fulfilled all its obligations at the beginning of the annual reporting period in which it first applies the amendments.

(8) Enactment of KIFS 1117 *Insurance Contract*

KIFRS 1117 *Insurance Contract* is scheduled to replace KIFRS 1104 *Insurance Contract*. This standard estimates all cash flows from insurance contracts, measures insurance liabilities using a discount rate that reflects assumptions and risks at the time of reporting, and recognized revenue by reflecting services (insurance guarantee) provided to policyholders for each fiscal year to be accrual basis. In addition, investment factors (cancellation/maturity refunds) paid to policyholders regardless of insurance events are excluded from insurance income, and insurance profit and loss and investment profit and loss are displayed separately so that information users can check the source of profit and loss. This standard is effective for the first fiscal year beginning on or after January 1, 2023, and early application is permitted to companies that have applied KIFRS 1109 *Financial Instruments*. The application of this standard is not expected to have a material impact on the Group.

2.2.2 Standards and interpretations issued but not yet adopted by the Group (cont'd)

(9) Korean International Accounting Standards 2018-2020 annual improvement

-KIFRS 1101 *First adoption of Korean International Financial Reporting Standards* – Subsidiary company as a first-time adopter

The amendment permits a subsidiary that elects to apply paragraph D16(a) of KIFRS 1101 to measure cumulative translation differences using the amounts reported by the parent, based on the parent's date of transition to KIFRS. This amendment is also applied to an associate or joint venture that elects to apply paragraph D16(a) of KIFRS 1101. The amendment is effective for annual reporting periods beginning on or after January 1, 2022 with earlier adoption permitted. The amendments are not expected to have a material impact on the Group.

-KIFRS 1109 *Financial Instruments* − Fees in the '10 per cent' test for derecognition of financial liabilities

The amendment clarifies the fees that an entity includes when assessing whether the terms of a new or modified financial liability are substantially different from the terms of the original financial liability. These fees include only those paid or received between the borrower and the lender, including fees paid or received by either the borrower or lender on the other's behalf. An entity applies the amendment to financial liabilities that are modified or exchanged on or after the beginning of the annual reporting period in which the entity first applies the amendment.
The amendment is effective for annual reporting periods beginning on or after January 1, 2022 with earlier adoption permitted. The Group will apply the amendments to financial liabilities that are modified or exchanged on or after the beginning of the annual reporting period in which the entity first applies the amendment.
The amendments are not expected to have a material impact on the Group.

-KIFRS 1041 *Agriculture* – Taxation in fair value measurements

The amendment removes the requirement in paragraph 22 of KIFRS 1041 that entities exclude cash flows for taxation when measuring the fair value of assets within the scope of KIFRS 1041. An entity applies the amendment prospectively to fair value measurements on or after the beginning of the first annual reporting period beginning on or after January 1, 2022 with earlier adoption permitted.
This amendment is not expected to have a material impact on the Group.

2.3 Accounting policies

2.3.1 Revenue recognition

Revenue is recognized by applying a five-stage revenue recognition model (Identification of a contract with a customer → Identification of performance obligations in the contract → Determination of the transaction price → Allocation of the transaction price to the separate performance obligations in the contract → Recognition of revenue upon satisfying the performance obligations) to all of its contracts with customers. Revenue is measured based on the consideration determined by contracts with customers, excluding amounts collected on behalf of third parties. Further, the Group recognizes revenue when the control of goods or services is transferred to customers.

The Group is mainly engaged in the supply of natural gas and providing related services using supply facilities

(a) Sale of goods

The Group's contracts with customers for the sale of natural gas includes a single performance obligation. Generally, the control of the goods is transferred to the customer at a point in time. Therefore, the Group recognizes revenue when the goods are transferred to the customers and the adoption of the standard has no impact on the timing of the Group's revenue recognition.

(b) Rendering of services

(i) Maintenance of gas facilities

The Group provides maintenance and repair services for gas facilities. In accordance with KIFRS 1115, revenue from installation services is recognized over a period of time using an input method to measure the progress of a service as customers simultaneously receive and consume the benefits provided by the Group. Assets that have the right to receive payment for the goods or services transferred to the customer and for which there is a condition beyond the time limit should be recognized as contract assets. As a result of the adoption of KIFRS 1115, the Group reclassified unbilled amount and overbilled amount arising from construction and service contracts to contract assets and liabilities.
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(ii) Revenue from service to operate oversea projects

The Group provides services under the technical service contracts in which the Group has entered into with customers. These services include a single performance obligation in operation of the production of crude oil and gas. The Group recognized revenue over time by measuring its progress towards complete satisfaction of that performance obligation as the customer simultaneously receives and consumes the benefits of the Group’s performance. The Group recognizes revenue as the amount that is directly attributable to the value of the service rendered each month, which is the same as the period of recognition as stated under KIFRS 1018.

(iii) Joint usage of facilities

The contract for the use of plumbing facilities concluded with the customer includes a single obligation to provide the customer with the service of transferring the gas from the pre-agreed point of entry to withdrawal using the Group’s plumbing facilities. The Group recognizes revenue as the amount that is directly attributable to the value of the service rendered each month, which is the same as the period of recognition as stated under KIFRS 1018.

(c) Other significant judgments

In addition to the above, other significant matters as determined by applying the KIFRS 1115 *Revenue from contracts with customers* are as follows.

2.3.1 Revenue recognition (cont'd)

(i) Transportation service

If the goods provided to the customer by the Group are not transferred to the customer without the shipping service, the customer can not obtain benefits in itself, and the customer can not receive the shipping service from the group other than the Group. You can not benefit from it with other resources. Therefore, the services provided by the Group are not identified as separate performance obligations.

(ii) Provision of goods sales guarantee

The Group have a warranty obligation on the quantity and quality of goods sold. The obligation for the quantity and quality of the group is that there is no option to purchase the warranty separately from the customer and the warranty (or any part of it) agrees that the product conforms to the agreed specifications, This is not a separate service that is separate from the supply of goods. On the other hand, if a penalty payment is expected due to the obligation, it should be deducted from the sales as the best estimate of the payment expected to the customer because it corresponds to the variable consideration. The adoption of KIFRS 1115 has no impact on the recognition of revenue.

(iii) Variable consideration

If the contract contains significant variable consideration, the Group transfers the promised goods to the customer and estimates the amount to be paid in return. When the uncertainty associated with the variable cost is eliminated, the variable price is estimated at the commencement of the contract and included in the transaction price only to the extent that it is highly unlikely that a significant portion of the cumulative revenue already recognized will be returned. In this regard, there is no significant change in the amount that the Group recognizes in its contract with the customer. As discribed in Note 9 (3), the Group generally provides short-term lending to its customers, therefore contracts with customers do not include significant financial elements.

(d) Present and disclosure requirements

The Group has recognized the revenue recognized in its contract with customers by category to indicate how economic factors affect the nature, amount, timing and uncertainty of revenue and cash flows. The Group also discloses information about the relationship between disclosed revenue disclosures and reported revenue information for each reporting

2.3.2 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.

i. As a lessee
At commencement or on modification of a contract that contains a lease component, the Group allocates the consideration in the contract to each lease component on the basis of its relative stand-alone prices. However, for the leases of property the Group has elected not to separate non-lease components and account for the lease and non-lease components as a single lease component.

The Group recognises a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the end of the lease term, unless the lease transfers ownership of the underlying asset to the Group by the end of the lease term or the cost of the right-of-use asset reflects that the Group will exercise a purchase option. In that case the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of property and equipment. In addition, the right-of-use asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Group’s incremental borrowing rate. Generally, the Group uses its incremental borrowing rate as the discount rate.

The Group determines its incremental borrowing rate by obtaining interest rates from various external financing sources and makes certain adjustments to reflect the terms of the lease and type of the asset leased.

Lease payments included in the measurement of the lease liability comprise the following:

- fixed payments, including in-substance fixed payments;
- variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date;
- amounts expected to be payable under a residual value guarantee; and the exercise price under a purchase option that the Group is reasonably certain to exercise, lease payments in an optional renewal period if the Group is reasonably certain to exercise an extension option, and penalties for early termination of a lease unless the Group is reasonably certain not to terminate early.

2.3.2 Leases (cont'd)

The lease liability is measured at amortised cost using the effective interest method. It is remeasured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the Group's estimate of the amount expected to be payable under a residual value guarantee, if the Group changes its assessment of whether it will exercise a purchase, extension or termination option or if there is a revised in-substance fixed lease payment.

When the lease liability is remeasured in this way, a corresponding adjustment is made to the carrying amount of the right-of-use asset, or is recognized in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

Short-term leases and leases of low-value assets
The Group has elected not to recognise right-of-use assets and lease liabilities for leases of low-value assets and short-term leases, including IT equipment. The Group recognises the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

ii. As a lessor
At inception or on modification of a contract that contains a lease component, the Group allocates the consideration in the contract to each lease component on the basis of their relative stand-alone prices. When the Group acts as a lessor, it determines at lease inception whether each lease is a finance lease or an operating lease.

To classify each lease, the Group makes an overall assessment of whether the lease transfers substantially all of the risks and rewards incidental to ownership of the underlying asset. If this is the case, then the lease is a finance lease; if not, then it is an operating lease. As part of this assessment, the Group considers certain indicators such as whether the lease is for the major part of the economic life of the asset.

When the Group is an intermediate lessor, it accounts for its interests in the head lease and the sub-lease separately. It assesses the lease classification of a sub-lease with reference to the right-of-use asset arising from the head lease, not with reference to the underlying asset. If a head lease is a short-term lease to which the Group applies the exemption described above, then it classifies the sub-lease as an operating lease.

If an arrangement contains lease and non-lease components, then the Group applies KIFRS 1115 to allocate the consideration in the contract.

The Group applies the derecognition and impairment requirements in IFRS 1109 to the net investment in the lease. The Group further regularly reviews estimated unguaranteed residual values used in calculating the gross investment in the lease.

The Group recognises lease payments received under operating leases as income on a straight-line basis over the lease term as part of 'other revenue'.

2.3.3 Foreign currency translation

2.3.3.1 Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which each entity operates (the "functional currency"). The consolidated financial statements are presented in Korean won, which is the Parent Company's functional and presentation currency.

2.3.3.2 Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates at the dates of the transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation of monetary assets and liabilities denominated in foreign currencies at year end exchange rates are generally recognized in profit or loss.

Non-monetary items that are measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined. Translation differences on assets and liabilities carried at fair value are reported as part of the fair value gain or loss. For example translation differences on non-monetary assets and liabilities such as equitiems held at fair value through profit or loss are recognized in profit or loss as part of the fair value gain or loss and translation differences on non-monetary assets such as equities classified as financial assets at fair value through other comprehensive income are recognized in other comprehensive income.

2.3.4 Borrowing costs

General and specific borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are capitalized during the period of time that is required to complete and prepare the asset for its intended use or sale. Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization. Other borrowing costs are expensed in the period in which they are incurred.

2.3.5 Government grants

Grants from the government are recognized at their fair value where there is a reasonable assurance that the grant will be received and the Group will comply with all attached conditions.

Government grants related to assets are presented in the statement of financial position by deducting the grant in arriving at the carrying amount of the asset. The grant is recognized in profit or loss over the life of a related asset by reducing depreciation expense.

If the Group received grants related to income, government grants which are intended to compensate the Group for expenses incurred are recognized as other income in profit or loss over the periods in which the Group recognizes the related costs as expenses. The government grants which are intended to give immediate financial support to the Group with no future related costs are recognized as government grant income in profit or loss at the time such grants can be rightfully claimed by the Group.

2.3.6 Investments in associates

An associate is any company that the Group can have a significant influence on, but has no control, and is generally an investee in which the group owns 20% to 50% of the voting shares. Investments in associates are initially recognized as acquisition cost and are accounted for using the equity method. Unrealized profits arising from transactions between the Group and associates are deducted as much as the portion of the Group's interest in associates. The application of the equity method is discontinued if the Group's equity interest in the associate is equal to or exceeds the investment interest in the associate (including the long-term investment that forms part of the net investment). However, if the Group has legal or agenda obligations for additional losses after the Group's stake is reduced to zero, or if payments are made on behalf of the associate, losses and liabilities are recognized only up to that amount. In addition, if there are signs of objective impairment on the investment of an associate, the difference between the recoverable amount and the carrying amount of the investment of the associate is recognized as an impairment loss. When the Group uses the financial statements of associates to apply the equity method, the financial statements of associates are adjusted, if necessary, by reviewing whether the same accounting policies applied by the Group have been applied to the same transactions or events in similar circumstances.

2.3.7 Joint arrangements

Joint arrangements in which two or more parties have joint control are classified as joint operations or joint ventures. Joint operators have the rights and obligations to the assets and liabilities of the joint operation, and recognize their share of the assets and liabilities, income and expenses of the joint operation. The joint venture participants have the right to the joint venture's net assets and apply the equity method. (Note 2.3.6)

2.3.8 Retirement benefits

The Group operates both defined contribution and defined benefit pension plans.

For defined contribution plans, the Group pays contribution to publicly or privately administered pension insurance plans on mandatory, contractual or voluntary basis. The Group has no further payment obligation once the contribution have been paid. The contribution are recognized as employee benefit expense when they are due.

A defined benefit plan is a pension plan that is not a defined contribution plan. Generally, post-employment benefits are payable after the completion of employment, and the benefit amount depended on the employee’s age, periods of service or salary levels. The liability recognized in the statement of financial position in respect of defined benefit pension plans is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid, and that have terms approximating to the terms of the related obligation. Remeasurement gains and losses arising from experience adjustments and changes in actuarial assumptions are recognized in the period in which they occur, directly in other comprehensive income.

Changes in the present value of the defined benefit obligation resulting from plan amendments or curtailments are recognized immediately in profit or loss as past service costs.

2.3.9 Current and deferred tax

The tax expense for the period consists of current and deferred tax. Current and deferred tax is recognized in profit or loss, except to the extent that it relates to items recognized in other comprehensive income or directly in equity. In this case, the tax is also recognized in other comprehensive income or directly in equity, respectively.

The tax expense is measured at the amount expected to be paid to the taxation authorities, using the tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

2.3.9 Current and deferred tax (cont'd)

Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. The Group recognizes current income tax on the basis of amounts expected to be paid to the tax authorities.

Deferred tax is provided in full, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, deferred tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss.

Deferred tax assets are recognized only if it is probable that future taxable amounts will be available to utilize those temporary differences and losses.

The Group recognizes a deferred tax liability all taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint arrangements, 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 arising from such investments to the extent that it is probable the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets and liabilities and when the deferred tax balances relate to the same taxation authority. Current tax assets and tax liabilities are offset where the entity has a legally enforceable right to offset and intends either to settle on a net basis.

2.3.10 Non-current assets held for sale

Non-current assets are classified as held for sale when their carrying amount will be recovered principally through a sale transaction rather than through continuing use and a sale is considered highly probable. The assets are measured at the lower amount between their carrying amount and the fair value less costs to sell.

2.3.11 Property, plant and equipment

Property, plant and equipment are stated at cost after the initial recognition acquisition cost less accumulated depreciation and accumulated impairment losses.

The cost of property, plant and equipment includes any costs directly attributable to bringing the asset or expenses directly related to the construction. It also includes cost 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.

Subsequent costs are included in carrying amount or recognized as an asset if it is probable that future economic benefits associated with the item will flow, and the cost of the item can be measured reliably. Replaced part of the carrying amount is derecognized. Meanwhile, the cost of day-to-day servicing are recognized in profit or loss as incurred.

Depreciation of all property, plant and equipment, except for land and timber, is calculated using the method below to allocate their cost or revalued amounts, net of their residual amounts, over their estimated useful life. Also, reserves used in calculation of units of production method generally include Proved Reserves and Probable Reserves, and the Group regularly evaluates the reserve amount.

2.3.11 Property, plant and equipment (cont'd)

	Useful lives (years)	Depreciation method
Buildings	15 ~ 40	Straight-line method
Structures	5 ~ 30	Straight-line method
Machinery	4 ~ 30	Straight-line method
Vehicles	4 ~ 15	Straight-line method
Office equipment	4 ~ 5	Straight-line method
Tools and instruments	3 ~ 12	Straight-line method
Computerized facility	4 ~ 8	Straight-line method
Right-of-use assets	Lease period	Straight-line method
Others	Period of business	Straight-line method and units of production method

Each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item is depreciated separately.

The assets' depreciation method, residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period, the change is accounted for as a change in an accounting estimate.

Property, plant and equipment are derecognized on disposal, or when no future economic benefits are expected from its use or disposal. Gains or losses arising from derecognition of a property, plant and equipment, measured as the difference between the net disposal proceeds and the book amount of the asset, and are recognized in profit or loss for the year when the asset is derecognized.

2.3.12 Intangible assets

2.3.12.1 Intangible assets acquired separately

Intangible assets, except for resource development with finite useful lives that isacquired separately, are carried at cost less accumulated amortization and accumulated impairment losses.
Amortization of intangible asset, except for the right to use harbor facilities from usable and profitable donation assets and intangible exploration evaluated assets are recognized on a straight-line basis over their estimated useful lives. The estimated useful life and amortization method are reviewed at the end of each reporting period, with the effect of any changes in estimate being accounted for on a prospective basis. Intangible assets with indefinite useful lives that are acquired separately are carried at cost less accumulated impairment losses.

The right to use harbor facilities from the usable and profitable donation assets will be amortized to reflect economic benefits of assets expected to be consumed, for example, free use of harbor facilities.

The followings are expenditures that are recognized atacquisition costs of intangible assets: acquisition of rights to explore for resource developments; topographical, geological and geophysical studies incurred in the exploration stage; and direct costs incurred in relation to trenching or drilling. If natural resources are not found, the intangible exploration and evaluation assets are written off. If hydrocarbons are found, further appraisal activities, which may include the drilling of deeperwells, are carried out. If as a result of appraisal the commercial development is expected to be certain, the intangible exploration and evaluation asset is classified as a mineral right.

Intangible exploration and evaluation assets are subject to technical, commercial and managerial review at least once a year to evaluate possibilities for entering into the development stage. When this is no longer the case, the costs are written off. When proven reserves of oil and natural gas are determined and development is sanctioned, the relevant intangible exploration and evaluation assets are depreciated using the unit of production method. Also, reserves used in calculation of units of production method generally include Proved Reserves and Probable Reserves, and the Group regularly evaluates the reserve amount.

2.3.12 Intangible assets (cont'd)

2.3.12.2 Internally-generated intangible assets - research and development expenditure

Expenditures on research activities are recognized as an expense in the period in which they are incurred.

Development expenditures are capitalized only if development costs can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable, and the Group intends to and has sufficient resources to complete development and to use or sell the asset. Other development expenditures are recognized in profit or loss as incurred.

The amount initially recognized for internally-generated intangible assets is the sum of the expenditure incurred from the date when the intangible asset first meets the recognition criteria described above. When the development expenditure does not meet the criteria described above, an internally generated intangible asset cannot be recognized and the expenditure is recognized in profit or loss in the period in which it is incurred.

Internally generated intangible assets are carried at acquisition cost less accumulated depreciation and accumulated impairment losses.

2.3.12.3 Derecognition of intangible assets

An intangible asset is derecognized on disposal, or when no future economic benefits are expected from its use or disposal. Gains or losses arising from derecognition of an intangible asset, measured as the difference between the net disposal proceeds and the carrying amount of the asset, and are recognized in profit or loss when the asset is derecognized.

2.3.13 Greenhouse gas emission rights

Greenhouse gas emission rights and liabilities generated in accordance with the "Act on Allocation and Transaction of Greenhouse Gas Emission Rights" are accounted for as follows.

2.3.13.1 Greenhouse gas emission rights

Greenhouse gas emission permits consist of emission permits allocated free of charge by the government and purchased emission permits. Emissions are recognized by adding purchase costs and other costs that are directly attributable to acquisition and incurred normally.

The Group holds emission credits for the purpose of fulfilling its legal obligations, and the holdings emission rights are classified as intangible assets, but the portion submitted to the government within one year from the end of the reporting period is classified as current assets. Emissions classified as intangible assets are carried at cost less accumulated impairment losses after initial recognition.

Greenhouse gas credits are removed when future economic benefits are no longer expected because they cannot be submitted, sold or used by the government.

2.3.13.2 Emissions liabilities

Emissions liabilities are current obligations to emit greenhouse gases and submit emission permits to the government, where there is a high possibility that resources will be outflowed to fulfill the obligations, and the amount required to fulfill the obligations can be reliably estimated. Emissions liabilities are measured by adding the carrying amount of the permits held for the relevant performance year to be submitted to the government and the expected expenditure to fulfill the obligation for emissions in excess of the amount of permits held. Emission liabilities are derecognized when filing with the government.

2.3.14 Impairment of non-financial assets

For goodwill and intangible assets that have an indefinite useful life and assets that are not in ready to use, recoverable amount of assets is assessed annually to determine the impairment amount. It is assessed when facts and circumstances suggest that the carrying amount of an exploration and evaluation assets exceed its recoverable amount, or when events or changes in circumstances indicate that the assets might be impaired after the assets are tested of impairment in every reporting period.

The recoverable amount is estimated for the individual asset. If it is not possible to estimate the recoverable amount of the individual asset, the recoverable amount of the cash-generating unit to which the asset belongs is determined. The recoverable amount of individual assets (or cash generating unit)is the greater of its value in use and its fair value less costs to sell. An impairment loss is recognized in profit or loss if the carrying amount of individual assets (or cash generating unit) exceeds its recoverable amount.

The carrying amount of individual assets (or cash generating unit) are to be increased to its recoverable amounts if impairment loss recognized in prior periods are reversed, except for the goodwill. However, the increased carrying amount of an asset attributable to a reversal of an impairment loss shall not exceed the carrying amount that would have been determined had no impairment loss been recognized for the assets in prior years. A reversal of an impairment loss for an asset are recognized as profit or loss.

2.3.15 Inventories

Inventories are stated at the lower of cost and net realizable value. Cost is determined using the weighted average method for raw materials and finished goods, by using moving average method for stored goods and by using the identified cost method for matecw rials in transit.

2.3.16 Provisions

Provisions are measured at the present value of management's best estimate of the expenditure required to settle the present obligation at the end of the reporting period, and the increase in the provision due to the passage of time is recognized as interest expense.

On the other hand, it is uncertain when the ultimate timing of the outflow of economic benefits will be as the Group expects the land to continue to occupy and use gas pipelines, which are recognized as right-of-use assets and lease liabilities. As this uncertainty is likely to persist over a long period of time, the Group does not recognize the provision for restoration related to land occupation and use because it cannot reliably estimate the timing of the expenditure required to meet the obligation.

2.3.17 Financial assets

2.3.17.1 Classification

From January 1, 2018, 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.

2.3.17.2 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.

A hybrid contract that includes an embedded derivative takes into account the entire hybrid contract when determining whether the contractual cash flows consist solely of principal and interest.

2.3.17.2.1 Debt instruments

Subsequent measurement of debt instruments depends on the Group's business model for managing the asset and the cash flow characteristics of the asset. The Group classifies its debt instruments into one of the following three measurement categories:

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 (costs)' and impairment losses are presented in 'finance costs'.

2.3.17 Financial assets (con'd)

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 consolidated statement of comprehensive income within ''finance income (costs)' in the year in which it arises.

2.3.17.2.2 Equity instruments

The Group subsequently measures all equity investments at fair value. Where the Group's management has elected to present fair value gains and losses on equity investments, which held for long-term investment or strategic purpose, in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividend income from such investments continue to be recognized in profit or loss as 'finance income' when the right to receive payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'other income and expenses' 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.

2.3.17.3 Impairment

Unlike KIFRS 1039, at the end of each reporting period, KIFRS 1109 requires the Group to account for the expected credit loss ("ECL") and related changes to reflect credit changes of financial assets from initial recognition in accordance with the expected credit loss model. This means that credit events do not have to occur before credit losses are recognized.

The Group recognizes loss allowances as the expected credit loss on debt instruments subsequently measured at amortized cost or FVOCI, lease receivables, contract assets and loan commitments and financial guarantees subject to impairment in accordance with KIFRS 1109.

In particular, if the credit risk of financial instruments has increased significantly since initial recognition, or if the financial assets have been credit-impaired at the acquisition, the allowance is measured at an amount equal to lifetime expected credit losses. On the other hand, if the credit risk of a financial instrument has not increased significantly since initial recognition (except for financial assets that are credit-impaired at acquisition), the Group measures the credit loss allowance for the financial instrument at an amount equal to 12-month expected credit losses.

2.3.17.4 Derecognition

Financial assets are derecognised when contractual rights to the cash flows of the financial asset expire, or when financial assets are transferred and substantially all the risks and rewards of ownership of the financial asset are transferred to other entities. If the risks and rewards of ownership of the financial assets are not transferred, and the financial assets transferred are kept under control, the Group continues to recognize them to the extent of its continuing involvement in the financial assets.If a transfer does not result in derecognition because the Group has retained substantially all the risks and rewards of ownership of the transferred asset, the Group continues to recognize the transferred asset in its entirety and recognizes a financial liability for the consideration received. The Group classified the financial liability as "borrowings" in the consolidated statement of financial position.

2.3.18 Financial liabilities

2.3.18.1 Classification and measurement

The Group's financial liabilities at fair value through profit or loss are derivatives that are not designated as hedging instruments.

The Group classifies non-derivative financial liabilities, except for financial liabilities at fair value through profit or loss, financial guarantee contracts and financial liabilities that arise when a transfer of financial assets does not qualify for derecognition, as financial liabilities carried at amortized cost and present as ‘trade payables', ‘borrowings', and ‘other financial liabilities' in the consolidated statement of financial position.

2.3.18.2 Derecognition

Financial liabilities are removed from the statement of financial position when it is extinguished; for example, when the obligation specified in the contract is discharged or cancelled or expired or when the terms of an existing financial liability are substantially modified.

2.3.19 Derivative instruments

Derivatives are initially recognized at fair value on the date when a derivative contract is entered into and are subsequently remeasured at their fair value at the end of each reporting period. Changes in the fair value of any derivative instrument that does not qualify for hedge accounting are recognized immediately in profit or loss within 'finance income (costs)' based on the nature of transactions.

2.3.19.1 Hedge accounting

The Group designates certain hedging instruments, which include derivatives, embedded derivatives and non-derivatives in respect of foreign currency risk, as either fair value hedges, cash flow hedges, or hedges of net investments in foreign operations. Hedges of foreign exchange risk on firm commitments are accounted for as cash flow hedges.

At the inception of the hedging relationship, the entity documents the relationship between the hedging instrument and the hedged item, along with its risk management objectives and its strategy for undertaking various hedge transactions. Furthermore, at the inception of the hedge and on an ongoing basis, the Group documents whether the hedging instrument is highly effective in offsetting changes in fair values or cash flows of the hedged item.

2.3.19.2 Fair value hedges

Changes in the fair value of derivatives that are designated and qualify as fair value hedges are recognized in profit or loss immediately, together with any changes in the fair value of the hedged asset or liability that are attributable to the hedged risk. The change in the fair value of the hedging instrument and the change in the hedged item attributable to the hedged risk are recognized in the line of the statement of comprehensive income relating to the hedged item.

Hedge accounting is discontinued when the Group revokes the hedging relationship, when the hedging instrument expires or is sold, terminated, or exercised, or when it no longer qualifies for hedge accounting. The fair value adjustment to the carrying amount of the hedged item arising from the hedged risk is amortized to profit or loss from that date.

2.3.19 Derivative instruments (con'd)

2.3.19.3 Cash flow hedges

The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognized in other comprehensive income. The gains or losses relating to the ineffective portion is recognized immediately in profit or loss, and is included in the 'finance income and costs" line item.

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 statement of comprehensive income as the recognized hedged item. However, when the forecasted transaction that is hedged results in the recognition of a nonfinancial 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.

Hedge accounting is discontinued when the Group revokes the hedging relationship, when the hedging instrument expires or is sold, terminated, or exercised, or it no longer qualifies for hedge accounting. Any gains or losses accumulated in equity at that time remains in equity and is recognized when the forecast transaction is ultimately recognized in profit or loss. When a forecasted transaction is no longer expected to occur, the gains or losses accumulated in equity is recognized immediately in profit or loss.

2.3.20 Financial guarantee contracts

Financial guarantee contracts provided to Group's related parties are measured at fair value at initial recognition and are subsequently recognized as a provision for financial guarantees measured at the greater of:

① Allowance for losses calculated based on the impairment of financial instruments

② The amount less the accumulated amortization recognized in accordance with Korean IFRS 1115, *Revenue from contracts with customers*

2.3.21 Goodwill

Goodwill is initially measured at cost, being the excess of the aggregate of the consideration transferred and the amount recognized for non-controlling interests, and any previous interest held over the net identifiable assets acquired and liabilities assumed. If the fair value of the net assets acquired is in excess of the aggregate consideration transferred, the Group re-assesses whether it has correctly identified all of the assets acquired and all of the liabilities assumed and reviews the procedures used to measure the amounts to be recognized at the acquisition date. If the re-assessment still results in an excess of the fair value of net assets acquired over the aggregate consideration transferred, then the gain is recognized in profit or loss.

2.4 Approval of issuance of the consolidated financial statements

The consolidated financial statements for the year ended December 31, 2021 were approved for issue by the Board of Directors on February 25, 2022 and are subject to change with the approval of shareholders at their Annual General Meeting.

3. Significant accounting estimates and assumptions

The preparation of the financial statements requires management to make estimates and assumptions that affect amounts reported therein. Estimations and assumptions are continuously evaluated with consideration to factors such as events reasonably predictable in the foreseeable future within the present circumstance according to historical experience. The resulting accounting estimates will, by definition, seldom equal the related actual results.

These estimations and assumptions have been consistently applied to all the periods presented, except for the estimation method to determine income tax.

However, the Group's operating performance and related activities and customers and suppliers' operating performance and related activities are significantly affected by economic factors beyond control of the Corporation such as crude oil and natural gas market conditions, long-term price forecasts, credit spreads in country where major businesses domicile, risk-free interest rates, market risk premium, and others. These economic factors are significantly affected by the global public health threat, including the World Health Organization's pandemic declaration of COVID-19 in March 2020, and the global economic downturn resulting from oil price wars between oil producing countries. As of September 30, 2020, the Group estimated the impact of COVID-19 on property, plant, and equipment and intangible assets and reflected it in the consolidated financial statements (see Note 19, 21). The Group is continuously monitoring factors that cause uncertainty including COVID-19, and these factors will be immediately reflected to the consolidated financial statements when the Group determines that the effects of these factors on the consolidated financial statements can be reasonably and reliably estimated.

3.1 Income taxes

The Group 's taxable income generated from these operations are subject to income taxes based on tax laws and interpretations of tax authorities in numerous jurisdictions. There are many transactions and calculations for which the ultimate tax determination is uncertain. As a result of the business activities as of the end of the reporting period, the Group recognized the tax effects expected to be borne in the future as current and deferred taxes through the best estimation process. However, the actual final income taxes burden in the future may not be consistent with the related assets and liabilities recognized, and this difference may affect the current and deferred tax assets and liabilities at the time when the final tax effect is finalized.

If certain portion of the taxable income is not used for investments or increase in wages or dividends in accordance with the Tax System for Recirculation of Group Income, the Group is liable to pay additional income tax calculated based on the tax laws. The new tax system is effective for three years from 2015. Accordingly, the measurement of current and deferred income tax is affected by the tax effects from the new tax system. As the Group's income tax is dependent on the investments, increase in wages and dividends, there is an uncertainty measuring the final tax effects.

The Group reviews whether there is uncertainty in the treatment of income taxes in accordance with KIFRS 2123, and if the tax authorities conclude that it is not likely to accept the uncertain income tax treatment, each uncertain income tax treatment is recognized as the amount calculated by the following methods to predict resolution of the uncertainty.

① Most likely amount: The most likely single amount in the range of possible outcomes

② Expected amount: Sum of the amount of all the amounts in the range of possible outcomes multiplied by each probability

If it is highly probable that future taxable income will be used for tax losses, the deferred tax asset is recognized for unused tax losses carried forward within the scope. The management of the Group shall make a significant judgment to determine the amount of deferred tax assets that can be recognized based on the future tax policy and the timing and level of taxable income.

3. Significant accounting estimates and assumptions (cont'd)

3.2 Fair value of financial statements

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. Refer to Note 48 for further information.

3.3 Provisions

The Group accounts for provisions for post-processing, restoration, cleanup costs, and financial guarantees. Provisions for post-processing, restoration and cleanup costs are determined on the basis of estimates of the amount of expenditure, timing of expenditure, inflation rate, discount rate, etc. required for restoration, and other provisions are based on estimates of past experience, or estimates of future expenditures (see Note 28).

3.4 Net defined benefit liability

The cost of the retirement benefit plan and the present value of the retirement benefit obligation are determined through the actuarial valuation method. For the application of actuarial valuation methods, it is necessary to set up various assumptions. These assumptions include determining the discount rate, future salary increasing rate, increasing rate, and expected retirement rate. Due to the complexity of the assessment method and the underlying assumptions and long-term nature, the defined benefit obligation varies sensitively depending on these assumptions. All assumptions are reviewed at the end of each reporting period. The details are described in the Note 27.

3.5 Impairment of financial assets

The Group measures loss allowances of financial assets based on assumptions on default risk and expected credit loss. When establishing these assumption and determining input variables for the impairment measurement, the Group considers historical experience, current market and future forecast at the end of the reporting period.

3.6 Impairment of non-financial assets

The Group assesses the existence of impairment signs for all non-financial assets at each reporting date. For goodwill and intangible assets that have an indefinite useful life and assets that are not in ready to use, recoverable amount of assets is assessed annually to determine the impairment amount. It is assessed when facts and circumstances suggest that the carrying amount of an exploration and evaluation assets exceed its recoverable amount, or when events or changes in circumstances indicate that the assets might be impaired after the assets are tested of impairment in every reporting period. The recoverable amounts of assets or cash-generating units have been determined based on estimation of future cash flow and appropriate discount rate. Refer to Note 21.(3) for further information.

For assets excluding goodwill, an assessment is made at each reporting date to determine whether there is an indication that previously recognized impairment losses no longer exist or have decreased. If such indication exists, the Group estimates the asset's recoverable amount. A previously recognized impairment loss is reversed only if there has been a change in the assumptions used to determine the asset's recoverable amount. The reversal is limited so that the carrying amount of the asset does not exceed its recoverable amount, nor exceed the carrying amount that would have been determined, net of depreciation, had no impairment loss been recognized for the asset in prior years. Such reversal is recognized as profit or loss.

3. Significant accounting estimates and assumptions (cont'd)

3.7 Leases

In determination of the lease term, the Group considers all relevant facts and circumstances that create an economic incentive to exercise the option to extend the lease, or not to exercise the option to terminate the lease. 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 reassesses the lease term when obligation is incurred upon the occurrence of an exercise (or not to exercise) the option to renew. The Group changes its judgment on whether it is reasonably certain to exercise an option (or not to exercise) only upon the occurrence of a significant event or a significant change in circumstances that is within the control of the lessee.

4. Segments information

(1) Details of reportable segments are as follows:

Operating segments	Activity
Natural gas wholesale	Import, production and wholesale of LNG, Compressed Natural Gas, Natural Gas
Others	Supply of power and heat, equipment conservation, terminal management, labor force management, exploration, development and production of gas and oil

(2) Details of segment results for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021				
	Total revenue	Inter-segment revenue	External revenue	Operating profit[1]	Depreciation and amortization[1]
Natural gas wholesale	₩ 26,156,771	(1,250)	26,155,521	1,001,846	1,143,065
Others	2,090,249	(725,014)	1,365,235	233,421	585,837
Adjustments[1]	-	-	-	4,432	(6,074)
	₩ 28,247,020	(726,264)	27,520,756	1,239,699	1,722,828

[1] Changes from elimination of intra-group transactions in reportable segment operating income and depreciation are presented as adjustments.

	2020				
	Total revenue	Inter-segment revenue	External revenue	Operating profit[1]	Depreciation and amortization[1]
Natural gas wholesale	₩ 20,004,187	(15,980)	19,988,207	950,551	1,152,683
Others	1,302,260	(456,746)	845,514	(63,190)	490,627
Adjustments[1]	-	-	-	11,494	(5,921)
	₩ 21,306,447	(472,726)	20,833,721	898,855	1,637,389

[1] Changes from elimination of intra-group transactions in reportable segment operating income and depreciation are presented as adjustments.

(3) Details of assets and liabilities about operating segments as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021			
	Assets	Investments in associates and joint ventures[1]	Acquisition of non-current assets[2]	Liabilities
Natural gas wholesale	₩ 41,031,613	1,484,926	662,317	33,606,011
Others	11,034,730	235,186	586,374	7,187,132
Adjustments[3]	(8,396,441)	-	-	(6,242,577)
	₩ 43,669,902	1,720,112	1,248,691	34,550,566

[1] Investments in associates represent the amounts after the assessment of invested shares included in reportable segment assets.
[2] Acquisition of non-current assets represents the aggregate amounts of property, plant and equipment, and intangible assets acquired during period before elimination of intra-group transactions.
[3] Changes from elimination of intra-group transactions in reportable segment assets and liabilities are presented as adjustments.

4. Segments information (cont'd)

	2020						
		Assets	Investments in associates and joint ventures[1]	Acquisition of non-current assets[2]	Liabilities
Natural gas wholesale	₩	34,147,454	1,323,208	473,240	27,588,714
Others		9,237,129	199,525	616,839	6,206,268
Adjustments[3]		(7,474,809)	-	-	(5,620,363)
	₩	35,909,774	1,522,733	1,090,079	28,174,619

[1] Investments in associates represent the amounts after the assessment of invested shares included in reportable segment assets.
[2] Acquisition of non-current assets represents the aggregate amounts of property, plant and equipment, and intangible assets acquired during period before elimination of intra-group transactions.
[3] Changes from elimination of intra-group transactions in reportable segment assets and liabilities are presented as adjustments.

(4) Details of external revenue for the ended December 31, 2021 and 2020, and details of non-current assets as of December 31, 2021 and 2020, by geographic locations are as follows (Korean won in millions):

	External Revenue from customers				Non-current assets[1]			
	2021		2020		2021		2020	
Korea	₩	26,193,957	₩	19,948,991	₩	18,222,594	₩	18,738,966
Mexico		4,125		6,738		-		-
Australia		428,796		312,444		4,366,402		3,700,807
Canada		12,160		8,358		827,144		536,799
Iraq		525,751		410,962		987,526		1,003,506
Mozambique		286		295		691,576		569,311
Cyprus		-		-		26,791		26,528
Singapore		281,844		45,769		678		152
Myanmar		73,837		100,164		222,236		166,804
	₩	27,520,756	₩	20,833,721	₩	25,344,947	₩	24,742,873

[1] Non-current assets represent the aggregate amounts of property, plant and equipment, and intangible assets before elimination of intra-group transactions.

5. Cash and cash equivalents

Cash and cash equivalents include cash and bank deposits. Cash and cash equivalents in the consolidated statements of cash flows is the same as the cash and cash equivalents in the consolidated statements of financial position (Korean won in millions):

	2021		2020	
Cash on hand	₩	34	₩	34
Demand deposits		546,249		310,176
Short-term deposits classified as cash equivalents		18,240		21,550
	₩	564,523	₩	331,760

6. Restricted financial assets

Restricted financial assets as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	Description	2021	2020
Cash and cash equivalents	Restriction in use for special porpose business	66,125	54,535
Short-term financial assets	Restriction in use	-	21,760
Long-term financial assets	Restriction in use	90,016	90,015
		₩ 156,141	₩ 166,310

7. Financial assets at fair value through profit or loss

Financial assets at fair value through profit or loss('FVTPL') as of December 31, 2021 and 2020 are as follows (Korean won in millions):

	2021		2020	
	Current	Non-current	Current	Non-current
Financial assets at FVTPL:				
Derivatives undesignated as hedging instruments	₩ 26,759	₩ 10,774	₩ 4,406	₩ 5,029
Derivatives designated as hedging instruments	230	79,488	339	40,174
Profit securities	-	-	7,800	-
Debt instruments	-	2,634	-	1,808
	₩ 26,989	₩ 92,896	₩ 12,545	₩ 47,011

8. Derivative instruments

(1) Details of derivative instruments as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021				2020			
	Current		Non-current		Current		Non-current	
Derivative financial assets:								
Currency forwards	₩	26,852	₩	-	₩	4,745	₩	248
Currency swaps		-		79,718		-		43,429
Interest rate swap		137		10,544		-		1,526
Total[1]	₩	26,989	₩	90,262	₩	4,745	₩	45,203

	2021				2020			
	Current		Non-current		Current		Non-current	
Derivative financial liabilities:								
Currency forwards	₩	(5,985)	₩	(10)	₩	(105,108)	₩	-
Currency swaps		-		(99,652)		-		(35,943)
Interest rate swap		-		(933)		-		(5,853)
Total[1]	₩	(5,985)	₩	(100,595)	₩	(105,108)	₩	(41,796)

[1] Contains derivatives for trading purposes and cash flow hedges.

8. Derivative instruments (cont'd)

(2) Details of foreign currency swap contracts as of December 31, 2021, are as follows (Korean won and Japanese yen in millions, and US dollars, Hong Kong dollars, Euro, and Confoederatio Helvetica Franc in thousnads):

Purpose	Financial institutions	Contract Period	Amount of contract: Sell	Amount of contract: Buy	Interest rate of contract: Sell	Interest rate of contract: Buy	Exchange rate of contract
Trading	DBS	2013.06~2028.06	USD 50,196	KRW 55,788	4.28%	3.30%	USD 1 = KRW 1111.4
	KEB Hana Bank	2013.07~2023.07	USD 65,325	KRW 74,601	4.27%	3.17%	USD 1 = KRW 1142.0
	BNP Paribas	2013.08~2023.08	USD 82,910	KRW 92,635	4.27%	3.54%	USD 1 = KRW 1117.3
	BNP Paribas	2013.08~2023.08	USD 41,133	KRW 46,049	4.24%	3.68%	USD 1 = KRW 1119.5
	KDB	2018.08~2023.08	USD 100,832	KRW 112,861	3.56%	1.83%	USD 1 = KRW 1119.3
	SOGE	2018.08~2023.08	USD 100,832	KRW 112,861	3.56%	1.83%	USD 1 = KRW 1119.3
	BNP Paribas	2019.03~2023.11	USD 201,086	KRW 228,172	3.11%	1.70%	USD 1 = KRW 1134.7
	KDB	2019.03~2023.11	USD 100,543	KRW 114,086	3.11%	1.70%	USD 1 = KRW 1134.7
	BNP Paribas	2020.07~2027.07	USD 58,065	HKD 450,000	1.35%	1.42%	USD 1 = HKD 7.75
Cash flow Hedge	DBS	2013.06~2028.06	KRW 55,788	EUR 38,000	3.30%	3.02%	EUR 1 = KRW 1468.1
	KEB Hana Bank	2013.07~2023.07	KRW 74,601	EUR 50,000	3.17%	3.00%	EUR 1 = KRW 1492.0
	BNP Paribas	2013.08~2023.08	KRW 92,635	JPY 8,000	3.54%	1.46%	JPY 1 = KRW 11.58
	BNP Paribas	2013.08~2023.08	KRW 46,049	JPY 4,000	3.68%	1.46%	JPY 1 = KRW 11.51
	KDB	2018.08~2023.08	KRW 112,861	CHF 100,000	1.83%	0.21%	CHF 1 = KRW 1128.6
	SOGE	2018.08~2023.08	KRW 112,861	CHF 100,000	1.83%	0.21%	CHF 1 = KRW 1128.6
	BNP Paribas	2019.03~2023.11	KRW 228,172	CHF 200,000	1.70%	0.00%	CHF 1 = KRW 1140.9
	KDB	2019.03~2023.11	KRW 114,086	CHF 100,000	1.70%	0.00%	CHF 1 = KRW 1140.9

(3) Details of the interest rate swap contract as of December 31, 2021, are as follows (Korean won in millions)

Purpose	Financial institutions	Period	Amount	Interest rate of contract: Sell	Interest rate of contract: Buy
Trading	KEB Hana Bank	2019.05~2023.05	KRW 100,000	1.78%	3M CD + 0.13%
Trading	KEB Hana Bank	2018.10~2023.10	KRW 100,000	2.35%	3M CD + 0.21%
Trading	KEB Hana Bank	2019.10~2022.10	KRW 100,000	1.54%	3M CD + 0.21%
Trading	KEB Hana Bank	2020.09~2025.09	KRW 100,000	1.29%	3M CD + 0.31%
Trading	KEB Hana Bank	2020.10~2025.10	KRW 200,000	1.30%	3M CD + 0.30%
Trading	KEB Hana Bank	2021.05~2026.05	KRW 100,000	1.77%	3M CD + 0.23%
Trading	KEB Hana Bank	2021.10~2026.10	KRW 300,000	2.07%	3M CD + 0.20%

8. Derivative instruments (cont'd)

(4) Details of foreign currency forward contract as of December 31, 2021, are as follows (Korean won in millions and US dollars in thousands and Canada dollars in thousands)

				Contracted amount				
Purpose	**Financial institutions**	**Contract date**	**Maturity date**	**Sell**		**Buy**		**Exchange rate of contract**
Trading	Daegu Bank	2021-12-13	2022-01-03	KRW	45,980	USD	39,000	1,178.98
	KEB Hana Bank	2021-12-14	2022-01-03	KRW	13,021	USD	11,000	1,183.75
	KEB Hana Bank	2021-12-09	2022-01-03	KRW	105,674	USD	90,000	1,174.15
	BNP Paribas	2021-12-30	2022-01-04	KRW	82,994	USD	70,000	1,185.63
	Daegu Bank	2021-12-02	2022-01-04	KRW	82,454	USD	70,000	1,177.92
	KEB Hana Bank	2021-12-22	2022-01-06	KRW	53,616	USD	45,000	1,191.47
	BNP Paribas	2021-12-22	2022-01-06	KRW	30,974	USD	26,000	1,191.30
	HSBC	2021-12-23	2022-01-06	KRW	77,186	USD	65,000	1,187.47
	ANZ	2021-12-23	2022-01-06	KRW	83,122	USD	70,000	1,187.45
	KEB Hana Bank	2021-12-24	2022-01-06	KRW	106,799	USD	90,000	1,186.65
	Daegu Bank	2021-12-22	2022-01-06	KRW	35,744	USD	30,000	1,191.47
	SOGE	2021-12-23	2022-01-07	KRW	73,637	USD	62,000	1,187.70
	DBS	2021-12-16	2022-01-07	KRW	59,173	USD	50,000	1,183.45
	DBS	2021-12-24	2022-01-07	KRW	53,404	USD	45,000	1,186.75
	KEB Hana Bank	2021-12-23	2022-01-07	KRW	118,745	USD	100,000	1,187.45
	SC Bank	2021-12-23	2022-01-07	KRW	59,380	USD	50,000	1,187.60
	Daegu Bank	2021-12-24	2022-01-10	KRW	94,934	USD	80,000	1,186.68
	Woori Bank	2021-12-27	2022-01-11	KRW	52,208	USD	44,000	1,186.55
	HSBC	2021-12-28	2022-01-11	KRW	35,610	USD	30,000	1,187.00
	Bank of America	2021-12-27	2022-01-11	KRW	71,192	USD	60,000	1,186.54
	Daegu Bank	2021-12-28	2022-01-12	KRW	91,402	USD	77,000	1,187.04
	KEB Hana Bank	2021-12-27	2022-01-12	KRW	118,659	USD	100,000	1,186.59
	HSBC	2021-12-28	2022-01-12	KRW	35,612	USD	30,000	1,187.05
	MIZUHO	2021-12-27	2022-01-13	KRW	59,332	USD	50,000	1,186.63
	Shinhan Bank	2021-12-28	2022-01-13	KRW	65,289	USD	55,000	1,187.07
	CREDIT AGRICOLE	2021-12-28	2022-01-13	KRW	71,227	USD	60,000	1,187.12
	JP Morgan	2021-12-27	2022-01-13	KRW	71,198	USD	60,000	1,186.63
	KEB Hana Bank	2021-12-30	2022-01-14	KRW	166,619	USD	140,500	1,185.90
	Daegu Bank	2021-12-30	2022-01-14	KRW	11,859	USD	10,000	1,185.91
	Daegu Bank	2021-12-30	2022-01-18	KRW	119,789	USD	101,000	1,186.03
	KEB Hana Bank	2021-12-30	2022-01-18	KRW	7,116	USD	6,000	1,186.00
	KB Bank	2021-12-29	2022-01-18	KRW	39,183	USD	33,000	1,187.35
	KEB Hana Bank	2021-12-29	2022-01-18	KRW	9,501	USD	8,000	1,187.66
	ANZ	2021-12-30	2022-01-19	KRW	73,536	USD	62,000	1,186.06
	HSBC	2021-12-30	2022-02-03	KRW	94,910	USD	80,000	1,186.38
	DBS	2021-09-06	2022-03-04	KRW	36,474	USD	31,444	1,159.99
	DBS	2021-09-06	2022-03-04	KRW	39,646	USD	34,178	1,159.99
	DBS	2021-09-07	2022-03-07	KRW	51,500	USD	44,368	1,160.75
	DBS	2021-09-09	2022-03-08	KRW	78,330	USD	66,753	1,173.43
	DBS	2021-09-08	2022-03-08	KRW	36,761	USD	31,487	1,167.50
	SC Bank	2021-09-14	2022-03-11	KRW	41,652	USD	35,377	1,177.40
	DBS	2021-09-10	2022-03-11	KRW	37,098	USD	31,610	1,173.62
	DBS	2021-09-10	2022-03-11	KRW	70,641	USD	60,191	1,173.62
	DBS	2021-09-10	2022-03-11	KRW	42,265	USD	36,012	1,173.62
	SC Bank	2021-09-15	2022-03-14	KRW	32,458	USD	27,615	1,175.38
	SC Bank	2021-09-16	2022-03-15	KRW	49,674	USD	42,304	1,174.23
	KEB Hana Bank	2021-09-16	2022-03-15	KRW	41,354	USD	35,204	1,174.68
	SC Bank	2021-09-17	2022-03-16	KRW	39,343	USD	33,304	1,181.33
	DBS	2021-09-17	2022-03-22	KRW	36,428	USD	30,858	1,180.50
	KEB Hana Bank	2021-09-23	2022-03-22	KRW	39,307	USD	33,305	1,180.22
	KEB Hana Bank	2021-09-27	2022-03-25	KRW	42,126	USD	35,770	1,177.70
	DBS	2021-09-30	2022-03-30	KRW	36,842	USD	31,009	1,188.10
	DBS	2021-09-30	2022-03-30	KRW	63,229	USD	53,219	1,188.10
	DBS	2021-09-30	2022-03-30	KRW	36,677	USD	30,870	1,188.10
	KEB Hana Bank	2021-10-05	2022-04-01	KRW	98,559	USD	82,803	1,190.28

Purpose	Financial institutions	Contract date	Maturity date	Contracted amount				Exchange rate of contract
				Sell		Buy		
	HSBC	2021-10-07	2022-04-05	KRW	39,620	USD	33,202	1,193.30
	KEB Hana Bank	2021-10-08	2022-04-05	KRW	74,377	USD	62,309	1,193.68
	KEB Hana Bank	2021-10-07	2022-04-05	KRW	47,694	USD	39,968	1,193.30
	HSBC	2021-10-08	2022-04-05	KRW	39,574	USD	33,151	1,193.75
	KEB Hana Bank	2021-10-08	2022-04-05	KRW	82,729	USD	69,306	1,193.68
	DBS	2021-10-12	2022-04-08	KRW	72,627	USD	60,536	1,199.73
	HSBC	2021-10-15	2022-04-13	KRW	39,156	USD	32,936	1,188.85
	KEB Hana Bank	2021-10-18	2022-04-15	KRW	46,086	USD	38,844	1,186.46
	Daegu Bank	2021-10-18	2022-04-15	KRW	31,284	USD	26,369	1,186.40
	Shinhan Bank	2021-10-19	2022-04-15	KRW	41,013	USD	34,475	1,189.65
	HSBC	2021-10-20	2022-04-18	KRW	93,455	USD	79,008	1,182.85
	KEB Hana Bank	2021-10-20	2022-04-18	KRW	51,929	USD	43,900	1,182.91
	HSBC	2021-10-21	2022-04-19	KRW	104,365	USD	88,487	1,179.45
	KEB Hana Bank	2021-10-21	2022-04-19	KRW	40,554	USD	34,384	1,179.45
	KEB Hana Bank	2021-10-22	2022-04-20	KRW	44,279	USD	37,482	1,181.32
	KEB Hana Bank	2021-10-26	2022-04-22	KRW	201,357	USD	171,403	1,174.76
	KEB Hana Bank	2021-10-26	2022-04-22	KRW	40,546	USD	34,515	1,174.76
	KEB Hana Bank	2021-10-26	2022-04-22	KRW	33,756	USD	28,734	1,174.76
	KEB Hana Bank	2021-10-27	2022-04-25	KRW	98,301	USD	83,964	1,170.75
	KEB Hana Bank	2021-10-27	2022-04-25	KRW	42,777	USD	36,540	1,170.70
	HSBC	2021-10-28	2022-04-26	KRW	102,090	USD	86,822	1,175.85
	Shinhan Bank	2021-10-29	2022-04-27	KRW	74,176	USD	63,088	1,175.75
	KEB Hana Bank	2021-11-01	2022-04-29	KRW	97,226	USD	82,563	1,177.60
	KEB Hana Bank	2021-11-01	2022-04-29	KRW	42,307	USD	35,930	1,177.50
	HSBC	2021-11-04	2022-05-03	KRW	40,811	USD	34,429	1,185.35
	KEB Hana Bank	2021-11-04	2022-05-03	KRW	39,011	USD	32,911	1,185.37
	DBS	2021-11-08	2022-05-06	KRW	50,201	USD	42,207	1,189.40
	Shinhan Bank	2021-11-08	2022-05-06	KRW	44,561	USD	37,464	1,189.45
	Shinhan Bank	2021-11-08	2022-05-06	KRW	41,164	USD	34,608	1,189.45
	KEB Hana Bank	2021-11-08	2022-05-06	KRW	103,860	USD	87,328	1,189.30
	Shinhan Bank	2021-11-10	2022-05-09	KRW	40,854	USD	34,543	1,182.70
	KEB Hana Bank	2021-11-10	2022-05-12	KRW	237,638	USD	200,510	1,185.17
	SC Bank	2021-11-15	2022-05-13	KRW	44,044	USD	37,230	1,183.03
	KEB Hana Bank	2021-11-18	2022-05-17	KRW	41,923	USD	35,330	1,186.60
	ANZ	2021-11-24	2022-05-23	KRW	78,988	USD	66,208	1,193.02
	ANZ	2021-11-26	2022-05-25	KRW	155,945	USD	130,585	1,194.20
	KEB Hana Bank	2021-11-30	2022-05-27	KRW	70,250	USD	58,797	1,194.80
	MIZUHO	2021-12-07	2022-06-03	KRW	89,164	USD	75,102	1,187.24
	KEB Hana Bank	2021-12-08	2022-06-03	KRW	47,595	USD	40,282	1,181.55
	Shinhan Bank	2021-12-13	2022-06-10	KRW	32,773	USD	27,768	1,180.25
	KEB Hana Bank	2021-07-30	2022-01-28	USD	32,748	KRW	37,645	1,149.55
Cash flow hedge	KEB Hana Bank	2018-11-07	2023-08-04	USD	3,912	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2023-06-02	USD	3,909	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2023-04-04	USD	3,907	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2023-03-03	USD	3,905	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2023-01-04	USD	3,902	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2022-08-04	USD	3,896	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2022-06-30	USD	3,894	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2022-06-03	USD	3,892	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2022-04-04	USD	3,889	CAD	5,000	1.29
	KEB Hana Bank	2018-11-07	2022-02-04	USD	3,886	CAD	5,000	1.29
	KEB Hana Bank	2018-11-07	2022-01-04	USD	3,884	CAD	5,000	1.29

8. Derivative instruments(cont'd)

(5) Gains or losses on valuation of derivatives for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	Valuation gain (loss)		Transaction gain (loss)		Changes in accumulated other comprehensive income(loss)	
	2021	2020	2021	2020	2021	2020
Foreign currency forwards	₩ 20,637	₩ (100,703)	₩ 156,965	₩ (1,688)	₩ (1,190)	₩ (1,293)
Foreign currency swap	(68,710)	33,127	-	(15,234)	12,242	4,428
Interest rate swap	14,074	(299)	-	(2,722)	-	302
	₩ (33,999)	₩ (67,875)	₩ 156,965	₩ (19,644)	₩ 11,052	₩ 3,437

As of December 31, 2021, losses on valuation of derivatives amounting to ₩107 million (2020: ₩7,792 million) in accumulated other comprehensive income are presented net of income tax.

(6) Hedging on non-financial items

The Group currently uses LNG ships that were built specifically for the Group's use for stable LNG supply through the long-term finance lease contract in US dollars with the lessor. As the lease expense is recovered through the sales price as a component of shipping expense, the lease expense and raw material cost, which is also denominated in US dollars, form part of the selling price, and have same exposure to foreign currency change.

In order for the Group to hedge the risk of foreign exchange rate change on its foreign revenue from the natural gas for the power generation, only foreign currency revenue with the same maturity date as the lease liability has been distinguished from long-term supply contract to be designated as the hedged item, and the payment of lease liability has been designated as hedging instrument of non-financial items to apply the hedge accounting. Currency swap exchange rate uses the spot exchange rate at the time of payment by applying hedge accounting.

For the years ended December 31, 2021 and 2020, gains and losses on hedging instruments amounts to ₩(-)152,899 million and ₩111,293 million, respectively, and gains and losses on hedging instruments recognized in other comprehensive income are net of tax effect amounting to ₩(-)110,852 million and ₩80,687 million, respectively.

(7) Hedges of a net investment in a foreign investment operation

In order for the Group to hedge the risk of exchange rate fluctuation caused by the foreign currency translation, hedge accounting has been applied to the net investment of overseas business regarding the difference in foreign exchange which arose between the functional currency of foreign business and of the Group.
The amounts recognized in the consolidated statements of comprehensive income for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Net gains on hedge of net investment in foreign operation, net of income tax	₩ (159,668)	₩ 99,142

(8) Risk management strategies and application methods for risk management

The Group is exposed to certain risks associated with ongoing operations. The main risk managed by derivatives is interest rate risk, foreign exchange risk. The Group's risk management strategies and the methods applied to risk management are described in Note 48.

As of December 31, 2021, the Group entered into an interest rate swaps, currency swaps and currency forward contracts. Interest rate swaps and currency swaps are used to hedge the exposure to changes in cash flows of corporate bonds and currency futures are used to hedge exposures to cash flow changes in foreign currency short-term borrowings.

8. Derivative instruments(cont'd)

(Japanese yen in millions, Euro, Canada dollar, and Confoederatio Helvetica Franc in thousands):

	Currency	Contract amount	Description
	CHF	500,000	
Foreign currency swap	EUR	88,000	Purchase amount
	JPY	12,000	
Foreign currency forwards	CAD	55,000	Purchase amount

Because the terms of currency swaps and currency forward agreements are consistent with the terms of each currency (debt and foreign currency short-term borrowings), there is an economic relationship between the hedged item and the hedging instrument. In addition, because the underlying risk of interest rate swaps, currency swaps and currency forwarding is the same as the hedged risk component, the group has established a 1: 1 hedging ratio for the hedging relationship. In order to assess the hedging effect, the Group uses a major conditional equity method to compare the change in the fair value of the hedging instrument with the variability in the cash flow of the hedged item due to the hedged risk.

The ineffective portion of risk hedge can occur in the following cases:
- Different interest rates applied to discount the hedged item and the hedging instrument curve
- Difference in timing of the cash flow of the hedged item and the hedging instrument
- If the counterparty's credit risk has a different effect on the fair value measurement of the hedging instrument and the hedged item

As of December 31, 2021, there is no ineffective portion of hedge accounting.

9. Trade and other receivables

(1) Trade and other receivables as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021				2020			
	Principal	Allowance for doubtful accounts	Present value discount	Book value	Principal	Allowance for doubtful accounts	Present value discount	Book value
Current:								
Trade receivables	₩ 6,675,746	₩ (19,705)	₩ -	₩ 6,656,041	₩ 4,111,597	₩ (17,745)	₩ -	₩ 4,093,852
Other receivables	324,489	(1,060)	-	323,429	151,876	(973)	-	150,903
	7,000,235	(20,765)	-	6,979,470	4,263,473	(18,718)	-	4,244,755
Non-current:								
Other receivables	217,104	-	(6,717)	210,387	218,894	(9,453)	(8,234)	201,207
	₩ 7,217,339	₩ (20,765)	₩ (6,717)	₩ 7,189,857	₩ 4,482,367	₩ (28,171)	₩ (8,234)	₩ 4,445,962

(2) Other receivables as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021				2020			
	Principal	Allowance for doubtful accounts	Present value discount	Book value	Principal	Allowance for doubtful accounts	Present value discount	Book value
Current:								
Non-trade receivables	₩ 324,060	₩ (1,060)	₩ -	₩ 323,000	₩ 133,281	₩ (973)	₩ -	₩ 132,308
Accrued income	281	-	-	281	18,460	-	-	18,460
Deposit	148	-	-	148	135	-	-	135
	324,489	(1,060)	-	323,429	151,876	(973)	-	150,903
Non-current:								
Non-trade receivables	78,431	-	(5,573)	72,858	101,147	(9,453)	(7,206)	84,488
Non-accrued income	21,300	-	-	21,300	-	-	-	-
Deposit provided	117,373	-	(1,144)	116,229	117,747	-	(1,028)	116,719
	217,104	-	(6,717)	210,387	218,894	(9,453)	(8,234)	201,207
	₩ 541,593	₩ (1,060)	₩ (6,717)	₩ 533,816	₩ 370,770	₩ (10,426)	₩ (8,234)	₩ 352,110

9. Trade and other receivables (cont'd)

(3) Credit risk and provision for impairment

The Group's average period for credit offering on sale of city gas is 45 days. During the initial 45 days from the billing date,interests on trade receivables do not accrue. However, after the period, interests are charged on the balance of payables as the amount calculated by considering interest rate of general entity loans of KEB Hana Bank, the main bank of the Group.

The Group's average period for credit offering on the sale of power generation is 19 days. According to the contract by each customer, the billings are collected by one to three installments. Interests on trade receivables are not charged until the payment date. However, after the due date, interests are charged on the balance of payables as the amount calculated by considering interest rate of general entity loans of KEB Hana Bank, the main bank of the Group.

The Group has some receivables that exceed 120 days, and has established an allowance for bad debts based on past experience.

1) The aging analysis of trade receivables as of December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Receivables that are neither past due nor impaired	₩	6,651,225	₩	4,093,574
Receivables that are past due but not impaired				
45~60 days		13		17
60~90 days		5,201		60
90~120 days		-		24
Over 120 days		-		182
Receivables tested for the impairment				
60~90 days		-		283
90~120 days		-		-
Over 120 days		19,307		17,457
Subtotal		6,675,746		4,111,597
Less: allowance for bad debts		(19,705)		(17,745)
Less: current value discount		-		-
Total	₩	6,656,041	₩	4,093,852

At the end of each reporting period, the Group evaluates whether the credibility of the accounts receivable has been damaged. There is objective evidence of damage to sales bonds, therefore bad debt reserves are set individually for significant items, and bonds excluding individual evaluations are classified as debt instruments subject to collective evaluation, and bad debt reserves are measured according to the expected credit loss model.

9. Trade and other receivables (cont'd)

2) The aging analysis of other receivables as of December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Receivables that are neither past due nor impaired	₩	540,533	₩	360,344
Receivables tested for the impairment				
60~90 days				
90~120 days				
120 days~		1,060		10,426
Subtotal		541,593		370,770
Deduction: allowance for bad debts		(1,060)		(10,426)
Deduction: Present value discount		(6,717)		(8,234)
Total	₩	533,816	₩	352,110

3) Changes in allowance for doubtful accounts for trade and other receivables during the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021				2020			
	Trade receivables		Other receivables		Trade receivables		Other receivables	
Beginning	₩	(17,745)	₩	(10,426)	₩	(19,233)	₩	(1,035)
Bad debt expenses for impaired receivables		(394)		-		(377)		(9,453)
Write-off of trade and other receivables		-		9,453		-		-
Reversal of unused amount		-		-		739		-
Other (exchange rate effect)		(1,566)		(87)		1,126		62
Ending	₩	(19,705)	₩	(1,060)	₩	(17,745)	₩	(10,426)

10. Financial assets at fair value through other comprehensive income

(1) Changes of financial assets at fair value through other comprehensive income ('FVOCI') for the years ended December 31, 2021 and 2020 are as follows (Korean won in millions):

	2021											
	Beginning balance		Acquisition		Disposal		Valuation		Others		Ending balance	
Unlisted equity securities [1]	₩	61,060	₩	-	₩	-	₩	8,525	₩	-	₩	69,585
		61,060		-		-		8,525		-		69,585
Non-current other financial assets at FVOCI	₩	61,060	₩	-	₩	-	₩	8,525	₩	-	₩	69,585

[1] Details of fair value measurement are disclosed in Note 48.

	2020											
	Beginning balance		Acquisition		Disposal		Valuation		Others		Ending balance	
Unlisted equity securities [1]	₩	125,968	₩	-	₩	-	₩	(64,908)	₩	-	₩	61,060
		125,968		-		-		(64,908)		-		61,060
Non-current other financial assets at FVOCI	₩	125,968	₩	-	₩	-	₩	(64,908)	₩	-	₩	61,060

[1] Details of fair value measurement are disclosed in Note 48.

10. Financial assets at fair value through other comprehensive income (cont'd)

(2) Details of financial assets at fair value through other comprehensive income as of December 31, 2021 and 2020 are as follows (Korean won in millions):

	2021				
	Number of shares	**Percentage of ownership**	**Acquisition cost**	**Book value**	**Fair value**
Non-Marketable					
K.K.Korea Kamchatka Co. Ltd. [1]	328	10%	₩ -	₩ -	₩ -
Yemen LNG Company Limited	1,500	6%	19,355	69,054	69,054
Kor-Kaz CNG Investment Limited	691,985	8%	798	531	531
			₩ 20,153	₩ 69,585	₩ 69,585

[1] Acquisition cost, book value and fair value of this financial assets are ₩ 1,000.

	2020				
	Number of shares	**Percentage of ownership**	**Acquisition cost**	**Book value**	**Fair value**
Non-Marketable					
K.K.Korea Kamchatka Co. Ltd. [1]	328	10%	₩ -	₩ -	₩ -
Yemen LNG Company Limited	1,500	6%	19,355	60,816	60,816
Kor-Kaz CNG Investment Limited	691,985	8%	798	244	244
			₩ 20,153	₩ 61,060	₩ 61,060

[1] Acquisition cost, book value and fair value of this financial assets are ₩ 1,000.

11. Financial assets measured at amortized cost

(1) Changes of financial assets measured at amortized cost as of December 31, 2021 and 2020 are as follows (Korean won in millions):

	2021					
	Beginning balance	**Acquisition**	**Disposal**	**Valuation**	**Others[1]**	**Ending balance**
Government and public bond	₩ 509	₩ 109	₩ (94)	₩ -	₩ -	₩ 524
Fixed deposit	953	8,694	(974)	-	15	8,688
	₩ 1,462	₩ 8,803	₩ (1,068)	₩ -	₩ 15	₩ 9,212
Current financial assets measured at amortised cost	₩ 1,047	₩ 8,694	₩ (1,068)	₩ -	₩ 85	₩ 8,758
Non-current financial assets measured at amortized cost	₩ 415	₩ 109	₩ -	₩ -	₩ (70)	₩ 454

[1] Transfer to current portion of its financial assets

11. Financial assets measured at amortised cost (cont'd)

	2020					
	Beginning balance	**Acquisition**	**Disposal**	**Valuation**	**Others[1]**	**Ending balance**
Government and public bond	₩ 466	₩ 143	₩ (100)	₩ -	₩ -	₩ 509
Fixed deposit	-	953	-	-	-	953
	₩ 466	₩ 1,096	₩ (100)	₩ -	₩ -	₩ 1,462
Current financial assets measured at amortised cost	₩ 100	₩ 953	₩ (100)	₩ -	₩ 94	₩ 1,047
Non-current financial assets measured at amortized cost	₩ 367	₩ 143	₩ -	₩ -	₩ (94)	₩ 416

[1] Transfer to Current portion of its financial assets

(2) Details of Financial assets measured at amortised cost as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021			
	Financial assets measured at amortised cost	**Provision for impairment**	**Others**	**Book value**
Government and public bond	₩ 524	₩ -	₩ -	₩ 524
Fixed deposit	8,688	-	-	8,688
	₩ 9,212	₩ -	₩ -	₩ 9,212
Current financial assets measured at amortised cost	8,758	-	-	8,758
Non-Current financial assets measured at amortised cost	454	-	-	454

	2020			
	Financial assets measured at amortised cost	**Provision for impairment**	**Others**	**Book value**
Government and public bond	₩ 509	₩ -	₩ -	₩ 509
Fixed deposit	954	-	-	954
	₩ 1,463	₩ -	₩ -	₩ 1,463
Current financial assets measured at amortised cost	1,047	-	-	1,047
Non-Current financial assets measured at amortised cost	416	-	-	416

12. Loans

(1) Details of long-term loans as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021				
	Face value	Present value discount	Present value premium	Allowance for doubtful accounts	Book value
Student loans[1]	₩ 8,955	₩ -	₩ -	₩ -	₩ 8,955
Employee shareholders loans[2]	323	-	-	-	323
Housing loans[3]	27,436	-	-	-	27,436
Housing lease support loans[4]	41,894	-	-	-	41,894
Associates	294,738	(62,873)	-	-	231,865
Joint ventures	41,302	-	-	-	41,302
Others	212,891	-	-	(28,476)	184,415
	₩ 627,539	₩ (62,873)	₩ -	₩ (28,476)	₩ 536,190
Short-term loans	7,823	-	-	-	7,823
Current portion of long-term loans	653	-	-	-	653
Long-term loans	619,063	(62,873)	-	(28,476)	527,714

[1] The Group provides loans to support education expenses for the children of employees who have served over one year. Repayments of loans are made by deducting a certain amount from the employees' wages.
[2] The Group provides loans at 4% interest rates for the purpose of encouraging employees to retain employee stock ownership in the long-term and to mitigate debt burden. Repayments of loans are made by deducting a certain amount from the employees' wages.
[3] In relation to relocation of the main office, the Group provides loans at a market interest rate (1.0 to 3.4% as of December 31, 2020) to employees without home ownership as support. The loans mature in three years and a lump sum payment for the loan should be paid on maturity.
[4] To support housing stability, the Group provides loans at 0.8 to 1.9% interest rate to employees who reside near the workplace but do not own homes. Loans should be repaid at the end of the lease term.

	2020				
	Face value	Present value discount	Present value premium	Allowance for doubtful accounts	Book value
Student loans[1]	₩ 8,587	₩ -	₩ -	₩ -	₩ 8,587
Employee shareholders loans[2]	409	-	-	-	409
Housing loans[3]	23,880	-	-	-	23,880
Housing lease support loans[4]	34,680	-	-	-	34,680
Associates	237,347	(54,353)	-	-	182,994
Joint ventures	42,379	-	-	-	42,379
Others	173,421	-	-	(28,476)	144,945
	₩ 520,703	₩ (54,353)	₩ -	₩ (28,476)	₩ 437,874
Short-term loans	14,326	-	-	-	14,326
Long-term loans	506,377	(54,353)	-	(28,476)	423,548

[1] The Group provides loans to support education expenses for the children of employees who have served over one year. Repayments of loans are made by deducting a certain amount from the employees' wages.
[2] The Group provides loans at 4% interest rates for the purpose of encouraging employees to retain employee stock ownership in the long-term and to mitigate debt burden. Repayments of loans are made by deducting a certain amount from the employees' wages.
[3] In relation to relocation of the main office, the Group provides loans at a market interest rate (1.0 to 3.4% as of December 31, 2020) to employees without home ownership as support. The loans mature in three years and a lump sum payment for the loan should be paid on maturity.
[4] To support housing stability, the Group provides loans at 0.7 to 2.4% interest rate to employees who reside near the workplace but do not own homes. Loans should be repaid at the end of the lease term.

12. Loans (cont'd)

(2) Details of loans to associates, joint ventures, and other loans as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	Maturity	Interest rate	Book value 2021	Book value 2020	Impairment loss on loans 2021	Impairment loss on loans 2020
Associates :						
Coral FLNG S.A.	2035	-	₩ 218,760	₩ 163,274	₩ -	₩ -
South East Asia Gas Pipeline Company Ltd.	After CTD('13.12) 1 year grace period, 8 years repayment of principal	10.00%	13,105	19,720	-	-
Joint Ventures						
Hyundai Yemen LNG Company Limited		Interest-free	18,148	14,220	-	-
	In case YLNG Project has repayable cash	Min{ Weighted average of YLNG PF interest rate after May, 2008 - 1%, 8%}	17,081	15,676	-	-
		Libor+5%	4,047	3,579	-	-
	In case of receiving dividends when the project has distributable cash	10.00%	2,027	1,990	-	-
ENH KOGAS S.A.	2021	-	-	6,914	-	-
Others:						
K.K.Korea Kamchatka Co. Ltd. [2]	Within 30 days from the distributable amount(=Cash flow - USD 10,000) exceeds nil	LIBOR+2%	-	-	-	-
Yemen LNG Company Limited		Interest-free	37,807	30,539	-	-
	In case YLNG Project has repayable cash	Min{ Weighted average of YLNG PF interest rate after May, 2008 - 1%, 8%}	8,564	7,860	-	-
		Libor+5%	8,429	6,541	-	-
Empresa Nacional de Hidrocarbonetos, E.P	-[1]	8.70%	10,062	5,298	-	-
	-	Libor+1%	119,552	94,708	-	-
	Total		₩ 457,582	₩ 370,319	₩ -	₩ -

[1] The expiration date of ENH Carry under the Development Loan Agreement (DLA) for the Coral FLNG business is the end date of the business (scheduled for June, 2047.).
[2] Considering of possibility of recover, the group recognized ₩ 28,476 million of bad debt provisions.

13. Long-term and short-term financial instruments

Details of long-term and short-term financial instruments as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021 Current	2021 Non-current	2020 Current	2020 Non-current
Financial instruments	₩ 44,379	₩ 7,891	₩ 21,760	₩ 15

14. Other financial assets

Details of other financial assets as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021		2020	
	Current	Non-current	Current	Non-current
Fund management deposits	₩ -	₩ 90,000	₩ -	₩ 90,000

15. Inventories

Details of inventories as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021				2020			
	Acquisition cost	Government grants	Losses on valuation allowance	Book value	Acquisition cost	Government grants	Losses on valuation allowance	Book value
Raw materials	₩ 2,757,395	₩ -	₩ -	₩ 2,757,395	₩ 923,089	₩ -	₩ -	₩ 923,089
Finished goods	115,110	-	-	115,110	78,110	-	(5,476)	72,634
Merchandise	319	-	-	319	-	-	-	-
Supplies	88,339	-	-	88,339	82,677	-	-	82,677
Goods in transit	621,682	-	-	621,682	311,882	-	-	311,882
	₩ 3,582,845	₩ -	₩ -	₩ 3,582,845	₩ 1,395,758	₩ -	₩ (5,476)	₩ 1,390,282

16. Non-financial assets

(1) Details of non-financial assets as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021		2020	
	Current	Non-current	Current	Non-current
Advance payments	₩ 90,273	₩ -	₩ 113,551	₩ -
Prepaid expenses	14,420	70	10,981	72
Other non-financial assets	1,781,566	1,506,902	1,378,467	272,331
	₩ 1,886,259	₩ 1,506,972	₩ 1,502,999	₩ 272,403

(2) Details of other non-financial assets as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021		2020	
	Current	Non-current	Current	Non-current
Special consumption tax	₩ 104,727	₩ -	₩ 98,786	₩ -
Deposits	4,104	-	3,102	-
Others[1]	1,672,735	1,506,902	1,276,579	272,331
	₩ 1,781,566	₩ 1,506,902	₩ 1,378,467	₩ 272,331

[1] Assets due to settlement gains and losses on natural gas sales charges amounting to ₩3,081,450 million in 2021 and ₩1,483,398 million in 2020 are included in others. (Note 17)

17. Natural gas sales charge settlement profits and losses

In accordance with the standard for natural gas supply price and the guidelines for raw material cost pass-through adjustment system for city gas supply and power generation, the difference (hereafter "settlement") between actual costs incurred and current year's revenues is reflected in calculation of the next year's supply price upon the approval of the government.

The Group adjusts settlement gains or losses approved by the government in cost of sales and recognizes the related asset and liability under other non-financial assets and non-financial liabilities, respectively.

Details of other non-financial assets and liabilities arising from settled income of natural gas as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021						
	Raw material cost				Supply cost		
	City gas (civilian demand)	City gas (commercial demand)	City gas (power generating)	Power generating	City gas	Power generating	Total
Other current non-financial assets	₩ 471,169	₩ 321,335	₩ 23,912	₩ 660,167	₩ 151,578	₩ -	₩ 1,628,161
Other non-current non-financial assets	1,294,456	119,614	7,982	31,237	-	-	1,453,289
Other current non-financial liabilities	-	-	-	-		(374,382)	(374,382)
	₩ 1,765,625	₩ 440,949	₩ 31,894	₩ 691,404	₩ 151,578	₩ (374,382)	₩ 2,707,068

	2020						
	Raw material cost[1]				Supply cost		
	City gas (civilian demand)	City gas (commercial demand)	City gas (power generating)	Power generating	City gas	Power generating	Total
Other current non-financial assets	₩ 194,123	₩ 375,736	₩ 28,148	₩ 375,508	₩ 153,750	₩ 119,012	₩ 1,246,277
Other non-current non-financial assets	-	83,866	9,238	144,017	-	-	237,121
	₩ 194,123	₩ 459,602	₩ 37,386	₩ 519,525	₩ 153,750	₩ 119,012	₩ 1,483,398

[1] The revision of the Natural Gas Supply Regulations during the last term has subdivided the classification of assets and liabilities for the raw material cost of city gas charges.

18. Investments in associates and joint ventures

(1) Details of investments in associates and joint ventures as of December 31, 2021 and 2020, are as follows (Korean won in millions, except percentage of ownership):

					2021		
	Business	Country of in Group	Country of domicile	Fiscal year end	Percentage of ownership	Acquisition cost	Book value
Korea Ras Laffan LNG Ltd.[2]	Resource development	Bermuda	Qatar	December 31	60.00%	₩ 19,532	₩ 298,432
Korea LNG Ltd.	Resource development	Bermuda	Oman	December 31	24.00%	3,298	37,632
Hyundai Yemen LNG Company	Resource development	Bermuda	Yemen	December 31	49.00%	482	24,424
Korea LNG Trading Co., Ltd.	Shipping industry	Korea	Korea	December 31	28.00%	601	2,102
Kor-Uz Gas Chemical Investment Ltd.	Resource development	Malaysia	Uzbekistan	December 31	45.00%	347,451	675,865
South-East Asia Gas Pipeline Company Limited [3,7]	Pipe construction	Hong Kong	Myanmar	September 31	4.17%	16,154	39,924
Sulawesi LNG Development Limited [5]	LNG terminal construction & management	United Kingdom	Indonesia	December 31	25.00%	136,726	221,305
TOMORI E&P Limited [4]	Resource development	United Kingdom	Indonesia	December 31	49.00%	126,847	194,995
Coral South FLNG S.A.[3]	Resource development	Mozambique	Mozambique	December 31	10.00%	182	59,572
Coral South FLNG DMCC[1,3]	Resource development	UAE	UAE	December 31	10.00%	15	16
Hydrogen EnergyNetwork Co, Ltd.	Hydrogen infrastructure construction and operation	Korea	Korea	December 31	28.52%	25,800	23,142
Rovuma LNG S.A.[1,3,]	Resource development	Mozambique	Mozambique	December 31	10.00%	185	190
Rovuma LNG Investments (DIFC) Ltd. [1,3]	Resource development	Mozambique	Mozambique	December 31	10.00%	6	6
Kor-Uz Gas cylinder Investment Ltd.	Cylinder business investment	Korea	Uzbekistan	December 31	40.38%	5,790	992
Kor-Uz Gas C&G Investment Ltd.	Charge business investment	Korea	Uzbekistan	December 31	38.85%	2,542	143
TERMINAL KMS de GNL, S. De R.L. De C.V.	LNG terminal construction & management	Mexico	Mexico	December 31	25.00%	34,945	120,137
GLNG Operations Pty. Ltd.[1,6]	LNG Plant management	Australia	Australia	December 31	15.00%	17	15
GLNG Property Pty Ltd. [1,6]	Property lease	Australia	Australia	December 31	15.00%	26	-
ENH - KOGAS, SA.[2]	Pipe construction	Mozambique	Mozambique	June 30	70.00%	78	12,827
LNG Canada Development Inc.[1,6]	LNG Plant construction	Canada	Canada	December 31	5.00%	-	-
Manzanillo Gas Tech, S. de R.L. de C.V. [2]	LNG terminal maintenance & management	Mexico	Mexico	December 31	51.00%	60	1,498
KLBV1 S.A	LNG bunkering ship operation	Panama	Netherlands	December 31	40.00%	5,978	5,895
Korea Superfreeze Incheon Inc. [1,8]	LNG cold-heat refrigerated & frozen logistics warehouse	Korea	Korea	December 31	20.00%	1,000	1,000
						₩ 727,715	₩1,720,112

18. Investments in associates and joint ventures (cont'd)

					2020		
	Business	Country of in Group	Country of domicile	Fiscal year end	Percentage of ownership	Acquisition cost	Book value
Korea Ras Laffan LNG Ltd.[2]	Resource development	Bermuda	Qatar	December 31	60.00%	₩ 19,532	₩ 258,712
Korea LNG Ltd.	Resource development	Bermuda	Oman	December 31	24.00%	3,298	29,129
Hyundai Yemen LNG Company	Resource development	Bermuda	Yemen	December 31	49.00%	482	22,341
Korea LNG Trading Co., Ltd.	Shipping industry	Korea	Korea	December 31	28.00%	601	1,953
Kor-Uz Gas Chemical Investment Ltd.	Resource development	Malaysia	Uzbekistan	December 31	45.00%	347,451	569,619
South-East Asia Gas Pipeline Company Limited [3,7]	Pipe construction	Hong Kong	Myanmar	September 31	4.17%	23,205	33,042
Sulawesi LNG Development Limited [5]	LNG terminal construction & management	United Kingdom	Indonesia	December 31	25.00%	207,107	248,687
TOMORI E&P Limited [4]	Resource development	United Kingdom	Indonesia	December 31	49.00%	126,847	173,568
Coral South FLNG S.A.[3]	Resource development	Mozambique	Mozambique	December 31	10.00%	182	51,513
Coral South FLNG DMCC[1,3]	Resource development	UAE	UAE	December 31	10.00%	15	15
Hydrogen EnergyNetwork Co, Ltd.	Hydrogen infrastructure construction and operation	Korea	Korea	December 31	28.49%	15,300	14,153
Rovuma LNG S.A.[1,3,]	Resource development	Mozambique	Mozambique	December 31	10.00%	185	174
Rovuma LNG Investments (DIFC) Ltd. [1,3]	Resource development	Mozambique	Mozambique	December 31	10.00%	6	5
Kor-Uz Gas cylinder Investment Ltd.	Cylinder business investment	Korea	Uzbekistan	December 31	40.38%	5,790	1,221
Kor-Uz Gas C&G Investment Ltd.	Charge business investment	Korea	Uzbekistan	December 31	38.85%	2,542	769
TERMINAL KMS de GNL, S. De R.L. De C.V.	LNG terminal construction & management	Mexico	Mexico	December 31	25.00%	34,945	102,182
GLNG Operations Pty. Ltd.[1,6]	LNG Plant management	Australia	Australia	December 31	15.00%	17	13
GLNG Property Pty Ltd. [1,6]	Property lease	Australia	Australia	December 31	15.00%	26	-
ENH - KOGAS, SA.[2]	Pipe construction	Mozambique	Mozambique	June 30	70.00%	78	11,375
LNG Canada Development Inc.[1,6]	LNG Plant construction	Canada	Canada	December 31	5.00%	-	-
Manzanillo Gas Tech, S. de R.L. de C.V. [2]	LNG terminal maintenance & management	Mexico	Mexico	December 31	51.00%	60	1,205
KLBV1 S.A	LNG bunkering ship operation	Panama	Netherlands	December 31	40.00%	3,056	3,056
						₩ 790,725	₩1,522,732

[1] The associates and joint ventures did not apply the equity method as the difference between the book value and the net asset value is not significant.
[2] The associates and joint ventures are excluded from the consolidated subsidiaries since the Group is unable to exercise control in several cases such as unanimous approval required when making significant decisions.
[3] Although the percentage of ownership of the associates is less than 20%, the Group has significant influence considering the Group's right to participate in the investee's board of directors and shareholder constitution.
[4] The capital reduction occurred in relation to investment in TOMORI E&P LIMITED in 2020, and the Group recognized a loss on disposal of ₩2,119 million in 2020.
[5] The capital reduction occurred in relation to investment in Sulawesi LNG Development Limited in 2021, which resulted in a recognition of a gain on disposal of ₩70 million in 2021. Capital increase occurred in 2020.
[6] Although the percentage of ownership of the Group is less than 20%, it is classified as a joint venture as it requires unanimity in making decisions on key sales and financial activities.
[7] In relation to the investment equity of South-East Asia Pipeline Company Limited, paid-in capital reduction was conducted in 2021.
[8] Newly established in 2021.

18. Investments in associates and joint ventures (cont'd)

(2) Valuations of investments in associates and joint ventures for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021							
	Beginning balance	Acquisition	Disposal	Dividends received	Gain (loss) on equity method	Equity adjustments of investments in associates and joint ventures	Others	Ending balance
Korea Ras Laffan LNG Ltd.	₩ 258,712	₩ -	₩ -	₩ (59,907)	₩ 75,905	₩ 23,722	₩ -	₩ 298,432
Korea LNG Ltd.	29,129	-	-	(11,017)	11,000	8,520	-	37,632
Hyundai Yemen LNG Company[1]	22,341	-	-	-	(1,272)	3,355	-	24,424
Korea LNG Trading Co., Ltd.	1,953	-	-	-	(21)	170	-	2,102
Kor-Uz Gas Chemical Investment Ltd.	569,619	-	-	-	53,076	53,170	-	675,865
South-East Asia Gas Pipeline Company Limited.	33,042	-	(4,651)	-	8,372	-	3,161	39,924
Sulawesi LNG Development Limited.	248,687	-	(70,381)	-	23,219	19,780	-	221,305
TOMORI E&P Limited.	173,568	-	-	-	5,927	15,500	-	194,995
Coral South FLNG S.A.	51,513	-	-	-	(7,962)	-	16,021	59,572
Coral South FLNG DMCC.	15	-	-	-	-	-	1	16
Hydrogen EnergyNetwork Co, Ltd.	14,153	10,500	-	-	(1,354)	(157)	-	23,142
Rovuma LNG S.A.[1]	174	-	-	-	-	-	16	190
Rovuma LNG Investments (DIFC Ltd.	5	-	-	-	-	-	1	6
Kor-Uz Gas cylinder Investment Ltd.	1,221	-	-	-	(14)	(215)	-	992
Kor-Uz Gas C&G Investment Ltd.[3]	769	-	-	-	14	(68)	(572)	143
TERMINAL KMS de GNL, S. De R.L. De C.V.	102,182	-	-	(3,147)	7,762	3,878	9,462	120,137
GLNG Operations Pty. Ltd.	13	-	-	-	1	-	1	15
GLNG Property Pty Ltd. [2]	-	-	-	-	-	-	-	-
ENH - KOGAS, SA.	11,375	-	-	(7,927)	6,154	-	3,225	12,827
LNG Canada Development Inc.	-	-	-	-	-	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	1,205	-	-	-	178	-	115	1,498
KLBV1 S.A	3,056	2,922	-	-	(146)	63	-	5,895
Korea Superfreeze Incheon Inc.	-	1,000	-	-	-	-	-	1,000
	₩ 1,522,732	₩ 14,422	₩ (75,032)	₩ (81,998)	₩ 180,839	₩ 127,718	₩ 31,431	₩ 1,720,112

[1] Although the percentage of ownership of the Group in the above equity securities is 49%, the equity method is applied considering the contractual terms regarding uneven dividends.

[2] The Group discontinued recognizing changes in investments in the associate as the book value of the equity securities fell below zero.

[3] In relation to Kor-Uz Gas C&G Investment Ltd.'s investment interest, the recoverable amount of investment interest decreased significantly. The Group recognized impairment loss of ₩ 572 million in 2021, which included in 'Gains on investments in associates and joint ventures' of the consolidated comprehensive income statement.

18. Investments in associates and joint ventures (cont'd)

(2) Valuations of investments in associates and joint ventures for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions) (cont'd) :

	2020							
	Beginning balance	Acquisition	Disposal	Dividends received	Gain (loss) on equity method	Equity adjustments of investments in associates and joint ventures	Others	Ending balance
Korea Ras Laffan LNG Ltd.	₩ 359,241	₩ -	₩ -	₩ (38,817)	₩ (47,182)	₩ (14,530)	₩ -	₩ 258,712
Korea LNG Ltd.	53,960	-	-	(9,306)	9,191	(24,716)	-	29,129
Hyundai Yemen LNG Company[1]	47,152	-	-	-	(258)	(24,553)	-	22,341
Korea LNG Trading Co., Ltd.	1,818	-	-	-	263	(128)	-	1,953
Kor-Uz Gas Chemical Investment Ltd.	564,403	-	-	-	42,606	(37,390)	-	569,619
South-East Asia Gas Pipeline Company Limited.	37,872	-	(1,955)	(7,944)	7,237	-	(2,168)	33,042
Sulawesi LNG Development Limited.	254,168	62	-	-	12,872	(18,415)	-	248,687
TOMORI E&P Limited.	224,690	-	(45,506)	-	5,174	(10,790)	-	173,568
Coral South FLNG S.A.	50,524	-	-	-	(8,247)	-	9,236	51,513
Coral South FLNG DMCC.	16	-	-	-	-	-	(1)	15
Hydrogen EnergyNetwork Co, Ltd.	5,890	9,000	-	-	(606)	(131)	-	14,153
Rovuma LNG S.A.[1]	185	-	-	-	-	-	(11)	174
Rovuma LNG Investments (DIFC Ltd.	-	6	-	-	-	-	(1)	5
Kor-Uz Gas cylinder Investment Ltd.	1,568	-	-	-	(156)	(191)	-	1,221
Kor-Uz Gas C&G Investment Ltd.	802	-	-	-	4	(37)	-	769
TERMINAL KMS de GNL, S. De R.L. De C.V.	105,032	-	-	(4,425)	9,273	(1,072)	(6,626)	102,182
GLNG Operations Pty. Ltd.	14	-	-	-	-	-	(1)	13
GLNG Property Pty Ltd. [2]	-	-	-	-	-	-	-	-
ENH - KOGAS, SA.	8,738	-	-	-	5,856	-	(3,219)	11,375
LNG Canada Development Inc.	-	-	-	-	-	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	1,090	-	-	-	196	-	(81)	1,205
KLBV1 S.A	-	3,056	-	-	-	-	-	3,056
	₩ 1,717,163	₩ 12,124	₩ (47,461)	₩ (60,492)	₩ 36,223	₩ (131,953)	₩ (2,872)	₩ 1,522,732

[1] Although the percentage of ownership of the Group in the above equity securities is 49%, the equity method is applied considering the contractual terms regarding uneven dividends.

[2] The Group discontinued recognizing changes in investments in the associate as the book value of the equity securities fell below zero.

18. Investments in associates and joint ventures (cont'd)

(3) Summarized financial information of associates and joint ventures as of December 31, 2021 and 2020, and for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021			
	Assets	**Liabilities**	**Revenue**	**Profit (loss) for the year**
Korea Ras Laffan LNG Ltd.	₩ 497,612	₩ 227	₩ 101,080	₩ 126,506
Korea LNG Ltd.	157,018	217	47,857	45,834
Hyundai Yemen LNG Company	166,791	103,878	-	(2,596)
Korea LNG Trading Co., Ltd.	519,740	512,234	121,763	(76)
Kor-Uz Gas Chemical Investment Ltd.	1,523,173	21,252	-	133,457
South-East Asia Gas Pipeline Company Limited	1,817,870	699,149	440,097	190,256
Sulawesi LNG Development Ltd.	885,334	113	-	91,382
TOMORI E&P Limited	460,587	72,898	116,717	24,112
Coral South FLNG S.A.	8,605,156	7,764,924	-	(1,994)
Coral South FLNG DMCC	4,726,640	4,726,478	-	-
Hydrogen EnergyNetwork Co, Ltd.	93,287	12,145	5,882	(4,615)
Rovuma LNG S.A.	1,859	-	-	260
Rovuma LNG Investments (DIFC) Ltd.	612	839	-	(280)
Kor-Uz Gas cylinder Investment Ltd.	2,473	15	-	(51)
Kor-Uz Gas C&G Investment Ltd.	1,840	-	-	10
TERMINAL KMS de GNL, S. De R.L. De C.V.	994,807	514,260	103,836	31,046
GLNG Operations Pty. Ltd.	103	1	-	8
GLNG Property Pty Ltd.	-	-	-	-
ENH - KOGAS, SA.	23,616	5,291	35,312	8,844
LNG Canada Development Inc.	1	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	5,572	2,635	8,075	349
KLBV1 S.A	32,940	18,203	-	(340)
Korea Superfreeze Incheon Inc.	4,867	120	-	(253)

18. Investments in associates and joint ventures (cont'd)

	2020			
	Assets	**Liabilities**	**Revenue**	**Profit (loss) for the year**
Korea Ras Laffan LNG Ltd.	₩ 431,406	₩ 219	₩ 65,671	₩ (78,636)
Korea LNG Ltd.	121,660	290	40,073	38,296
Hyundai Yemen LNG Company	146,718	89,018	-	(584)
Korea LNG Trading Co., Ltd.	522,709	515,734	107,602	939
Kor-Uz Gas Chemical Investment Ltd.	1,269,851	4,030	-	102,502
South-East Asia Gas Pipeline Company Limited	1,701,285	760,802	458,648	161,519
Sulawesi LNG Development Ltd.	994,844	94	-	51,481
TOMORI E&P Limited	414,574	70,615	89,854	10,559
Coral South FLNG S.A.	6,552,972	6,338,701	-	(9,691)
Coral South FLNG DMCC	3,742,173	3,742,025	-	-
Hydrogen EnergyNetwork Co, Ltd.	62,097	12,424	1,348	(2,124)
Rovuma LNG S.A.	1,741	-	-	-
Rovuma LNG Investments (DIFC) Ltd.	54	-	-	-
Kor-Uz Gas cylinder Investment Ltd.	3,037	12	-	(49)
Kor-Uz Gas C&G Investment Ltd.	1,979	-	-	(4)
TERMINAL KMS de GNL, S. De R.L. De C.V.	951,316	542,588	113,241	37,094
GLNG Operations Pty. Ltd.	6	-	-	-
GLNG Property Pty Ltd.	-	-	-	-
ENH - KOGAS, SA.	28,870	12,620	36,578	8,366
LNG Canada Development Inc.	1	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	3,163	800	11,408	384
KLBV1 S.A	6,831	-	-	(25)

19. Property, plant and equipment

(1) Details of property, plant and equipment as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021				
	Acquisition cost	Governments grants	Accumulated depreciation	Accumulated impairment loss	Book value
Land	₩ 3,234,947	₩ -	₩ -	₩ -	₩ 3,234,947
Buildings	1,261,455	(2,640)	(515,091)	(2,845)	740,879
Structures	6,700,640	(1,439)	(2,690,971)	(48,473)	3,959,757
Machinery	17,810,899	(112,179)	(6,909,059)	(1,288,175)	9,501,486
Computerized facility	68,770	(17)	(48,882)	(2,132)	17,739
Vehicles	46,200	(2,589)	(32,098)	(319)	11,194
Office equipment	58,480	(25)	(47,514)	(541)	10,400
Tools and instruments	68,146	(209)	(58,829)	-	9,108
Timber	55,174	-	-	-	55,174
Construction-in-progress	1,638,692	(22,409)	-	(322,451)	1,293,832
Right-of-use assets	7,147,514	-	(4,821,790)	-	2,325,724
Others	7,700,249	-	(4,017,301)	(1,262,434)	2,420,514
	₩ 45,791,166	₩ (141,507)	₩ (19,141,535)	₩ (2,927,370)	₩ 23,580,754

	2020				
	Acquisition cost	Governments grants	Accumulated depreciation	Accumulated impairment loss	Book value
Land	₩ 3,051,451	₩ -	₩ -	₩ -	₩ 3,051,451
Buildings	1,251,050	(1,811)	(476,727)	(2,612)	769,900
Structures	6,678,709	(1,543)	(2,450,831)	(44,487)	4,181,848
Machinery	17,379,675	(111,229)	(6,253,579)	(1,419,425)	9,595,442
Computerized facility	64,412	(38)	(44,377)	(1,956)	18,041
Vehicles	41,748	(635)	(30,297)	(292)	10,524
Office equipment	56,418	(35)	(44,424)	(497)	11,462
Tools and instruments	66,073	(346)	(55,396)	-	10,331
Timber	55,117	-		-	55,117
Construction-in-progress	995,397	(4,233)	-	(295,933)	695,231
Right-of-use assets	7,129,680	-	(4,556,212)	-	2,573,468
Others	6,783,092	-	(3,294,781)	(1,326,982)	2,161,329
	₩ 43,552,822	₩ (119,870)	₩ (17,206,624)	₩ (3,092,184)	₩ 23,134,144

19. Property, plant and equipment (cont'd)

(2) Changes in property, plant and equipment for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021							
	Beginning balance	Acquisition[1]	Disposal	Depreciation	Impairment[2]	Others	Changes in the scope of consolidation	Ending balance
Land	₩ 3,051,451	₩ 1,929	₩ (1,802)	₩ -	₩ -	₩ 183,369	₩ -	₩ 3,234,947
Buildings	771,711	4,253	(1,560)	(41,242)	-	10,357	-	743,519
(Government grant)	(1,811)	(937)	-	108	-	-	-	(2,640)
Structures	4,183,391	549	(332)	(241,090)	-	18,678	-	3,961,196
(Government grant)	(1,543)	-	-	104	-	-	-	(1,439)
Machinery	9,706,671	22,733	(7,130)	(648,362)	258,451	281,302	-	9,613,665
(Government grant)	(111,229)	(7,652)	-	6,609	-	93	-	(112,179)
Computerized facility	18,079	6,100	(8)	(6,215)	-	(200)	-	17,756
(Government grant)	(38)	-	-	21	-	-	-	(17)
Vehicles	11,159	6,376	(23)	(3,747)	-	18	-	13,783
(Government grant)	(635)	(1,976)	-	180	-	(158)	-	(2,589)
Office equipment	11,497	2,693	(39)	(4,081)	-	355	-	10,425
(Government grant)	(35)	-	-	10	-	-	-	(25)
Tools and instruments	10,677	2,651	(1)	(4,270)	-	260	-	9,317
(Government grant)	(346)	-	-	137	-	-	-	(209)
Timber	55,117	-	(30)	-	-	87	-	55,174
Construction in progress	699,464	843,134	-	-	-	(226,357)	-	1,316,241
(Government grant)	(4,233)	(17,729)	-	-	-	(447)	-	(22,409)
Right-of-use assets	2,573,468	27,624	(2,814)	(273,748)	-	1,194	-	2,325,724
Others	2,161,329	326,220	(1,424)	(423,624)	183,465	174,548	-	2,420,514
	₩ 23,134,144	₩ 1,215,968	₩ (15,163)	₩ (1,639,210)	₩ 441,916	₩ 443,099	₩ -	₩23,580,754

[1] Assets acquired as a result of business combination are included (Note 54)

[2] Reversal of impairment loss amounting to ₩ 457,276 million is recognized in machinery and other property, plant or equipment of KOGAS Australia Pty. Ltd., and impairment loss amounting to ₩15,360 million is recognized in relation to other property, plant or equipment of KOGAS Canada Ltd. Both were included in other gains (losses) in the consolidated statement of comprehensive income. (Note 41)

	2020							
	Beginning balance	Acquisition	Disposal	Depreciation	Impairment[1]	Others	Changes in the scope of consolidation	Ending balance
Land	₩ 3,022,231	₩ 3,144	₩ (683)	₩ -	₩ -	₩ 26,759	₩ -	₩ 3,051,451
Buildings	769,995	6,683	(1,052)	(40,750)	(253)	37,088	-	771,711
(Government grant)	(1,900)	-	-	89	-	-	-	(1,811)
Structures	4,161,398	1,314	(78)	(235,714)	(5,405)	261,876	-	4,183,391
(Government grant)	(1,648)	-	-	105	-	-	-	(1,543)
Machinery	10,169,897	10,736	(10,656)	(654,245)	(202,274)	393,213	-	9,706,671
(Government grant)	(116,681)	-	-	5,452	-	-	-	(111,229)
Computerized facility	14,815	3,184	(4)	(5,370)	(155)	5,609	-	18,079
(Government grant)	(65)	(1)	-	28	-	-	-	(38)
Vehicles	9,678	4,687	(20)	(3,506)	-	320	-	11,159
(Government grant)	(64)	(350)	-	80	-	(301)	-	(635)
Office equipment	11,109	4,318	(17)	(4,029)	-	116	-	11,497
(Government grant)	(25)	(18)	-	8	-	-	-	(35)
Tools and instruments	10,187	3,396	(26)	(4,683)	-	1,803	-	10,677
(Government grant)	(490)	-	-	144	-	-	-	(346)
Timber	52,155	-	(66)	-	-	3,028	-	55,117
Construction in progress	994,844	577,345	-	-	-	(872,725)	-	699,464
(Government grant)	(2,041)	(2,510)	-	-	-	318	-	(4,233)
Right-of-use assets	2,783,446	89,667	(4,060)	(285,607)	-	(9,978)	-	2,573,468
Others	2,500,587	305,914	(92)	(344,426)	(178,003)	(122,651)	-	2,161,329
	₩ 24,377,428	₩ 1,007,509	₩ (16,754)	₩ (1,572,424)	₩ (386,090)	₩ (275,525)	₩ -	₩ 23,134,144

[1] Impairment loss amounting to ₩386,090 million is recognized in relation to buildings, structures, and other property, plant or equipment of KOGAS Australia Pty. Ltd., KOGAS Prelude Pty. Ltd and KOGAS Canada Energy Ltd. and was included in other gains (losses) in the consolidated statement of comprehensive income. (Note 41)

20. Construction and service contracts

(1) Changes in the outstanding construction and service contracts for the years ended Deceember 31, 2021and 2020, are as follows (Korean won in millions):

	2021			
	Beginning balance	Increase[1] (decrease)	Revenue recognized[2]	Ending balance
Domestic construction contracts	₩ 113,431	₩ 165,971	₩ 87,707	₩ 191,695
Domestic service contracts	333	9,715	1,542	8,506
Overseas construction contracts	3,555	318	2,700	1,173
Overseas service contracts	3,250	2,424	2,699	2,975
	₩ 120,569	₩ 178,428	₩ 94,648	₩ 204,349

[1] For the year ended December 31, 2021, the increase in construction and service contracts amounted to ₩184,140 million, respectively, due to the new contracts and the decrease in construction and service contracts amounted to ₩5,712 million, respectively, due to the change in size of existing construction contracts.
[2] The revenue recognition includes ₩ 4,241 million of revenue from service for the year ended December 31, 2021

	2020			
	Beginning balance	Increase[1] (decrease)	Revenue recognized	Ending balance
Domestic construction contracts	₩ 60,152	₩ 108,968	₩ 55,689	₩ 113,431
Domestic service contracts	148	513	328	333
Overseas construction contracts	4,532	206	1,183	3,555
Overseas service contracts	132	5,371	2,253	3,250
	₩ 64,964	₩ 115,058	₩ 59,453	₩ 120,569

[1] For the year ended December 31, 2020, the increase in construction and service contracts amounted to ₩119,456 million, due to the new contracts and the decrease in construction and service contracts amounted to ₩4,398 million, due to the change in size of existing construction contracts.
[2] The revenue recognition includes ₩ 2,581 million of revenue from service for the year ended December 31, 2020

(2) Accumulated revenues and costs of construction in progress as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021						
				Contract assets	Contract liabilities		
	Accumulated revenue	Accumulated loss	Accumulated profit or loss	Unbilled amount	Overbilled amount	Advances	Reserves
Domestic construction contracts	₩ 80,046	₩ 79,748	₩ 298	₩ 4,146	₩ 4,799	₩ 74,515	₩ -
Domestic service contracts	1,090	954	136	129	477	64	-
Overseas construction contracts	31,994	18,496	13,498	1,773	89	-	-
Overseas service contracts	732	599	133	452	-	38	-
Total	₩ 113,862	₩ 99,797	₩ 14,065	₩ 6,500	₩ 5,365	₩ 74,617	₩ -

20. Construction and service contracts (cont'd)

(2) Accumulated revenues and costs of construction in progress as of December 31, 2021 and 2020, are as follows (Korean won in millions): (cont'd)

	2020						
				Contract assets	Contract liabilities		
	Accumulated revenue	Accumulated loss	Accumulated profit or loss	Unbilled amount	Overbilled amount	Advances	Reserves
Domestic construction contracts	₩ 61,362	₩ 60,877	₩ 485	₩ 4,774	₩ 3,100	₩ 53,876	₩ -
Domestic service contracts	9	8	1	9	-	-	-
Overseas construction contracts	29,293	16,759	12,534	438	68	-	-
Overseas service contracts	2,027	1,982	45	360	124	47	-
Total	₩ 92,691	₩ 79,626	₩ 13,065	₩ 5,581	₩ 3,292	₩ 53,923	₩ -

(3) Contract assets and liabilities, unbilled amount and overbilled amount arising from construction and service contracts as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021		2020	
	Contract assets[1]	Contract liabilities	Contract assets[1]	Contract liabilities
Domestic construction contracts	₩ 4,146	₩ 79,314	₩ 4,774	₩ 56,976
Domestic service contracts	129	541	9	-
Overseas construction contracts	1,773	89	438	68
Overseas service contracts	452	38	360	171
Total	₩ 6,500	₩ 79,982	₩ 5,581	₩ 57,215

[1] Contract assets irrelevant to construction contracts are excluded.

(4) As of December 31, 2021, the major effects of changes in the estimated total contract costs, estimated total contract revenues and provision for construction losses related to the ongoing constructions of the Group are as follows (Korean won in millions):

	Changes in total contract revenues	Changes in estimated total contract costs	Effect on profit or loss in the current period	Effect on profit or loss in subsequent periods	Provision for construction losses
Domestic construction contracts	₩ 2,043	₩ 8,920	₩ (6,197)	₩ (680)	₩ 1,117
Overseas service contracts	318	(106)	401	23	-
Overseas construction contracts	353	(352)	614	91	-
Total	₩ 2,714	₩ 8,462	₩ (5,182)	₩ (566)	₩ 1,117

(5) During the years ended December 31, 2021, the Group does not have a contract of which the total contract revenue exceeds 5% of the Group's prior year revenue under the percentage-of-completion method.

(6) Contract assets and liabilities as of December 31, 2021 are as follows (Korean won in millions)

		2021
Contract assets	Unbilled amount(arising from construction)	₩ 6,500
Contract liabilities	Overbilled amount(arising from construction)	5,365
	Advance receipts	74,617

20. Construction and service contracts (cont'd)

(7) Revenue recognized for contract liabilities as of December 31, 2021 and 2020 are as follows. (Korean won in millions):

	2021	2020
Contract liabilities recognized as revenue	₩ 44,709	₩ 20,576

21. Intangible assets other than goodwill

(1) Details of intangible assets other than goodwill as of December 31, 2021 and 2020, are as follows (Korean won in millions):

2021	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment loss	Book value
Intangible exploration and evaluation assets	₩ 708,076	₩ -	₩ -	₩ (231,735)	₩ 476,341
Computer software	120,230	(2,010)	(99,278)	(3,691)	15,251
Patent	15,098	(28)	(3,762)	(4,706)	6,602
Development costs	35,485	-	(35,463)	-	22
Intangible assets under development	7,603	-	-	-	7,603
Right to contributed assets	417,058	-	(140,693)	-	276,365
Land use rights	4,471	-	(2,727)	-	1,744
Mineral rights	1,713,813	-	(325,733)	(466,785)	921,295
Others	417,555	-	(238,979)	(138,104)	40,472
Total	₩ 3,439,389	₩ (2,038)	₩ (846,635)	₩ (845,021)	₩ 1,745,695

2020	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment loss	Book value
Intangible exploration and evaluation assets	₩ 636,081	₩ -	₩ -	₩ (223,395)	₩ 412,686
Computer software	112,022	(116)	(92,641)	(3,388)	15,877
Patent	7,418	(40)	(2,781)	-	4,597
Development costs	35,485	-	(35,456)	-	29
Intangible assets under development	3,244	-	-	-	3,244
Right to contributed assets	417,058	-	(130,358)	-	286,700
Land use rights	4,436	-	(2,597)	-	1,839
Mineral rights	1,579,887	-	(244,153)	(511,165)	824,569
Others	383,467	-	(209,985)	(128,311)	45,171
Total	₩ 3,179,098	₩ (156)	₩ (717,971)	₩ (866,259)	₩ 1,594,712

21. Intangible assets other than goodwill (cont'd)

(2) Changes in intangible assets other than goodwill for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021						
	Beginning balance	Acquisition/ capital expenditure	Disposal	Amortization	Impairment[1]	Others	Ending balance
Intangible exploration and evaluation assets	₩ 412,686	₩ 20,944	₩ -	₩ -	₩ 2,087	₩ 40,624	₩ 476,341
Computer software	15,993	7,646	(14)	(6,422)	-	58	17,261
(Government grant)	(116)	(2,010)	-	116	-	-	(2,010)
Patent	4,637	14	-	(981)	(4,706)	7,666	6,630
(Government grant)	(40)	(2)	-	14	-	-	(28)
Development costs	29	-	-	(7)	-	-	22
Intangible assets under development	3,244	4,276	-	-	-	83	7,603
Right to contributed assets	286,700	-	-	(5,663)	-	(4,672)	276,365
Land use rights	1,839	49	(7)	(137)	-	-	1,744
Mineral rights	824,569	1,788	-	(60,711)	90,188	65,461	921,295
Others	45,171	18	-	(9,827)	1,706	3,404	40,472
	₩ 1,594,712	₩ 32,723	₩ (21)	₩ (83,618)	₩ 89,275	₩ 112,624	₩ 1,745,695

[1]The reversal impairment loss of ₩ 93,981 million for the year ended December 31, 2021 was recognized in relation to intangible exploration and evaluation assets and Mineral rights of KOGAS Australia Pty. Ltd. The impairment loss of ₩ 4,706 million was recognized in relation to patent of KC LNG Tech Co., Ltd. The reversal impairment loss and impairment loss were included in other gains (losses) in consolidated statement of comprehensive income or loss (Note 37).

	2020						
	Beginning balance	Acquisition/ capital expenditure	Disposal	Amortization	Impairment[1]	Others	Ending balance
Intangible exploration and evaluation assets	₩ 403,707	₩ 69,095	₩ -	₩ -	₩ (1,303)	₩ (58,813)	₩ 412,686
Computer software	15,253	4,012	-	(6,258)	-	2,986	15,993
(Government grant)	(194)	-	-	78	-	-	(116)
Patent	4,938	14	-	(481)	-	166	4,637
(Government grant)	(52)	(1)	-	13	-	-	(40)
Development costs	37	-	-	(8)	-	-	29
Intangible assets under development	-	3,204	-	-	-	40	3,244
Right to contributed assets	294,870	-	-	(4,047)	-	(4,123)	286,700
Land use rights	1,925	-	(6)	(131)	-	51	1,839
Mineral rights	969,746	6,246	-	(46,389)	(73,345)	(31,689)	824,569
Others	56,398	-	-	(7,742)	(975)	(2,510)	45,171
	₩ 1,746,628	₩ 82,570	₩ (6)	₩ (64,965)	₩ (75,623)	₩ (93,892)	₩ 1,594,712

[1]The impairment loss of ₩ 75,623 million for the year ended December 31, 2020 was recognized in relation to intangible exploration and evaluation assets of KOGAS Australia Pty. Ltd. and KOGAS Prelude Pty. Ltd. and the impairment loss was included in other gains (losses) in consolidated statement of comprehensive income or loss (Note 37).

21. Intangible assets other than goodwill (cont'd)

(3) The main items related to recognition of impairment loss of property, plant and equipment and intangible assets recognized in the current and prior periods are as follows(Korean won in millions):

2021

Country	Korea	Canada	Australia
Operating segment		Other segment[1]	
Nature of assets	Operating asset related to LNG cargo hold development and others	Property, plant and equipment, and intangible assets including assets for resource development	
Assets to be recognized for impairment	Cash-generating units and individual assets		
Calculation of recoverable amount	Present value of expected cash flows		
Assumptions used			
Post-tax discount rate[2]	15.40%	10.50%	6.50%
Applied unit price	Unit price of technical fees under the agreement	International Index[3,4]	International Index[3,4]
Production	Estimated order volume based on ship order volume of external forecasting agency	Estimated output based on reserve report	Estimated output based on reserve report
Recoverable amount	-	20,088	2,679,230
Reversal of impairment loss(Impairment loss)	(4,706)	(15,360)	551,258
Reason for impairment/reversal	Uncertainty of additional ship orders	Decrease in future economic feasibility due to downscale of development plan	Improvements in business environment, long- term increase in oil price and others
Sensitivity analysis of recoverable amount from changes of discount rate			
1% increase	-	(763)	(220,905)
1% decrease	-	792	253,211
Sensitivity analysis of recoverable amount from changes of applied unit price			
1% increase	-	5,111	372,548
1% decrease	-	(5,112)	(378,267)

[1] Cash generating unit of other segment is each mining area and project.

[2] Weighted average cost of capital considering risk of cash-generating units

[3] Applied trends in oil and gas price are based on long-term forecast of major foreign research institutes.

[4] After the forecast period, a 2% increase rate was applied.

21. Intangible assets other than goodwill (cont'd)

(3) The main items related to recognition of impairment loss of property, plant and equipment and intangible assets recognized in the current and prior periods are as follows(Korean won in millions) (cont'd) :

2020			
Country	Canada	Australia	Australia
Operating segment	Other segment[1]		
Nature of assets	Property, plant and equipment, and intangible assets including assets for resource development		
Assets to be recognized for impairment	Cash-generating units and individual assets		
Calculation of recoverable amount	Present value of expected cash flows		
Assumptions used			
Post-tax discount rate[2]	8.17%	6.28%	6.28%
Applied unit price	International Index	International Index[3,4]	International Index[3,4]
Production	Estimated output based on reserve report	Estimated output based on reserve report	Estimated output based on reserve report
Recoverable amount	40,161	2,304,984	1,683,919
Impairment loss	41,348	338,717	81,648
Reason for impairment	Future economic decline caused by changes in development plan	Changes in business environment, long- term decrease in oil price and others	Changes in business environment, long- term decrease in oil price and others
Sensitivity analysis of recoverable amount from changes of discount rate			
1% increase	(4,351)	(193,874)	(130,876)
1% decrease	4,866	222,835	147,686
Sensitivity analysis of recoverable amount from changes of applied unit price			
1% increase	22,807	346,242	181,306
1% decrease	(23,177)	(346,101)	(184,908)

[1] Cash generating unit of other segment is each mining area and project.

[2] Weighted average cost of capital considering risk of cash-generating units.

[3] Applied trends in oil and gas price are based on long-term forecast of major foreign research institutes.

[4] After the forecast period, a 2% increase rate was applied.

21. Intangible assets other than goodwill (cont'd)

(4) Details of individually significant intangible assets as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021			
	Details		**Amount**	**Remaining amortization period**
Intangible exploration assets	Acquisition in exploration phase	₩	476,341	Phase in exploration
Right to contributed assets	Harbor facility usage right and others		276,365	26.81 years
Mineral rights	Mining Rights		135,403	Phase in development
	Mining Rights		271,571	22.00 years
	Mining Rights		33,355	17.02 years
	Mining Rights		480,966	25.00 years

	2020			
	Details		**Amount**	**Remaining amortization period**
Intangible exploration assets	Acquisition in exploration phase	₩	412,686	Phase in exploration
Right to contributed assets	Harbor facility usage right and others		286,700	35.22 years
Mineral rights	Mining Rights		120,941	Phase in development
	Mining Rights		272,466	23.00 years
	Mining Rights		35,800	18.02 years
	Mining Rights		395,362	26.00 years

(5) Assets, liabilities, income, expenses, and cash inflows from operating activities and investment activities that arose from exploration and evaluation of mineral resources, are as follows (Korean won in millions):

	2021		2020	
Assets	₩	619,040	₩	420,618
Liabilities		683,303		610,142
Income		2,101		-
Expenses		12,026		25,089
Cash inflows from operating activities		(155)		(21)
Cash inflows from investment activities		(20,944)		(69,095)

21. Intangible assets other than goodwill (cont'd)

(6) The Group's property, plant and equipment and intangible assets include its share of joint assets arising from participation of joint operations. The details of significant joint operations as of December 31, 2021 are as follows:

	Main business	Interest of investments	Location
Mozambique Area 4 mining area	Area 4 mining exploration, development and production	10.0%	Mozambique
Zubair Oil Field	Oil field development and production	23.8%	Iraq
Badra Contract Area	Oil field development and production	22.5%	Iraq
Mansuriya Contract Area	Gas field development and production	15.0%	Iraq
Akkas Contract Area	Gas field development and production	75.0%	Iraq
GLNG Project	Gas field development and production, sales	15.0%	Australia
Prelude in Australia	Development of mining area, gas production and sales	10.0%	Australia
Myanmar A-1 and A-3	Development of mining area, gas production and pipeline operation	8.5%	Myanmar
LNG Canada	LNG development	5.0%	Canada
Canadian Horn River	Mining Development and Gas Production	50.0%	Canada
Canadian West Cut Bank, Umiak	Mining Development and Gas Production	20.0%	Canada
Cyprus maritime fields	Resource Development	20.0%	Cyprus

22. Goodwill

(1) Details of goodwill as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Acquisition cost	₩ 145	₩ -
Accumulated impairment loss	-	-
	₩ 145	₩ -

(2) Changes in goodwill for the year ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Beginning balance	₩ -	₩ -
Acquisition[1]	145	-
Ending balance	₩ 145	₩ -

[1] Acquired through a business combination in 2021(Note 54).

23. Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss as of December 31, 2021 and 2020 are as follows (Korean won in millions):

	2021		2020	
	Current	Non-current	Current	Non-current
Derivatives not designated as hedging instruments	₩ 5,985	₩ 73,255	₩ 105,108	₩ 12,736
Derivatives designated as hedging instruments	-	27,340	-	29,059
Total	₩ 5,985	₩ 100,595	₩ 105,108	₩ 41,795

24. Trade and other payables

Trade and other payables as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021		2020	
	Current	Non-current	Current	Non-current
Trade payables	₩ 2,815,234	₩ -	₩ 977,732	₩ –
Non-trade payables	258,871	190	338,674	827
Accrued expenses	229,020	-	210,031	-
Lease liabilities	268,784	1,777,521	208,108	1,792,939
Other payables[1]	4,160	-	2,230	-
Total	₩ 3,576,069	₩ 1,777,711	₩ 1,736,775	₩ 1,793,766

[1] Details of other payables for the years ended December 31, 2021 and 2020 are as follows (Korean won in millions):

	2021		2020	
	Current	Non-current	Current	Non-current
Royalty	₩ 4,160	₩ -	₩ 2,228	₩ -
Deposit	-	-	2	-
Total	₩ 4,160	₩ -	₩ 2,230	₩ -

25. Borrowings and debentures

(1) Borrowings and debentures as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Current		
Short-term borrowings	₩ 7,832,479	₩ 3,110,297
Current portion of debentures	1,934,200	2,004,000
Less : discount on debentures	(385)	(355)
	9,766,294	5,113,942
Non-current		
Long-term borrowings, net of current portion	179,480	760,983
Debentures, net of current portion	16,287,703	16,332,199
Less : discount on debentures	(46,740)	(47,063)
	16,420,443	17,046,119
	₩ 26,186,737	₩ 22,160,061

(2) Repayment schedules of borrowings and debentures as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021		
	Borrowings	Debentures	Total
1 year or less	₩ 7,832,479	₩ 1,934,200	₩ 9,766,679
1 ~ 5 years	3,075	8,753,806	8,756,881
More than 5 years	176,405	7,533,897	7,710,302
	₩ 8,011,959	₩ 18,221,903	₩ 26,233,862

	2020		
	Borrowings	Debentures	Total
1 year or less	₩ 3,110,297	₩ 2,004,000	₩ 5,114,297
1 ~ 5 years	600,000	8,087,788	8,687,788
More than 5 years	160,983	8,244,411	8,405,394
	₩ 3,871,280	₩ 18,336,199	₩ 22,207,479

25. Borrowings and debentures (cont'd)

(3) Short-term borrowings as of December 31, 2021 and 2020, are as follows (Korean won in millions):

Lender	Interest rate	Maturity	2021	2020
Local currency borrowings (asset backed short-term debentures)				
NH Bank	2.01%	-	₩ 99,000	₩ -
KEB Hana Bank	2.26%	-	953,000	-
IBK Bank	1.90%	-	49,000	-
DB Securities Co., Ltd.	-	2021.01~2021.03	-	170,000
KTB Investment & Securities Co., Ltd.	-	2021.01~2021.03	-	530,000
SK Securities Co., Ltd	-	2020.01	-	180,000
BNK Securities Co., Ltd	-	2020.01	-	110,000
Woori Investment Bank Co., Ltd.	-	2021.01~2021.03	-	240,000
DB Securities Co., Ltd.	1.21%~1.96%	2022.01~2022.03	400,000	-
KTB Investment & Securities Co., Ltd.	1.21%~1.91%	2022.01~2022.03	810,000	-
Kyobo Securities Co., Ltd	1.89%	2022.03	20,000	-
Bookook Securities Co., Ltd	1.21%~2.01%	2022.01~2022.03	260,000	-
BNK Securities Co., Ltd	1.21%~1.91%	2022.01~2022.03	140,000	-
Woori Investment Bank Co., Ltd.	1.21%~1.84%	2022.01~2022.03	180,000	-
Eugene Investment & Securities Co., Ltd.	1.23%~1.95%	2022.01~2022.03	70,000	-
Cape Investment & Securities Co., Ltd	1.96%~2.01%	2022.01~2022.02	110,000	-
KDB	12.36%	2022.11	963	2,983
KEB Hana Bank	3M CD+0.21%	2022.01	100,000	-
KEB Hana Bank	3M CD+0.13%	2022.02	100,000	-
KEB Hana Bank	3M CD+0.21%	2022.01	100,000	-
KEB Hana Bank	3M CD+0.31%	2022.01	100,000	-
KEB Hana Bank	3M CD+0.30%	2022.01	200,000	-
KEB Hana Bank	3M CD+0.23%	2022.02	100,000	-
KEB Hana Bank	3M CD+0.20%	2022.02	300,000	-
			4,091,963	1,232,983
Foreign currency borrowings				
DBS	-	2021.02~2021.05	-	376,634
The Export-Import Bank of Korea	-	2021.03~2021.07	-	652,800
KDB	-	2021.03~2021.04	-	636,486
SC Bank	-	2021.04~2021.05	-	211,394
ANZ	0.52%~0.53%	2022.05	232,686	-
BNP Paribas	0.40%~0.64%	2022.03~2022.06	285,966	-
DBS	0.40%~0.46%	2022.03~2022.05	691,814	-
HSBC	0.41%	2022.04	117,468	-
KB Bank	0.58%~0.62%	2022.05~2022.06	89,368	-
KDB	0.45%~0.51%	2022.04~2022.05	1,178,320	-
MIZUHO	0.65%	2022.06	88,747	-
SC Bank	0.39%~0.52%	2022.03~2022.05	465,115	-
The export-import Bank of Korea	0.51%	2022.05	237,100	-
Shinhan Bank	0.45%~0.57%	2022.04~2022.06	353,932	-
			3,740,516	1,877,314
			₩ 7,832,479	₩ 3,107,297

25. Borrowings and debentures (cont'd)

(4) Long-term borrowings as of December 31, 2021 and 2020, are as follows (Korean won in millions, US dollar in thousands):

Lender	Interest rate	Maturity	2021 Foreign currency (USD)	2021 Local currency (KRW)	2020 Foreign currency (USD)	2020 Local currency (KRW)
Local currency borrowings:						
KEB Bank	-	-	-	-	-	₩ 600,000
Foreign currency borrowings						
Korea Energy Agency [1]	-	- [2]	USD 151,396	₩ 179,480	USD 147,963	₩ 160,983
			USD 151,396	₩ 179,480	USD 147,963	₩ 760,983

[1] As of December 31, 2021, the Group provided 15 blank promissory notes to the Korea Energy Agency as collateral for the Group's borrowings.

[2] These are the conditional loan system which will be repaid only if the related developments are available as commercial.

25. Borrowings and debentures (cont'd)

(5) Debentures as of December 31, 2021 and 2020, are as follows (Korean won and Japanese yen in millions, US dollars, Euro, Hong Kong dollars, and Confoederatio Helvetica Franc in thousands):

			2021		2020	
List	Interest rate	Maturity	Foreign currency	Local currency (KRW)	Foreign currency	Local currency (KRW)
283rd	-	2021.05	-	-	-	100,000
288th	-	2021.08	-	-	-	140,000
291st	-	2021.04	-	-	-	200,000
294th	-	2021.08	-	-	-	120,000
298th	-	2021.09	-	-	-	90,000
304th	4.26%	2022.04	-	140,000	-	140,000
305th	4.19%	2022.05	-	120,000	-	120,000
307th	4.13%	2022.05	-	140,000	-	140,000
309th	-	2021.12	-	-	-	140,000
310~311st	4.02%~4.03%	2022.08~2022.09	-	290,000	-	290,000
313rd	3.97%	2022.04	-	100,000	-	100,000
315~316th	3.86%	2022.05~2022.06	-	230,000	-	230,000
318th	3.28%	2027.07	-	170,000	-	170,000
320th	3.12%	2025.09	-	120,000	-	120,000
322~323rd	3.10%~3.13%	2024.09~2025.04	-	170,000	-	170,000
325~340th	2.94%~3.86%	2023.04~2028.08	-	1,830,000	-	1,830,000
344~345th	3.66%~3.71%	2029.04	-	230,000	-	230,000
347~350th	3.73%~3.87%	2024.05~2033.11		430,000		430,000
352~363rd	3.18%~4.02%	2024.03~2034.05	-	1,410,000	-	1,410,000
365th	-	2021.08	-	-	-	180,000
366th	-	2021.09	-	-	-	140,000
367~375th	2.17%~2.93%	2024.10~2030.08	-	1,270,000	-	1,270,000
377~380th	1.77%~2.75%	2030.07~2036.06	-	360,000	-	360,000
383rd	2.79%	2023.02	-	100,000	-	100,000
384th	-	2021.03	-	-	-	150,000
385~388th	2.61%~2.90%	2023.04~2038.05	-	450,000	-	450,000
389th	-	2021.09	-	-	-	100,000
390~395th	1.63%~2.16%	2027.04~2039.03	-	800,000	-	800,000
396th	1.44%	2022.07		110,000		110,000
397~398th	1.42%~1.57%	2028.09		170,000		170,000
399th	1.44%	2022.10		130,000		130,000
400th	1.60%	2039.10		110,000		110,000
402nd	-	2021.11	-	-	-	100,000
403rd	1.70%	2039.11	-	40,000	-	40,000
404~409th	1.39%~1.74%	2027.05~2040.02	-	630,000	-	630,000
410~411st	1.01%~1.05%	2022.11	-	200,000		200,000
412~415th	1.68%~2.18%	2026.03~2031.08	-	400,000		-
Global 4th	6.25%	2042.01	USD 750,000	889,125	USD 750,000	816,000
MTN 13rd	3.02%	2028.06	EUR 38,000	51,009	EUR 38,000	50,853
MTN 15th	3.00%	2023.07	EUR 50,000	67,117	EUR 50,000	66,912
MTN 16th	1.46%	2023.08	JPY 8,000	82,419	JPY 8,000	84,341
MTN 16th(2)	1.46%	2023.08	JPY 4,000	41,210	JPY 4,000	42,170
MTN 17th	4.00%	2024.01	USD 200,000	237,100	USD 200,000	217,600
Global 7th	3.88%	2024.02	USD 500,000	592,750	USD 500,000	544,000

List	Interest rate	Maturity	2021 Foreign currency		2021 Local currency (KRW)		2020 Foreign currency		2020 Local currency (KRW)	
Global 8th	3.50%	2026.07	USD	500,000		592,750	USD	500,000		544,000
MTN 18th	3.58%	2029.07	USD	100,000		118,550	USD	100,000		108,800
MTN 19th	3.58%	2029.07	USD	150,000		177,825	USD	150,000		163,200
MTN 20th	3.58%	2029.07	USD	100,000		118,550	USD	100,000		108,800
MTN 21st	3.50%	2029.10	USD	100,000		118,550	USD	100,000		108,800
MTN 22nd	3.13%	2025.10	USD	200,000		237,100	USD	200,000		217,600
MTN 23rd	3.30%	2025.11	USD	50,000		59,275	USD	50,000		54,400
MTN 24th	3.30%	2025.11	USD	50,000		59,275	USD	50,000		54,400
Global 9th	3.50%	2025.07	USD	500,000		592,750	USD	500,000		544,000
MTN 25th	2.83%	2026.03	USD	100,000		118,550	USD	100,000		108,800
MTN 26th	2.80%	2026.03	USD	100,000		118,550	USD	100,000		108,800
MTN 27th	2.70%	2026.05	USD	100,000		118,550	USD	100,000		108,800
Global 10-1st	-	2021.07		-		-	USD	500,000		544,000
Global 10-2nd	2.25%	2026.07	USD	400,000		474,200	USD	400,000		435,200
Global 11-1st	2.75%	2022.07	USD	400,000		474,200	USD	400,000		435,200
Global 11-2nd	3.13%	2027.07	USD	400,000		474,200	USD	400,000		435,200
CHF 5th	0.21%	2023.08	CHF	200,000		259,494	CHF	200,000		246,866
CHF 6th	-	2023.11	CHF	300,000		389,241	CHF	300,000		370,299
GLOBAL 12nd	2.88%	2029.07	USD	500,000		592,750	USD	500,000		544,000
MTN 28th	1.42%	2027.07	HKD	450,000		68,414	HKD	450,000		63,158
Global 13-1st	1.13%	2026.07	USD	450,000		533,474		-		-
Global 13-2nd	2.00%	2031.07	USD	350,000		414,925		-		-
Total			USD	6,000,000	₩	18,221,903	USD	5,700,000	₩	18,336,199
			CHF	500,000			CHF	500,000		
			JPY	12,000			JPY	12,000		
			EUR	88,000			EUR	88,000		
			HKD	450,000			HKD	450,000		
Less: Discount on debentures			USD	(39,525)	₩	(47,125)	USD	(39,108)	₩	(47,418)
			CHF	(1,116)			CHF	(1,757)		
			HKD	(7,312)			HKD	(8,550)		
Balance after deduction			USD	5,960,475	₩	18,174,778	USD	5,660,892	₩	18,288,781
			CHF	498,884			CHF	498,243		
			JPY	12,000			JPY	12,000		
			EUR	88,000			EUR	88,000		
			HKD	442,688			HKD	441,450		
Less: current portion					₩	(1,934,200)			₩	(2,004,000)
Less: current portion of discount on debentures					₩	385			₩	355
Total					₩	16,240,963			₩	16,285,136

26. Leases

(1) Lease contract

During the current period, lease contracts with a lease term of 12 months or less were classified as short-term leases and recognized an expense of ₩2,137 million and lease contracts with an underlying asset of ₩5 million or less were recognized as a small lease contract with an expense of ₩1,210 million.

(2) Details of lease liabilities as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021		2020	
	Minimum lease payments	Present value of minimum lease payments	Minimum lease payments	Present value of minimum lease payments
Long-term transportation contract lease				
1 year or less	₩ 251,649	₩ 248,995	₩ 190,629	₩ 188,797
1~5 years	671,018	642,330	616,545	592,294
More than 5 years	1,163,174	1,002,152	1,231,074	1,069,493
	₩ 2,085,841	₩ 1,893,477	₩ 2,038,248	₩ 1,850,584
Lease from the adoption of KIFRS 1116 (*)				
1 year or less	₩ 20,298	₩ 19,789	₩ 19,712	₩ 19,311
1~5 years	55,379	51,864	55,097	51,977
More than 5 years	₩ 104,065	₩ 81,175	₩ 101,014	₩ 79,175
	179,742	152,828	175,823	150,463
Total				
1 year or less	₩ 271,947	₩ 268,784	₩ 210,341	₩ 208,108
1~5 years	726,397	694,194	671,642	644,271
More than 5 years	1,267,239	1,083,327	1,332,088	1,148,668
	₩ 2,265,583	₩ 2,046,305	₩ 2,214,071	₩ 2,001,047

(3) Details of liquidity classification of lease liabilities are as follows (Korean won in millions):

	2021	2020
Current liabilities	268,784	208,108
Non-current liabilities	1,777,521	1,792,939
	2,046,305	2,001,047

26. Leases (cont'd)

(4) The changes in lease liabilities for the years ended December 31, 2021 and 2020 are as follows (Korean won in millions):

	2021					
	Beginning balance	Increase	Interest expenses	Decrease	Others	Ending balance
Lease liabilities	₩ 2,001,047	₩ 25,740	₩ 29,513	₩ (247,200)	₩ 237,205	₩ 2,046,305

	2020					
	Beginning balance	Increase	Interest expenses	Decrease	Others	Ending balance
Lease liabilities	₩ 2,268,620	₩ 88,341	₩ 52,267	₩ (230,493)	₩ (177,688)	₩ 2,001,047

(5) The details of the composition of right-of-use assets for the years ended December 31, 2021 and 2020 are as follows (Korean won in millions):

	2021				
	Acquisition cost	Accumulated depreciation	Accumulated impairment loss	Other	Book value
Land	146,932	(26,175)	-	-	120,757
Buildings	16,738	(5,938)	-	-	10,800
Structures	2,750	(183)			2,567
Machinery	18,273	(3,267)	-	-	15,006
Vehicles	11,604	(8,335)	-	-	3,269
Office equipment	6	(4)	-	-	2
Vessel	6,949,798	(4,776,711)	-	-	2,173,087
Aircrafts	1,376	(1,144)	-	-	232
Software	37	(33)	-	-	4
	₩ 7,147,514	₩ (4,821,790)	₩ -	₩ -	₩ 2,325,724

	2020				
	Acquisition cost	Accumulated depreciation	Accumulated impairment loss	Other	Book value
Land	140,385	(18,942)	-	-	121,443
Buildings	15,628	(6,217)	-	-	9,411
Structures	2,524	(112)			2,412
Machinery	9,362	(1,636)	-	-	7,726
Vehicles	11,678	(5,465)	-	-	6,213
Office equipment	6	(2)	-	-	4
Vessel	6,948,805	(4,523,202)	-	-	2,425,603
Aircrafts	1,263	(620)	-	-	643
Software	29	(16)	-	-	13
	₩ 7,129,680	₩ (4,556,212)	₩ -	₩ -	₩ 2,573,468

26. Leases (cont'd)

(6) Changes in right-of-use assets for the years ended December 31, 2021 and 2020 are as follows (Korean won in millions):

	2021				
	Beginning balance	Increase	Depreciation	Others	Ending balance
Right-of-use assets					
Land	₩ 121,443	₩ 11,278	₩ (10,031)	₩ (1,933)	₩ 120,757
Buildings	9,419	5,999	(4,469)	(149)	10,800
Structures	2,412	-	(59)	214	2,567
Machinery	7,726	8,825	(1,566)	21	15,006
Vehicles	6,205	1,104	(3,899)	(141)	3,269
Office equipment	4	-	(2)	-	2
Vessel	2,425,603	413	(253,255)	326	2,173,087
Aircrafts	643	-	(452)	41	232
Software	13	5	(15)	1	4
	₩ 2,573,468	₩ 27,624	₩ (273,748)	₩ (1,620)	₩ 2,325,724

	2020				
	Beginning balance	Increase	Depreciation	Others	Ending balance
Right-of-use assets					
Land	₩ 131,257	₩ 18,858	₩ (15,571)	₩ (13,101)	₩ 121,443
Buildings	8,493	5,901	(4,627)	(356)	9,411
Structures	2,626	-	(61)	(153)	2,412
Machinery	7,216	1,717	(1,144)	(63)	7,726
Vehicles	7,899	2,292	(3,902)	(76)	6,213
Office equipment	6	-	(2)	-	4
Vessel	2,624,895	60,780	(259,818)	(254)	2,425,603
Aircrafts	1,006	138	(466)	(35)	643
Software	48	(19)	(16)	-	13
	₩ 2,783,446	₩ 89,667	₩ (285,607)	₩ (14,038)	₩ 2,573,468

26. Leases (cont'd)

(7) Amounts recognized in the consolidated statements of profit or loss related to the leases for the years ended December 31, 2021 and 2020 are as follows (Korean won in millions):

	2021	2020
Depreciation of right-of-use assets		
Land	₩ 10,031	₩ 15,571
Buildings	4,469	4,627
Structures	59	61
Machinery	1,566	1,144
Vehicles	3,899	3,902
Office equipment	2	2
Vessel	253,255	259,818
Aircrafts	452	466
Software	15	16
	₩ 273,748	₩ 285,607
Interest expenses (finance cost) of lease liabilities	₩ 29,513	₩ 52,267
Interest income (finance income) on present value discount of deposit	1,317	1,908
Short-term lease payment (included in cost of sales and maintenance expenses)	2,137	1,850
Low-value lease payment (included in cost of sales and maintenance expenses)	1,210	851

27. Retirement benefits

The Group operates both defined contribution and defined benefit pension plans.

(Defined Contribution Pension Plan)

- For defined contribution plan, the mandatory contribution amount of the Group is set on contractual or voluntary basis. The Group has no further payment obligation once the contribution has been paid.
- Employees select a publicly or privately administered pension insurance plan based on the rule of the plan and bear the risk.
- The pensionable right of employees is guaranteed in the plan as the contribution is accumulated in each employee's name, independently from the Group.

(Defined Benefit Pension Plan)

- For defined benefit plan, the benefit amount of the employees is set, depending on their age, periods of service or salary levels.
- Employees expect their own post-employment benefit amount reasonably and the Group bear the risk.

(1) Defined Contribution Plan

The expense recognized in the current period in relation to defined contribution plan was ₩6,119 million (2020: ₩9,088 million).

Details of recognized expense related to the defined contribution plan for the years ended December 31, 2021 and 2020 are as follows (Korean won in millions):

	2021	2020
Cost of sales	₩ 4,335	₩ 4,942
Selling and administrative expenses	1,702	4,096
Others	82	50
Total	₩ 6,119	₩ 9,088

(2) Defined Benefit Plan

According to defined benefit plan, the employees will receive their average salary for the past three months multiplied by the rate of payment considering the year of service on their retirement. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method.

(3) Details of net defined benefit liabilities (assets) recognized in the consolidated statements of financial position as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Present value of funded defined benefit liabilities	₩ 369,312	₩ 400,245
Fair value of plan assets	(393,641)	(397,687)
Net defined benefit liabilities	₩ (24,329)	₩ 2,558

(4) Changes in the carrying amount of defined benefit liabilities for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Beginning balance	₩ 400,245	₩ 362,316
Current service cost	45,223	45,324
Interest expense	13,510	11,812
Remeasurements	(64,537)	(1,253)
Convert to defined contribution	(8,944)	(5,232)
Benefit payments	(16,208)	(12,706)
Foreign exchange difference	23	(16)
Ending balance	₩ 369,312	₩ 400,245

27. Retirement benefits (cont'd)

(5) Chenges in the fair value of plan assets for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Beginning balance	₩	397,687	₩	368,967
Interest income		12,646		10,685
Remeasurements		(5,210)		(3,622)
Employer's contributions:		10,617		36,115
Benefit payments		(5,891)		(1,752)
Convert to defined contribution		(16,208)		(12,706)
Ending balance	₩	393,641	₩	397,687

The Group recognized accumulated actuarial gains and losses, net of tax, as other comprehensive income amounting to ₩ (-)1,983 million and ₩ (-)45,689 million as of December 31, 2021 and 2020, respectively.

(6) Plan assets as of December 31, 2021 and 2020, consist of (Korean won in millions):

		2021		2020
Deposits	₩	44,665	₩	28,907
Insurance instrument		57,201		121,983
Debt instrument		230,905		190,825
Equity instruments		1,357		-
Others		59,513		55,972
	₩	393,641	₩	397,687

(7) The principal actuarial assumptions as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Discount rate	3.80% ~ 4.07%	3.21% ~ 3.47%
Future salary growth rate	1.4%+promotion rate ~ 4.36%	2.8%+promotion rate ~ 4.95%

Promotion rate used for future salary increases calculations in 2021, are as follows (Korean won in millions):

	Age	Experience rate
Promotion rate	30	3.464%
	35	2.953%
	40	2.573%
	45	2.280%
	50	2.046%

(8) The amounts recognized in profit or loss in relation to defined benefit plan for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Current service cost	₩	45,223	₩	45,324
Interest expense		13,510		11,812
Interest income		(12,646)		(10,685)
	₩	46,087	₩	46,451

27. Retirement benefits (cont'd)

(9) The above amounts recognized in the consolidated statements of comprehensive income for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Cost of sales	₩	33,823	₩	34,793
Selling and administrative expenses		10,830		10,372
Construction in progress		1,434		1,144
Others		-		142
	₩	46,087	₩	46,451

(10) Remeasurements of defined benefit plan recognized as other comprehensive income for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Remeasurements of defined benefit plan	₩	(64,537)	₩	(1,253)
Return on plan assets		5,210		3,622
	₩	(59,327)	₩	2,369

(11) The Group predicts that it wil pay ₩6,317 million in relation to the defined benefit plan in 2021 (₩30,783 million in relation to the defined benefit plan in 2020).

(12) The expected maturity analysis of undiscounted pension benefits as of December 31, 2021, are as follows (Korean won in millions):

	2021									
		Less than 1 year		Between 1-2 years		Between 2-5 years		Over 5 years		Total
Pension benefits	₩	13,345	₩	21,328	₩	110,091	₩	1,438,655	₩	1,583,419

28. Provisions

(1) Details of provisions as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021						2020					
		Current		Non-current		Total		Current		Non-current		Total
Provision for employee benefits	₩	96,885	₩	19,003	₩	115,888	₩	80,286	₩	30,343	₩	110,629
Greenhouse gas		4,182		-		4,182		7,437		-		7,437
Provision for financial guarantee		-		15,789		15,789		-		17,996		17,996
Lawsuit		18,382		528		18,910		11,800		528		12,328
Provision for post-processing, restoration, and purification		-		125,952		125,952		-		130,747		130,747
Provision for loss-bearing contracts		1,117		-		1,117		4,120		-		4,120
Others		5,481		4,772		10,253		1,903		3,254		5,157
	₩	126,047	₩	166,044	₩	292,091	₩	105,546	₩	182,868	₩	288,414

28. Provisions (cont'd)

(2) Changes in provisions for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021					
	Beginning balance	Increase	Utilization	Reversed	Others	Ending balance
Provision for employee benefits	₩ 110,629	₩ 86,086	₩ (71,809)	₩ (9,018)	₩ -	₩ 115,888
Greenhouse gas	7,437	9,929	(13,184)	-	-	4,182
Provision for financial guarantee	17,996	72,315	(74,490)	-	(32)	15,789
Lawsuit	12,328	8,285	(2,000)	-	297	18,910
Provision for post-processing, restoration, and purification[1]	130,747	(7,958)	(1,395)	(11,165)	15,723	125,952
Provision for loss-bearing contracts	4,120	-	-	(3,003)	-	1,117
Others	5,157	2,372	(1,641)	(1,478)	5,843	10,253
	₩ 288,414	₩ 171,029	₩ (164,519)	₩ (24,664)	₩ 21,831	₩ 292,091

	2020					
	Beginning balance	Increase	Utilization	Reversed	Others	Ending balance
Provision for employee benefits	₩ 101,921	₩ 84,794	₩ (76,086)	₩ -	₩ -	₩ 110,629
Greenhouse gas	9,686	3,220	(5,469)	-	-	7,437
Provision for financial guarantee	10,522	7,182	(46)	-	338	17,996
Lawsuit	4,200	135,052	(127,005)	-	81	12,328
Provision for post-processing, restoration, and purification[1]	170,653	20,707	(1,158)	(51,037)	(8,418)	130,747
Provision for loss-bearing contracts	-	4,120	-	-	-	4,120
Others	5,238	250	(22)	(1)	(308)	5,157
	₩ 302,220	₩ 255,325	₩ (209,786)	₩ (51,038)	₩ (8,307)	₩ 288,414

During the current year, provisions related to post-treatment, restoration, and remediation costs of KOGAS Iraq B.V. and KOGAS Badra B.V. were reversed due to changes in estimates.

29. Emission rights and liabilities

(1) Free allocation of emission rights

The amounts of free allocation for emission rights for each planning period and implementation year as of December 31, 2021 are as follows (in tCO2-eq):

	3rd planning period					
	2021	**2022**	**2023**	**2024**	**2025**	**Total**
Free allocation of emission rights	569,525	569,525	569,525	189,842	189,842	2,088,259

The amounts of free allocation for emission rights for each planning period and implementation year as of December 31, 2020 are as follows (tCO2-eq):

	2nd planning period			
	2018	**2019**	**2020**	**Total**
Free allocation of emission rights	742,316	719,011	700,119	2,161,446

(2) Changes in greenhouse gas emission rights for each year are as follows (in tCO2-eq, Korean won in millions):

	2018		2019		2020	
	Quantity	**Book value**	**Quantity**	**Book value**	**Quantity**	**Book value**
As of January 1	745,268	₩ -	680,633	₩ -	680,633	₩ -
Carried over from prior year	84,177	-	-	-	-	-
Free allocation	-	-	41,099	-	21,614	-
Cancellation of free allocation	(2,952)	-	(2,721)	-	(2,128)	-
Submission to government[1]	(1,051,864)	(6,325)	(934,562)	(5,469)	(842,561)	(3,160)
Trading	225,371	6,325	142,502	4,611	215,491	4,018
Borrowing	-	-	73,049	858	(73,049)	(858)
As of December 31	-	₩ -	-	₩ -	-	₩ -

	2021		Total	
	Quantity	**Book value**	**Quantity**	**Book value**
As of January 1	569,525	₩ -	2,676,059	₩ -
Carried over from prior year	-	-	84,177	-
Free allocation	-	-	62,713	-
Cancellation of free allocation	-	-	(7,801)	-
Submission to government[1]	(688,671)	(4,182)	(3,517,658)	(19,136)
Trading	-	-	583,364	14,954
Borrowing	-	-	-	-
As of December 31	(119,146)	₩ (4,182)	(119,146)	₩ (4,182)

[1] Emissions for 2021 are estimated as of December 31, 2021.

(3) Others

There are no greenhouse gas emission rights provided as collateral by the Group as of December 31, 2021.

The estimated emissions for the year ended December 31, 2021 amount to 688,671 tCO2-eq and permitted emissions for the year ended December 31, 2020 amounted to 842,561 tCO2-eq. The Group changed calculation method according to the revision of the emission certification guidelines (Ministry of Environment notice No. 2019-245). Thus, there is difference between the quantity of submission to government and relevant account statements.

30. Government grants

(1) Government grants relating to property, plant and equipment are presented as the deduction from related assets and unused amounts are recognized as liabilities (deferred government grant income).

(2) Details of government grants as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Liabilities		
Deferred government grants income	₩ 1,726	₩ 7,622
Assets		
Buildings	2,640	1,811
Structures	1,439	1,543
Machinery	112,179	111,229
Computerized facility	17	38
Furniture and equipment	25	35
Vehicles	2,589	635
Tools and instruments	209	346
Construction in progress	22,409	4,233
Computer software	2,010	116
Copy right, patents and other industrial property right	28	40
	143,545	120,026
	₩ 145,271	₩ 127,648

(3) Changes in government grants for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021							
	Beginning balance	Receipt	Acquisition	Offset	Disposal	Revenue recognition	Others	Ending balance
Liabilities								
Deferred government grants income	₩ 7,622	₩ 24,157	₩ (25,522)	₩ -	₩ -	₩ (4,531)	₩ -	₩ 1,726
Assets								
Buildings	1,811	-	937	(108)	-	-	-	2,640
Structures	1,543	-	-	(104)	-	-	-	1,439
Machinery	111,229	-	7,652	(6,609)	-	-	(93)	112,179
Computerized facility	38	-	-	(21)	-	-	-	17
Furniture and equipment	35	-	-	(10)	-	-	-	25
Vehicles	635	-	1,976	(180)	-	-	158	2,589
Tools and instruments	346	-	-	(137)	-	-	-	209
Construction in progress	4,233	4,765	12,964	-	-	-	447	22,409
Computer software	116	-	2,010	(116)	-	-	-	2,010
Copy right, patents and other industrial property right	40	-	2	(14)	-	-	-	28
	120,026	4,765	25,541	(7,299)	-	-	512	143,545
	₩ 127,648	₩ 28,922	₩ 19	₩ (7,299)	₩ -	₩ (4,531)	₩ 512	₩ 145,271

30. Government grants (cont'd)

(3) Changes in government grants for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions)(cont'd):

	2020							
	Beginning balance	Receipt	Acquisition	Offset	Disposal	Revenue recognition	Others	Ending balance
Liabilities								
Deferred government grants income	₩ 323	₩ 5,485	₩ (366)	₩ -	₩ -	₩ (1,072)	₩ 3,252	₩ 7,622
Assets								
Buildings	1,900	-	-	(89)	-	-	-	1,811
Structures	1,648	-	-	(105)	-	-	-	1,543
Machinery	116,681	-	-	(5,452)	-	-	-	111,229
Computerized facility	65	-	1	(28)	-	-	-	38
Furniture and equipment	25	-	18	(8)	-	-	-	35
Vehicles	64	301	350	(80)	-	-	-	635
Tools and instruments	490	-	-	(144)	-	-	-	346
Construction in progress	2,041	2,510	-	-	-	-	(318)	4,233
Computer software	194	-	1	(79)	-	-	-	116
Copy right, patents and other industrial property right	52	-	-	(12)	-	-	-	40
	123,160	2,811	370	(5,997)	-	-	(318)	120,026
	₩ 123,483	₩ 8,296	₩ 4	₩ (5,997)	₩ -	₩ (1,072)	₩ 2,934	₩ 127,648

(4) Income from government grants for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Offsetting of government grants related to deferred income (sales)	₩ 4,531	₩ 1,072
Offsetting of government grants related to depreciation	7,299	5,997
Others	192	369
	₩ 12,022	₩ 7,438

30. Government grants (cont'd)

(5) Changes in government grants for each specific business assistance project for the year ended December 31, 2021 are as follows (Korean won in millions):

Department	Project	Period	Budget	Amount Carried Over from prior year	Increase						Decrease						Amount to be carried forward subsequent year
					Receipt			Interest			Execution			Calculation			
					Self-burden	Local Government charges	Government grants	Self-burden	Local Government charges	Government grants	Self-burden	Local Government charges	Government grants	Self-burden	Local Government charges	Government grants	
Ministry of Land, Infrastructure and Transport	Green New Deal startup support project	2021.04 ~2021.12	₩ 1,000	₩ -	₩ -	₩ -	₩ 1,000	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 999	₩ -	₩ -	₩ 1	₩ -
Ministry of Land, Infrastructure and Transport	Construction of Hydrogen Public Relations Center (Content)	2021.01 ~2022.03	500	-	-	-	500	-	-	-	-	-	400	-	-	-	100
Ministry of Land, Infrastructure and Transport	Regional co-prosperity type hydrogen R&D support project	2021.01 ~2021.12	600	-	-	-	600	-	-	-	-	-	574	-	-	26	-
Ministry of Trade, Industry and Energy	Construction of hydrogen exchange	2021.01 ~2021.12	80	-	-	-	80	-	-	-	-	-	63	-	-	17	-
Ministry of Trade, Industry and Energy	Hydrogen distribution Monitoring Center Operations	2021.01 ~2021.12	816	-	-	-	816	-	-	1	-	-	709	-	-	108	-
Ministry of Trade, Industry and Energy	Hydrogen station monitoring System	2021.01 ~2021.12	1,100	-	-	-	1,100	-	-	1	-	-	987	-	-	114	-
Ministry of Trade, Industry and Energy	Trailer support tube	2021.01 ~2021.12	3,200	-	1,600	-	1,600	-	-	3	1,596	-	1,596	4	-	7	-
Ministry of Land, Infrastructure and Transport	Development of optimal hydrogen distribution networks	2021.01 ~2022.12	1,820	-	-	-	1,820	-	-	1	-	-	1,523	-	-	3	295
Ministry of Trade, Industry and Energy	Construction of medium-sized hydrogen production bases	2020.01 ~2022.12	67,240	-	17,400	-	11,600	-	-	35	6,768	-	4,494	-	-	35	17,738
Ministry of Trade, Industry and Energy	Construction of hydrogen production bases in Pyeongtaek in 2021	2021.05 ~2023.04	57,280	-	6,900	-	3,450	-	-	1	6,900	-	3,450	-	-	1	-
Ministry of Land, Infrastructure and Transport	Purchase of hydrogen tube trailers in Daegu	2021.01 ~2021.12	400	-	-	-	400	-	-	-	-	-	380	-	-	20	-
Ministry of Land, Infrastructure and Transport	Construction of Hydrogen Public Relations Center in Daegu	2021.01 ~2021.12	180	-	-	-	180	-	-	-	-	-	180	-	-	-	-

30. Government grants (cont'd)

(5) Changes in government grants for each specific business assistance project for the year ended December 31, 2021 are as follows (Korean won in millions):

Department	Project	Period	Budget	Amount Carried Over from prior year	Increase						Decrease						Amount to be carried forward subsequent year
					Receipt			Interest			Execution			Calculation			
					Self-burden	Local Government charges	Government grants	Self-burden	Local Government charges	Government grants	Self-burden	Local Government charges	Government grants	Self-burden	Local Government charges	Government grants	
Ministry of Environment and others	Construction of manufacturing hydrogen charging stations in Gimhae	2019.03~2022.03	5,398	3,266	-	-	-	-	2	2	2,056	605	605	-	2	2	-
Gimhae City	Aid on hydrogen charging station operation support project	2021.11~2021.12	10	-	-	10	-	-	-	-	-	-	-	-	-	-	10
Ministry of Trade, Industry and Energy	Electricity efficiency improvement project	2021.01~2021.12	8,421	-	-	-	8,421	-	-	3	-	-	8,420	-	-	4	-
Ministry of Culture, Sports and Tourism	Professional sports promotion support (KBL)	2021.06~2022.05	427	-	-	-	427	-	-	-	-	-	243	-	-	-	184
Buan City	Hydrogen charging station consignment operation business	2021.12~2026.11	85	-	-	85	-	-	-	-	-	24	-	-	-	-	61
Anseong City	Hydrogen charging station consignment operation business	2021.04~2026.03	235	-	-	235	-	-	1	-	-	246	-	-	(10)	-	-
Cheonan City	Hydrogen charging station consignment operation business	2021.09~2026.08	97	-	-	97	-	-	-	-	-	146	-	-	(49)	-	-
Chuncheon City	Hydrogen charging station consignment operation business	2021.06~2021.12	140	-	-	140	-	-	-	-	-	338	-	-	(198)	-	-
Pyeongtaek City	Hydrogen charging station consignment operation business	2021.11~2021.12	64	-	-	64	-	-	-	-	-	14	-	-	50	-	-
Hwaseong City	Hydrogen charging station consignment operation business	2021.07~2026.07	164	-	-	164	-	-	-	-	-	147	-	-	17	-	-
Seosan City	Hydrogen charging station consignment operation business	2020.12~2023.12	364	-	-	364	-	-	-	-	-	573	-	-	(209)	-	-
Ministry of Trade, Industry and Energy	LNG bunkering vessel construction support project	2020.08~2023.03	55,400	9,940	16,280	-	5,880	-	-	4	7,000	-	2,900	-	-	41	22,163
Total			₩ 205,021	₩ 13,206	₩ 42,180	₩ 1,159	₩ 37,874	₩ -	₩ 3	₩ 51	₩24,320	₩ 2,093	₩ 27,523	₩ 4	₩ (397)	₩ 379	₩ 40,551

(*) The details of aforementioned government subsidy project may vary depending on the result of the government grants settlement

30. Government grants (cont'd)

(6) Changes in government grants for property, plant, and equipment and intangible assets by specific business for the year ended December 31, 2021 are as follows (Korean won in millions):

Department	Project	Account	Location	Beginning	Acquisition	Depreciation/ amortization	Ending
Ministry of Land, Infrastructure and Transport	Construction of Hydrogen Public Relations Center(Content)	Consturcti-on in progress	Daegu	₩ -	₩ 400	₩ -	₩ 400
Ministry of Land, Infrastructure and Transport	Construction of Hydrogen Public Relations Center (Construction)	Consturcti-on in progress	Daegu	-	180	-	180
Ministry of Trade, Industry and Energy	Tube trailer support	Vehicle	-	-	1,596	(9)	1,587
Ministry of Land, Infrastructure and Transport	Development of optimal hydrogen distribution networks	Software	-	-	1,022	(17)	1,005
Ministry of Trade, Industry and Energy	Construction of hydrogen exchange	Software	-	-	63	(7)	56
Ministry of Trade, Industry and Energy	Establishment of hydrogen charging station monitoring system	Software	-	-	881	(48)	833
Ministry of Trade, Industry and Energy	Construction of hydrogen production bases	Consturcti-on in progress	Gwangju	-	3,521	-	3,521
Ministry of Trade, Industry and Energy	Construction of hydrogen production bases	Consturcti-on in progress	Changwon, Gyeongsang nam-do	-	5,413	-	5,413
Ministry of Trade, Industry and Energy	Construction of hydrogen production base in Pyeongtaek in 2021	Consturcti-on in progress	Pyeongtaek, Gyeonggi-do	-	3,450	-	3,450
Ministry of Land, Infrastructure and Transport	Purchase of hydrogen tube trailers in Daegu	Vehicle	-	-	380	-	380
Ministry of Environment and others	Construction of manufacturing hydrogen charging stations in Gimhae	Building and others	Gimhae, Gyeongsang nam-do	-	3,000	(119)	2,881
Ministry of Trade, Industry and Energy	LNG bunkering vessel construction support project	Consturcti-on in progress	-	-	2,900	-	2,900
				₩ -	₩ 22,806	₩ (200)	₩ 22,606

31. Customers' contribution to construction costs

Changes in deferred income related to contribution to construction for the years ended December 31, 2021 and 2020 are as follows (Korean won in millions):

	2021	2020
Beginning balance	₩ 1,767	₩ 2,734
Increase	649	-
Offset	(98)	(967)
Ending balance	₩ 2,318	₩ 1,767

32. Non-financial liabilities

Details of non-financial liabilities as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021		2020	
	Current	Non-Current	Current	Non-Current
Advance receipts	₩ 3,801	₩ -	₩ 3,546	₩ -
Unearned revenues	22,689	-	28,728	-
Withholdings	22,464	-	20,437	-
Deferred income	826	3,218	1	9,389
Other non-financial liabilities[1]	387,619	50,499	15,226	45,331
	₩ 437,399	₩ 53,717	₩ 67,938	₩ 54,720

[1] Others include liabilities recognized in accordance with natural gas sales charge settlement profit and loss ₩374,382 million as of December 31, 2020. (Note 17).

33. Equity

(1) Details of equity as of December 31, 2021 and 2020, are as follows (Korean won in millions):

				2021			2020		
	Total shares authorized	Total shares issued	Par value	Govern	Non-govern	Total	Govern	Non-govern	Total
Common share	200,000,000 shares	92,313,000 shares	₩ 5,000	₩ 120,722	₩ 340,843	₩ 461,565	₩ 120,722	₩ 340,843	₩ 461,565

(2) Changes in the number of shares outstanding for years ended December 31, 2021 and 2020, are as follows:

	2021	2020
	Common share	Common share
Beginning balance	85,826,950	87,637,240
Acquisition of treasury share	-	(1,810,290)
Ending balance	85,826,950	85,826,950

(3) Details of share premium as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Share premium	₩ 1,303,548	₩ 1,303,548

34. Retained earnings and dividends

(1) Retained earnings as of December 31, 2021 and 2020, consist of (Korean won in millions):

		2021		2020
Legal reserve[1]	₩	230,782	₩	230,782
Other reserves		3,931,676		4,027,335
Unappropriated retained earnings		2,022,810		932,688
	₩	6,185,268	₩	5,190,805

[1] The *Korea Gas Group Act* requires the Group to appropriate as a legal reserve an amount equal to a minimum of 10% of its profits for each accounting period until the reserve equals 50% of the capital. The legal reserve may be used to reduce a deficit or may be transferred to common stock in connection with a free issuance of shares.

(2) Other reserves as of December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Business expansion	₩	3,183,794	₩	3,279,453
Reserve for dividend equalization		219,282		219,282
Business rationalization		792		792
Accident compensation		439,989		439,989
Improvement of financial structure		87,819		87,819
	₩	3,931,676	₩	4,027,335

(3) Changes in retained earnings for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Beginning balance	₩	5,190,805	₩	5,397,707
Profit for the year		950,757		(172,060)
Dividends paid		-		(33,302)
Remeasurement of defined benefit plan		43,706		(1,540)
Ending balance	₩	6,185,268	₩	5,190,805

(4) Details of dividends for the years ended December 31, 2021 and 2020, are as follows (Korean won):

2021	Total shares issued	Treasury share	Shares eligible for dividends		Dividends per share		Total dividends
Common share	92,313,000	6,486,050	-	₩	-	₩	-

2020	Total shares issued	Treasury share	Shares eligible for dividends		Dividends per share		Total dividends
Common share	92,313,000	4,675,760	87,637,240	₩	380	₩	33,302,151,200

(5) Changes in remeasurements for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Beginning balance	₩	(6,089)	₩	(21,355)
Losses		59,327		(2,368)
Tax effect		(15,621)		829
Disposal of retained earnings		4,057		16,805
Ending balance	₩	41,674	₩	(6,089)

35. Statement of disposition of deficit (appropriation of retained earnings)

The accumulated deficit for the year ended December 31, 2021, is expected to be disposed at the shareholders' meeting of the Corporation's to be held on March 29, 2022. The appropriation date for the year ended December 31, 2020, was on March 30, 2021.

The statements of disposition of deficit (appropriation of retained earnings) for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Retained earnings (deficit) before appropriation (dispositon)	₩		₩	
Unappropriated retained earnings carried over from prior year		-		2,000
Profit (loss) for the year		594,482		(93,602)
Remeasurements of defined benefit plan		33,862		(4,057)
Retained earnings (deficits) before disposition	₩	628,344	₩	(95,659)
Transfers from voluntary reserves and others				
Reserve for business expansion		-		95,659
Retained earnings available for appropriation	₩	628,344	₩	95,659
Appropriation of retained earnings				
Reserve for accident compensation	₩	21,575	₩	-
Dividends		234,136		-
Reserve for business expansion		372,633		-
Unappropriated retained earnings to be carried forward subsequent year	₩	-	₩	-

36. Hybrid bonds

Details of hybrid bonds as of December 31, 2021 are as follows (Korean won):

Terms	Details of the terms
Issued amount	335,328,785,000
Maturity	The principal of this bond is repaid on the maturity date of November 16, 2051. If the principal repayment date falls on a bank holiday, repayment is made on the next business day, and interest after the principal repayment date is not calculated. However, the issuer may continuously extend the maturity of the bond under the same issuance conditions by notifying the Korea Securities Depository five business days before the expiration date, and the bond creditor cannot offset the bond as an automatic bond.
Interest rate	(A) The interest rate on the bonds in this case shall be 2.043% per annum. (B) The interest rate obtained by adding the additional interest rate prescribed in item (ii)(c) to the interest rate prescribed in item (i)(a) shall be applied from the time when five years have elapsed since the issuance of the bonds. (C) The additional interest rate shall be the average interest rate (Truncation of 4 decimal places) of the 5-year unguaranteed bonds of each issuer evaluated two business days before the date on which the KOREA ASSET PRICING Co., KIS PRICING INC., NICE P&I INC., and FnPricing Inc.(if the names of the above credit rating companies are changed for any reason, including merger or spin-off, after the date of conclusion of this contract, applicable corporations will be included as well.) should calculate or recalculate. The additional interest rate shall be recalculated every five years after the initial calculation when five years have elapsed since the issuance of the bonds.
Interest payment terms	Interest is paid in installments by 1/4 of the annual interest rate every 3 months from the issuance date of this bond to the redemption date. However, if the interest payment date falls on a bank holiday, interest is paid on the next business day, and interest after the interest payment date is not calculated. After the issuance date of the bond, the issuer may defer the payment of interest, in entirety or partially, to the next interest payment term, if necessary.
Dividend terms	(A) After the issuance date of this bond, the issuer may, at its option, defer payment of all or part of interest (including interest for which the interest payment date has already been deferred pursuant to this subparagraph) until the next interest payment date. (B) Even if the issuer suspends payment of all or part of the interest pursuant to item (A), the issuer shall, at the option of the issuer, on the subsequent interest payment date, pay interest withdeffered payment following its decision (hereinafter referred to as “deferred interest”) and the accumulated interests, and no resolution on cash and stock dividends shall be made until the full amount of interest to be paid on the date of interest payment and deferred interest is paid. In case where the resolution on cash and stock dividend is made violating the aforementioned term, the interest payment date preceding the dividend resolution shall be considered as the due date for the accumulated interest including the deferred amount. In addition, if the issuer exercises the prepayment right pursuant to the Article 20, the accumulated interest including the deferred interest should be paid by the issuer on the date when the prepayment right is exercised. However, if the applicable interest payment date falls on bank holiday, repayment is made on the next business day, and interest after the interest payment date is not calculated.
Exchange terms	Exchange of treasury stock held by the company for 1 share for every 51,700 KRW of electronically registered debentures
Exchange request period	December 16, 2021 ~ October 16, 2051
Other terms	1. Early redemption right of the issuing company (Call Option): ① After 5 years have elapsed from the issuance date of this bond, the entire bond can be repaid in advance on the day corresponding to each interest payment date. ② Notwithstanding ①, the external auditor’s opinion statement stating that the debentures in this case cannot be recognized as capital for accounting due to changes in the Korean International Financial Reporting Standards (KIFRS) or changes in laws, regulations, guidelines of related organizations or accounting firms Alternatively, if the issuer submits an external auditor's external audit (review) report that reflects the above information to investors, the issuer may prepay the bonds on the interest payment date immediately following the occurrence of the cause. However, the issuing company may make a prepayment in accordance with this regulation only after the effective date of the change in accounting standards. ③ When the issuer exercises the redemption right in accordance with ① or ②, the issuer pays the entire principal amount of the bonds by paying the entire face value without a separate discount or surcharge, and the full amount of unpaid interest. ④ When the issuer exercises the prepayment right pursuant to ① or ②, the issuing company must notify the principal and interest payment agency and Korea Securities Depository of its intention at least 5 business days prior to the date of exercising the prepayment right. 2. Investor’s right to claim redemption in advance (Put Option): Not applicable

As the aforementioned hybrid bonds do not substantially bear the contractual payment obligation, the Group classified the hybrid bonds as equity, and recognized ₩334,520 million as equity, deducting issuance costs from the issuance amount for the year ended December 31, 2021.

37. Other components of equity

(1) Other components of equity as of December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Other capital surplus	₩	20,910	₩	20,910
Accumulated other comprehensive income (loss)		21,878		(37,241)
Treasury share		(152,424)		(152,424)
Other equity		693,877		693,877
	₩	584,241	₩	525,122

(2) Other capital surplus for the years ended December 31, 2021 and 2020, consists of (Korean won in millions):

		2021		2020
Gain on disposal of treasury share	₩	21,353	₩	21,353
Others		(443)		(443)
	₩	20,910	₩	20,910

(3) Accumulated other comprehensive income (loss) for the years ended December 31, 2021 and 2020, consists of follows (Korean won in millions):

		2021		2020
Other comprehensive income - fair value measurement gain on valuation of financial assets	₩	35,824	₩	29,627
Incom (loss) on valuation of cash flow hedges		(61,788)		41,379
Hedges of net investment in a foreign operation		(67,435)		92,232
Share of other comprehensive income (loss) of associates and joint ventures		42,133		(68,240)
Exchange differences on translation of foreign operations		73,144		(132,239)
	₩	21,878	₩	(37,241)

(4) Changes in treasury share for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021			2020		
	Shares	Book amount		Shares	Book amount	
Beginning balance	6,486,050	₩	152,424	4,675,760	₩	102,423
Changes	-		-	1,810,290		50,001
Ending balance	6,486,050	₩	152,424	6,486,050	₩	152,424

(5) Other equity for the years ended December 31, 2021 and 2020, consists of (Korean won in millions):

		2021		2020
Revaluation surplus	₩	693,877	₩	693,877

38. Revenue from contrats with customers

(1) Details of revenue for the year ended December 31, 2021 is as follow (Korean won in millions):

	2021		2020	
Revenue from contracts with customers	₩	27,515,425	₩	20,832,282
Revenue from government grant		4,723		1,440
Revenue contribution to construction		608		-
	₩	27,520,756	₩	20,833,722

(2) Details of revenue from contracts with customers for the years ended December 31, 2021 and 2020 are as follows(Korean won in millions):

	2021				2020			
	Domestic		Overseas		Domestic		Overseas	
Revenue by product/services								
Revenue from sale of goods								
Power generating	₩	12,715,847	₩	-	₩	7,696,955	₩	-
City gas		12,971,871		-		11,839,986		-
Individual supply		121,222		-				
Direct supply		890		-		110,595		-
Use of plumbing facilities		87		-		115		-
Others		19,935		-		16,661		-
Overseas operations		-		796,415		-		464,955
	₩	25,829,852	₩	796,415	₩	19,664,312	₩	464,955
Revenue from Rendering of services		1,620		532,861		328		420,247
Revenue from construction contracts		87,707		2,701		55,689		1,183
Other revenue		255,108		9,161		222,697		2,871
	₩	344,435	₩	544,723	₩	278,714	₩	424,301
	₩	26,174,287	₩	1,341,138	₩	19,943,026	₩	889,256
Timing of revenue recognition								
At a point in time		25,841,265		796,415		19,665,194		464,955
Over a period of time		333,022		544,723		277,832		424,301
	₩	26,174,287	₩	1,341,138	₩	19,943,026	₩	889,256

Meanwhile, no external customer accounted for more than 10% of revenue during the years ended December 31, 2021 and 2020.

(3) Seasonal characteristics of sales

The Group's operations are highly cyclical as the revenue is generally higher during the winter season due to the heating demand of gasin the cities. For operating profit and profit for the year, there were significant differences between the summer and winter seasons in 2021.

39. Selling and administrative expenses

Details of selling and administrative expenses for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions) :

	2021	2020
Salaries	95,299	100,220
Retirement benefits	10,700	12,623
Employee welfare benefits	11,073	13,870
Insurance	2,761	2,684
Depreciation	16,594	15,106
Amortization	4,476	4,393
Impairment loss on trade receivables	394	377
Reversal of allowance for doubtful accounts	-	(739)
Commission expenses	64,971	58,313
Advertising expenses	7,173	4,580
Training expenses	7,246	6,841
Vehicles maintenance expenses	217	222
Periodicals and printing expenses	524	543
Business promotion expenses	187	225
Rental expenses	4,728	4,124
Communication expenses	623	586
Taxes and duties	100,582	94,918
Supplies expenses	620	739
Water, lighting and heating	1,539	1,504
Repairs and maintenance expenses	739	1,868
Research and development expense	49,217	52,694
Travel and transportation	2,195	1,996
Clothing expenses	629	652
Association fee	981	909
Sales promotion costs	7,785	5,277
Ordering expenses	468	456
Reward	421	447
Resource and development	22,591	25,759
Miscellaneous expenses	1,026	7,930
Mining operation	4,723	1,029
Research referral service cost	1,567	1,222
Total	₩ 422,049	₩ 421,368

40. Other income and expenses

(1) Details of other income for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Reversal of other provisions	₩ 1,584	₩ 1
Earnings from construction charges (non-operating)	-	90
Compensation and indemnity gains	31,568	2,091
Rental income	1,624	1,568
Other income	572	-
	₩ 35,348	₩ 3,750

(2) Details of other expenses for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Recognition of other provision	₩ 128	₩ 16
Other bad debt expenses	-	9,453
Strike-bound amortization	16,974	16,974
Donation	16,777	18,350
Compensation and indemnity losses	9,072	16,023
Other losses	2,846	2
	₩ 45,797	₩ 60,818

41. Other gains and losses

(1) Details of other gains and losses for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Gains on disposal of property, plant and equipment	₩	7,384	₩	1,167
Gains on disposal of intangible assets		-		2
Reversal of losses on impairment of property, plant and equipment		457,276		-
Reversal of losses on impairment of intangible assets		93,981		-
Other gains		47,700		45,540
Losses on disposal of property, plant and equipment		(11,649)		(13,674)
Losses on disposal of intangible assets		(6)		-
Losses on impairment of property, plant and equipment		(15,360)		(386,090)
Losses on impairment of intangible assets		(4,706)		(75,623)
Other losses		(25,901)		(19,487)
	₩	548,719	₩	(448,165)

(2) Details of other gains for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Gains on disposal of inventories	₩	1,220	₩	7,519
Miscellaneous profits/others		38,270		22,464
Miscellaneous profits /service revenue		7,160		11,432
Miscellaneous profit/financial guarantee income		1,050		4,125
	₩	47,700	₩	45,540

(3) Details of other losses for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Losses on disposal of inventories	₩	(6,157)	₩	(1,543)
Miscellaneous losses/others		(18,404)		(17,207)
Miscellaneous loss/ service cost		(1,340)		(737)
	₩	(25,901)	₩	(19,487)

42. Finance income

(1) Details of finance income for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Interest income	₩	23,534	₩	21,680
Gains on valuation of financial assets at fair value through profit or loss		700		244
Dividend income		10		10
Gains on valuation of derivative instruments		40,946		39,060
Gains on transaction of derivative instruments		220,271		102,925
Foreign currency translation gains		477,367		406,514
Foreign currency transaction gains		118,645		160,060
	₩	881,473	₩	730,493

42. Finance income(cont'd)

(2) Details of content of interest income included in finance income for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Cash and cash equivalents	₩	837	₩	2,995
Financial assets at FVTPL		372		527
Financial assets at amortized costs[1]		387		942
Loans and receivables[1]		15,697		12,433
Short-term financial instruments[1]		45		37
Other financial assets[1]		3,498		1,778
Trade and other receivables[1]		2,698		2,968
	₩	23,534	₩	21,680

[1] Amount of each items are sum up to the interest income of the debt instruments measured at amortized cost which is described in Note 47. (2).

43. Finance costs

(1) Details of finance costs for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Interest expense	₩	641,960	₩	712,405
Loss on valuation of derivative instruments		74,945		106,934
Loss on transaction of derivative instruments		63,306		122,570
Loss on foreign currency translation		376,337		333,273
Loss on foreign currency transaction		315,894		151,933
	₩	1,472,442	₩	1,427,115

(2) Details of content of interest expenses included in finance costs for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Short-term borrowings	₩	32,508	₩	35,592
Long-term borrowings		4,560		9
Debentures		571,504		628,048
Derivative financial liabilities		34,398		21,169
Lease liabilities		29,513		52,267
Other financial liabilities		3,629		4,003
		676,112		741,088
Less : capitalization of interests[1]		(34,152)		(28,683)
	₩	641,960	₩	712,405

[1] Borrowing cost were capitalized at the weighted average rate of 3.90% (2020 : 3.55%).

44. Income tax

(1) Major components of income tax expense(benefit) for the years ended December 31, 2021 and 2020, consist of (Korean won in millions):

		2021		2020
Current tax expense:				
Current taxes payable	₩	57,657	₩	31,858
Adjustment on prior year tax returns[1]		(20,294)		(70,447)
Income tax directly recognized to equity		-		791
Deferred tax expenses:				
The effect of change of temporary differences		373,679		(111,006)
Utilization of previously unrecognized tax loss carryforwards, tax credit and temporary difference from prior years		(8,230)		31,419
Reduction of deferred tax assets		-		9,069
Amount due to carry-over of tax deduction		-		(313)
Amount due to the change of tax rate or tax law		-		414
Income tax expenses (benefits)	₩	402,812	₩	(108,215)

[1] The Group received a tax refund of ₩ 1,881 million due to the cancellation of tax complaints in 2020 and received a tax refund of ₩ 14,730 million for the period from 2015 to 2016 in 2021.

(2) Details of the reconciliation between profit (loss) before income tax and income tax expenses (benefits) for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Profit (loss) before income tax	₩	1,367,334	₩	(268,898)
Income tax expenses based on statutory tax rate		376,017		(65,073)
Adjustments:				
Effect of progressive tax rate		(189,070)		(11,952)
Effect of non-taxable income		(10,156)		5,233
Effect of non-deductible expense		11,213		222
Effect of deferred tax assets written off		2,529		(85,101)
Effect on change applied tax rate between current tax and deffered tax		(134)		(313)
Difference in tax rate of those subject to deferred tax		146,106		221,995
Effect of other changes in deferred tax		27,397		(64,589)
		41,867		-
Utilization of previously unrecognized tax loss carryforwards, tax credit and temporary difference from prior years		(168)		(7,267)
Tax rates differences in overseas subsidiaries and associated operations		17,505		(30,923)
		423,106		(37,768)
Adjustment for prior years' income taxes		(20,294)		(70,447)
Income tax expenses (benefits)	₩	402,812	₩	(108,215)
Effective tax rate[1]		29.46%		-

44. Income tax (cont'd)

(3) The income tax credited directly to equity for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Current tax expenses:		
Others	₩ -	₩ 791
	₩ -	₩ 791

(4) Deferred taxes that were directly (charged) credited to other comprehensive income and loss for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Deferred tax		
Amounts arising from items recognized in other comprehensive income		
Other comprehensive income - Fair value measurement Equity gain or loss on valuation of equity instruments	₩ (2,329)	₩ 17,848
Gains on valuation of cash flow hedges derivative instruments	38,681	(31,308)
Net investment in foreign operations	60,564	(37,606)
Remeasurements of defined benefit plan	(15,621)	829
Investments in associates	(18,786)	23,678
Foreign currency translation gains from foreign operations	(20,642)	14,325
	₩ 41,867	₩ (12,234)

44. Income tax (cont'd)

(5) Details of deferred tax assets (liabilities) for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021					
	Beginning balance	Statement of profit or loss	Other comprehensive income	Equity	Others	Ending balance
Price adjustment on raw materials	₩ (359,491)	₩ (367,331)	₩ -	₩ -	₩ -	₩ (726,822)
Gain on valuation of derivatives	(58,184)	(18,344)	-	-	-	(76,528)
Loss on valuation of derivatives	87,996	-	-	-	-	87,996
Accrual for post-employment benefits	79,217	7,590	(15,621)	-	-	71,186
Deposit for post-employment benefit insurance	(74,921)	8,027	-	-	-	(66,894)
Foreign currency translation losses	577,317	82,076	60,564	-	-	719,957
Foreign currency translation gains	(631,101)	(60,382)	-	-	-	(691,483)
Derivative financial liabilities (hedge)	15,516	-	(3,367)	-	-	12,149
Derivative financial assets (hedge)	(11,673)	-	-	-	-	(11,673)
Gains on valuation of fair value through other comprehensive income	(11,379)	-	(2,329)	-	-	(13,708)
Government grants	36,364	3,336	-	-	-	39,700
Land (advanced depreciation provision)	(27,049)	5	-	-	-	(27,044)
Customers contribution to construction costs	288	161	-	-	-	449
Temporary depreciation	(2,394)	(1,102)	-	-	-	(3,496)
Accumulated depreciation in excess of tax limit	152,457	(193,802)	-	-	(6,584)	(47,929)
Leased vessels	(171,787)	37,266	-	-	-	(134,521)
Lease liabilities	19,426	(3,147)	1,460	-	-	17,739
Gain on revaluation	(662,407)	30,533	-	-	-	(631,874)
Deemed depreciation	(908,700)	-	-	-	-	(908,700)
Evaluation of equity method	(169,802)	(26,650)	(18,785)	-	-	(215,237)
Gain on evaluation of equity method (KOLNG, KORAS)	668	-	-	-	-	668
Loss on evaluation of equity method (KOLNG, KORAS)	391	-	-	-	-	391
Investments in securities (KOLNG)	431	-	-	-	-	431
Change in other comprehensive income due to equity method (KGM etc.)	(2,079)	-	-	-	-	(2,079)
Loss on evaluation of equity method (HYLNG)	526	-	-	-	-	526
Consent dividend income (CFC(Jubair))	167,502	-	-	-	-	167,502
Consent dividend income (CFC(Badra))	10,745	-	-	-	-	10,745
Consent dividend income (CFC(KG-SEAGP))	2,020	(702)	-	-	-	1,318
Consent dividend income (CFC(Kogas Internaitonal))	-	196	-		-	196
Others	(102,436)	14,497	19,945	-	1,177	(66,817)
Subtotal	(2,042,539)	(487,773)	41,867	-	(5,407)	(2,493,852)
Deferred tax on unused tax losses and tax credits						
Tax loss carried	1,001,084	47,740	-	-	51,022	1,099,846
Tax credits	72,356	20,912	-	-	-	93,268
Others	163,773	53,672	-	-	18,129	235,574
Subtotal	1,237,213	122,324	-	-	69,151	1,428,688
Total	₩ (805,326)	₩ (365,449)	₩ 41,867	₩ -	₩ 63,744	₩ (1,065,164)

44. Income tax (cont'd)

	2020					
	Beginning balance	Statement of profit or loss	Other comprehensive income	Equity	Others	Ending balance
Price adjustment on raw materials	₩ (280,199)	₩ (79,292)	₩ -	₩ -	₩ -	₩ (359,491)
Gain on valuation of derivatives	(56,262)	(1,922)	-	-	-	(58,184)
Loss on valuation of derivatives	76,032	11,964	-	-	-	87,996
Accrual for post-employment benefits	71,653	6,735	829	-	-	79,217
Deposit for post-employment benefit insurance	(66,649)	(8,272)	-	-	-	(74,921)
Foreign currency translation losses	554,415	60,508	(37,606)	-	-	577,317
Foreign currency translation gains	(522,369)	(108,732)	-	-	-	(631,101)
Derivative financial liabilities (hedge)	30,399	(14,181)	(702)	-	-	15,516
Derivative financial assets (hedge)	(26,051)	14,378	-	-	-	(11,673)
Gains on valuation of fair value through other comprehensive income	(29,227)	-	17,848	-	-	(11,379)
Government grants	35,761	603	-	-	-	36,364
Land (advanced depreciation provision)	(27,049)	-	-	-	-	(27,049)
Customers contribution to construction costs	299	(11)	-	-	-	288
Temporary depreciation	(359)	(2,035)	-	-	-	(2,394)
Accumulated depreciation in excess of tax limit	95,772	58,384	-	-	(1,699)	152,457
Leased vessels	(209,841)	38,054	-	-	-	(171,787)
Lease liabilities	44,158	(23,601)	(1,131)	-	-	19,426
Gain on revaluation	(734,789)	72,382	-	-	-	(662,407)
Deemed depreciation	(760,755)	(147,945)	-	-	-	(908,700)
Evaluation of equity method	(200,479)	7,000	23,677	-	-	(169,802)
Gain on evaluation of equity method (KOLNG, KORAS)	668	-	-	-	-	668
Loss on evaluation of equity method (KOLNG, KORAS)	391	-	-	-	-	391
Investments in securities (KOLNG)	431	-	-	-	-	431
Change in other comprehensive income due to equity method (KGM etc.)	(2,079)	-	-	-	-	(2,079)
Loss on evaluation of equity method (HYLNG)	526	-	-	-	-	526
Consent dividend income (CFC(Jubair))	167,502	-	-	-	-	167,502
Consent dividend income (CFC(Badra))	10,745	-	-	-	-	10,745
Consent dividend income (CFC(KG-SEAGP))	2,478	(458)	-	-	-	2,020
Others	(91,088)	4,520	(15,149)	-	(719)	(102,436)
Subtotal	(1,915,966)	(111,921)	(12,234)	-	(2,418)	(2,042,539)
Deferred tax on unused tax losses and tax credits						
Tax loss carried	937,957	160,088	-	-	(96,961)	1,001,084
Tax credits	55,045	17,311	-	-	-	72,356
Others	60,556	4,939	-	-	98,278	163,773
Subtotal	1,053,558	182,338	-	-	1,317	1,237,213
Total	₩ (862,408)	₩ 70,417	₩ (12,234)	₩ -	₩ (1,101)	₩ (805,326)

44. Income tax (cont'd)

(6) Details of deferred tax assets (liabilities) in the consolidated statements of financial position as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Deferred tax assets	₩ 942,197	₩ 1,025,195
Deferred tax liabilites	(2,007,361)	(1,830,521)
	₩ (1,065,164)	₩ (805,326)

(7) Details of unrecognized deductible temporary differences as deferred tax assets, tax loss carryforwards and unused losses as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Temporary deductivble difference	₩ 5,352,410	₩ 4,921,957
Tax loss carryforwards	733,992	654,642
Tax credits	742,591	533,662
	₩ 6,828,993	₩ 6,110,261

(8) Expiration dates for tax credits and tax loss carry forwards which are not recognized as deferred tax asset as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021		2020	
	Tax credit	Tax losses carryforwards	Tax credit	Tax losses carryforwards
Within 1 year	133	-	-	-
1 ~ 2 years	₩ 98	₩ -	₩ -	₩ -
2 ~ 3 years	64	-	-	-
After 3 years	733,697	742,591	654,642	533,662
	₩ 733,992	₩ 742,591	₩ 654,642	₩ 533,662

(9) The aggregate amount of temporary differences associated with investments in subsidiaries for which deferred tax liability is not recognized as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Domestic and foreign subsidiary companies	₩ 182,238	₩ 176,384

(10) The analysis of deferred tax assets and liabilities as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Deferred tax assets		
Deferred tax asset to be recovered after more than 12 months	2,623,311	2,461,146
Deferred tax asset to be recovered within 12 months	266,549	212,286
	₩ 2,889,860	₩ 2,673,432
Deferred tax liabilities		
Deferred tax liability to be recovered after more than 12 months	(3,469,670)	(3,054,270)
Deferred tax liability to be recovered within 12 months	(485,354)	(424,488)
	(3,955,024)	(3,478,758)
Deferred tax liabilities, net	₩ (1,065,164)	₩ (805,326)

45. Expenses by nature

Details of nature of expenses for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021			
	Changes in inventories	Selling and administrative expenses	Cost of sales	Total
Changes in inventories:				
Finished goods	₩ (39,551)	₩ -	₩ -	₩ (39,551)
Merchandise	-	-	236,776	236,776
Raw materials used	-	-	22,343,187	22,343,187
Salaries	-	95,299	392,863	488,162
Retirement benefits	-	10,700	38,128	48,828
Employee welfare	-	11,073	41,598	52,671
Insurance premium	-	2,761	12,352	15,113
Depreciation	-	16,594	1,604,470	1,621,064
Amortization	-	4,476	78,543	83,019
Bad debts expenses	-	394	-	394
Commission	-	64,971	109,362	174,333
Advertising	-	7,173	365	7,538
Training	-	7,246	1,685	8,931
Vehicles maintenance	-	217	3,591	3,808
Periodicals and printing	-	524	312	836
Business promotion expenses	-	187	179	366
Rents	-	4,728	14,719	19,447
Communication	-	623	1,175	1,798
Taxes and dues	-	100,582	36,705	137,287
Supplies	-	620	1,411	2,031
Utilities	-	1,539	142,438	143,977
Repairs and maintenance	-	739	55,679	56,418
Research and development	-	49,217	227	49,444
Travel and transportation	-	2,195	2,617	4,812
Clothing expenses	-	629	1,056	1,685
Association fee	-	981	433	1,414
Sales promotion costs	-	7,785	-	7,785
Promotional expenses	-	468	-	468
Outsourcing	-	-	23,678	23,678
Facility management	-	-	226,369	226,369
Other expenses[1]	-	30,328	528,641	558,969
Total	₩ (39,551)	₩ 422,049	₩ 25,898,559	₩ 26,281,057

[1] The settlement amount of supply cost is included in cost of sales classified as other expenses and the related details are described in Note 17.

45. Expenses by nature (cont'd)

	2020							
		Changes in inventories		Selling and administrative expenses		Cost of sales		Total
Changes in inventories:								
Finished goods	₩	(8,837)	₩	-	₩	-	₩	(8,837)
Merchandise		-		-		45,223		45,223
Raw materials used		-		-		17,223,251		17,223,251
Salaries		-		100,220		405,294		505,514
Retirement benefits		-		12,623		39,735		52,358
Employee welfare		-		13,870		40,167		54,037
Insurance premium		-		2,684		12,090		14,774
Depreciation		-		15,106		1,537,766		1,552,872
Amortization		-		4,393		59,770		64,163
Bad debts expenses		-		377		-		377
Reversal of allowance for bad debts		-		(739)		-		(739)
Commission		-		58,313		90,933		149,246
Advertising		-		4,580		581		5,161
Training		-		6,841		1,348		8,189
Vehicles maintenance		-		222		3,328		3,550
Periodicals and printing		-		543		329		872
Business promotion expenses		-		225		204		429
Rents		-		4,124		13,786		17,910
Communication		-		586		1,040		1,626
Taxes and dues		-		94,918		35,212		130,130
Supplies		-		739		1,762		2,501
Utilities		-		1,504		126,671		128,175
Repairs and maintenance		-		1,868		66,870		68,738
Research and development		-		52,694		170		52,864
Travel and transportation		-		1,996		2,328		4,324
Clothing expenses		-		652		1,000		1,652
Association fee		-		909		453		1,362
Sales promotion costs		-		5,277		-		5,277
Promotional expenses		-		456		-		456
Outsourcing		-		-		16,339		16,339
Facility management		-		-		192,866		192,866
Other expenses[1]		-		36,387		(396,181)		(359,794)
Total	₩	(8,837)	₩	421,368	₩	19,522,335	₩	19,934,866

[1] The settlement amount of supply cost is included in cost of sales classified as other expenses and the related details are described in Note 17.

46. Earnings (loss) per share

(1) Basic earnings (loss) per share for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Basic earnings (loss) per share				
Continuing operation	₩	11,078	₩	(1,989)
Total Basic earnings (loss) per share	₩	11,078	₩	(1,989)

(2) Diluted earnings (loss) per share for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Diluted earnings (loss) per share				
Continuing operation	₩	10,973	₩	(1,989)
Total diluted earnings (loss) per share	₩	10,973	₩	(1,989)

(3) Basic earnings (loss) per share

Earnings (loss) for the year used for deriving basic earnings (loss) per share for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Profit (loss) for the year used for basic earnings (loss) per share	₩	950,757	₩	(172,060)
Profit (loss) for the year from continuing operations attributable to common shares	₩	950,757	₩	(172,060)

Weighted-average number of common shares outstanding used for deriving basic losses per share for the years ended December 31, 2021 and 2020, are as follows:

	2021	2020
Weighted-average number of common shares outstanding	85,826,950	87,637,240
Effect of treasury share	-	(1,152,891)
Weighted-average number of common shares in circulation for calculating basic earnings per share[1]	85,826,950	86,484,349

[1] The corporation acquired no treasury share in 2021 and 1,810,290 of treasury share in 2020

46. Earnings (loss) per share (cont'd)

(4) Dilbuted earnings (loss) per share

Diluted earnings (loss) per share are calculated using the weighted-average number of common shares adjusted assuming that all potential dilutive common shares are converted into common shares.

The net profit of the diluted earnings (loss) per share calculation for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021		2020	
Profit (loss) on controlling interest attributable to common share	₩	950,757	₩	(172,060)
<Effect of assuming conversion>				
Diluted earnings (loss) attributable to common stock	₩	950,757	₩	(172,060)

The weighted-average number of common shares to calculate diluted earnings per share is calculated from the weighted-average number of common shares used in calculating basic earnings per share by adjusting as follows:

	2021	2020
Weighted-average number of common shares outstanding	85,826,950	86,484,349
<Number of shares deemed to be issued free of charge>		
Hybrid bonds	817,420	-
Weighed-average number of dilbuted common shares outstanding	86,644,370	86,484,349

47. Financial instruments by category

(1) Categorizations of financial instruments as of December 31, 2021 and 2020, are as follows (Korean won on millions):

1) 2021

① Current financial assets

	2021						
				Financial assets measured at FVTPL			
Current financial assets:	**Debt instruments at amortized cost**	**Debt instruments at FVOCI**	**Equity instruments at FVOCI**	**Derivatives not designated as hedging instruments**	**Derivatives designated as hedging instruments**	**Others**	**Total**
Cash and cash equivalents	₩ 564,523	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 564,523
Financial assets at fair value through profit or loss	-	-	-	26,759	230	-	26,989
Financial assets at amortized cost	8,758	-	-	-	-	-	8,758
Current financial assets	44,379	-	-	-	-	-	44,379
Loans	8,476	-	-	-	-	-	8,476
Trade and other receivables [1]	6,979,470	-	-	-	-	-	6,979,470
Total	₩ 7,605,606	₩ -	₩ -	₩ 26,759	₩ 230	₩ -	₩ 7,632,595

[1] Contract assets are excluded.

47. Financial instruments by category (cont'd)

② Non-current financial assets

	2021						
				Financial assets measured at FVTPL			
Non-current financial assets:	Debt instruments at amortized cost	Debt instruments at FVOCI	Equity instruments at FVOCI	Derivatives not designated as hedging instruments	Derivatives designated as hedging instruments	Others	Total
Financial assets at fair value through profit or loss	₩ -	₩ -	₩ -	₩ 10,774	₩ 79,488	₩ 2,634	₩ 92,896
Financial assets at fair value through other comprehensive income	-	-	69,585	-	-	-	69,585
Financial assets at amortized cost	454	-	-	-	-	-	454
Long-term financial instruments	7,891	-	-	-	-	-	7,891
Loans	527,714	-	-	-	-	-	527,714
Trade and other receivables [1]	210,387	-	-	-	-	-	210,387
Other non-current financial assets	90,000	-	-	-	-	-	90,000
	₩ 836,446	₩ -	₩ 69,585	₩ 10,774	₩ 79,488	₩ 2,634	₩ 998,927

[1] Contract assets are excluded.

47. Financial instruments by category (cont'd)

③ Current financial liabilities

	2021				
		Financial liabilities at fair value through profit or loss			
Current financial liabilities	**Financial liabilities at amortized cost**	**Derivatives not designated as hedging instruments**	**Hedging derivative instruments**	**Others**	**Total**
Trade and other receivables	₩ 3,576,069	₩ -	₩ -	₩ -	₩ 3,576,069
Financial liabilities at fair value through profit or loss	-	5,985	-	-	5,985
Short-term borrowing	7,832,479	-	-	-	7,832,479
Debentures	1,933,815	-	-	-	1,933,815
	₩ 13,342,363	₩ 5,985	₩ -	₩ -	₩ 13,348,348

(*) Provisions for financial guarantee are excluded.

④ Non-current financial liabilities

	2021				
		Financial liabilities at fair value through profit or loss			
Non-current financial liabilities	**Financial liability at amortized cost**	**Derivatives not designated as hedging instruments**	**Hedging derivative instruments**	**Others**	**Total**
Trade and other receivables	₩ 1,777,711	₩ -	₩ -	₩ -	₩ 1,777,711
Financial liabilities at fair value through profit or loss	-	73,255	27,340	-	100,595
Long-term borrowing	179,480	-	-	-	179,480
Bonds	16,240,963	-	-	-	16,240,963
	₩ 18,198,154	₩ 73,255	₩ 27,340	₩ -	₩ 18,298,749

(*) Provisions for financial guarantee are excluded.

47. Financial instruments by category (cont'd)

2) 2020

① Current financial assets

	2020						
				Financial assets measured at FVTPL			
Current financial assets:	**Debt instruments at amortized cost**	**Debt instruments at FVOCI**	**Equity instruments at FVOCI**	**Derivatives not designated as hedging instruments**	**Derivatives designated as hedging instruments**	**Others**	**Total**
Cash and cash equivalents	₩ 331,761	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 331,761
Financial assets at fair value through profit or loss	-	-	-	4,406	339	7,800	12,545
Financial assets at amortized cost	1,048	-	-	-	-	-	1,048
Current financial assets	21,760	-	-	-	-	-	21,760
Loans	14,326	-	-	-	-	-	14,326
Trade and other receivables [1]	4,244,755	-	-	-	-	-	4,244,755
Total	₩ 4,613,650	₩ -	₩ -	₩ 4,406	₩ 339	₩ 7,800	₩ 4,626,195

[1] Contract assets are excluded.

47. Financial instruments by category (cont'd)

② Non-current financial assets

	2020						
				Financial assets measured at FVTPL			
Non-current financial assets:	**Debt instruments at amortized cost**	**Debt instruments at FVOCI**	**Equity instruments at FVOCI**	**Derivatives not designated as hedging instruments**	**Derivatives designated as hedging instruments**	**Others**	**Total**
Financial assets at fair value through profit or loss	₩ -	₩ -	₩ -	₩ 5,029	₩ 40,174	₩ 1,808	₩ 47,011
Financial assets at fair value through other comprehensive income	-	-	61,060	-	-	-	61,060
Financial assets at amortized cost	415	-	-	-	-	-	415
Long-term financial instruments	15	-	-	-	-	-	15
Loans	423,548	-	-	-	-	-	423,548
Trade and other receivables [1]	201,207	-	-	-	-	-	201,207
Other non-current financial assets	90,000	-	-	-	-	-	90,000
	₩ 715,185	₩ -	₩ 61,060	₩ 5,029	₩ 40,174	₩ 1,808	₩ 823,256

[1] Contract assets are excluded.

47. Financial instruments by category (cont'd)

③ Current financial liabilities

	2020				
		Financial liabilities at fair value through profit or loss			
Current financial liabilities	**Financial liabilities at amortized cost**	**Derivatives not designated as hedging instruments**	**Hedging derivative instruments**	**Others**	**Total**
Trade and other receivables	₩ 1,736,775	₩ -	₩ -	₩ -	₩ 1,736,775
Financial liabilities at fair value through profit or loss	-	105,108	-	-	105,108
Short-term borrowing	3,110,297	-	-	-	3,110,297
Debentures	2,003,645	-	-	-	2,003,645
	₩ 6,850,717	₩ 105,108	₩ -	₩ -	₩ 6,955,825

(*) Provisions for financial guarantee are excluded.

④ Non-current financial liabilities

	2020				
		Financial liabilities at fair value through profit or loss			
Non-current financial liabilities	**Financial liability at amortized cost**	**Derivatives not designated as hedging instruments**	**Hedging derivative instruments**	**Others**	**Total**
Trade and other receivables	₩ 1,793,767	₩ -	₩ -	₩ -	₩ 1,793,767
Financial liabilities at fair value through profit or loss	-	12,736	29,059	-	41,795
Long-term borrowing	760,983	-	-	-	760,983
Bonds	16,285,136	-	-	-	16,285,136
	₩ 18,839,886	₩ 12,736	₩ 29,059	₩ -	₩ 18,881,681

(*) Provisions for financial guarantee are excluded.

47. Financial instruments by category (cont'd)

(2) Net gains or losses on each category of financial instruments for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Cash and cash equivalents		
Interest income	₩ 837	₩ 2,995
Loss on foreign currency transactions	(1,530)	119
Gain on foreign currency translation	294	1,561
Financial assets at fair value through profit or loss		
Interest income	372	527
Gain on foreign currency transactions	3,099	1,803
Gain on valuation of derivatives	38,190	39,060
Gain on transactions of derivatives	220,271	102,925
Gain on foreign currency translation	5	18
Gain on valuation	700	(6,546)
Dividends income	10	10
Financial assets at amortized cost		
Interest income	22,325	18,158
Gain on foreign currency transactions	4,297	(223)
Gain on foreign currency translation	465,437	(475,782)
Financial assets at fair value through other comprehensive income		
Comprehensive income(loss) recognized during the year	8,525	(64,908)
Financial liabilities at fair value through profit or loss		
Loss on foreign currency transactions	(4,454)	(3,239)
Loss on valuation of derivative instruments	(72,190)	(106,934)
Loss on transactions of derivative instruments	(63,306)	(122,570)
Financial liability at amortized cost		
Interest expense	(641,714)	(719,918)
Gain (loss) on foreign currency transactions	(198,661)	9,667
Gain (loss) on foreign currency translation	(364,706)	547,444
Comprehensive income(loss) recognized during the year	(152,899)	111,293
Hedging derivative instruments		
Interest expenses	(34,398)	(21,169)
Comprehensive income (loss) recognized during the year	10,865	(1,480)
Others		
Capitalization of interest	34,152	28,683
	₩ (724,479)	₩ (658,506)

48. Risk management

(1) Risk management framework

The Group manages various risks that may incur by each business unit and the main risks are capital risk, credit risk, liquidity risk, currency risk, interest rate risk and others. These risks are recognized, measured, controlled and reported in accordance with the basic policy for risk management determined by the Group.

The Group's risk management policies are established to identify and analyze the risks faced by the Group, to set appropriate risk limits and controls, and to monitor risks and adherence to limits.

Risk management policies and systems are reviewed regularly to reflect changes in market conditions and the Group's activities. The Group's Audit Committee oversees how management monitors compliance with the Group's risk management policies and procedures, and reviews the adequacy of the risk management framework in relation to the risks faced by the Group.

(2) Capital risk management

The Group's objectives when managing capital are to safeguard the Group's ability to continue as a going concern, so the Group can continue to provide returns for shareholders and benefits for other stakeholders, and to maintain an optimal capital structure to reduce the cost of capital.

In order to maintain or adjust the capital structure, the Group may adjust the amount of dividends paid to shareholders, return capital to shareholders, issue new shares or sell assets to reduce debt.

Consistent with others in the industry, the Group monitors capital on the basis of the gearing ratio. This ratio is calculated as net debt divided by total capital. Net debt is total borrowings (including ‘short and long-term borrowings' as shown in the consolidated statement of financial position) less cash and cash equivalents and MMT(Money Market Trust) which has high cashability among FVPL assets. Total capital is ‘equity' as shown in the consolidated statement of financial position plus net debt.

The gearing ratios at December 31, 2021 and 2020 ere as follows (Korean won in millions, except gearing ratio):

		2021		2020
Liabilities				
Short-term borrowings	₩	7,832,479	₩	3,110,297
Current portion of debentures		1,933,815		2,003,645
Current portion of lease liabilities		268,784		208,108
Long-term borrowings		179,480		760,983
Debentures, net of current portion		16,240,963		16,285,136
Lease liabilities, net of current portion		1,777,521		1,792,939
Total Liabilities	₩	28,233,042	₩	24,161,108
Cash equivalents				
Cash and cash equivalents		564,523		331,761
Current financial assets at fair value through profit or loss[1]		-		7,800
Short-term financial instruments		44,379		21,760
Total cash equivalents	₩	608,902	₩	361,321
Net debt		27,624,140		23,799,787
Total equity		9,119,336		7,735,155
Total capital	₩	36,743,476	₩	31,534,942
Gearing ratio		75.18%		75.47%

[1] Derivative assets are excluded.

48. Risk management (cont'd)

(3) Financial risk management

1) Credit Risk

Credit risk is a risk that a counterparty can not fulfill its obligation under a financial instrument or customer contract, resulting in financial loss. The Group is exposed to credit risks from operating activities (mainly trade receivables), banking and financial institution deposits, foreign exchange transactions and other financial instruments.

In order to control the risk arising from the default of the debtor, the Group has secured sufficient collateral in consideration of the credibility of the counterparty. The credit rating of the counterparty is based on the credit rating provided by an independent external credit rating agency, but if it is not possible to obtain the data, the credit rating is measured using the transaction information obtained with the counterparty, and the credit rating is continuously remeasured.

The Group's investments in debt instruments are considered to be low risk investments. The credit ratings of the investments are monitored for credit deterioration.

There are no significant concentrations of credit risk, whether through exposure to individual customers, specific industry sectors and regions.

The Group has four types of financial assets that are subject to the expected credit loss model:
- trade receivables for sales of goods and rendering of services,
- contract assets relating to rendering of services,
- loans to subsidiaries and associateded
- debt investments carried at fair value through profit or loss
- debt investments carried at fair value through other comprehensive income, and
- other financial assets carried at amortized cost.

While cash equivalents are also subject to the impairment requirement, the identified impairment loss was immaterial.

The Group applies the simplified method to recognize loss allowance for all financial assets held based on lifetime expected credit losses.

The book amount of financial assets means maximum exposure in respect of credit and counterparty risk. Meanwhile, financial guarantee contracts provided by the Group are recognized as provision for financial guarantee, and maximum exposure to credit risk of financial guarantee contracts is the maximum guaranteed amount that the Group should pay upon the guarantee's claims.

The maximum exposure to credit risk as of December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021		2020
Cash and cash equivalents (excluding cash on hands)	₩	564,489	₩	331,726
Financial assets at FVTPL		119,885		59,556
Short-term and long-term financial assets		52,270		21,775
Financial assets at amortized cost		9,212		1,463
Loans and receivables		626,190		527,874
Trade and other receivables		7,189,857		4,445,962
Financial guarantee contracts[1]		1,324,463		1,221,577
	₩	9,886,366	₩	6,609,933

[1] The amount is the maximum guaranteed amount that the Group should pay upon the guarantee's claim.

48. Risk management (cont'd)

Details of financial guarantee contracts as of December 31, 2021, are as follows (Korean won in millions, and US dollars in thousnads):

	Currency			Total guaranteed amount
Related parties[1]				
Terminal KMS de GNL, S. de R.L. de C.V.	USD	20,675	₩	24,510
	USD	9,240		10,954
KLBV1.S.A	USD	20,843	₩	24,710
Coral FLNG S.A.	USD	524,833	₩	622,189
Coral South FLNG DMCC	USD	487,470	₩	577,896
Others[1]				
Empresa Nacional de Hidrocarbonetos, E.P	USD	54,158	₩	64,204

[1] Details of these financial guarantee contracts are described in Note 49. (2). 6). and Note 53. (2).

2) Liquidity risk

Liquidity risk is the risk that the Group will encounter difficulty in meeting the obligations associated with its financial liabilities that are settled by delivering cash or another financial asset. The Group's approach to managing liquidity is to ensure, as far as possible, that it will always have sufficient liquidity to meet its liabilities when due, under both normal and stressed conditions. The management of the Group believes that they are able to repay the financial liabilities by cash flows from operating activities and cash inflows from financial assets.

Aggregate maturities of the Group's financial liabilities as of December 31, 2021, are as follows (Korean won in millions):

	Book value	Cash flows in contract	1 year or less	1 ~ 5 years	More than 5 years
Non-derivative financial liabilities					
Debentures	₩ 18,174,778	₩ 21,683,451	₩ 2,453,303	₩ 10,211,377	₩ 9,018,771
Borrowings	8,011,959	8,018,168	7,838,689	5,504	173,975
Lease liabilities	2,046,305	2,265,583	271,947	726,397	1,267,239
Trade and other payables[1]	3,307,475	3,307,475	3,307,285	190	-
Provision of financial guarantee[2]	15,789	1,324,463	1,324,463	-	-
	₩ 31,556,306	₩ 36,599,140	₩ 15,195,687	₩ 10,943,468	₩ 10,459,985
Derivative financial liabilities					
Derivative financial liabilities[3]	₩ 106,580	₩ 123,906	₩ 24,774	₩ 88,615	₩ 10,517

[1] Lease liabilities are excluded because they are presented separately.
[2] In case of finance guarantee contract, the amount is distributed to the earliest period when the guarantee could be demanded.
[3] Derivative for trading purpose and cash flow hedge ard included.

48. Risk management (cont'd)

Aggregate maturities of the Group's financial liabilities as of December 31, 2020, are as follows (Korean won in millions):

	Book value	Cash flows in contract	1 year or less	1 ~ 5 years	More than 5 years
Non-derivative financial liabilities					
Debentures	₩ 18,288,781	₩ 22,022,506	₩ 2,546,418	₩ 9,646,696	₩ 9,829,392
Borrowings	3,871,280	3,915,530	3,122,552	623,520	169,458
Lease liabilities	2,001,047	2,216,721	211,689	671,979	1,333,053
Trade and other payables[1]	1,529,494	1,529,494	1,528,667	827	-
Provision of financial guarantee[2]	17,996	1,221,577	1,221,577	-	-
	₩ 25,708,598	₩ 30,905,828	₩ 8,630,903	₩ 10,943,022	₩ 11,331,903
Derivative financial liabilities					
Derivative financial liabilities[3]	₩ 146,904	₩ 155,214	₩ 115,354	₩ 33,687	₩ 6,173

[1] Lease liabilities are excluded because they are presented separately.
[2] In case of finance guarantee contract, the amount is distributed to the earliest period when the guarantee could be demanded.
[3] Derivatives for trading purpose and cash flow hedge are included.

48. Risk management (cont'd)

3) Currency risk

The Group is exposed to currency risk on sales, purchases and borrowings that are denominated in a currency other than the respective functional currencies of the Group, primarily the US Dollars (USD), but also Canadian Dollars (CAD) and Australian Dollars (AUD) and other currencies. The Group uses forward exchange contracts to hedge its currency risk.

In respect of other monetary assets and liabilities denominated in foreign currencies, the Group ensures that its net exposure is kept to an acceptable level by buying or selling foreign currencies at spot rates.

The book amounts of foreign currency assets and liabilities as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021						
	USD	EUR	AUD	CAD	JPY	CHF	MXN
Assets							
Cash and cash equivalents	₩ 3,384	₩ 567	₩ 24,646	₩ 9,851	₩ -	₩ -	₩ 4
Trade and other receivables	51,083	9	13,786	73,096	6	-	-
Financial assets measured at fair value through other comprehensive income	-	-	-	1,902	-	-	-
Financial assets at amortized cost	-	-	-	-	-	-	-
Financial assets	105,031	-	-	-	-	-	-
Loans and receivables	-	-	-	-	-	-	-
Other financial assets	-	-	510	-	-	-	-
Total assets	159,498	576	38,942	84,849	6	-	4
Liabilities							
Trade and other payables	2,285,739	1,846	(29,201)	41,048	716	223	-
Borrowings	3,919,996	-	-	-	-	-	-
Deventures	7,113,000	118,126	-	-	123,629	648,735	-
Lease liabilities	1,893,583	-	482	1,511	-	-	-
Other financial liabilities	15,789	-	-	-	-	-	-
Total liabilities	15,228,107	119,972	(28,719)	42,559	124,345	648,958	-
Net exposure	₩ (15,068,609)	₩ (119,396)	₩ 67,661	₩ 42,290	₩ (124,339)	₩ (648,958)	₩ 4

48. Risk management (cont'd)

	2021						
	AED	MZN	GBP	SGD	KWD	HKD	VND
Assets							
Cash and cash equivalents	₩ 13	₩ 89	₩ -	₩ 17	₩ 144	₩ -	₩ 23
Trade and other receivables	-	-	-	-	-	-	37
Financial assets measured at fair value through other comprehensive income	-	-	-	-	-	-	-
Financial assets at amortized cost	-	8,689	-	-	-	-	-
Financial assets	-	-	-	-	-	-	-
Loans and receivables	16	-	-	-	-	-	-
Other financial assets	-	-	-	-	-	-	-
Total assets	29	8,778	-	17	144	-	60
Liabilities							
Trade and other payables	-	-	45	-	-	413	-
Borrowings	-	-	-	-	-	-	-
Debentures	-	-	-	-	-	68,414	-
Lease liabilities	-	-	-	(1)	-	-	527
Other financial liabilities	-	-	-	-	-	-	-
Total liabilities	-	-	45	(1)	-	68,827	527
Net exposure	₩ 29	₩ 8,778	₩ (45)	₩ 18	₩ 144	₩ (68,827)	₩ (467)

48. Risk management (cont'd)

	2020					
	USD	EUR	AUD	CAD	JPY	CHF
Assets						
Cash and cash equivalents	₩ 2,807	₩ 135	₩ 11,689	₩ 5,440	₩ -	₩ -
Trade and other receivables	329,226	-	6,542	94,947	32	-
Financial assets at amortized cost	-	-	-	-	-	-
Loans and receivables	83,875	-	-	-	-	-
Financial assets	-	-	-	-	-	-
Other financial assets	-	-	-	-	-	-
Total assets	415,908	135	18,231	100,387	32	-
Liabilities						
Trade and other payables	873,316	1,849	(518)	(300)	733	212
Debentures	6,201,600	117,765	-	-	126,511	617,165
Borrowings	2,046,347	-	-	-	-	-
Derivative liabilities	1,850,585	-	-	-	-	-
Lease liabilities	18,559	-	-	-	-	-
Other financial liabilities	3,523	-	39	1,851	-	-
Total liabilities	10,993,930	119,614	(479)	1,551	127,244	617,377
Net exposure	₩ (10,578,022)	₩ (119,479)	₩ 18,710	₩ 98,836	₩ (127,212)	₩ (617,377)

	2020						
	MXN	AED	MZN	GBP	SGD	KWD	HKD
Assets							
Cash and cash equivalents	₩ 6	₩ 26	₩ 74	₩ -	₩ 44	₩ 82	₩ -
Trade and other receivables	-	-	-	-	-	-	-
Financial assets at amortized cost	-	-	954	-	-	-	-
Financial assets	-	-	-	-	-	-	-
Loans and receivables	-	-	-	-	-	-	-
Other financial assets	-	-	-	-	-	-	-
Total assets	6	26	1,028	-	44	82	-
Liabilities							
Trade and other payables	-	-	-	24	206	1	381
Debentures	-	-	-	-	-	-	63,158
Borrowings	-	-	-	-	-	-	-
Derivative liabilities	-	-	-	-	-	-	-
Lease liabilities	-	-	-	-	104	-	-
Other financial liabilities	-	-	-	-	-	-	-
Total liabilities	-	-	-	24	310	1	63,539
Net exposure	₩ 6	₩ 26	₩ 1,028	₩ (24)	₩ (266)	₩ 81	₩ (63,539)

48. Risk management (cont'd)

Foreign currency exchange rate as of December 31, 2021 and 2020, are as follows

	2021	2020
USD	₩ 1,185.50	₩ 1,088.00
EUR	1,342.34	1,338.24
JPY	10.30	10.54
CAD	930.61	853.30
AUD	858.89	836.56
CHF	1,297.47	1,234.33
GBP	1,600.25	1,482.40
HKD	152.03	140.35
SGD	877.14	822.22
AED	322.75	296.20
MZN	18.62	16.25
MXN	57.94	54.60
KWD	3,918.75	3,577.18
VND	0.05	0.05

Sensitivity analysis of profit before income tax from changes of foreign exchange rate for the year ended December 31, 2021, are as follows (Korean won in millions):

	10% Increase	10% Decrease
Profit (loss) before income tax	₩ 17,567	₩ (17,567)

4) Interest rate risk

The Group borrows funds at fixed and variable interest rate. Also, the Group's management monitors the level of interest rates and maintains the balance of borrowings at variable rates and fixed rates.

Variable interest rate financial instrument([1]) as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021	2020
Long-term borrowings	₩ 169,594	₩ 153,553
Lease liabilities	572,665	531,067
Total	₩ 742,259	₩ 684,620

[1] Excluded fully hedged variable interest rate financial instrument.

Sensitivity analysis of profit before income tax from changes of interest rate for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021		2020	
	100bp Increase	100bp decrease	100bp Increase	100bp decrease
Profit (loss) before income tax	₩ (7,423)	₩ 7,423	₩ (6,846)	₩ 6,846

5) Major assets and liabilities affected by estimates

Changes in defined benefit obligation due to changes in actuarial assumptions as of December 31, 2021, are as follows (Korean won in millions):

	1% increase	1% decrease
Salary growth rate	₩ 36,385	₩ (31,641)
Discount rate	(30,648)	35,806

48. Risk management (cont'd)

(4) Fair value of financial assets and liabilities

1) Carrying amounts and fair value of financial assets and liabilities as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021		2020	
	Book value	**Fair value**	**Book value**	**Fair value**
Assets carried at fair value				
Financial assets at fair value through other comprehensive income[1]	₩ 69,585	₩ 69,585	₩ 61,060	₩ 61,060
Financial assets at fair value through profit and loss	119,885	119,885	59,556	59,556
	₩ 189,470	₩ 189,470	₩ 120,616	₩ 120,616
Assets carried at amortized cost[2]				
Trade and other receivables	₩ 7,189,857	₩ -	₩ 4,445,962	₩ -
Financial assets at amortized cost	9,212	-	1,463	-
Loans and receivables	626,190	-	527,874	-
Short-term and long term financial assets	52,270	-	21,775	-
Cash and cash equivalents	564,523	-	331,761	-
	₩ 8,442,052	₩ -	₩ 5,328,835	₩ -
Liabilities carried at fair value				
Financial liabilities at fair value through profit or loss	106,580	106,580	146,904	146,904
	₩ 106,580	₩ 106,580	₩ 146,904	₩ 146,904
Liabilities carried at amortized cost[3]				
Debentures	₩ 18,174,778	₩ 19,288,824	₩ 18,288,781	₩ 18,251,794
Lease liabilities	2,046,305	-	2,001,047	-
Borrowings	8,011,959	-	3,871,280	-
Trade and other payables [2]	3,307,475	-	1,529,494	-
	₩ 31,540,517	₩ 19,288,824	₩ 25,690,602	₩ 18,251,794

[1] Financial assets and liabilities at amortized cost (except for debentures) are excluded because the difference between fair value and book value is not important.

[2] Lease liabilities are excluded because they are presented separately.

48. Risk management (cont'd)

2) Rate of interest used in determining fair value

Details of discount ratios as of December 31, 2021 and 2020, are as follows:

	2021	2020
Derivative instruments	0.911~1.013%	0.948~1.042%
Debentures	(-)0.401~2.694%	(-)0.327~2.725%

3) The level of fair value hierarchy are as follows:

No Significant changes in the business and economic environment that could affect the fair value of financial assets and financial liabilities occurred during the reporting period.

Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities
Level 2: All inputs other than quoted prices included in level 1 that are observable (either directly that is, prices, or indirectly that is, derived from prices) for the asset or liability
Level 3: Unobservable inputs for the asset or liability

The fair value measurements classified by fair value hierarchy as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value through other comprehensive income	₩ -	₩ -	₩ 69,585	₩ 69,585
Financial assets at fair value through profit or loss	-	117,251	2,634	119,885
Financial liabilities at fair value through profit or loss	-	106,580	-	106,580

	2020			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value through other comprehensive income	₩ -	₩ -	₩ 61,060	₩ 61,060
Financial assets at fair value through profit or loss	-	57,748	1,808	59,556
Financial liabilities at fair value through profit or loss	-	146,904	-	146,904

48. Risk management (cont'd)

Changes in financial instruments categorized within Level 3 for the year ended of December 31, 2021, are as follows:

	Beginning balance	Acquisition cost	Profit or loss	Other comprehensive income	Disposal	Transfer	Ending balance
Financial assets at fair value through other comprehensive income	₩ 61,060	₩ -	₩ -	₩ 8,525	₩ -	₩ -	₩ 69,585

4) Unobservable inputs in the market

The valuation techniques used to measure the fair value of financial instruments classified as Level 2 as of December 31, 2021 are as follows (Korean won in millions):

Description	Fair value	Valuation technique
Financial assets at fair value through profit or loss	₩ 117,251	Market forward exchange rate and yield curve
Financial liabilities at fair value through profit or loss	106,580	Market forward exchange rate and yield curve

The valuation method used in the fair value measurements of financial instruments classified as Level 3 and significant but unobservable inputs as of December 31, 2021, are as follows (Korean won in millions):

	2021				
	Valuation techniques	Type	Book value	Inputs	Range of inputs
Financial assets at fair value through other comprehensive income	Discounted cash flow method	Energy business stock	₩ 69,054	Weighted average cost of equity capital	26.06%
				Selling price	3.13 ~ 10.32 $/MMBTU

Changes in financial assets at fair value through other comprehensive income due to changes WACC used in fair value measurements of financial assets as of December 31, 2020, are as follows (Korean won in millions):

	Fluctuations in the value of books	1% decrease	1% increase
Changes in WACC	Increase(decreas) of financial assets at fair value through other comprehensive income	₩ 5,728	₩ (5,193)

Fair value hierarchy classifications of the financial assets and financial liabilities that are not measured at fair value but those with disclosed fair values as of December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021			
	Level 1	Level 2	Level 3	Total
Debentures	₩ 10,387,070	₩ 8,901,754	₩ -	₩ 19,288,824

	2012			
	Level 1	Level 2	Level 3	Total
Debentures	₩ 10,108,214	₩ 8,143,580	₩ -	₩ 18,251,794

49. Related party transactions

(1) List of related parties details as of December 31, 2021 is as follows:

Relationship	Related parties
Ultimate parent	Government of the Republic of Korea [1]
Subsidiaries	Korea Gas Technology Corporation. KOGAMEX Investment Manzanillo B.V. KOMEX-GAS,S.de R.L de C.V KOGAS Iraq B.V. KOGAS Badra B.V. KOGAS Akkas B.V. KOGAS Mansuriya B.V. KOGAS Canada Energy Ltd. KOGAS Australia Pty Ltd. KOGAS Prelude Pty Ltd. KG Timor Leste Ltd. KG Krueng Mane Ltd. KG Mozambique Ltd. KOGAS Mozambique Lda. KOGAS Cyprus Ltd. KC LNG Tech Co., Ltd. KG-SEAGP Company Limited KG Myanmar Ltd. KOGAS International Pte Ltd. KGLNG E&P Pty Ltd. [2] KGLNG Liquefaction Pty Ltd. [2] KGLNG E&P II Pty Ltd. [2] KOGAS Canada Partner Ltd. [9] KOGAS Canada E&P Partnership [9] KOGAS Canada LNG Partnership [9] Korea LNG Bunkering Ltd.
Associates	Korea Ras Laffan LNG Ltd. Korea LNG Ltd. Korea LNG Trading Co., Ltd. South-East Asia Gas Pipeline Company Limited [3] Hydrogen Energy Network Co, Ltd. Kor-Uz Gas cylinder Investment Ltd. Kor-Uz Gas C&G Investment Ltd. Coral FLNG S.A. [4] Coral South FLNG DMCC [4] Rovuma LNG, S.A. [4] Rovuma LNG Investments (DIFC) Ltd. [4]
Joint ventures	Kor-Uz Gas Chemical Investment Ltd. Sulawesi LNG Development Limited TOMORI E&P LIMITED Hyundai Yemen LNG Company KLBV1 S.A. TERMINAL KMS de GNL, S. De R.L. De C.V. [5] Manzanillo Gas Tech, S. de R.L. de C.V. [5] GLNG Operations Pty Ltd [6] GLNG Property Pty Ltd [6] ENH-KOGAS, SA. [7] LNG Canada development Inc [8] Korea Superfreeze Incheon Inc [10]
Other related parties [11]	Korea Electric Power Corporation Korea Southern Power Co., Ltd. Korea Midland Power Co., Ltd. Korea Western Power Co., Ltd Korea East-West Power Co., Ltd. Korea South-East Power Co., Ltd KOSPO Youngnam Power Co., Ltd.

49. Related party transactions (cont'd)

(1) List of related parties details as of December 31, 2021 is as follows: (cont'd)

[1] Even though the government of the Republic of Korea can exercise control in making decision, there are no significant transactions with the Corporation in 2021 and 2020.
[2] A subsidiary of KOGAS Australia Pty. Ltd.
[3] An associate of KG-SEAGP Company Limited.
[4] An associate of KG Mozambique Ltd.
[5] A joint venture of KOGAMEX Investment Manzanillo B.V.
[6] A joint venture of KOGAS Australia Pty. Ltd.
[7] A joint venture of KOGAS Mozambique Lda.
[8] A joint venture of KOGAS Canada Energy Ltd.
[9] A subsidiary of KOGAS Canada Energy Ltd.
[10] Newly established in 2021.
[11] Korea Electric Power Corporation and significant counter parties of subsidiaries of Korea Electric Power Corporation, which exercises significant influence on the Corporation.

49. Related party transactions (cont'd)

(2) Transactions between us and our subsidiaries have been removed upon consolidation and are not disclosed in comments. Transactions between the Group and other related parties are as follows.

1) Significant transactions which occurred in the normal course of business with related parties for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

Related Party	Transaction	Sales and other income 2021	Sales and other income 2020	Purchases and other expense 2021	Purchases and other expense 2020
Korea Ras Laffan LNG Ltd.	Dividends	₩ 59,907	₩ 38,817	₩ -	₩ -
	Retirement allowance	-	74	-	-
Korea LNG Ltd.	Dividends	11,017	9,306	-	-
Hyundai Yemen LNG Company	Interest income	591	811	-	-
Korea LNG Trading Co., Ltd.	Costs of sales	-	-	115,010	81,370
	Interest expense	-	-	4,500	10,400
South-East Asia Gas Pipeline Company Limited	Interest income	1,987	3,240	-	-
Terminal KMS de GNL, S. de R.L. de C.V	Miscellaneous gains	87	113	-	-
	Revenue	-	45	-	-
TOMORI E&P LIMITED	Loss on disposition of shares of affiliated companies	-	-	-	2,119
Manzanillo Gas Tech, S. de R.L. de C.V	Revenue	5,861	7,914	-	-
	Miscellaneous gains	746	-		-
ENH-KOGAS, SA.	Revenue	286	295	-	-
LNG Canada Development	Miscellaneous gains	537	877	-	-
Korea Electric Power Group	Miscellaneous gains and others	29	7	-	-
	Commissions	-	-	164	-
	Utility expenses and others	-	-	98,728	91,927
	Cost of land	-	-	2,413	-
Korea Southern Power Co.,Ltd.	Revenue[1]	1,714,646	986,651	-	-
	Rental income	287	349	-	-
	Miscellaneous gains	17	-	-	-
	Revenue contribution to construction	511	-	-	-
	Lease payments	-	-	36	85
	Interest expenses	-	-	7	4
Korea Midland Power Co., Ltd.	Revenue[1]	1,039,994	580,097	-	-
	Miscellaneous gains	27	5	-	-
	Rental income	1	-	-	-
	Lease payments	-	-	486	345
	Interest expenses	-	-	114	34
Korea Western Power Co., Ltd.	Revenue[1]	1,393,448	641,209	-	-
	Utility expenses and others	-	-	1,055	2,162
	Lease payments	-	-	169	95
	Interest expenses	-	-	29	24
Korea East-West Power Co., Ltd.	Revenue[1]	897,072	608,460	-	-
	Fuel maintenance costs and others	-	-	113	105
	Lease payments	-	-	162	165
	Interest expenses	-	-	16	8
Korea South-East Power Co., Ltd.	Revenue[1]	344,479	251,569	-	-
	Rental income	35	35	-	-
	Fuel maintenance costs and others	-	-	80	100
KOSPO Youngnam Power Co., Ltd.	Revenue[1]	256,468	202,596	-	-

[1] Individual consumption taxes are included.

49. Related party transactions (cont'd)

2) Account balances, excluding loans and borrowings, with related parties as of December 31, 2021 and 2020, are as follows (Korean won in millions):

		Receivables		Payables	
Related Party	**Account**	**2021**	**2020**	**2021**	**2020**
LNG Canada development	Non-trade receivables	₩ 68	₩ 258	₩ -	₩ -
Korea LNG Trading Co., Ltd.	Lease liabilities	-	-	417,449	440,784
	Current portion of lease liabilities	-	-	62,836	55,672
	Trade payables	-	-	13,452	11,036
	Accrued expense	-	-	6,410	2,760
	Prepaid expense	546	200	-	-
Hyundai Yemen LNG Company	Accrued income	13,537	11,893	-	-
Manzanillo Gas Tech, S. de R.L. de C.V	Trade payables	-	-	-	124
Terminal KMS de GNL, S. de R.L. de C.V	Long-term non-trade receivables	230	254	-	-
	Trade receivables	-	3	-	-
ENH-KOGAS, SA.	Non-trade receivables	99	91	-	-
Korea Electric Power Group	Non-trade payables	-	-	4	3
	Accrued expense	-	-	10,134	9,587
	Lease liabilities	-	-	3	-
Korea Southern Power Co., Ltd.	Trade receivables	220,767	117,253	-	-
	Lease liabilities	-	-	419	375
Korea Midland Power Co., Ltd.	Trade receivables	156,944	77,693	-	-
	Lease liabilities	-	-	6,266	4,455
Korea Western Power Co., Ltd.	Trade receivables	156,725	96,248	-	-
	Non-trade payables	-	-	-	56
	Lease liabilities	-	-	1,445	1,270
Korea East-West Power Co., Ltd.	Trade receivables	142,264	72,143	-	-
	Lease liabilities	-	-	930	1,098
Korea South-East Power Co., Ltd.	Trade receivables	98,156	45,385	-	-
	Non-trade payables	-	-	5	40
KOSPO Youngnam Power Co., Ltd.	Trade receivables	28,292	20,658	-	-

3) Loans to related parties as of December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021	2020
Associates	South-East Asia Gas Pipeline Company Limited	₩ 13,105	₩ 19,720
	Coral FLNG S.A.	218,712	163,274
	Rovuma LNG Investments (DIFC) Ltd	47	-
Joint ventures	Hyundai Yemen LNG Company	41,302	35,465
	ENH-KOGAS, SA	-	6,914
		₩ 273,166	₩ 225,373

4) Limits of financial commitments related parties as December 31, 2021 are as follows (US dollars in thousands) :

		Loan limit	
Joint ventures	Hyundai Yemen LNG Company Limited	USD	93,500
Associates	Coral FLNG S.A.	USD	371,200
	South-East Asia Gas Pipeline Company Limited	USD	58,721
	Rovuma LNG Investments (DIFC) Ltd	USD	200

49. Related party transactions (cont'd)

5) Fund transactions with related parties for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

		2021			
		Loan transactions		Cash contribution	
Relationship	Related party	Loans	Collections	Acquisition	Disposal
Associates	Hydrogen Energy Network Co., Ltd.	₩ -	₩ -	₩ 10,500	₩ -
	Coral FLNG S.A.	42,916	-	-	-
	Rovuma LNG Investments (DIFC) Ltd.	46	-	-	-
	South-East Asia Gas Piepline Company Ltd.	-	(7,620)	-	(4,651)
Joint ventures	Sulawesi LNG Development Limited	-	-	-	(70,381)
	Hyundai Yemen LNG	2,734	-	-	-
	KLBV1 S.A	-	-	2,922	-
	Korea Superfreeze Incheon Inc	-	-	1,000	-
	ENH-KOGAS, SA.	-	(7,272)	-	-

		2020			
		Loan transactions		Cash contribution	
Relationship	Related party	Loans	Collections	Acquisition	Disposal
Associates	TOMORI E&P LIMITED	₩ -	₩ -	₩ -	₩ (45,506)
	Hydrogen Energy Network Co., Ltd.	-	-	9,000	-
	Coral FLNG S.A.	43,508	-	-	-
	Rovuma LNG Investments (DIFC) Ltd.	-	-	6	-
	South-East Asia Gas Piepline Company Ltd.	-	(7,455)	-	-
Joint ventures	Sulawesi LNG Development Limited	-	-	62	-
	Hyundai Yemen LNG	3,211	-	-	-
	KLBV1 S.A	-	-	3,056	-
	ENH-KOGAS, SA.	-	(3,750)	-	-

The Group enters into a funding arrangement proportional to its share ratio under a joint arrangement between KOGAS and its subsidiaries and associates in relation to the development of foreign resources as of December 31, 2021 and 2020.

49. Related party transaction (cont'd)

6) The payment guarantees provided to related parties as of December 31, 2021, are as follows (US dollars in thousands):

Guarantor	Related party[1]	Detail	Guaranteed amount		Beneficiary
KOGAS	Terminal KMS de GNL, S. de R.L. de C.V.	Operation and maintenance expense guarantee	USD	20,675	Manzanillo Gas Tech
KOGAS	Terminal KMS de GNL, S. de R.L. de C.V.	PF repayment guarantee	USD	9,240	KEB Hana Bank
KOGAS	Coral FLNG S.A	Guarantee payment for outstanding debt indicated in FLNG EPCIC contract [2]	USD	524,833	TJS Consortium
KOGAS	Coral South FLNG DMCC	Payment guarantee for the obligation to repay the principal and interest of the project finance related to Coral South FLNG's business [3]	USD	487,470	Sumitomo Mitsui Banking Corporation
KOGAS	KLBV1.S.A	Payment guarantee for Ship Construction Contract for Shell Bunkering Infrastructure Supply Project	USD	20,843	Hyundai Mipo Dockyard

[1] The related parties are associates or joint ventures of the Group.
[2] Guarantee obligation is effective if the aggregate outstanding debt is more than USD 50 million.
[3] Guarantee obligation on the acutual withdrawn principal and interest occur in the event of a default, and the guantee is provided until the financial completion date (planned on January 31, 2024).

7) The performance guarantees provided to related parties as of December 31, 2021, are as follows (US dollars in thousands):

Guarantor	Related party[1]	Detail	Guaranteed amount		Beneficiary
KOGAS	Sulawesi LNG Development Limited	Guarantee from KOGAS in the percentage of Sulawesi LNG Development(SLD) ownership (25%) on SLD's obligation to provide finance to DSLNG.	USD	13,762	DSLNG, Pertamina, Medco
KOGAS	Sulawesi LNG Development Limited	KOGAS bears obligation in its ownership percentage (25%) of SLD in relation to funding resolution arising as a result of share acquisition, and execution of funding in accordance with DSLNG's shareholder contract	USD	13,762	DSLNG
KOGAS	Sulawesi LNG Development Limited	In the event that SLD fails to comply with the guarantee obligation for the amount of the operation fund, the corporation will be obliged to pay the share ratio (25%) of the SLD.	USD	2,995	MUFG UNION BANK, N,A.
KOGAS	Terminal KMS de GNL, S. de R.L. de C.V.	Guarantee of contract performance[2]	USD	42,500	KEB Hana Bank, HSBC Mexico
KOGAS	KLBV1 S.A.	Guarantee payment for shipbuilding contract in Shell bunkering infrastructure supply business	USD	24,522	Hyundai Mipo Dockyard Co., Ltd

[1]The related parties are associates or joint ventures of the Group.
[2]Counter-guarantee through granting credit by KEB Hana Bank

49. Related party transaction (cont'd)

8) The Group provides its shares in KOGAMEX Investment Manzanillo B.V. as collateral in relation to a transaction with Terminal KMS de GNL, S. de R.L. de C.V., and the details are as follows (Korean won in millions and US dollars in thousands):

Beneficiary	Contract date	Maturity date	Collateralized amount		Carrying amount		Remark
Sumitomo Mitsui Banking Group	2017.05.31	2033.05.26	USD	487,470	USD	50,251	Provided as collateral to LNG sales revenue account, Coral South FLNG S.A and Coral South F LNG DMCC shares owned by the project finance lender[1]
	2017.09.20				USD	14	
KEXIM and others	2009.09.16	2029.08.31	USD	48,800	KRW	25	Shares invested in KOGAMEX Investment Manzanillo B.V. and all related rights[2]

[1] This collateral is provided from the date of the related collateral agreement to the completion date of repayment of sydicate's principal and interest. The effect of the collateral agreement is forfeited when principal and interests are fully repaid at the request of the syndicate before the financial completion date.
[2] The shares invested in KOGAMEX Investment Mazanillo B.V which is owned by the Group, are provided as collateral for non-resident transactions of Terminal KMS at GNL, S. de R.L. de CV

9) The compensation for major management during the current and previous years are as follows. (Korean won in millions):

	2021		2020	
Short-term employees benefits	₩	2,789	₩	2,639
Retirement benefits		92		97
	₩	2,881	₩	2,736

50. Non-cash transactions

(1) The significant non-cash transactions for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021		2020	
Transfer of construction-in-progress to property, plant and equipment	₩	316,184	₩	855,752
Transfer of current portion of debentures		1,895,200		2,038,221
Transfer of current portion of lease liabilities		204,515		119,423
Transfer of current portion of long-term loans		235		1,580
Increase in lease liabilities due to increase in right-of-sue assets		36,099		88,341

51. Adjustment in liabilities arising from financing activities

Changes in liabilities arising from financing activities for the years ended December 31, 2021 and 2020, are as follows (Korean won in millions):

	2021			
	Current portion of lease liabilities	Non-current portion of lease liabilities	Short-term borrowings	Current portion of debentures
Beginning balance	₩ 208,108	₩ 1,792,939	₩ 3,110,297	₩ 2,003,645
Cash flows	(135,038)	-	4,002,864	(2,004,000)
Acquisition-new leases	1,834	23,906	-	-
Exchange differences	129	156,067	119,318	39,000
Other non-financial changes	193,751	(195,391)	600,000	1,895,170
Ending balance	₩ 268,784	₩ 1,777,521	₩ 7,832,479	₩ 1,933,815

	2021				
	Long-term borrowings	Debentures	Current portion of derivative liabilities (assets)	Non-current portion of derivative liabilities (assets)	Total
Beginning balance	₩ 760,983	₩ 16,285,136	₩ -	(10,867)	₩ 24,150,241
Cash flows	3,951	1,310,741	-	-	3,178,518
Acquisition-new leases	-	-	-	-	25,740
Exchange differences	14,469	533,584	-	(41,290)	821,277
Other non-financial changes	(599,923)	(1,888,497)	-	-	5,110
Ending balance	₩ 179,480	₩ 16,240,964	₩ -	(52,157)	₩ 28,180,886

	2020			
	Current portion of lease liabilities	Non-current portion of lease liabilities	Short-term borrowings	Current portion of debentures
Beginning balance	₩ 310,551	₩ 1,958,068	₩ 3,800,315	₩ 2,346,906
Cash flows	(223,113)	-	(658,528)	(2,339,334)
Acquisition-new leases	947	87,393	-	-
Exchange differences	173	(118,941)	(31,490)	(43,122)
Other non-financial changes	119,550	(133,581)	-	2,039,195
Ending balance	₩ 208,108	₩ 1,792,939	₩ 3,110,297	₩ 2,003,645

	2020				
	Long-term borrowings	Debentures	Current portion of derivative liabilities (assets)	Non-current portion of derivative liabilities (assets)	Total
Beginning balance	₩ 476,493	₩ 17,766,744	₩ 34,425	9,128	₩ 26,702,630
Cash flows	292,643	898,001	(34,425)	-	(2,064,756)
Acquisition-new leases	-	-	-	-	88,340
Exchange differences	(10,911)	(347,310)	-	(19,995)	(571,596)
Other non-financial changes	2,758	(2,032,299)	-	-	(4,377)
Ending balance	₩ 760,983	₩ 16,285,136	₩ -	(10,867)	₩ 24,150,241

52. Purchase agreements

(1) As of December 31, 2021, the Group has acquisition commitments for main construction projects amount to ₩716,271 million(₩259,363 million as of December 31, 2020).

(2) The Group's inventory purchase contracts as of December 31, 2021, are as follows (In thousands of tons):

	Contract period	Total contract quantity
Malaysia LNG SDN. BHD.	2008~2028	2,000
Rasgas Company Limited	1999~2024	4,920
	2007~2026	2,100
	2013~2032	2,000
	2025~2044	2,000
Oman LNG LLC	2000~2024	4,060
Sakhalin Energy Investment Company Ltd.	2008~2028	1,500
The East Sea gas field	2019~2021	90
Petronas LNG	2023~2039	1,155
Gladstone LNG	2016~2036	3,500
Shell Eastern Trading (Pte.) Ltd.	2013~2038	3,640
TOTAL Gas & Power Limited	2014~2031	2,000
	2021~2025	200
Sabine Pass LNG	2017~2037	2,800
PT Donggi Senoro LNG	2015~2027	700

(3) The shareholders of KG-SEAGP Company Limited, the subsidiary of the Group, consist of the Group and PEF. The Group can execute the redemption right to preferred stock of PEF after seven years (expected 2023). If the right is not executed, the PEF can sell their preferred stock and also the common stock of the Group to a 3rd party.

(4) As of December 31, 2021, the shareholders of KG Myanmar Ltd., the subsidiary of the Group, consist of the Group and trustees. The Group can execute the redemption right to the preferred stock of trustees after seven years (expected 2024). If the right is not executed, trustees can sell their preferred stock and also the common stock of the Group to a 3rd party.

(5) As of December 31, 2021, the Group has expenditure agreements in relation to overseas resource development projects.

53. Commitments and contingencies

(1) The Group is involved in various lawsuits and claims for alleged damages totaling to ₩ 134,023 million, AUD 213 million and USD 6 million as of December 31, 2021.

(2) On October 16, 2020, as a result of the first trial, the Group lost the lawsuit and recognized ₩ 12,328 million as a provision for lawsuit (Note 28).

(3) As the result of 2nd trial pending in the Harris Country District Court, Santos Australia Pty Ltd. lost the lawsuit of royalty calculations on 11 March 2021. Accordingly, the Group recognized ₩ 8,285 million as provision for lawsuit (Note 28) for the JVP share and the litigation is a lawsuit for the payment related to this.

(4) As of December 31, 2021, except for Notes 53(2) and 53(3), there is no amount as a provision in connection with the above litigation case. Although the results of the above litigation are not expected to have a significant impact on the financial statements, further losses may occur depending on the outcome of the lawsuit in the future.

(5) As of December 31, 2021, the Group has provided guarantees to others, excluding related parties, for the payment of debts amounting to ₩ 55,400 million, USD 74,484 thousand, KWD 26 thousand, CAD 1,600,578 thousand and EUR 1,540 thousand (USD 74,027 thousand, KWD 26 thousand, CAD 1,830,047 thousand and EUR 1,540 thousand as of December 31, 2020).

(7) Details of collateralized amounts of the Group as of December 31, 2021, are as follows (korean won in millions and US dollars in thousnads):

Beneficiary	Contract date	Maturity date	Collateralized amount		Carrying amount		Remark
ING Bank N.V	2013.01.14	2027.06.20	USD	310,140[1]	₩	675,865	Kor-Uz Gas Chemical Investment Ltd. invested by Kor-Uz Gas Chemical Investment Ltd. holds Kor-Uz Gas Chemical Investment Ltd in connection with borrowings from major shareholders. Provide shares and all rights thereof as collateral [2]
Bank of Tokyo Mitsubishi	2008.05.19	Until the completion of the obligation performance (2027 is the expected year)	USD	2		69,054[3]	Providing guarantees to perform obligations related to PF of YLNG (The PF balance, which is equivalent to the construction share as of December 31, 2021, is USD 77,041)
			Equity Funding			54,800[4]	
Shell Canada Energy, Diamond LNG Canada Ltd., Brion Kitmat LNG partnership	2014.05.01	Until the end of the guarantee obligation	USD	727,927	USD	724,601	Providing project tangible and intangible assets as guarantees to partner company of LNG Canada business
KDB	2020.11.27	2021.11.27		1,160		963	Provision of patent security for interest rate reduction purposes upon loan

[1] The collateralized amount is subject to change based on the future investment plan.
[2] Although, the delay of opening a Letter of Credit for the stable collection of gas sold by Uz-KorGas Chemical LLC and overdue of purchase payment are corresponding to default condition, the Lenders are holding back its actions.
[3] The book amount of equity instrument as of December 31, 2021, which is classified to Financial assets measured at fair value through non-current comprehensive income, is measured at fair-value.
[4] The book amount of loan as of December 31, 2021.

53. Commitments and contingencies (cont'd)

(8) Details of commitments held by the Group as of December 31, 2021, are as follows (Korean won in millions, and US dollars in thousnads, Canadian dollars, Euros and Baht):

	Financial Institution	Limit		Amount	
Corporate card	KEB Hana Bank and other	KRW	4,680	KRW	1,379
Foreign currency loan	The Korea Development Bank and others	USD	4,980,000	USD	3,155,222
Daily bank overdraft	KEB Hana Bank	KRW	200,000	KRW	-
Bank overdraft	KEB Hana Bank and others	KRW	350,000	KRW	148,000
General loan	Daegu Bank and other	KRW	1,003,000	KRW	953,000
Foreign currency commitment	KEB Hana Bank and others	CAD	6,148	CAD	6,148
		USD	673,754	USD	557,611
				KWD	26
		EUR	1,540	EUR	1,540
Commitment to acquire commercial paper	KEB Hana Bank	KRW	1,000,000	KRW	1,000,000
Win-win growth E-bond discount limit	KEB Hana Bank	KRW	13,000	KRW	-
Commitments to letter of credit	KEB Hana Bank and others	USD	362,000	EUR	1,090
				USD	110,880
Performance guarantee	Seoul Guarantee Insurance Company and others	CAD	2,908	CAD	2,908
		USD	11,276	USD	11,276
		AUD	81,947	AUD	51,039
		KRW	112,320	KRW	61,377
Industrial operation loan	KDB	KRW	1,863	KRW	963
Win-win payment loan	Industrial Bank of Korea	KRW	3,000	KRW	-
Payment guarantee	Seoul Guarantee Insurance Company	KRW	777	KRW	777

(9) As of December 31, 2021, the Group has provided LOU (Letter of Undertaking) for 13 of the transports currently in operation. If the transporter fails to fulfill the requirements under the contract, the Group will be liable for any obligations related to execution of the contract. The Group recognized lease liabilities of KRW 1,893,476 million related to the contract of long-term transportation as of Decmember 31, 2021.

(10) Myanmar's military launched a coup in February 2021, detained a number of senior government officials, including state adviser Aung San Suu Kyi, and declared a state of emergency for a year. In this regard, consolidated companies maintain a regular contact system with the operator in case of an emergency and conduct normal business activities by strengthening local situation monitoring. The financial impact of this is difficult to reasonably estimate and is not reflected in the financial statements.

(11) MRV, the operator of the Mozambique Area 4 project involving the Group, has notified the Mozambique government of force majeure against some of the obligations of the Area 4 mining rights except Coral FLNG due to worsening security conditions in northern Mozambique's Cabodelgado area.

(12) Due to the approval of the East Timor government on June 24, 2021 and the revision of the PSC on August 20, 2021, the Group was obligated to pay the withdrawal share under the agreement. The limit of amount is USD 3.5 million and it is valid until December 27, 2026.

(13) The Group entered into a settlement agreement (March 2, 2020) with Samsung Engineering for USD 10,000,000 (KOGAS Badra B.V. USD 3,000,000) in connection with Samsung Engineering's claim on CPF-2 (gas treatment facilities). However, under the joint operation agreement, the Group's payment obligation is not determined until the consultation between the Iraq government and the operator is finalized.

(14) KGLNG E&P and KGLNG E&P II have signed a Royalty payment contract with Tri-Star Petroleum Company and one other company in connection with the Australian GLNG mine, and some mining rights and book value of 51,975 million won are required to be agreed upon at disposal.

53. Commitments and contingencies (cont'd)

(15) In March 2019, Encana Co., Ltd. ("Encana"), the business operator of the Hon River project, claimed a refund of the Infrastructure royalty credit (CAD 4,800,000) of which Encana paid in advance to the Group in 2011, as the Infrastructure royalty credit is not feasible. However, the Group and its legal counsel decided that there is no obligation for the Group to refund of the amount.

(16) The Group has signed an agreement with the Canadian government to subsidize a total of CAD 11 million over a four-year period in exchange for promising to manufacture, transport, install and connect four LMS wind turbines, compressor packages and related auxiliary equipment to LNG facilities. The Canadian government may demand repayment of subsidies if certain conditions are not met, and as of December 31, 2021, about CAD 7.15 million of debt could be incurred if consolidated companies have to repay subsidies.

(17) On September 27, 2018, the Group has entered into a second option contract with Rio Tinto Alcan Inc. in order to secure the LNG project's sites and facilities. The termination fee of the option contract amounts to USD 2.5 million.

(18) On October 31, 2019, the Group has entered into a MERRF (Marine Emergency Response Research Facility) funding agreement with Gitga'at for the compensation to natives in order proceed the LNG project. The termination fee amounts to CAD 25 million and paid CAD 14.5 million out of CAD 25 million on September 30, 2020.

(19) In February 2020, the Group signed a contract with General Electric in order to maintain and repair LNG plants and the termination fee amounts to USD 500,000.

(20) In October 2019, the Group participated in Phase 2 Define phase 2 of LNG Canada joint venture, which began operations in November 2019, and if Phase 2 FID fails, they have CAD 160,000 contingency obligations related to Phase 2 Define withdrawal.

(21) The Group are required to acquire Marine services during the execution phase of LNG Canada projects to support the operational phase. A written resolution has been signed for the contract signed in 2019, and the accidental liability of the consolidated company for the tugboat is CAD 2 million as of December 31, 2021.

(22) As of December 31, 2021, the minimum expenditure obligation of the Group for overseas resource development projects including Cyprus amounts to approximately EUR 15.4 million.

54. Business Combinations

(1) As of June 9, 2021, the corporation acquired all rights and obligations related to Incheon Electronic Land Elephants Basketball Team for ₩500 million from SYS Retail Co., Ltd. for the purpose of enhancing corporate image, promoting new businesses, and creating benefits to local economy and community.

(2) Consideration transferred arising from the business combination for year ended December 31, 2021, is as follows (Korean won in millions):

		Fair value
Cash	₩	500

(3) The fair value of assets transferred or liabilities assumed as part of the consideration transferred in the business combination at the acquisition date are as follows (Korean won in millions):

		Fair value
Current assets		
Advance receipts	₩	224
Non-current assets		
Office equipment		83
Vehicles		48
	₩	355

[1] In relation to basketball team, the Corporation has not assumed any liabilities to third parties.

(4) Goodwill arising from the business combination for year ended December 31, 2021, is as follows (Korean won in million):

		Fair value
Consideration transferred	₩	500
Fair value of identified assets		(355)
Goodwill	₩	145

(5) Net cash outflows in the business combination for years ended December 31, 2021 and 2020 are as follows (Korean won in million):

		2021		2020
Consideration paid in cash	₩	500	₩	-
Less: Acquired cash and cash equivalents		-		-
	₩	500	₩	-

55. Events after the reporting period

(1) Judgment of important litigation case

In January 2022, after the reporting period, the Group won a lawsuit, which contain a total of ₩151.4 billion (₩116.1 billion in damages, ₩35.3 billion in delay damages) in the first trial of the lawsuit filed against 19 construction companies including Kumho Construction, and then some of the defendants filed an appeal. This event is an event after the reporting period that does not require amendment.

(2) Uncertainty of the impact of the Ukraine crisis

The armed conflict in Ukraine which occurred in February 2022 after the reporting period and related sanctions against Russia by the international community, may affect not only the companies subjected to sanctions, but also companies directly or indirectly doing business with Ukraine or Russia and being exposed to the industry or economy of Ukraine or Russia. This event is an event after the reporting period that does not require amendment.

The Group imports some LNG from Russia through relevant long-term contracts. Currently, the contract is being implemented normally, but the Group is continuously monitoring the situation that may have an impact, such as additional financial sanctions from the international community. In addition, the financial impact of such changes cannot be reasonably estimated.

The operation of the Iraqi oil field business, in which a subsidiary KOGAS Badra B.V. participates, is operated by Gazprom Neft Badra B.V., a grand-child company of Gazprom Neft, an economically sanctioned company. The subsidiary's future operations are expected to be affected by the expansion of sanctions against Russia due to the Ukraine crisis, but the financial impact cannot be estimated reasonably.

The Group’s joint venture, Kor-Uz Gas Chemical Investment Ltd.'s, polymer sales in Russia and imports of raw and subsidiary materials are expected to be affected by the Ukraine crisis, and are in the process of switching sales and suppliers, but the financial impact cannot be reasonably estimated.

(3) Uncertainties related to the economic and financial sanctions against Myanmar State Oil and Gas Company (MOGE) imposed by the EU

After the reporting period, in February 2022, the European Union's economic and financial sanctions were announced against the Myanmar State Oil and Gas Company (MOGE), which owns a 15% stake in the Myanmar A-1/A-3 gas field business. The business, in which the Group holds an 8.5% stake, is operating normally, and the Group is continuously monitoring the situation that may have an impact, such as additional economic and financial sanctions from the international community. In addition, the financial impact cannot be reasonably estimated. This event is an event after the reporting period that does not require amendment.

(4) Judgment of litigation regarding labor

On February 9, 2022, the Daejeon District Court turned down the claim against the Group (defendant) filed by the plaintiff, including an individual, in relation to labour.

(5) Renewal of guarantee for performance of minimum expenditure obligation

On February 4, 2022, the Group renewed bank guarantee for the performance of minimum expenditure obligations of KOGAS Cyprus Ltd., a subsidiary. Accordingly, the warranty period has been extended, and the expired date of the performance guarantee is February 7, 2023.

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Independent auditor's report

The Shareholders and Board of Directors
Korea Gas Corporation

Opinion

We have audited the consolidated financial statements of Korea Gas Corporation and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statements of financial position as of December 31, 2020 and 2019, and the consolidated statements of comprehensive income, consolidated statements of changes in equity and consolidated statements of cash flows for the years then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2020 and 2019, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with Korean International Financial Reporting Standards ("KIFRS").

Basis for opinion

We conducted our audit in accordance with Korean Auditing Standards ("KGAAS"). Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the consolidated financial statements section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in the Republic of Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key audit matters

Key audit matters are those matters that, in our professional judgment, were of the most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

(1) Recognition of gains and losses related to the settlement of raw material cost linkage and supply costs

As mentioned in Note 17 to the consolidated financial statements, in accordance with the standard for natural gas supply price and the guidelines for raw material cost pass-through adjustment system for city gas and power generation, the settled income, which is the difference between the actual cost incurred and current year's revenues (the "Settlement gains and losses"), is reflected in the following year's rate under the approval of Republic of Korea government.

The Group adjusts the Settlement gains and losses from the current year's cost of sales and recognizes the related assets and liabilities as other non-financial assets and other non-financial liabilities, respectively.

The Settlement gains and losses are calculated at the end of every month and each year based on raw material costs and supply costs approved by the Ministry of Trade, Industry and Energy. Therefore, the Settlement gains and losses are determined based on the difference between the estimated oil price, foreign currency exchange rate, supply volume and budget reflected in the raw material cost and supply cost approved by the Ministry of Trade, Industry and Energy in the previous year and the actual oil price, foreign currency exchange rate, supply volume and actual supply cost. Due to highly complex calculation of the Settlement gains and losses, the calculation procedures involve likelihood of human error.

We selected the accuracy of calculation for the Settlement gains and losses as our key audit matter due to the materiality of its amount in the Group’s consolidated financial statements and the likelihood of misstatements arising from complexity of procedures in calculating the Settlement gains and losses.

We performed the following audit procedures to review the accuracy of the Settlement gains and losses:

- Inquiry of the relevant departments to understand calculation procedures, logic and accounting treatment related to the Settlement gains and losses.
- Test of design and operating effectiveness of related internal controls
- Review of closing journal entries for the Settlement gains and losses to adjust the difference between the amount in the settlement report for raw material costs and supply costs for city gas/power generation at the end of year and the corresponding amount recognized during the current period.
- Recalculation of relevant assets and liabilities related to the Settlement gains and losses and comparison of it to the corresponding amount provided by the Group.

(2) Impairment of property, plant and equipment and intangible assets, which are related to the resource development projects of KOGAS Prelude Pty Ltd. (hereinafter referred to as "Australia Prelude FLNG") and KOGAS Australia Pty Ltd. (hereinafter referred to as "Australia GLNG").

As of December 31, 2020, property, plant and equipment and intangible assets related to the Australia Prelude FLNG and Australia GLNG resource development projects amount to ₩3,700,807 million.

As described in Note 3 (6) to the consolidated financial statements, the Group assesses at the end of each reporting period whether there is an indication that property, plant and equipment and intangible assets related to the resource development projects may be impaired, and when there is an indication of impairment, the Group estimates the recoverable amount of the assets to determine the amount of impairment losses.

The recoverable amount of non-financial assets related to the resource development projects is calculated based on complex assumptions and judgments. The future cash flows are sensitive to fluctuations in assumptions, such as future oil and gas prices, reserves, production quantity and expenses.

Considering the necessity of judgments, materiality of amount, and the complexity of the assumptions used by management in calculating the recoverable amount of individual assets related to the resource development projects, we selected the impairment testing of those property, plant and equipment and intangible assets as our key audit matter.

We understood the Group’s impairment testing process of property, plant and equipment and intangible assets. We involved the component auditors to obtain accurate understanding of the business environment, such as local law, taxation, and others in a place of business related to the Australia Prelude FLNG and Australia GLNG resource development projects. We directed and supervised the following audit procedures to the component auditors through the group audit instructions:

- Review and assessment of management's evaluation on whether there is an indication of impairment.
- Review on whether the assumptions used in the valuation report (future cash flow model) are consistent with the approved budget and business plan of the Group.
- Comparison and reconciliation of whether the future estimates of short-term and long-term oil prices used in the valuation report are consistent with the forecast data provided by an independent external institution.
- Comparison and reconciliation of the forecast quantities of production used in the valuation report are consistent with the data from the reserves report issued by the external expert.
- Independent recalculation of the discount rate used in estimated cash flow discount, and subsequently, comparison and reconciliation of it with the discount rate used in the impairment testing

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Responsibilities of management and those charged with governance for the consolidated financial statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with KIFRS, and for such internal control as management determines is necessary to enable the preparation of the consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's responsibilities for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with KGAAS will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with KGAAS, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partner on the audit resulting in this independent auditor's report is Yong Soo Jung.

Ernst & Young Han Young

March 17, 2021

This audit report is effective as of March 17, 2021, 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 Gas Corporation and its subsidiaries
Consolidated statements of financial position
as of December 31, 2020 and 2019

(Korean won in millions)

	Notes		2020		2019
Assets					
Current assets:					
Cash and cash equivalents	5,6,44,45	₩	331,761	₩	257,101
Current financial assets	7,11,12,13,44,45		49,679		98,590
Trade and other receivables	9,44,45,46		4,244,755		5,136,755
Short-term contract assets	20		5,581		6,001
Inventories	15		1,390,282		2,645,254
Current tax assets			2,822		3,754
Current non-financial assets	16,17		1,502,999		1,085,310
			7,527,879		9,232,765
Non-current assets:					
Non-current financial assets	6,7,10,11,12,13,14,44,45		622,049		599,111
Long-term trade and other receivables	9,44,45,46		201,207		283,158
Property, plant and equipment	19		23,134,144		24,377,428
Intangible assets other than goodwill	21		1,594,712		1,746,628
Investments in associates and joint ventures	4,18		1,522,734		1,717,164
Net defined benefit assets	26		9,452		26,699
Deferred tax assets	41		1,025,195		859,646
Non-current non-financial assets	16,17		272,403		469,256
			28,381,896		30,079,090
Total assets		**₩**	**35,909,775**	**₩**	**39,311,855**

(Continued)

Korea Gas Corporation and its subsidiaries
Consolidated statements of financial position
as of December 31, 2020 and 2019 (cont'd)
(Korean won in millions)

	Notes	2020	2019
Liabilities			
Current liabilities:			
Trade and other payables	23,25,44,45,46	₩ 1,736,775	₩ 2,279,500
Current financial liabilities	7,22,24,44,45	5,219,051	6,222,061
Short-term contract liabilities	20	57,214	31,586
Current tax liabilities		26,295	32,264
Current non-financial liabilities	30	67,937	231,292
Current provisions	27	105,546	103,840
		7,212,818	8,900,543
Non-current liabilities:			
Long-term trade and other payables	23,25,44,45,46	1,793,767	1,958,845
Non-current financial liabilities	7,22,24,44,45	17,087,914	18,316,589
Non-current non-financial liabilities	28,29,30	54,720	48,875
Net defined benefit liabilities	26	12,011	20,048
Deferred tax liabilities	41	1,830,521	1,722,054
Non-current provisions	27	182,868	198,380
		20,961,801	22,264,791
Total liabilities		**28,174,619**	**31,165,334**
Equity:			
Share capital	1,31	461,565	461,565
Share premium	31	1,303,548	1,303,548
Retained earnings	32,33	5,190,805	5,397,707
Other components of equity	34	525,122	690,525
Equity attributable to owners of the parent		7,481,040	7,853,345
Non-controlling interests		254,116	293,176
Total equity		**7,735,156**	**8,146,521**
Total liabilities and equity		₩ **35,909,775**	₩ **39,311,855**

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

Korea Gas Corporation and its subsidiaries
Consolidated statements of comprehensive income
for the years ended December 31, 2020 and 2019
(Korean won in millions)

	Notes		2020		2019
Revenue	4,20,35	₩	20,833,722	₩	24,982,640
Cost of sales	42		19,513,499		23,227,117
Gross profit			1,320,223		1,755,523
Selling and administrative expenses	36,42		421,368		421,009
Operating profit			898,855		1,334,514
Other income	37		3,750		2,967
Other expenses	37		60,818		57,937
Other losses	21,38		(448,165)		(465,782)
Finance income	39		730,492		450,977
Finance costs	40		1,427,114		1,253,031
Gains on investments in associates and joint ventures, net	18		34,102		104,667
Profit (loss) before income tax			(268,898)		116,375
Income tax expenses (benefits)	41		(108,215)		58,106
Profit (loss) for the year		₩	(160,683)	₩	58,269
Other comprehensive income (loss) for the year, net of tax					
Items that will not be reclassified subsequently to profit or loss					
Remeasurement loss of deifned benefit plans	26		(1,540)		(15,646)
Net gain (loss) on valuation of equity instruments at fair value through other comprehensive income			(47,060)		50,261
Share of other comprehensive income (loss) of associates and joint ventures			(31,375)		16,978
Items that may be reclassified subsequently to profit or loss					
Net gain (loss) on cash flow hedges			83,422		(58,427)
Exchange differences on translation of foreign operations			(149,475)		128,891
Net gain (loss) on hedge of investments in foreign operations			99,142		(106,435)
Share of other comprehensive income (loss) of associates and joint ventures			(78,640)		42,961
			(125,526)		58,583
Total comprehensive income (loss) for the year, net of tax		₩	(286,209)	₩	116,852

(Continued)

Korea Gas Corporation and its subsidiaries
Consolidated statements of comprehensive income
for the years ended December 31, 2020 and 2019 (cont'd)
(Korean won in millions)

	Notes	2020	2019
Profit (loss) for the year attributable to:			
Owners of the parent		₩ (172,060)	₩ 38,764
Non-controlling interests		11,377	19,505
		(160,683)	58,269
Total comprehensive income (loss) attributable to:			
Owners of the parent		(289,003)	92,448
Non-controlling interests		2,794	24,404
		(286,209)	116,852
Earnings (loss) per share in Korean won from continuing operaitons	43		
Basic earnings (loss) per share		₩ (1,989)	₩ 395
Diluted earnings (loss) per share		₩ (1,989)	₩ 395

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

Korea Gas Corporation and its subsidiaries
Consolidated statements of changes in equity
for the years ended December 31, 2020 and 2019
(Korean won in millions)

	Share capital and share premium	Retained earnings	Hybrid bonds	Other components of equity	Equity attributable to owners of the parent	Non-controlling interests	Total equity
As of January 1, 2019	**₩ 1,765,113**	**₩ 5,497,914**	**₩ 308,157**	**₩ 621,639**	**₩ 8,192,823**	**₩ 305,161**	**₩ 8,497,984**
Effect of changes in accounting policies	-	27	-	-	27	-	27
As of January 1, 2019 (adjusted)	1,765,113	5,497,941	308,157	621,639	8,192,850	305,161	8,498,011
Comprehensive income (loss)							
Profit for the year	-	38,764	-	-	38,764	19,505	58,269
Other comprehensive income (loss):							
Remeasurement loss of defined benefit plans	-	(15,646)	-	-	(15,646)	-	(15,646)
Gain on valuation of equity instruments at fair value through other comprehensive income	-	-	-	50,261	50,261	-	50,261
Net loss on cash flow hedges	-	-	-	(58,427)	(58,427)	-	(58,427)
Net loss on hedge of investments in foreign operations	-	-	-	(106,435)	(106,435)	-	(106,435)
Share of other comprehensive income of associates and joint ventures	-	-	-	59,939	59,939	-	59,939
Exchange differences on translation of foreign operations	-	-	-	123,992	123,992	4,900	128,892
Transactions with owners of the parent:							
Dividends paid	-	(119,187)	-	-	(119,187)	(14,473)	(133,660)
Capital reduction of subsidiaries	-	-	-	-	-	(21,917)	(21,917)
Repayment of hybrid bonds	-	-	(308,157)	(444)	(308,601)	-	(308,601)
Others (loss from hybrid bonds)	-	(4,165)	-	-	(4,165)	-	(4,165)
As of December 31, 2019	**₩ 1,765,113**	**₩ 5,397,707**	**₩ -**	**₩ 690,525**	**₩ 7,853,345**	**₩ 293,176**	**₩ 8,146,521**
As of January 1, 2020	**₩ 1,765,113**	**₩ 5,397,707**	**₩ -**	**₩ 690,525**	**₩ 7,853,345**	**₩ 293,176**	**₩ 8,146,521**
Comprehensive income (loss)							
Loss for the year	-	(172,060)	-	-	(172,060)	11,377	(160,683)
Other comprehensive income (loss):							
Remeasurement loss of defined benefit plans	-	(1,540)	-	-	(1,540)	-	(1,540)
Loss on valuation of equity instruments at fair value through other comprehensive income	-	-	-	(47,060)	(47,060)	-	(47,060)
Net profit on cash flow hedges	-	-	-	83,422	83,422	-	83,422
Net gain on hedge of investments in foreign operations	-	-	-	99,142	99,142	-	99,142
Share of other comprehensive loss of associates and joint ventures	-	-	-	(110,015)	(110,015)	-	(110,015)
Exchange differences on translation of foreign operations	-	-	-	(140,892)	(140,892)	(8,583)	(149,475)
Transactions with owners of the parent:							
Dividends paid	-	(33,302)	-	-	(33,302)	(18,133)	(51,435)
Capital reduction of subsidiaries	-	-	-	-	-	(23,721)	(23,721)
Acquisition of treasury shares	-	-	-	(50,000)	(50,000)	-	(50,000)
As of December 31, 2020	**₩ 1,765,113**	**₩ 5,190,805**	**₩ -**	**₩ 525,122**	**₩ 7,481,040**	**₩ 254,116**	**₩ 7,735,156**

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

Korean Gas Corporation and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2020 and 2019
(Korean won in millions)

		2020		2019
Cash flows from operating activities:				
Profit (loss) for the year	₩	(160,683)	₩	58,269
Adjustments to reconcile profit (loss) for the year to net cash flow provided by operating activities:				
Income tax expenses (benefits)		(108,215)		58,107
Finance costs adjustments		712,405		804,642
Depreciation and amortization		1,636,715		1,735,257
Gain on foreign currency translation, net		(73,242)		(94,583)
Impairment loss recongnized in profit or loss		461,713		533,656
Loss on fair value		67,631		95,317
Loss on disposal of non-current assets		12,505		20,366
Interest income		(21,680)		(32,585)
Others, net		154,360		58,557
Changes in operating assets and liabilities:				
Decrease in inventories		1,256,223		497,123
Decrease in trade receivables		890,880		211,141
Decrease in other receivables		3,761		105,958
Decrease in financial assets at fair value through profit or loss		3,291		-
Increase in other non-financial assets		(143,198)		(638,615)
Increase in other operating assets		(66,329)		(5,526)
Decrease in trade payables		(495,432)		(136,743)
Increase (decrease) in other payables		102,834		(42,690)
Decrease in financial liabilities at fair value through profit or loss		(40,292)		-
Increase in other current liabilities		6		-
Decrease in other non-current non-financial liabilities		(181,032)		-
Decrease in other operating payables		(51,223)		(661,838)
		3,960,998		2,565,813
Dividends received		63,223		79,639
Interest paid		(745,170)		(835,839)
Interest received		9,695		8,097
Income taxes refunded (paid)		(37,722)		168,130
Net cash flows provided by operating activities		3,251,024		1,985,840
Cash flows from investing activities:				
Proceeds from disposal of equity or debt instruments		45,507		36,158
Acquisition of equity or debt instruments		(12,124)		(6,541)
Proceeds from disposal of property, plant and equipment		190		(358)
Acquisition of property, plant and equipment		(912,058)		(1,222,798)
Receipt of government grants		3,383		1,446
Proceeds from disposal of intangible assets		8		-
Acquisition of intangible assets		(82,570)		(69,617)
Proceeds from disposal of assets held for sale		-		227
Proceeds from disposal of financial assets at amortized cost		94,763		66,484
Acquisition of financial assets at amortized cost		(26,177)		(78,885)
Increase in advanced payments and loans		(104,187)		(124,560)
Receipt of advanced payments and loans		34,413		27,652
Others, net		(13,024)		(26,242)
Net cash flows used in investing activities		(971,876)		(1,397,034)

(Continued)

Korea Gas Corporation and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2020 and 2019 (cont'd)
(Korean won in millions)

	2020	2019
Cash flows from financing activities:		
Interest paid for hybrid bonds	-	(4,165)
Repayments of hybrid bonds	-	(308,600)
Proceeds from borrowings	29,648,364	26,929,383
Repayments of borrowings	(30,014,249)	(26,580,031)
Proceeds from issuance of debentures	898,001	2,582,418
Repayments of debentures	(2,339,334)	(2,593,202)
Payments of lease liabilities	(223,113)	(347,799)
Dividends paid	(51,408)	(133,660)
Decrease in non-controlling interest equity	(23,786)	(21,928)
Acquisition of treasury shares	(50,000)	-
Contract expiration of current portion of derivative financial assets	-	1,078
Contract expiration of current portion of derivative financial liabilities	(34,426)	(105,406)
Net cash flows used in financing activities	(2,189,951)	(581,912)
Net foreign exchange difference	(14,537)	10,440
Net increase in cash and cash equivalents	74,660	17,334
Cash and cash equivalents at the beginning of the year	257,101	239,767
Cash and cash equivalents at the end of the year	₩ 331,761	₩ 257,101

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

1. General information

Korea Gas Corporation ("KOGAS" or the "Corporation") was incorporated as a government-invested entity on August 18, 1983, under the *Korea Gas* Corporation *Act* to engage in the development, production and distribution of liquefied natural gas (LNG). Under the Articles 3 and 5 of the supplementary provisions of the *Act on the Management of Public Institution*, the Corporation was designated as "Market-type Public Group" on April 2, 2007.

The Corporation's share was listed on the Korea Stock Exchange since December 15, 1999, and share capital as of December 31, 2020 amounts to ₩461,565 million. The shareholders of the Corporation and their shareholdings as of December 31, 2020 are as follows:

Shareholders	Number of shares	Percentage of ownership (%)
Government of the Republic of Korea	24,144,353	26.2%
Korea Electric Power Group	18,900,000	20.5%
Local governments	7,321,122	7.9%
Treasury stock	6,486,050	7.0%
Others	35,461,475	38.4%
	92,313,000	100.0%

1. General information (cont'd)

(1) Details of the consolidated subsidiaries as of December 31, 2020 and 2019, are as follows:

Subsidiary	Business	Country of incorporation	Country of domicile	Percentage of ownership (%) 2020	Percentage of ownership (%) 2019
Korea Gas Technology Group	Construction & service	Korea	Korea	100.00%	100.00%
KOGAMEX Investment Manzanillo B.V.	Service	Netherlands	Mexico	100.00%	100.00%
KOMEX-GAS, S.de R.L. de C.V.	LNG terminal construction	Mexico	Mexico	99.97%	99.97%
KOGAS Iraq B.V.	Resource development	Netherlands	Iraq	100.00%	100.00%
KOGAS Badra B.V.	Resource development	Netherlands	Iraq	100.00%	100.00%
KOGAS Akkas B.V.	Resource development	Netherlands	Iraq	100.00%	100.00%
KOGAS Mansuriyah B.V.	Resource development	Netherlands	Iraq	100.00%	100.00%
KOGAS Canada Ltd. [3]	Resource development	Canada	Canada	-	100.00%
KOGAS Canada LNG Ltd. [3]	LNG plant management	Canada	Canada	-	100.00%
KOGAS Canada Energy Ltd. [3]	Resource development	Canada	Canada	100.00%	-
KOGAS Australia Pty. Ltd[2].	Resource development	Australia	Australia	100.00%	100.00%
KOGAS Prelude Pty. Ltd.	Resource development	Australia	Australia	100.00%	100.00%
KG Timor Leste Ltd.	Resource development	Marshall Islands	East Timor	100.00%	100.00%
KG Krueng Mane Ltd.	Resource development	Marshall Islands	Indonesia	100.00%	100.00%
KG Mozambique Ltd.	Resource development	Marshall Islands	Mozambique	100.00%	100.00%
KOGAS Mozambique, Lda.	Construction & service	Mozambique	Mozambique	99.99%	99.99%
KOGAS Cyprus Ltd.	LNG plant management	Cyprus	Cyprus	100.00%	100.00%
KGLNG E&P Pty Ltd.	Resource development	Australia	Australia	100.00%	100.00%
KGLNG E&P II Pty Ltd.	Resource development	Australia	Australia	100.00%	100.00%
KGLNG Liquefaction Pty Ltd.	Resource development	Australia	Australia	100.00%	100.00%
KC LNG Tech Co.,Ltd.	Engineering	Korea	Korea	50.20%	50.20%
KG-SEAGP Company Limited[1]	Resource development	Hong Kong	Myanmar	62.54%	60.94%
KG Myanmar Ltd.	Resource development and others	Korea	Myanmar	100.00%	100.00%
KOGAS International Pte. Ltd.	LNG trading	Singapore	Singapore	100.00%	100.00%
Kogas Canada Partner Ltd. [4]	LNG plant management	Canada	Canada	100.00%	-
Kogas Canada LNG Partnership [4]	LNG plant management	Canada	Canada	99.99%	-
Kogas Canada E&P Partnership [4]	Resource development	Canada	Canada	99.99%	-
Korea LNG Bunkering Co.,Ltd.[5]	LNG Bunkering	Korea	Korea	100.00%	-

1. General information (cont'd)

[1] The Corporation has the right to exercise 62.54% voting rights at the shareholders meeting of KG-SEAGP Company Limited. However, voting rights ratio and ownership share may be different according to the shareholders agreement. The ownership share is calculated based on the ratio of cash flows expected to be distributed during the investment period, and the ownership share of the Corporation is 20%.
[2] The condensed statements of financial position and comprehensive income of KOGAS Australia Pty. Ltd. include financial information of KGLNG E&P Pty Ltd., KGLNG E&P II Pty Ltd., and KGLNG Liquefaction Pty Ltd.
[3] On January 1, 2020, KOGAS Canada Ltd. and KOGAS Canada LNG Ltd. were consolidated and established KOGAS Canada Energy Ltd.
[4] On January 1, 2020, the entity was incorporated as a subsidiary of KOGAS Canada Energy Ltd.
[5] Korea LNG Bunkering Co.,Ltd. was incorporated on December 4, 2020.

1. General information (cont'd)

(2) Summarized financial information of consolidated subsidiaries as of December 31, 2020 and 2019, and the year ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020			
Subsidiary	Total assets	Total liabilities	Sales	Profit (loss) for the year
Korea Gas Technology Group	₩ 244,655	₩ 124,191	₩ 272,235	₩ 1,107
KOGAMEX Investment Manzanillo B.V.	103,820	77,824	-	4,930
KOMEX-GAS, S. de R.L. de C.V.	3,840	727	6,738	3,098
KOGAS Iraq B.V.	950,983	134,134	298,694	42,239
KOGAS Badra B.V.	495,021	30,208	112,268	(5,117)
KOGAS Akkas B.V.	22,979	11,502	-	(3,726)
KOGAS Mansuriya B.V.	6,321	23	-	6,592
KOGAS Canada Energy Ltd. [1]	681,832	376,841	8,358	(50,546)
KOGAS Australia Pty. Ltd. [2]	3,388,821	3,261,863	504,203	(229,941)
KOGAS Prelude Pty. Ltd.	1,874,525	1,365,892	35,150	(154,297)
KG Timor Leste Ltd.	-	48,187	-	(10,111)
KG Krueng Mane Ltd.	-	69,317	-	(1,960)
KG Mozambique Ltd.	902,954	671,205	-	(30,057)
KOGAS Mozambique, Lda	19,474	13,623	295	5,301
KOGAS Cyprus Ltd.	34,461	88	-	(758)
KC LNG Tech Co.,Ltd.	11,824	18,437	1,235	(17,894)
KG-SEAGP Company Limited	167,520	7	-	14,981
KG Myanmar Ltd.	296,837	1,839	-	13,274
KOGAS International Pte. Ltd.	2,266	313	63,083	401
Korea LNG Bunkering Co.,Ltd.	28,997	46	-	(49)

[1] The condensed statements of financial position and comprehensive income of KOGAS Canada Energy Ltd. includes financial information of Kogas Canada Partner Ltd., Kogas Canada LNG Partnership., Kogas Canada E&P Partnership.

Financial information of KGLNG E&P Pty Ltd., KGLNG E&P Ⅱ Pty Ltd., and KGLNG Liquefaction Pty Ltd. are included in the condensed statements of financial position and the condensed statements of comprehensive income of KOGAS Australia Pty. Ltd..

	2019			
Subsidiary	Total assets	Total liabilities	Sales	Profit (loss) for the year
Korea Gas Technology Group	₩ 235,616	₩ 116,617	₩ 249,868	₩ 5,335
KOGAMEX Investment Manzanillo B.V.	106,147	82,268	-	(1,161)
KOMEX-GAS, S. de R.L. de C.V.	2,939	631	6,031	2,160
KOGAS Iraq B.V.	1,016,033	188,222	384,548	61,004
KOGAS Badra B.V.	577,038	41,883	205,755	20,821
KOGAS Akkas B.V.	43,477	12,415	-	70,454
KOGAS Mansuriyah B.V.	41	17	-	479
KOGAS Canada Ltd.	90,732	7,353	7,751	(126,690)
KOGAS Canada LNG Ltd.	435,287	194,117	-	2,442
KOGAS Australia Pty. Ltd [1]	3,671,314	3,316,321	623,163	(79,720)
KOGAS Prelude Pty. Ltd.	2,006,177	1,314,903	44,091	(351,960)
KG Timor Leste Ltd.	8,428	49,786	-	(1,367)
KG Krueng Mane Ltd.	-	71,841	-	(1,884)
KG Mozambique Ltd.	829,927	724,020	-	(21,962)
KOGAS Mozambique, Lda.	22,148	18,685	253	4,286
KOGAS Cyprus Ltd.	33,662	17	-	(1,235)
KC LNG Tech Co.,Ltd.	15,845	4,564	5,416	(2,323)
KG-SEAGP Company Limited	181,683	30	-	18,688
KG Myanmar Ltd.	323,952	1,965	-	9,041
KOGAS International Pte. Ltd.	3,659	1,975	326,223	1,543

[1] Financial information of KGLNG E&P Pty Ltd., KGLNG E&P Ⅱ Pty Ltd., and KGLNG Liquefaction Pty Ltd. are included in the condensed statements of financial position and the condensed statements of comprehensive income of KOGAS Australia Pty. Ltd..

1. General information (cont'd)

(3) Change in the scope of consolidation

On January 1, 2020, KOGAS Canada Ltd. and KOGAS Canada LNG Ltd., subsidiaries of the Corporation, were consolidated and established KOGAS Canada Energy Ltd. Kogas Canada Partner Ltd., Kogas Canada LNG Partnership., and Kogas Canada E&P Partnership. as subsidiaries of KOGAS Canada Energy Ltd. Additionally, on December 4, 2020, Korea LNG Bunkering Co., Ltd. was newly established.

2. Basis of preparation and significant accounting policies

The principal accounting policies applied in the preparation of these consolidated financial statements are set out below. These policies have been consistently applied to all the years presented, unless otherwise stated.

2.1 Basis of presentation

The Corporation and its subsidiaries (the "Group") maintains its accounting records in Korean won and prepares statutory financial statements in the Korean language in accordance with Korean International Financial Reporting Standards("KIFRS"). The accompanying consolidated financial statements have been condensed, restructured and translated into English from the Korean language consolidated financial statements.

Certain information attached to the Korean language consolidated financial statements, but not required for a fair presentation of the Group's financial position, financial performance or cash flows, is not presented in the accompanying consolidated financial statements.

The consolidated financial statements of the Group have been prepared in accordance with KIFRS. These are the standards, subsequent amendments and related interpretations issued by the International Accounting Standards Board ("IASB") that have been adopted by the Republic of Korea.

The preparation of consolidated financial statements requires the use of critical accounting estimates. Management also needs to exercise judgement in applying the Group's accounting policies. The areas involving a higher degree of judgment or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements are disclosed in Note 3.

2.2 Changes in accounting policy and disclosures

2.2.1 New and amended standards adopted by the Group

The Group applied for the first time certain standards and amendments, which are effective for annual reporting period beginning on or after January 1, 2020.

(1) Amendments of *The Conceptual Framework for Financial Reporting*

The concept of measurement, presentation and disclosure and guidelines on derecognition have been introduced and the definition of asset and liability and principle for recognition have been revised. Also, the amendments clarify prudence, stewardship, measurement uncertainty and substance over form. These amendments had no material impact on the consolidated financial statements

(2) Amendments of KIFRS 1103 *Business Combinations*

The amendments clarify the definition of business and relevant component (inputs, process, and outputs) when determining business and provides detailed guidance and examples. An assessment method to determine whether acquired subject is a 'business' or an 'individual assets acquisition' has been introduced. These amendments had no material impact on the consolidated financial statements.

(3) Amendments of KIFRS 1001 *Presentation of Financial Statements and* KIFRS 1008 *Accounting Policies, Changes in Accounting Estimates and Errors*

The definition of materiality under KIFRS 1001 *Presentation of Financial Statements* has been amended to match the paragraph in *The Conceptual Framework for Financial Reporting.* The definition of materiality under KIFRS 1008 *Accounting Policy, Changes in Accounting Estimates and Errors* has been removed and is referred to the definition of the materiality under KIFRS 1001 *Presentation of Financial Statements.* These amendments had no material impact on the consolidated financial statements.

2.2.1 New and amended standards adopted by the Group (cont'd)

(4) Amendments of KIFRS 1109 *Financial Instruments - Step 1 Impact of Financial Reporting on Interbank Loan Rate (IBOR) Reforms'.*

The paragraph in relation to the application of the hedging accounting under KIFRS 1109 *Financial Instruments* has been amended in accordance with the interest rate benchmark reform. In 2013, Financial Stability Board (FSB) recommended reforming the interest rate benchmark in each country and developing new risk-free index interest rate benchmark for transparent and reliable management of the interest rate benchmark. The use of new interest rate benchmark may affect the application of hedging accounting based on forward-looking analyses. These amendments had no material impact on the consolidated financial statements.

(5) Amendments of KIFRS 1116 *Lease - Coronavirus Disease 2019 ("COVID-19") Relevant rent exemptions, discounts, and suspensions ("rental discounts, etc.")*

The amendments to K-IFRS 1116 provide a practical and simple method for not evaluating whether rent discounts or other lease changes are a direct result of the global epidemic of COVID-19. These rental fee discounts, etc., must meet the application requirements of the Practical Simple Act, and the lessee who chooses the Practical Simple Act must be accounted for in a consistent manner with the method prescribed by this Standard if such changes are not lease changes. These amendments will be applied retroactively from the first fiscal year starting after June 1, 2020, but may be applied early. The consolidated company did not have any rent discounts related to COVID-19, so the amendment has no effect on the consolidated financial statements.

2.2.2 Standards and interpretations issued but not yet adopted by the Group

The new and amended standards and interpretations that are issued, but not yet effective as of January 1, 2020, which the Group has not early adopted are as follows.

(1) Amendments to KIFRS 1001: Classification of Liabilities as Current or Non-current

The amendments to paragraphs 69 to 76 of 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
- That only if an embedded derivative in a convertible liability is itself an equity instrument would the terms of a liability not impact its classification

The amendments are effective for annual reporting periods beginning on or after January 1, 2023 and must be applied retrospectively. The Group is currently assessing the impact the amendments will have on current practice and whether existing loan agreements may require renegotiation.

(2) Reference to the Conceptual Framework – Amendments to KIFRS 1103

The amendments are intended to replace a reference to the Framework for the Preparation and Presentation of Financial Statements, issued in 1989, with a reference to the Conceptual Framework for Financial Reporting issued in March 2018 without significantly changing its requirements.

The Board also added an exception to the recognition principle of KIFRS 1103 to avoid the issue of potential 'day 2' gains or losses arising for liabilities and contingent liabilities that would be within the scope of KIFRS 1037 or KIFRS 2121 *Levies,* if incurred separately. At the same time, the Board decided to clarify existing guidance in KIFRS 1103 for contingent assets that would not be affected by replacing the reference to the Framework for the Preparation and Presentation of Financial Statements. The amendments are effective for annual reporting periods beginning on or after January 1, 2022 and apply prospectively.

2.2.2 Standards and interpretations issued but not yet adopted by the Group (cont'd)

(3) Property, Plant and Equipment: Proceeds before Intended Use – Amendments to KIFRS 1016

The amendment prohibits entities deducting from the cost of an item of property, plant and equipment, any proceeds from selling items produced while bringing that asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Instead, an entity recognizes the proceeds from selling such items, and the costs of producing those items, in profit or loss.

The amendment is effective for annual reporting periods beginning on or after January 1, 2022 and must be applied retrospectively to items of property, plant and equipment made available for use on or after the beginning of the earliest period presented when the entity first applies the amendment. The amendments are not expected to have a material impact on the Group.

(4) Onerous Contracts – Costs of Fulfilling a Contract – Amendments to KIFRS 1037

The amendment to KIFRS 1037 specifies which costs an entity needs to include when assessing whether a contract is onerous or loss-making. The amendments apply a "directly related cost approach". The costs that relate directly to a contract to provide goods or services include both incremental costs and an allocation of costs directly related to contract activities. General and administrative costs do not relate directly to a contract and are excluded unless they are explicitly chargeable to the counterparty under the contract. The amendments are effective for annual reporting periods beginning on or after January 1, 2022. The Group will apply these amendments to contracts for which it has not yet fulfilled all its obligations at the beginning of the annual reporting period in which it first applies the amendments.

(5) Korean International Accounting Standards 2018-2020 annual improvement

-KIFRS 1101'First adoption of Korean International Financial Reporting Standards'-Subsidiary company that is the first company to adopt

In the revised standard, if a subsidiary chooses to apply paragraph D16(1) of the first adoption of K-IFRS 1001, the parent company will Allows you to measure the cumulative conversion difference using the reported amount. This amendment also applies to associates or joint ventures that choose to apply paragraph D16(1) of the Standard.
This amendment applies to the first fiscal year beginning after January 1, 2022, and early application is permitted.

-KIFRS 1109'Financial Instruments'-Fees related to 10% testing for the purpose of removing financial liabilities

This amendment clarifies the fees an entity includes when evaluating whether the terms of a new or changed financial liability are substantially different from the terms of an existing financial liability. These fees include only fees paid or received between the creditor and the debtor and fees paid or received by the creditor and the debtor on behalf of each other. The entity applies the amendments to financial liabilities that are changed or exchanged after the fiscal year in which the amendments first apply.
These amendments will be applied from the first fiscal year beginning on or after January 1, 2022, and early application is permitted. The Group will apply the amendments to financial liabilities that are changed or exchanged after the fiscal year first commencing after the effective date.
This amendment is not expected to have a material impact on the Group.

-KIFRS 1041 'Agriculture – Taxation in fair value measurements

The revised Standard removes the requirement in paragraph 22, which does not include tax-related cash flows, when measuring the fair value of assets covered by the Standard.
This amendment will be applied prospectively from the first fiscal year beginning after January 1, 2022, and early application is permitted.
This amendment is not expected to have a material impact on the Group.

2.3 Accounting policies

2.3.1 Revenue recognition

Revenue is recognized by applying a five-stage revenue recognition model (Identification of a contract with a customer → Identification of performance obligations in the contract → Determination of the transaction price → Allocation of the transaction price to the separate performance obligations in the contract → Recognition of revenue upon satisfying the performance obligations) to all of its contracts with customers. Revenue is measured based on the consideration determined by contracts with customers, excluding amounts collected on behalf of third parties. Further, the Group recognizes revenue when the control of goods or services is transferred to customers.

The Group is mainly engaged in the supply of natural gas and providing related services using supply facilities

(a) Sale of goods

The Group's contracts with customers for the sale of natural gas includes a single performance obligation. Generally, the control of the goods is transferred to the customer at a point in time. Therefore, the Group recognizes revenue when the goods are transferred to the customers and the adoption of the standard has no impact on the timing of the Group's revenue recognition.

(b) Rendering of services

(i) Maintenance of gas facilities

The Group provides maintenance and repair services for gas facilities. In accordance with KIFRS 1115, revenue from installation services is recognized over a period of time using an input method to measure the progress of a service as customers simultaneously receive and consume the benefits provided by the Group. Assets that have the right to receive payment for the goods or services transferred to the customer and for which there is a condition beyond the time limit should be recognized as contract assets. As a result of the adoption of KIFRS 1115, the Group reclassified unbilled amount and overbilled amount arising from construction and service contracts to contract assets and liabilities.
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(ii) Revenue from service to operate oversea projects

The Group provides services under the technical service contracts in which the Group has entered into with customers. These services include a single performance obligation in operation of the production of crude oil and gas. The Group recognized revenue over time by measuring its progress towards complete satisfaction of that performance obligation as the customer simultaneously receives and consumes the benefits of the Group's performance. The Group recognizes revenue as the amount that is directly attributable to the value of the service rendered each month, which is the same as the period of recognition as stated under KIFRS 1018.

(iii) Joint usage of facilities

The contract for the use of plumbing facilities concluded with the customer includes a single obligation to provide the customer with the service of transferring the gas from the pre-agreed point of entry to withdrawal using the Group's plumbing facilities. The Group recognizes revenue as the amount that is directly attributable to the value of the service rendered each month, which is the same as the period of recognition as stated under KIFRS 1018.

(c) Other significant judgments

In addition to the above, other significant matters as determined by applying the standard 1115 *'Revenue from contracts with customers'* are as follows.

2.3.1 Revenue recognition (cont'd)

(i) Transportation service

If the goods provided to the customer by the Group are not transferred to the customer without the shipping service, the customer can not obtain benefits in itself, and the customer can not receive the shipping service from the group other than the Group. You can not benefit from it with other resources. Therefore, the services provided by the Group are not identified as separate performance obligations.

(ii) Provision of goods sales guarantee

The Group have a warranty obligation on the quantity and quality of goods sold. The obligation for the quantity and quality of the group is that there is no option to purchase the warranty separately from the customer and the warranty (or any part of it) agrees that the product conforms to the agreed specifications, This is not a separate service that is separate from the supply of goods. On the other hand, if a penalty payment is expected due to the obligation, it should be deducted from the sales as the best estimate of the payment expected to the customer because it corresponds to the variable consideration. The adoption of KIFRS 1115 has no impact on the recognition of revenue.

(iii) Variable cost

If the contract contains significant variable consideration, the Group transfers the promised goods to the customer and estimates the amount to be paid in return. When the uncertainty associated with the variable cost is eliminated, the variable price is estimated at the commencement of the contract and included in the transaction price only to the extent that it is highly unlikely that a significant portion of the cumulative revenue already recognized will be returned. In this regard, there is no significant change in the amount that the Group recognizes in its contract with the customer. As discribed in Note 9 (3), the Group generally provides short-term lending to its customers, therefore contracts with customers do not include significant financial elements.

(d) Present and disclosure requirements

The Group has recognized the revenue recognized in its contract with customers by category to indicate how economic factors affect the nature, amount, timing and uncertainty of revenue and cash flows. The Group also discloses information about the relationship between disclosed revenue disclosures and reported revenue information for each reporting

2.3.2 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.

i. As a lessee
At commencement or on modification of a contract that contains a lease component, the Group allocates the consideration in the contract to each lease component on the basis of its relative stand-alone prices. However, for the leases of property the Group has elected not to separate non-lease components and account for the lease and non-lease components as a single lease component.

The Group recognises a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the end of the lease term, unless the lease transfers ownership of the underlying asset to the Group by the end of the lease term or the cost of the right-of-use asset reflects that the Group will exercise a purchase option. In that case the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of property and equipment. In addition, the right-of-use asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Group's incremental borrowing rate. Generally, the Group uses its incremental borrowing rate as the discount rate.

The Group determines its incremental borrowing rate by obtaining interest rates from various external financing sources and makes certain adjustments to reflect the terms of the lease and type of the asset leased.

Lease payments included in the measurement of the lease liability comprise the following:

- fixed payments, including in-substance fixed payments;
- variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date;
- amounts expected to be payable under a residual value guarantee; and the exercise price under a purchase option that the Group is reasonably certain to exercise, lease payments in an optional renewal period if the Group is reasonably certain to exercise an extension option, and penalties for early termination of a lease unless the Group is reasonably certain not to terminate early.

2.3.3 Leases (cont'd)

The lease liability is measured at amortised cost using the effective interest method. It is remeasured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the Group's estimate of the amount expected to be payable under a residual value guarantee, if the Group changes its assessment of whether it will exercise a purchase, extension or termination option or if there is a revised in-substance fixed lease payment.

When the lease liability is remeasured in this way, a corresponding adjustment is made to the carrying amount of the right-of-use asset, or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

Short-term leases and leases of low-value assets
The Group has elected not to recognise right-of-use assets and lease liabilities for leases of low-value assets and short-term leases, including IT equipment. The Group recognises the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

ii. As a lessor
At inception or on modification of a contract that contains a lease component, the Group allocates the consideration in the contract to each lease component on the basis of their relative stand-alone prices. When the Group acts as a lessor, it determines at lease inception whether each lease is a finance lease or an operating lease.

To classify each lease, the Group makes an overall assessment of whether the lease transfers substantially all of the risks and rewards incidental to ownership of the underlying asset. If this is the case, then the lease is a finance lease; if not, then it is an operating lease. As part of this assessment, the Group considers certain indicators such as whether the lease is for the major part of the economic life of the asset.

When the Group is an intermediate lessor, it accounts for its interests in the head lease and the sub-lease separately. It assesses the lease classification of a sub-lease with reference to the right-of-use asset arising from the head lease, not with reference to the underlying asset. If a head lease is a short-term lease to which the Group applies the exemption described above, then it classifies the sub-lease as an operating lease.

If an arrangement contains lease and non-lease components, then the Group applies KIFRS 1115 to allocate the consideration in the contract.

The Group applies the derecognition and impairment requirements in IFRS 1109 to the net investment in the lease. The Group further regularly reviews estimated unguaranteed residual values used in calculating the gross investment in the lease.

The Group recognises lease payments received under operating leases as income on a straight-line basis over the lease term as part of 'other revenue'.

2.3.3 Foreign currency translation

2.3.3.1 Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which each entity operates (the "functional currency"). The consolidated financial statements are presented in Korean won, which is the Parent Company's functional and presentation currency.

2.3.3.2 Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates at the dates of the transactions. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation of monetary assets and liabilities denominated in foreign currencies at year end exchange rates are generally recognized in profit or loss.

Non-monetary items that are measured at fair value in a foreign currency are translated using the exchange rates at the date when the fair value was determined. Translation differences on assets and liabilities carried at fair value are reported as part of the fair value gain or loss. For example translation differences on non-monetary assets and liabilities such as equitiems held at fair value through profit or loss are recognized in profit or loss as part of the fair value gain or loss and translation differences on non-monetary assets such as equities classified as financial assets at fair value through other comprehensive income are recognized in other comprehensive income.

2.3.4 Borrowing costs

General and specific borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are capitalized during the period of time that is required to complete and prepare the asset for its intended use or sale. Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalization. Other borrowing costs are expensed in the period in which they are incurred.

2.3.5 Government grants

Grants from the government are recognized at their fair value where there is a reasonable assurance that the grant will be received and the Group will comply with all attached conditions.

Government grants related to assets are presented in the statement of financial position by deducting the grant in arriving at the carrying amount of the asset. The grant is recognized in profit or loss over the life of a related asset by reducing depreciation expense.

If the Group received grants related to income, government grants which are intended to compensate the Group for expenses incurred are recognized as other income in profit or loss over the periods in which the Group recognizes the related costs as expenses. The government grants which are intended to give immediate financial support to the Group with no future related costs are recognized as government grant income in profit or loss at the time such grants can be rightfully claimed by the Group.

2.3.6 Investments in associated

An associate is any company that the Group can have a significant influence on, but has no control, and is generally an investee in which the group owns 20% to 50% of the voting shares. Investments in associates are initially recognized as acquisition cost and are accounted for using the equity method. Unrealized profits arising from transactions between the Group and associates are deducted as much as the portion of the Group's interest in associates. The application of the equity method is discontinued if the Group's equity interest in the associate is equal to or exceeds the investment interest in the associate (including the long-term investment that forms part of the net investment). However, if the Group has legal or agenda obligations for additional losses after the Group's stake is reduced to zero, or if payments are made on behalf of the associate, losses and liabilities are recognized only up to that amount. In addition, if there are signs of objective impairment on the investment of an associate, the difference between the recoverable amount and the carrying amount of the investment of the associate is recognized as an impairment loss. When the Group uses the financial statements of associates to apply the equity method, the financial statements of associates are adjusted, if necessary, by reviewing whether the same accounting policies applied by the Group have been applied to the same transactions or events in similar circumstances.

2.3.7 Joint agreement

Joint arrangements in which two or more parties have joint control are classified as joint operations or joint ventures. Joint operators have the rights and obligations to the assets and liabilities of the joint operation, and recognize their share of the assets and liabilities, income and expenses of the joint operation. The joint venture participants have the right to the joint venture's net assets and apply the equity method.

2.3.8 Post-employment benefits

The Group operates both defined contribution and defined benefit pension plans.

For defined contribution plans, the Group pays contribution to publicly or privately administered pension insurance plans on mandatory, contractual or voluntary basis. The Group has no further payment obligation once the contribution have been paid. The contribution are recognized as employee benefit expense when they are due.

A defined benefit plan is a pension plan that is not a defined contribution plan. Generally, post-employment benefits are payable after the completion of employment, and the benefit amount depended on the employee's age, periods of service or salary levels. The liability recognized in the statement of financial position in respect of defined benefit pension plans is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid, and that have terms approximating to the terms of the related obligation. Remeasurement gains and losses arising from experience adjustments and changes in actuarial assumptions are recognized in the period in which they occur, directly in other comprehensive income.

Changes in the present value of the defined benefit obligation resulting from plan amendments or curtailments are recognized immediately in profit or loss as past service costs.

2.3.9 Current and deferred tax

The tax expense for the period consists of current and deferred tax. Current and deferred tax is recognized in profit or loss, except to the extent that it relates to items recognized in other comprehensive income or directly in equity. In this case, the tax is also recognized in other comprehensive income or directly in equity, respectively.

The tax expense is measured at the amount expected to be paid to the taxation authorities, using the tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

2.3.9 Current and deferred tax (cont'd)

Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. The Group recognizes current income tax on the basis of amounts expected to be paid to the tax authorities.

Deferred tax is provided in full, using the liability method, on temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the consolidated financial statements. However, deferred tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss.

Deferred tax assets are recognized only if it is probable that future taxable amounts will be available to utilize those temporary differences and losses.

The Group recognizes a deferred tax liability all taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint arrangements, 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 arising from such investments to the extent that it is probable the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets and liabilities and when the deferred tax balances relate to the same taxation authority. Current tax assets and tax liabilities are offset where the entity has a legally enforceable right to offset and intends either to settle on a net basis.

2.3.10 Assets held for sale

Non-current assets are classified as held for sale when their carrying amount will be recovered principally through a sale transaction rather than through continuing use and a sale is considered highly probable. The assets are measured at the lower amount between their carrying amount and the fair value less costs to sell.

2.3.11 Property, plant and equipment

Property, plant and equipment are stated at cost after the initial recognition acquisition cost less accumulated depreciation and accumulated impairment losses.

The cost of property, plant and equipment includes any costs directly attributable to bringing the asset or expenses directly related to the construction. It also includes cost 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.

Subsequent costs are included in carrying amount or recognized as an asset if it is probable that future economic benefits associated with the item will flow, and the cost of the item can be measured reliably. Replaced part of the carrying amount is derecognized. Meanwhile, the cost of day-to-day servicing are recognized in profit or loss as incurred.

Depreciation of all property, plant and equipment, except for land and timber, is calculated using the method below to allocate their cost or revalued amounts, net of their residual amounts, over their estimated useful life. Also, reserves used in calculation of units of production method generally include Proved Reserves and Probable Reserves, and the Group regularly evaluates the reserve amount.

2.3.11 Property, plant and equipment (cont'd)

	Useful lives (years)	Depreciation method
Buildings	15 ~ 40	Straight-line method
Structures	5 ~ 30	Straight-line method
Machinery	4 ~ 30	Straight-line method
Vehicles	4 ~ 15	Straight-line method
Office equipment	4 ~ 5	Straight-line method
Tools and instruments	3 ~ 12	Straight-line method
Computerized facility	4 ~ 8	Straight-line method
Right-of-use assets	Lease period	Straight-line method
Others	Period of business	Straight-line method and units of production method

Each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item is depreciated separately.

The assets' depreciation method, residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period, the change is accounted for as a change in an accounting estimate.

Property, plant and equipment are derecognized on disposal, or when no future economic benefits are expected from its use or disposal. Gains or losses arising from derecognition of a property, plant and equipment, measured as the difference between the net disposal proceeds and the book amount of the asset, and are recognized in profit or loss for the year when the asset is derecognized.

2.3.12 Intangible assets

2.3.12.1 Intangible assets acquired separately

Intangible assets, except for resource development with finite useful lives that isacquired separately, are carried at cost less accumulated amortization and accumulated impairment losses.
Amortization of intangible asset, except for the right to use harbor facilities from usable and profitable donation assets and intangible exploration evaluated assets are recognized on a straight-line basis over their estimated useful lives. The estimated useful life and amortization method are reviewed at the end of each reporting period, with the effect of any changes in estimate being accounted for on a prospective basis. Intangible assets with indefinite useful lives that are acquired separately are carried at cost less accumulated impairment losses.

The right to use harbor facilities from the usable and profitable donation assets will be amortized to reflect economic benefits of assets expected to be consumed, for example, free use of harbor facilities.

The followings are expenditures that are recognized atacquisition costs of intangible assets: acquisition of rights to explore for resource developments; topographical, geological and geophysical studies incurred in the exploration stage; and direct costs incurred in relation to trenching or drilling. If natural resources are not found, the intangible exploration and evaluation assets are written off. If hydrocarbons are found, further appraisal activities, which may include the drilling of deeperwells, are carried out. If as a result of appraisal the commercial development is expected to be certain, the intangible exploration and evaluation asset is classified as a mineral right.

Intangible exploration and evaluation assets are subject to technical, commercial and managerial review at least once a year to evaluate possibilities for entering into the development stage. When this is no longer the case, the costs are written off. When proven reserves of oil and natural gas are determined and development is sanctioned, the relevant intangible exploration and evaluation assets are depreciated using the unit of production method. Also, reserves used in calculation of units of production method generally include Proved Reserves and Probable Reserves, and the Group regularly evaluates the reserve amount.

2.3.12 Intangible assets (cont'd)

2.3.12.2 Internally-generated intangible assets - research and development expenditure

Expenditures on research activities are recognized as an expense in the period in which they are incurred.

Development expenditures are capitalized only if development costs can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable, and the Group intends to and has sufficient resources to complete development and to use or sell the asset. Other development expenditures are recognized in profit or loss as incurred.

The amount initially recognized for internally-generated intangible assets is the sum of the expenditure incurred from the date when the intangible asset first meets the recognition criteria described above. When the development expenditure does not meet the criteria described above, an internally generated intangible asset cannot be recognized and the expenditure is recognized in profit or loss in the period in which it is incurred.

Internally generated intangible assets are carried at acquisition cost less accumulated depreciation and accumulated impairment losses.

2.3.12.3 Derecognition of intangible assets

An intangible asset is derecognized on disposal, or when no future economic benefits are expected from its use or disposal. Gains or losses arising from derecognition of an intangible asset, measured as the difference between the net disposal proceeds and the carrying amount of the asset, and are recognized in profit or loss when the asset is derecognized.

2.3.13 Greenhouse gas emission rights

Greenhouse gas emission rights and liabilities generated in accordance with the "Act on Allocation and Transaction of Greenhouse Gas Emission Rights" are accounted for as follows.

2.3.13.1 Greenhouse gas emission rights

Greenhouse gas emission permits consist of emission permits allocated free of charge by the government and purchased emission permits. Emissions are recognized by adding purchase costs and other costs that are directly attributable to acquisition and incurred normally.

The Group holds emission credits for the purpose of fulfilling its legal obligations, and the holdings emission rights are classified as intangible assets, but the portion submitted to the government within one year from the end of the reporting period is classified as current assets. Emissions classified as intangible assets are carried at cost less accumulated impairment losses after initial recognition.

Greenhouse gas credits are removed when future economic benefits are no longer expected because they cannot be submitted, sold or used by the government.

2.3.13.2 Emissions liabilities

Emissions liabilities are current obligations to emit greenhouse gases and submit emission permits to the government, where there is a high possibility that resources will be outflowed to fulfill the obligations, and the amount required to fulfill the obligations can be reliably estimated. I am aware of it. Emissions liabilities are measured by adding the carrying amount of the permits held for the relevant performance year to be submitted to the government and the expected expenditure to fulfill the obligation for emissions in excess of the amount of permits held. Discharge liabilities are removed when filing with the government.

2.3.14 Impairment of non-financial assets

For goodwill and intangible assets that have an indefinite useful life and assets that are not in ready to use, recoverable amount of assets is assessed annually to determine the impairment amount. It is assessed when facts and circumstances suggest that the carrying amount of an exploration and evaluation assets exceed its recoverable amount, or when events or changes in circumstances indicate that the assets might be impaired after the assets are tested of impairment in every reporting period.

The recoverable amount is estimated for the individual asset. If it is not possible to estimate the recoverable amount of the individual asset, the recoverable amount of the cash-generating unit to which the asset belongs is determined. The recoverable amount of individual assets (or cash generating unit)is the greater of its value in use and its fair value less costs to sell. An impairment loss is recognized in profit or loss if the carrying amount of individual assets (or cash generating unit) exceeds its recoverable amount.

The carrying amount of individual assets (or cash generating unit) are to be increased to its recoverable amounts if impairment loss recognized in prior periods are reversed, except for the goodwill. However, the increased carrying amount of an asset attributable to a reversal of an impairment loss shall not exceed the carrying amount that would have been determined had no impairment loss been recognized for the assets in prior years. A reversal of an impairment loss for an asset are recognized as profit or loss.

2.3.15 Inventories

Inventories are stated at the lower of cost and net realizable value. Cost is determined using the weighted average method for raw materials and finished goods, by using moving average method for stored goods and by using the identified cost method for materials in transit.

2.3.16 Provisions

Provisions are measured at the present value of management's best estimate of the expenditure required to settle the present obligation at the end of the reporting period, and the increase in the provision due to the passage of time is recognized as interest expense.

On the other hand, it is uncertain when the ultimate timing of the outflow of economic benefits will be as the Group expects the land to continue to occupy and use gas pipelines, which are recognized as right-of-use assets and lease liabilities. As this uncertainty is likely to persist over a long period of time, the Group does not recognize the provision for restoration related to land occupation and use because it cannot reliably estimate the timing of the expenditure required to meet the obligation.

2.3.17 Financial assets

2.3.17.1 Classification

From January 1, 2018, 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.

2.3.17.2 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.

A hybrid contract that includes an embedded derivative takes into account the entire hybrid contract when determining whether the contractual cash flows consist solely of principal and interest.

2.3.17.2.1 Debt instruments

Subsequent measurement of debt instruments depends on the Group's business model for managing the asset and the cash flow characteristics of the asset. The Group classifies its debt instruments into one of the following three measurement categories:

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 (costs)' and impairment losses are presented in 'finance costs'.

2.3.17 Financial assets (con'd)

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 consolidated statement of comprehensive income within ''finance income (costs)' in the year in which it arises.

2.3.17.2.2 Equity instruments

The Group subsequently measures all equity investments at fair value. Where the Group's management has elected to present fair value gains and losses on equity investments, which held for long-term investment or strategic purpose, in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividend income from such investments continue to be recognized in profit or loss as 'finance income' when the right to receive payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'other income and expenses' 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.

2.3.17.3 Impairment

Unlike KIFRS 1039, at the end of each reporting period, KIFRS 1109 requires the Group to account for the expected credit loss ("ECL") and related changes to reflect credit changes of financial assets from initial recognition in accordance with the expected credit loss model. This means that credit events do not have to occur before credit losses are recognized.

The Group recognizes loss allowances as the expected credit loss on debt instruments subsequently measured at amortized cost or FVOCI, lease receivables, contract assets and loan commitments and financial guarantees subject to impairment in accordance with KIFRS 1109.

In particular, if the credit risk of financial instruments has increased significantly since initial recognition, or if the financial assets have been credit-impaired at the acquisition, the allowance is measured at an amount equal to lifetime expected credit losses. On the other hand, if the credit risk of a financial instrument has not increased significantly since initial recognition (except for financial assets that are credit-impaired at acquisition), the Group measures the credit loss allowance for the financial instrument at an amount equal to 12-month expected credit losses.

2.3.17.4 Derecognition

Financial assets are derecognised when contractual rights to the cash flows of the financial asset expire, or when financial assets are transferred and substantially all the risks and rewards of ownership of the financial asset are transferred to other entities. If the risks and rewards of ownership of the financial assets are not transferred, and the financial assets transferred are kept under control, the Group continues to recognize them to the extent of its continuing involvement in the financial assets.If a transfer does not result in derecognition because the Group has retained substantially all the risks and rewards of ownership of the transferred asset, the Group continues to recognize the transferred asset in its entirety and recognizes a financial liability for the consideration received. The Group classified the financial liability as "borrowings" in the consolidated statement of financial position.

2.3.18 Financial liabilities

2.3.18.1 Classification and measurement

The Group's financial liabilities at fair value through profit or loss are derivatives that are not designated as hedging instruments.

The Group classifies non-derivative financial liabilities, except for financial liabilities at fair value through profit or loss, financial guarantee contracts and financial liabilities that arise when a transfer of financial assets does not qualify for derecognition, as financial liabilities carried at amortized cost and present as ‘trade payables', ‘borrowings', and ‘other financial liabilities' in the consolidated statement of financial position.

2.3.18.2 Derecognition

Financial liabilities are removed from the statement of financial position when it is extinguished; for example, when the obligation specified in the contract is discharged or cancelled or expired or when the terms of an existing financial liability are substantially modified.

2.3.19 Derivative instruments

Derivatives are initially recognized at fair value on the date when a derivative contract is entered into and are subsequently remeasured at their fair value at the end of each reporting period. Changes in the fair value of any derivative instrument that does not qualify for hedge accounting are recognized immediately in profit or loss within 'finance income (costs)' based on the nature of transactions.

2.3.19.1 Hedge accounting

The Group designates certain hedging instruments, which include derivatives, embedded derivatives and non-derivatives in respect of foreign currency risk, as either fair value hedges, cash flow hedges, or hedges of net investments in foreign operations. Hedges of foreign exchange risk on firm commitments are accounted for as cash flow hedges.

At the inception of the hedging relationship, the entity documents the relationship between the hedging instrument and the hedged item, along with its risk management objectives and its strategy for undertaking various hedge transactions. Furthermore, at the inception of the hedge and on an ongoing basis, the Group documents whether the hedging instrument is highly effective in offsetting changes in fair values or cash flows of the hedged item.

2.3.19.2 Fair value hedges

Changes in the fair value of derivatives that are designated and qualify as fair value hedges are recognized in profit or loss immediately, together with any changes in the fair value of the hedged asset or liability that are attributable to the hedged risk. The change in the fair value of the hedging instrument and the change in the hedged item attributable to the hedged risk are recognized in the line of the statement of comprehensive income relating to the hedged item.

Hedge accounting is discontinued when the Group revokes the hedging relationship, when the hedging instrument expires or is sold, terminated, or exercised, or when it no longer qualifies for hedge accounting. The fair value adjustment to the carrying amount of the hedged item arising from the hedged risk is amortized to profit or loss from that date.

2.3.19 Derivative instruments (con'd)

2.3.19.3 Cash flow hedges

The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognized in other comprehensive income. The gains or losses relating to the ineffective portion is recognized immediately in profit or loss, and is included in the 'finance income and costs'' line item.

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 statement of comprehensive income as the recognized hedged item. However, when the forecasted transaction that is hedged results in the recognition of a nonfinancial 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.

Hedge accounting is discontinued when the Group revokes the hedging relationship, when the hedging instrument expires or is sold, terminated, or exercised, or it no longer qualifies for hedge accounting. Any gains or losses accumulated in equity at that time remains in equity and is recognized when the forecast transaction is ultimately recognized in profit or loss. When a forecasted transaction is no longer expected to occur, the gains or losses accumulated in equity is recognized immediately in profit or loss.

2.3.20 Financial guarantee contracts

Financial guarantee contracts provided by an associate are measured at fair value at initial recognition and are subsequently recognized as a provision for financial guarantees measured at the greater of:

① Allowance for losses calculated based on the impairment of financial instruments

② The amount less the accumulated amortization recognized in accordance with Korean IFRS 1115, *Revenue from contracts with customers*

2.4 Approval of issuance of the consolidated financial statements

The consolidated financial statements for the year ended December 31, 2020 were approved for issue by the Board of Directors on February 26, 2021 and are subject to change with the approval of shareholders at their Annual General Meeting.

3. Significant accounting estimates and assumptions

The preparation of the financial statements requires management to make estimates and assumptions that affect amounts reported therein. Estimations and assumptions are continuously evaluated with consideration to factors such as events reasonably predictable in the foreseeable future within the present circumstance according to historical experience. The resulting accounting estimates will, by definition, seldom equal the related actual results.

These estimations and assumptions have been consistently applied to all the periods presented, except for the estimation method to determine income tax.

However, the Group’s operating performance and related activities and customers and suppliers’ operating performance and related activities are significantly affected by economic factors beyond control of the Corporation such as crude oil and natural gas market conditions, long-term price forecasts, credit spreads in country where major businesses domicile, risk-free interest rates, market risk premium, and others. These economic factors are significantly affected by the global public health threat, including the World Health Organization's pandemic declaration of COVID-19 in March 2020, and the global economic downturn resulting from oil price wars between oil producing countries. As of September 30, 2020, the Group estimated the impact of COVID-19 on property, plant, and equipment and intangible assets and reflected it in the consolidated financial statements (Note 19,21). The Group is continuously monitoring factors that cause uncertainty including COVID-19, and these factors will be immediately reflected to the consolidated financial statements when the Group determines that the effects of these factors on the consolidated financial statements can be reasonably and reliably estimated.

3.1 Income taxes

The Group 's taxable income generated from these operations are subject to income taxes based on tax laws and interpretations of tax authorities in numerous jurisdictions. There are many transactions and calculations for which the ultimate tax determination is uncertain. As a result of the business activities as of the end of the reporting period, the Group recognized the tax effects expected to be borne in the future as current and deferred taxes through the best estimation process. However, the actual final income taxes burden in the future may not be consistent with the related assets and liabilities recognized, and this difference may affect the current and deferred tax assets and liabilities at the time when the final tax effect is finalized.

If certain portion of the taxable income is not used for investments or increase in wages or dividends in accordance with the Tax System for Recirculation of Group Income, the Group is liable to pay additional income tax calculated based on the tax laws. The new tax system is effective for three years from 2015. Accordingly, the measurement of current and deferred income tax is affected by the tax effects from the new tax system. As the Group's income tax is dependent on the investments, increase in wages and dividends, there is an uncertainty measuring the final tax effects.

The Group reviews whether there is uncertainty in the treatment of income taxes in accordance with KIFRS 2123, and if the tax authorities conclude that it is not likely to accept the uncertain income tax treatment, each uncertain income tax treatment is recognized as the amount calculated by the following methods to predict resolution of the uncertainty.

① Most likely amount: The most likely single amount in the range of possible outcomes

② Expected amount: Sum of the amount of all the amounts in the range of possible outcomes multiplied by each probability

If it is highly probable that future taxable income will be used for tax losses, the deferred tax asset is recognized for unused tax losses carried forward within the scope. The management of the Group shall make a significant judgment to determine the amount of deferred tax assets that can be recognized based on the future tax policy and the timing and level of taxable income.

3. Significant accounting estimates and assumptions (cont'd)
3.2 Fair value of financial statements

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. Refer to Note 44 for further information.

3.3 Provisions

The Group accounts for provisions for post-processing, restoration, cleanup costs, and financial guarantees. Provisions for post-processing, restoration and cleanup costs are determined on the basis of estimates of the amount of expenditure, timing of expenditure, inflation rate, discount rate, etc. required for restoration, and other provisions are based on estimates of past experience, or estimates of future expenditures (see Note 27).

3.4 Net defined benefit liability

The cost of the retirement benefit plan and the present value of the retirement benefit obligation are determined through the actuarial valuation method. For the application of actuarial valuation methods, it is necessary to set up various assumptions. These assumptions include determining the discount rate, future salary increasing rate, increasing rate, and expected retirement rate. Due to the complexity of the assessment method and the underlying assumptions and long-term nature, the defined benefit obligation varies sensitively depending on these assumptions. All assumptions are reviewed at the end of each reporting period.
The details are described in the Note 26.

3.5 Impairment of financial assets

The Group measures loss allowances of financial assets based on assumptions on default risk and expected credit loss. When establishing these assumption and determining input variables for the impairment measurement, the Group considers historical experience, current market and future forecast at the end of the reporting period.

3.6 Impairment of non-financial assets

The Group assesses the existence of impairment signs for all non-financial assets at each reporting date. For goodwill and intangible assets that have an indefinite useful life and assets that are not in ready to use, recoverable amount of assets is assessed annually to determine the impairment amount. It is assessed when facts and circumstances suggest that the carrying amount of an exploration and evaluation assets exceed its recoverable amount, or when events or changes in circumstances indicate that the assets might be impaired after the assets are tested of impairment in every reporting period. The recoverable amounts of assets or cash-generating units have been determined based on estimation of future cash flow and appropriate discount rate. Refer to Note 21.(3) for further information.

3.7 Leases

In determination of the lease term, the Group considers all relevant facts and circumstances that create an economic incentive to exercise the option to extend the lease, or not to exercise the option to terminate the lease. 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 reassesses the lease term when obligation is incurred upon the occurrence of an exercise (or not to exercise) the option to renew. The Group changes its judgment on whether it is reasonably certain to exercise an option (or not to exercise) only upon the occurrence of a significant event or a significant change in circumstances that is within the control of the lessee.

4. Segments information

(1) Details of reportable segments are as follows:

Operating segments	Activity
Natural gas wholesale	Import, production and wholesale of LNG, Compressed Natural Gas, Natural Gas
Others	Supply of power and heat, equipment conservation, terminal management, labor force management, exploration, development and production of gas and oil

(2) Details of segment results for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020				
	Total revenue	Inter-segment revenue	External revenue	Operating profit[1]	Depreciation and amortization[1]
Natural gas wholesale	₩ 20,004,187	(15,980)	19,988,207	950,551	1,152,683
Others	1,302,261	(456,746)	845,515	(63,190)	490,627
Adjustments[1]	-	-	-	11,494	(5,921)
	₩ 21,306,447	(472,726)	20,833,722	898,855	1,637,389

[1] Changes from elimination of intra-group transactions in reportable segment operating income and depreciation are presented as adjustments.

	2019				
	Total revenue	Inter-segment revenue	External revenue	Operating profit[1]	Depreciation and amortization[1]
Natural gas wholesale	₩ 23,903,847	₩ (180,012)	₩ 23,723,835	₩ 1,185,756	₩ 1,130,432
Others	1,853,099	(594,294)	1,258,805	141,551	610,657
Adjustments[1]	-	-	-	7,206	(4,697)
	₩ 25,756,945	₩ (774,306)	₩ 24,982,640	₩ 1,334,513	₩ 1,736,392

[1] Changes from elimination of intra-group transactions in reportable segment operating income and depreciation are presented as adjustments.

(3) Details of assets and liabilities about operating segments as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020			
	Assets	Investments in associates and joint ventures[1]	Acquisition of non-current assets[2]	Liabilities
Natural gas wholesale	₩ 34,147,454	1,323,208	473,240	27,588,714
Others	9,237,129	199,525	616,839	6,206,268
Adjustments[3]	(7,474,809)	-	-	(5,620,363)
	₩ 35,909,774	1,522,733	1,090,079	28,174,619

[1] Investments in associates represent the amounts after the assessment of invested shares included in reportable segment assets.
[2] Acquisition of non-current assets represents the aggregate amounts of property, plant and equipment, and intangible assets acquired during period before elimination of intra-group transactions.
[3] Changes from elimination of intra-group transactions in reportable segment assets and liabilities are presented as adjustments.

4. Segments information (cont'd)

	2019			
	Assets	Investments in associates and joint ventures[1]	Acquisition of non-current assets[2]	Liabilities
Natural gas wholesale	₩ 37,259,514	₩ 1,513,692	₩ 809,283	₩ 30,555,313
Others	9,604,105	203,472	621,021	6,147,631
Adjustments[3]	(7,551,764)	-	-	(5,537,610)
	₩ 39,311,855	₩ 1,717,164	₩ 1,430,304	₩ 31,165,334

[1] Investments in associates represent the amounts after the assessment of invested shares included in reportable segment assets.
[2] Acquisition of non-current assets represents the aggregate amounts of property, plant and equipment, and intangible assets acquired during period before elimination of intra-group transactions.
[3] Changes from elimination of intra-group transactions in reportable segment assets and liabilities are presented as adjustments.

(4) Details of external revenue for the ended December 31, 2020 and 2019, and details of non-current assets as of December 31, 2020 and 2019, by geographic locations are as follows (Korean won in millions):

	External Revenue from customers		Non-current assets[1]	
	2020	2019	2020	2019
Korea	₩ 19,948,991	₩ 23,648,264	₩ 18,738,966	₩ 19,392,260
Mexico	6,738	6,031	-	3
Australia	312,444	412,143	3,700,807	4,440,647
Canada	8,358	7,751	536,799	379,446
Iraq	410,962	590,302	1,003,506	1,151,266
Mozambique	295	253	569,311	533,992
Timor	-	-	-	8,428
Cyprus	-	-	26,528	24,522
Singapore	45,769	197,633	152	464
Myanmar	100,164	120,262	166,804	212,911
	₩ 20,833,721	₩ 24,982,639	₩ 24,742,873	₩ 26,143,939

[1] Non-current assets represent the aggregate amounts of property, plant and equipment, and intangible assets before elimination of intra-group transactions.

5. Cash and cash equivalents

Cash and cash equivalents include cash and bank deposits. Cash and cash equivalents in the consolidated statements of cash flows is the same as the cash and cash equivalents in the consolidated statements of financial position (Korean won in millions):

	2020	2019
Cash on hand	₩ 3,547	₩ 2,464
Demand deposits	306,664	257,637
Short-term deposits classified as cash equivalents	21,550	-
Government grants	-	(3,000)
	₩ 331,761	₩ 257,101

6. Restricted financial instruments

Restricted financial instruments as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	Description	2020		2019	
Cash and cash equivalents	Restriction in use	₩	-	₩	21,835
	Restriction in use for special porpose business		54,535		15,441
Short-term financial instruments	Restriction in use		21,760		-
Long-term financial instruments	Restriction in use		15		-
		₩	76,310	₩	37,276

7. Financial assets at fair value through profit or loss

Financial assets at fair value through profit or loss('FVTPL') as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020				2019			
	Current		Non-current		Current		Non-current	
Financial assets at FVTPL:								
Derivatives undesignated as hedging instruments	₩	4,406	₩	5,029	₩	990	₩	-
Derivatives designated as hedging instruments		339		40,174		-		22,427
Profit securities		7,800		-		10,100		-
Debt instruments		-		1,808		-		1,617
	₩	12,545	₩	47,011	₩	11,090	₩	24,044

8. Derivative instruments

(1) Details of derivative instruments as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020		2019	
	Current	Non-current	Current	Non-current
Derivative financial assets:				
Currency forwards	₩ 4,745	₩ 248	₩ 990	₩ -
Currency swaps	-	43,429	-	22,427
Interest rate swap	-	1,526	-	-
Total[1]	₩ 4,745	₩ 45,203	₩ 990	₩ 22,427

	2020		2019	
	Current	Non-current	Current	Non-current
Derivative financial liabilities:				
Currency forwards	₩ (105,108)	₩ -	₩ (56,278)	₩ (1,262)
Currency swaps	-	(35,943)	(18,260)	(68,063)
Interest rate swap	-	(5,853)	(302)	(4,027)
Total[1]	₩ (105,108)	₩ (41,796)	₩ (74,840)	₩ (73,352)

[1] Contains derivatives for trading purposes and cash flow hedges.

8. Derivative instruments (cont'd)

(2) Details of foreign currency swap contracts as of December 31, 2020, are as follows (Korean won and Japanese yen in millions, and US dollars, Euro, and Confoederatio Helvetica Franc in thousnads):

Purpose	Financial institutions	Contract Period	Amount of contract Sell	Amount of contract Buy	Interest rate of contract Sell	Interest rate of contract Buy	Exchange rate of contract
Trading	DBS	2013.06~2028.06	USD 50,196	KRW 55,788	4.28%	3.30%	USD 1 = KRW 1,111.4
	KEB Hana Bank	2013.07~2023.07	USD 65,325	KRW 74,601	4.27%	3.17%	USD 1 = KRW 1,142.0
	BNP Paribas	2013.08~2023.08	USD 82,910	KRW 92,635	4.27%	3.54%	USD 1 = KRW 1,117.3
	BNP Paribas	2013.08~2023.08	USD 41,133	KRW 46,049	4.24%	3.68%	USD 1 = KRW 1,119.5
	KDB	2018.08~2023.08	USD 100,832	KRW 112,861	3.56%	1.83%	USD 1 = KRW 1,119.3
	SOGE	2018.08~2023.08	USD 100,832	KRW 112,861	3.56%	1.83%	USD 1 = KRW 1,119.3
	BNP Paribas	2019.03~2023.11	USD 201,086	KRW 228,172	3.11%	1.70%	USD 1 = KRW 1,134.7
	KDB	2019.03~2023.11	USD 100,543	KRW 114,086	3.11%	1.70%	USD 1 = KRW 1,134.7
	BNP Paribas	2020.07~2027.07	USD 58,065	HKD 450,000	1.35%	1.42%	USD 1 = HKD 7.75
Cash flow Hedge	DBS	2013.06~2028.06	KRW 55,788	EUR 38,000	3.30%	3.02%	EUR 1 = KRW 1,468.1
	KEB Hana Bank	2013.07~2023.07	KRW 74,601	EUR 50,000	3.17%	3.00%	EUR 1 = KRW 1,492.0
	BNP Paribas	2013.08~2023.08	KRW 92,635	JPY 8,000	3.54%	1.46%	JPY 1 = KRW 11.58
	BNP Paribas	2013.08~2023.08	KRW 46,049	JPY 4,000	3.68%	1.46%	JPY 1 = KRW 11.51
	KDB	2018.08~2023.08	KRW 112,861	CHF 100,000	1.83%	0.21%	CHF 1 = KRW 1,128.6
	SOGE	2018.08~2023.08	KRW 112,861	CHF 100,000	1.83%	0.21%	CHF 1 = KRW 1,128.6
	BNP Paribas	2019.03~2023.11	KRW 228,172	CHF 200,000	1.70%	0.00%	CHF 1 = KRW 1,140.9
	KDB	2019.03~2023.11	KRW 114,086	CHF 100,000	1.70%	0.00%	CHF 1 = KRW 1,140.9

(3) Details of the interest rate swap contract as of December 31, 2020, are as follows (Korean won in millions)

Purpose	Financial institutions	Period	Amount		Interest rate of contract Sell	Interest rate of contract Buy
Trading	KEB Hana Bank	2018.10~2023.10	KRW	100,000	2.35%	3M CD + 0.21%
Trading	KEB Hana Bank	2019.05~2023.05	KRW	100,000	1.78%	3M CD + 0.13%
Trading	KEB Hana Bank	2019.10~2022.10	KRW	100,000	1.54%	3M CD + 0.21%
Trading	KEB Hana Bank	2020.09~2025.09	KRW	100,000	1.29%	3M CD + 0.31%
Trading	KEB Hana Bank	2020.10~2025.10	KRW	200,000	1.30%	3M CD + 0.30%

8. Derivative instruments (cont'd)

(4) Details of foreign currency forward contract as of December 31, 2020, are as follows (Korean won in millions and US dollars in thousands and Canada dollars in thousands)

Purpose	Financial institutions	Contract date	Maturity date	Amount				Exchange rate of contract
				Sell		Buy		
Trading	KEB Hana Bank	2020-12-16	2021-01-04	KRW	27,303	USD	25,000	1092.12
	Bank of America	2020-12-16	2021-01-04	KRW	32,765	USD	30,000	1092.18
	Daegu Bank	2020-12-03	2021-01-04	KRW	39,538	USD	36,000	1098.29
	Mizuho Bank	2020-12-16	2021-01-04	KRW	32,765	USD	30,000	1092.16
	Kookmin Bank	2020-12-17	2021-01-05	KRW	32,779	USD	30,000	1092.62
	KEB Hana Bank	2020-12-21	2021-01-05	KRW	12,110	USD	11,000	1100.95
	KEB Hana Bank	2020-12-17	2021-01-05	KRW	38,241	USD	35,000	1092.60
	BNP Paribas	2020-12-17	2021-01-05	KRW	21,851	USD	20,000	1092.55
	Daegu Bank	2020-12-29	2021-01-07	KRW	24,037	USD	22,000	1092.61
	Daegu Bank	2020-12-22	2021-01-07	KRW	26,537	USD	24,000	1105.70
	KEB Hana Bank	2020-12-23	2021-01-07	KRW	56,505	USD	51,000	1107.95
	KEB Hana Bank	2020-12-21	2021-01-07	KRW	23,165	USD	21,000	1103.09
	SOGE	2020-12-23	2021-01-08	KRW	33,248	USD	30,000	1108.25
	CREDIT AGRICOLE	2020-12-23	2021-01-08	KRW	55,405	USD	50,000	1108.10
	Kookmin Bank	2020-12-23	2021-01-08	KRW	55,403	USD	50,000	1108.05
	SOGE	2020-12-23	2021-01-11	KRW	22,165	USD	20,000	1108.25
	KEB Hana Bank	2020-12-24	2021-01-11	KRW	28,677	USD	26,000	1102.97
	SC Bank	2020-12-17	2021-01-11	KRW	32,775	USD	30,000	1092.50
	BNP Paribas	2020-12-17	2021-01-11	KRW	10,925	USD	10,000	1092.45
	Daegu Bank	2020-12-28	2021-01-12	KRW	32,900	USD	30,000	1096.65
	Daegu Bank	2020-12-29	2021-01-12	KRW	7,648	USD	7,000	1092.61
	KEB Hana Bank	2020-12-28	2021-01-12	KRW	25,225	USD	23,000	1096.74
	KEB Hana Bank	2020-12-28	2021-01-13	KRW	28,515	USD	26,000	1096.74
	Daegu Bank	2020-12-30	2021-01-14	KRW	54,395	USD	50,000	1087.90
	KDB	2020-12-30	2021-01-14	KRW	21,758	USD	20,000	1087.89
	KEB Hana Bank	2020-12-30	2021-01-14	KRW	63,098	USD	58,000	1087.89
	Kookmin Bank	2020-12-30	2021-01-15	KRW	65,279	USD	60,000	1087.98
	KEB Hana Bank	2020-12-11	2021-01-15	KRW	6,536	USD	6,000	1089.37
	Woori Bank	2020-12-23	2021-01-25	KRW	55,390	USD	50,000	1107.80
	DBS	2020-08-25	2021-02-22	KRW	24,557	USD	20,715	1185.45
	DBS	2020-08-26	2021-02-23	KRW	14,338	USD	12,087	1186.25
	DBS	2020-08-27	2021-02-24	KRW	23,190	USD	19,568	1185.10
	DBS	2020-08-27	2021-02-24	KRW	24,548	USD	20,714	1185.10
	KEB Hana Bank	2020-08-31	2021-03-02	KRW	237,192	USD	200,699	1181.83
	KEB Hana Bank	2020-08-28	2021-03-02	KRW	237,722	USD	200,699	1184.47
	KEB Hana Bank	2020-09-11	2021-03-10	KRW	55,198	USD	46,470	1187.82
	KEB Hana Bank	2020-09-11	2021-03-10	KRW	35,187	USD	29,623	1187.82
	KEB Hana Bank	2020-09-14	2021-03-12	KRW	26,144	USD	22,083	1183.90
	KEB Hana Bank	2020-09-18	2021-03-17	KRW	48,103	USD	41,270	1165.58
	Daegu Bank	2020-09-21	2021-03-19	KRW	37,495	USD	32,273	1161.80
	KEB Hana Bank	2020-09-25	2021-03-24	KRW	35,607	USD	30,444	1169.58
	KEB Hana Bank	2020-09-28	2021-03-26	KRW	25,667	USD	21,869	1173.67
	KEB Hana Bank	2020-09-28	2021-03-26	KRW	15,168	USD	12,924	1173.67
	KEB Hana Bank	2020-09-29	2021-03-26	KRW	13,762	USD	11,761	1170.15
	DBS	2020-12-24	2021-03-26	KRW	31,587	USD	28,645	1102.70
	DBS	2020-12-24	2021-03-26	KRW	25,339	USD	22,979	1102.70
	DBS	2020-12-29	2021-03-30	KRW	26,629	USD	24,363	1093.00
	DBS	2020-12-29	2021-03-30	KRW	24,281	USD	22,215	1093.00
	DBS	2020-12-29	2021-03-30	KRW	21,104	USD	19,308	1093.00
	DBS	2020-12-29	2021-03-30	KRW	21,327	USD	19,512	1093.00
	DBS	2020-12-29	2021-03-30	KRW	21,281	USD	19,470	1093.00
	KEB Hana Bank	2020-10-05	2021-04-02	KRW	34,643	USD	29,787	1163.02
	KEB Hana Bank	2020-10-05	2021-04-02	KRW	43,148	USD	37,100	1163.02
	DBS	2020-10-08	2021-04-06	KRW	16,867	USD	14,583	1156.65
	KEB Hana Bank	2020-10-08	2021-04-06	KRW	16,593	USD	14,340	1157.15

Purpose	Financial institutions	Contract date	Maturity date	Amount				Exchange rate of contract
				Sell		Buy		
	KEB Hana Bank	2020-10-08	2021-04-06	KRW	12,593	USD	10,883	1157.15
	KEB Hana Bank	2020-10-13	2021-04-09	KRW	14,346	USD	12,468	1150.60
	KEB Hana Bank	2020-10-13	2021-04-09	KRW	27,247	USD	23,680	1150.60
	KEB Hana Bank	2020-10-13	2021-04-12	KRW	13,627	USD	11,843	1150.65
	KEB Hana Bank	2020-10-13	2021-04-12	KRW	9,044	USD	7,860	1150.65
	KEB Hana Bank	2020-10-14	2021-04-12	KRW	34,890	USD	30,412	1147.23
	KEB Hana Bank	2020-10-13	2021-04-12	KRW	16,736	USD	14,545	1150.65
	KEB Hana Bank	2020-10-15	2021-04-13	KRW	28,185	USD	24,591	1146.15
	DBS	2020-10-14	2021-04-13	KRW	14,929	USD	13,034	1145.43
	KEB Hana Bank	2020-10-15	2021-04-14	KRW	18,116	USD	15,806	1146.15
	KEB Hana Bank	2020-10-21	2021-04-19	KRW	22,587	USD	19,949	1132.26
	KEB Hana Bank	2020-10-21	2021-04-19	KRW	14,771	USD	13,046	1132.26
	SC Bank	2020-10-23	2021-04-21	KRW	14,804	USD	13,033	1135.85
	KEB Hana Bank	2020-10-23	2021-04-21	KRW	16,256	USD	14,308	1136.14
	SC Bank	2020-10-27	2021-04-23	KRW	17,830	USD	15,787	1129.42
	KEB Hana Bank	2020-10-26	2021-04-23	KRW	15,701	USD	13,898	1129.72
	KEB Hana Bank	2020-10-26	2021-04-23	KRW	24,484	USD	21,672	1129.72
	KEB Hana Bank	2020-10-26	2021-04-23	KRW	31,266	USD	27,676	1129.72
	SC Bank	2020-10-26	2021-04-23	KRW	11,878	USD	10,508	1130.32
	SC Bank	2020-10-28	2021-04-26	KRW	13,198	USD	11,701	1127.95
	SC Bank	2020-10-28	2021-04-26	KRW	16,346	USD	14,491	1127.95
	SC Bank	2020-10-29	2021-04-27	KRW	14,789	USD	13,048	1133.42
	SC Bank	2020-10-29	2021-04-27	KRW	14,825	USD	13,080	1133.42
	KEB Hana Bank	2020-10-29	2021-04-27	KRW	16,121	USD	14,219	1133.72
	KEB Hana Bank	2020-11-02	2021-04-30	KRW	28,899	USD	25,489	1133.78
	SC Bank	2020-11-05	2021-05-03	KRW	17,956	USD	15,861	1132.05
	SC Bank	2020-11-05	2021-05-03	KRW	17,978	USD	15,881	1132.05
	SC Bank	2020-11-05	2021-05-03	KRW	17,894	USD	15,806	1132.05
	SC Bank	2020-11-05	2021-05-03	KRW	14,761	USD	13,039	1132.05
	KEB Hana Bank	2020-07-29	2021-01-29	USD	41,666	KRW	49,715	1193.20
Cash flow hedge	KEB Hana Bank	2018-11-07	2023-08-04	USD	3,912	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2023-06-02	USD	3,909	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2023-04-04	USD	3,907	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2023-03-03	USD	3,905	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2023-01-04	USD	3,902	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2022-08-04	USD	3,896	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2022-06-30	USD	3,894	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2022-06-03	USD	3,892	CAD	5,000	1.28
	KEB Hana Bank	2018-11-07	2022-04-04	USD	3,889	CAD	5,000	1.29
	KEB Hana Bank	2018-11-07	2022-02-04	USD	3,886	CAD	5,000	1.29
	KEB Hana Bank	2018-11-07	2022-01-04	USD	3,884	CAD	5,000	1.29
	KEB Hana Bank	2018-11-07	2021-09-03	USD	3,878	CAD	5,000	1.29
	KEB Hana Bank	2018-11-07	2021-06-04	USD	3,873	CAD	5,000	1.29
	KEB Hana Bank	2018-11-07	2021-04-01	USD	3,870	CAD	5,000	1.29
	KEB Hana Bank	2018-11-07	2021-03-04	USD	3,868	CAD	5,000	1.29
	KEB Hana Bank	2018-11-07	2021-02-04	USD	3,865	CAD	5,000	1.29
	KEB Hana Bank	2018-11-07	2021-01-04	USD	3,863	CAD	5,000	1.29

8. Derivative instruments(cont'd)

(5) Gains or losses on valuation of derivatives for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	Valuation gain (loss)		Transaction gain (loss)		Changes in accumulated other comprehensive income	
	2020	2019	2020	2019	2020	2019
Foreign currency forwards	₩ (100,703)	₩ (25,113)	₩ (1,688)	₩ 54,156	₩ (1,293)	₩ (137)
Foreign currency swap	33,127	(67,018)	(15,234)	(23,783)	4,428	2,506
Interest rate swap	(299)	(2,358)	(2,722)	(401)	302	479
	₩ (67,875)	₩ (94,489)	₩ (19,644)	₩ 29,972	₩ 3,437	₩ 2,848

As of December 31, 2020, losses on valuation of derivatives amounting to ₩7,792 million (2019: ₩10,527 million) in accumulated other comprehensive income are presented net of income tax.

(6) Hedging on non-financial items

The Group currently uses LNG ships that were built specifically for the Group's use for stable LNG supply through the long-term finance lease contract in US dollars with the lessor. As the lease expense is recovered through the sales price as a component of shipping expense, the lease expense and raw material cost, which is also denominated in US dollars, form part of the selling price, and have same exposure to foreign currency change.

In order for the Group to hedge the risk of foreign exchange rate change on its foreign revenue from the natural gas for the power generation, only foreign currency revenue with the same maturity date as the lease liability has been distinguished from long-term supply contract to be designated as the hedged item, and the payment of lease liability has been designated as hedging instrument of non-financial items to apply the hedge accounting. Currency swap exchange rate uses the spot exchange rate at the time of payment by applying hedge accounting.

For the years ended December 31, 2020 and 2019, gains and losses on hedging instruments amounts to ₩111,293 million and ₩(-)83,453 million, respectively, and gains and losses on hedging instruments recognized in other comprehensive income are net of tax effect amounting to ₩80,687 million and ₩(-)60,503 million, respectively.

(7) Hedges of a net investment in a foreign investment operation

In order for the Group to hedge the risk of exchange rate fluctuation caused by the foreign currency translation, hedge accounting has been applied to the net investment of overseas business regarding the difference in foreign exchange which arose between the functional currency of foreign business and of the Group.
The amounts recognized in the consolidated statements of comprehensive income for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Net gains on hedge of net investment in foreign operation, net of income tax	₩ 99,142	₩ (106,435)

(8) Risk management strategies and application methods for risk management

The Group is exposed to certain risks associated with ongoing operations. The main risk managed by derivatives is interest rate risk, foreign exchange risk. The Group's risk management strategies and the methods applied to risk management are described in Note 45.

As of December 31, 2020, the Group entered into an interest rate swaps, currency swaps and currency forward contracts. Interest rate swaps and currency swaps are used to hedge the exposure to changes in cash flows of corporate bonds and currency futures are used to hedge exposures to cash flow changes in foreign currency short-term borrowings.

8. Derivative instruments(cont'd)

(Korean won and Japanese yen in millions, Euro and Confoederatio Helvetica Franc in thousands):

	Currency	Contract amount	Description
	CHF	500,000	
Foreign currency swap	EUR	88,000	Purchase amount
	JPY	12,000	
Foreign currency forwards	CAD	85,000	Purchase amount

Because the terms of currency swaps and currency forward agreements are consistent with the terms of each currency (debt and foreign currency short-term borrowings), there is an economic relationship between the hedged item and the hedging instrument. In addition, because the underlying risk of interest rate swaps, currency swaps and currency forwarding is the same as the hedged risk component, the group has established a 1: 1 hedging ratio for the hedging relationship. In order to assess the hedging effect, the Group uses a major conditional equity method to compare the change in the fair value of the hedging instrument with the variability in the cash flow of the hedged item due to the hedged risk.

The ineffective portion of risk hedge can occur in the following cases:
- Different interest rates applied to discount the hedged item and the hedging instrument curve
- Difference in timing of the cash flow of the hedged item and the hedging instrument
- If the counterparty's credit risk has a different effect on the fair value measurement of the hedging instrument and the hedged item

As of December 31, 2020, there is no ineffective portion of hedge accounting.

9. Trade and other receivables

(1) Trade and other receivables as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020				2019			
	Principal	Allowance for doubtful accounts	Present value discount	Book value	Principal	Allowance for doubtful accounts	Present value discount	Book value
Current:								
Trade receivables	₩ 4,111,597	₩ (17,745)	₩ -	₩ 4,093,852	₩ 4,993,137	₩ (19,233)	₩ (2)	₩ 4,973,902
Other receivables	151,876	(973)	-	150,903	163,888	(1,035)	-	162,853
	4,263,473	(18,718)	-	4,244,755	5,157,025	(20,268)	(2)	5,136,755
Non-current:								
Other receivables	211,688	(9,453)	(1,028)	201,207	283,158	-	-	283,158
	₩ 4,475,161	₩ (28,171)	₩ (1,028)	₩ 4,445,962	₩ 5,440,183	₩ (20,268)	₩ (2)	₩ 5,419,913

(2) Other receivables as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020				2019			
	Principal	Allowance for doubtful accounts	Present value discount	Book value	Principal	Allowance for doubtful accounts	Present value discount	Book value
Current:								
Non-trade receivables	₩ 133,281	₩ (973)	₩ -	₩ 132,308	₩ 145,381	₩ (1,035)	₩ -	₩ 144,346
Accrued income	18,460	-	-	18,460	18,335	-	-	18,335
Deposit	135	-	-	135	172	-	-	172
	151,876	(973)	-	150,903	163,888	(1,035)	-	162,853
Non-current:								
Non-trade receivables	93,941	(9,453)	-	84,488	158,860	-	-	158,860
Deposit provided	117,747	-	(1,028)	116,719	124,298	-	-	124,298
	211,688	(9,453)	(1,028)	201,207	283,158	-	-	283,158
	₩ 363,564	₩ (10,426)	₩ (1,028)	₩ 352,110	₩ 447,046	₩ (1,035)	₩ -	₩ 446,011

9. Trade and other receivables (cont'd)

(3) Credit risk and provision for impairment

The Group's average period for credit offering on sale of city gas is 45 days. During the initial 45 days from the billing date,interests on trade receivables do not accrue. However, after the period, interests are charged on the balance of payables as the amount calculated by considering interest rate of general entity loans of KEB Hana Bank, the main bank of the Group.

The Group's average period for credit offering on the sale of power generation is 19 days. According to the contract by each customer, the billings are collected by one to three installments. Interests on trade receivables are not charged until the payment date. However, after the due date, interests are charged on the balance of payables as the amount calculated by considering interest rate of general entity loans of KEB Hana Bank, the main bank of the Group.

For trade receivables and contract assets, the Group applies a simplified approach in calculating ECLs. Therefore, the Group does not track changes in credit risk, but instead recognises a loss allowance based on lifetime ECLs at each reporting date.. To measure expected credit losses, trade receivables and contract assets are assessed separately based on credit risk characteristics and overdue dates. There are no allowances recognized as of December 31, 2020.

Impairment losses on trade receivables and contractual assets are presented as net of bad debt expense in the consolidated statement of income. Subsequent withdraw of the amount deducted is recognized as a deduction for the same account. As of December 31, 2020, the Group does not recognize any allowance for doubtful receivables and recovered amount of written-off receivarbles.

At the years ended December 31, 2020 and 2019, Allowance for doubtful accounts related to trade and other receivables amounts to ₩28,171 million and ₩20,268 million, respectively, and for the years ended December 31, 2020 and 2019, bad debt expense amounts to ₩9,830 million and ₩542 million, respectively.

1) The aging analysis of trade receivables as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Receivables that are neither past due nor impaired	₩ 4,093,574	₩ 4,972,936
Receivables that are past due but not impaired		
45~60 days	17	-
60~90 days	60	182
90~120 days	24	156
Over 120 days	182	-
Receivables tested for the impairment		
60~90 days	283	132
90~120 days	-	189
Over 120 days	17,457	19,542
Subtotal	4,111,597	4,993,137
Less: allowance for bad debts	(17,745)	(19,233)
Less: current value discount	-	(2)
Total	₩ 4,093,852	₩ 4,973,902

9. Trade and other receivables (cont'd)

2) The aging analysis of other receivables as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Receivables that are neither past due nor impaired	₩ 353,138	₩ 446,002
Receivables tested for the impairment		
60~90 days		-
90~120 days		1,044
120 days~	10,426	
Subtotal	363,564	447,046
Deduction: allowance for bad debts	(10,426)	(1,035)
Deduction: Present value discount	(1,028)	
Total	₩ 352,110	₩ 446,011

3) Changes in allowance for doubtful accounts for trade and other receivables during the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020		2019	
	Trade receivables	Other receivables	Trade receivables	Other receivables
Beginning	₩ (19,233)	₩ (1,035)	₩ (19,850)	₩ (1,000)
Bad debt expenses for impaired receivables	(377)	(9,453)	(542)	
Write-off of trade and other receivables	-	-	133	-
Reversal of unused amount	739	-	1,642	-
Other (exchange rate effect)	1,126	62	(616)	(35)
Ending	₩ (17,745)	₩ (10,426)	₩ (19,233)	₩ (1,035)

10. Financial assets at fair value through other comprehensive income

(1) Changes of financial assets at fair value through other comprehensive income ('FVOCI') for the years ended December 31, 2020 are as follows (Korean won in millions):

	2020					
	Beginning balance	Acquisition	Disposal	Valuation	Others	Ending balance
Unlisted equity securities [1]	₩ 125,968	₩ -	₩ -	₩ (64,908)	₩ -	₩ 61,060
	125,968	-	-	(64,908)	-	61,060
Non-current other financial assets at FVOCI	₩ 125,968	₩ -	₩ -	₩ (64,908)	₩ -	₩ 61,060

[1] Details of fair value measurement are disclosed in Note 45.

	2019					
	Beginning balance	Acquisition	Disposal	Valuation	Others	Ending balance
Unlisted equity securities [1]	₩ 56,732	₩ -	₩ (104)	₩ 69,340	₩ -	₩ 125,968
	56,732	-	(104)	69,340	-	125,968
Non-current other financial assets at FVOCI	₩ 56,732	₩ -	₩ (104)	₩ 69,340	₩ -	₩ 125,968

[1] Details of fair value measurement are disclosed in Note 45.

10. Financial assets at fair value through other comprehensive income (cont'd)

(2) Details of financial assets at fair value through other comprehensive income as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020				
	Number of shares	Percentage of ownership	Acquisition cost	Book value	Fair value
Non-Marketable					
K.K.Korea Kamchatka Co. Ltd. [1]	328	10%	₩ -	₩ -	₩ -
Yemen LNG Company Limited	1,500	6%	19,355	60,816	60,816
Kor-Kaz CNG Investment Limited	691,985	8%	798	244	244
			₩ 20,153	₩ 61,060	₩ 61,060

[1] Acquisition cost, book value and fair value of this financial assets are ₩ 1,000.

	2019				
	Number of shares	Percentage of ownership	Acquisition cost	Book value	Fair value
Non-Marketable					
K.K.Korea Kamchatka Co. Ltd. [1]	328	10%	₩ -	₩ -	₩ -
Yemen LNG Company Limited	1,500	6%	19,355	125,694	125,694
Primorsky Gaz[2]	691,985	8%	798	274	274
Kor-Kaz CNG Investment Limited	-	-	-	-	-
			₩ 20,153	₩ 125,968	₩ 125,968

[1] Acquisition cost, book value and fair value of this financial assets are ₩ 1,000.
[2] This financial assets have been measured at cost because the difference between the fair value and carrying amount is not significant.

11. Financial assets measured at amortized cost

(1) Changes of financial assets measured at amortized cost as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020					
	Beginning balance	Acquisition	Disposal	Valuation	Others[1]	Ending balance
Government and public bond	₩ 466	₩ 143	₩ (100)	₩ -	₩ -	₩ 509
Fixed deposit	-	953	-	-	-	953
	₩ 466	₩ 1,096	₩ (100)	₩ -	₩ -	₩ 1,462
Current financial assets measured at amortised cost	₩ 100	₩ 953	₩ (100)	₩ -	₩ 94	₩ 1,047
Non-current financial assets measured at amortized cost	₩ 367	₩ 143	₩ -	₩ -	₩ (94)	₩ 416

[1] Transfer to current portion of its financial assets

11. Financial assets measured at amortised cost (cont'd)

	2019					
	Beginning balance	Acquisition	Disposal	Valuation	Others[1]	Ending balance
Government and public bond	₩ 782	₩ 126	₩ (442)	₩ -	₩ -	₩ 466
	₩ 782	₩ 126	₩ (442)	₩ -	₩ -	₩ 466
Current financial assets measured at amortised cost	₩ 408	₩ 34	₩ (442)	₩ -	₩ 100	₩ 100
Non-current financial assets measured at amortized cost	₩ 374	₩ 93	₩ -	₩ -	₩ (100)	₩ 367

[1] Transfer to Current portion of its financial assets

(2) Details of Financial assets measured at amortised cost as of December 31, 2020 are as follows (Korean won in millions):

	2020			
	Financial assets measured at amortised cost	Provision for impairment	Others	Book value
Government and public bond	₩ 509	₩ -	₩ -	₩ 509
Fixed deposit	954	-	-	954
	₩ 1,463	₩ -	₩ -	₩ 1,463
Current financial assets measured at amortised cost	1,048	-	-	1,048
Non-Current financial assets measured at amortised cost	415	-	-	415

	2019			
	Financial assets measured at amortised cost	Provision for impairment	Others	Book value
Government and public bond	₩ 466	₩ -	₩ -	₩ 466
	₩ 466	₩ -	₩ -	₩ 466
Current financial assets measured at amortised cost	100	-	-	100
Non-current financial assets measured at amortised cost	367	-	-	367

12. Loans

(1) Details of long-term loans as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020				
	Face value	Present value discount	Present value premium	Allowance for doubtful accounts	Book value
Student loans[1]	₩ 8,587	₩ -	₩ -	₩ -	₩ 8,587
Employee shareholders loans[2]	409	-	-	-	409
Housing loans[3]	23,880	-	-	-	23,880
Housing lease support loans[4]	34,680	(54,353)	-	-	34,680
Associates	237,347	-	-	-	182,994
Joint ventures	42,379	-	-	-	42,379
Others	173,421	(54,353)	-	(28,476)	144,945
	₩ 520,703	₩ (54,353)	₩ -	₩ (28,476)	₩ 437,874
Short-term loans	14,326	-	-	-	14,326
Long-term loans	506,377	(54,353)	-	(28,476)	423,548

[1] The Group provides loans to support education expenses for the children of employees who have served over one year. Repayments of loans are made by deducting a certain amount from the employees' wages.
[2] The Group provides loans at 4% interest rates for the purpose of encouraging employees to retain employee stock ownership in the long-term and to mitigate debt burden. Repayments of loans are made by deducting a certain amount from the employees' wages.
[3] In relation to relocation of the main office, the Group provides loans at a market interest rate (1.0 to 3.4% as of December 31, 2020) to employees without home ownership as support. The loans mature in three years and a lump sum payment for the loan should be paid on maturity.
[4] To support housing stability, the Group provides loans at 0.7 to 2.4% interest rate to employees who reside near the workplace but do not own homes. Loans should be repaid at the end of the lease term.

	2019				
	Face value	Present value discount	Present value premium	Allowance for doubtful accounts	Book value
Shareholders, executives, and employee short-term loans	₩ 1,358	₩ -	₩ -	₩ -	₩ 1,358
Student loans[1]	7,786	-	-	-	7,786
Employee shareholders loans[2]	1,700	-	-	-	1,700
Housing loans[3]	18,666	-	-	-	18,666
Housing lease support loans[4]	27,393	-	-	-	27,393
Associates	216,859	(52,244)	-	-	164,615
Joint ventures	45,513	-	-	-	45,513
Others	152,684	-	-	(28,476)	124,208
	₩ 471,959	₩ (52,244)	₩ -	₩ (28,476)	₩ 391,239
Short-term loans	12,523	-	-	-	12,523
Long-term loans	459,436	(52,244)	-	(28,476)	378,716

[1] The Group provides loans to support education expenses for the children of employees who have served over one year. Repayments of loans are made by deducting a certain amount from the employees' wages.
[2] The Group provides loans at 4% interest rates for the purpose of encouraging employees to retain employee stock ownership in the long-term and to mitigate debt burden. Repayments of loans are made by deducting a certain amount from the employees' wages.
[3] In relation to relocation of the main office, the Group provides loans at a market interest rate (1.0 to 3.4% as of December 31, 2018) to employees without home ownership as support. The loans mature in three years and a lump sum payment for the loan should be paid on maturity.
[4] To support housing stability, the Group provides loans at 1.0 to 2.4% interest rate to employees who reside near the workplace but do not own homes. Loans should be repaid at the end of the lease term.

12. Loans (cont'd)

(2) Details of loans to associates, joint ventures, and other loans as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	Maturity	Interest rate	Book value 2020	Book value 2019	Impairment loss on loans 2020	Impairment loss on loans 2019
Associates :						
Coral FLNG S.A.	2035	-	₩ 163,274	₩ 136,656	₩ -	₩ -
South East Asia Gas Pipeline Company Ltd.	After CTD('13.12) 1 year grace period, 8 years repayment of principal	10.00%	19,720	27,959	-	-
Joint Ventures						
Hyundai Yemen LNG Company Limited	In case YLNG Project has repayable cash	Interest-free	14,220	13,152	-	-
		Min{ Weighted average of YLNG PF interest rate after May, 2008 - 1%, 8%}	15,676	16,682	-	-
		Libor+5%	3,579	2,664	-	-
	In case of receiving dividends when the project has distributable cash	10%	1,990	1,979	-	-
ENH KOGAS S.A.	2021	-	6,914	11,036	-	-
Others:						
Yemen LNG Company Limited	In case YLNG Project has repayable cash	Interest-free	30,539	27,399	-	-
		Min{ Weighted average of YLNG PF interest rate after May, 2008 - 1%, 8%}	7,860	8,364	-	-
		Libor+5%	6,541	5,550	-	-
Empresa Nacional de Hidrocarbonetos, E.P	-[1]	8.7%	5,298	2,309	-	-
	-	Libor+1%	94,708	80,586	-	-

[1] The expiration date of ENH Carry under the Development Loan Agreement (DLA) for the Coral FLNG business is the end date of the business (scheduled for June, 2047.).

13. Long-term and short-term financial instruments

Details of long-term and short-term financial instruments as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020 Current	2020 Non-current	2019 Current	2019 Non-current
Financial instruments	₩ 21,760	₩ 15	₩ 74,876	₩ 16

14. Other financial assets

Details of other financial assets as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020 Current	2020 Non-current	2019 Current	2019 Non-current
Fund management deposits	₩ -	₩ 90,000	₩ -	₩ 70,000

15. Inventories

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

	2020				2019			
	Acquisition cost	Government grants	Losses on valuation allowance	Book value	Acquisition cost	Government grants	Losses on valuation allowance	Book value
Raw materials	₩ 923,089	₩ -	₩ -	₩ 923,089	₩ 1,959,863	₩ -	₩ -	₩ 1,959,863
Finished goods	78,110	-	(5,476)	72,634	73,790	-	(5,129)	68,661
Supplies	82,677	-	-	82,677	73,719	-	-	73,719
Goods in transit	311,882	-	-	311,882	543,011	-	-	543,011
	₩ 1,395,758	₩ -	₩ (5,476)	₩ 1,390,282	₩ 2,650,383	₩ -	₩ (5,129)	₩ 2,645,254

16. Non-financial assets

(1) Details of non-financial assets as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020		2019	
	Current	Non-current	Current	Non-current
Advance payments	₩ 113,551	₩ -	₩ 38,459	₩ -
Prepaid expenses	10,981	72	12,771	5
Greenhouse gas emission rights	-	-	175	-
Other non-financial assets	1,378,467	272,331	1,033,905	469,252
	₩ 1,502,999	₩ 272,403	₩ 1,085,310	₩ 469,257

(2) Details of other non-financial assets as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020		2019	
	Current	Non-current	Current	Non-current
Special consumption tax	₩ 98,786	₩ -	₩ 135,342	₩ -
Deposits	3,102	-	2,098	-
Others[1]	1,276,579	272,331	896,466	469,253
	₩ 1,378,467	₩ 272,331	₩ 1,033,906	₩ 469,253

[1] Non-financial assets arising from settled income of natural gas as of December 31, 2020 and 2019, include \1,483,396 million and ₩1,281,685 million. (Note 17)

17. Natural gas sales charge settlement profits and losses

In accordance with the standard for natural gas supply price and the guidelines for raw material cost pass-through adjustment system for city gas and power generation, the settled income, the difference between actual cost incurred and current year's revenues, is reflected in the following year's rate upon the approval of the government.

The Group recognizes settled income by adjusting cost of sales, and relevant assets and liabilities as other non-financial assets and non-financial liabilities, respectively.

Details of other non-financial assets and liabilities arising from settled income of natural gas as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020						
	Material cost[1]				Supply cost		
	City gas (for private demand)	City gas (for commercial)	City gas (for city gas generating)	Power generating	City gas	Power generating	Total
Other current non-financial assets	₩ 194,123	₩ 375,736	₩ 28,148	₩ 375,508	₩ 153,750	₩ 119,012	₩ 1,246,277
Other non-current non-financial assets	-	83,866	9,238	144,017	-	-	237,121
	₩ 194,123	₩ 459,602	₩ 37,386	₩ 519,525	₩ 153,750	₩ 119,012	₩ 1,483,398

[1] The revision of the Natural Gas Supply Regulations during the current term has subdivided the classification of assets and liabilities for the raw material cost of urban gas charges.

	2019				
	Material cost		Supply cost		
	City gas	Power generating	City gas	Power generating	Total
Other current non-financial assets	₩ 842,710	₩ -	₩ -	₩ -	₩ 842,710
Other non-current non-financial assets	438,975	-	-	-	438,975
Other current non-financial liabilities	-	(5,418)	(94,744)	(74,403)	(174,565)
	₩ 1,281,685	₩ (5,418)	₩ (94,744)	₩ (74,403)	₩ 1,107,120

18. Investments in associates and joint ventures

(1) Details of investments in associates and joint ventures as of December 31, 2020 and 2019, are as follows (Korean won in millions, except percentage of ownership):

					2020		
	Business	Country of in Group	Country of domicile	Fiscal year end	Percentage of ownership	Acquisition cost	Book value
Korea Ras Laffan LNG Ltd.[2]	Resource development	Bermuda	Qatar	December 31	60.00%	₩ 19,532	₩ 258,712
Korea LNG Ltd.	Resource development	Bermuda	Oman	December 31	24.00%	3,298	29,129
Hyundai Yemen LNG Company	Resource development	Bermuda	Yemen	December 31	49.00%	482	22,341
Korea LNG Trading Co., Ltd.	Shipping industry	Korea	Korea	December 31	28.00%	601	1,953
Kor-Uz Gas Chemical Investment Ltd.	Resource development	Malaysia	Uzbekistan	December 31	45.00%	347,451	569,619
South-East Asia Gas Pipeline Company Limited [3]	Pipe construction	Hong Kong	Myanmar	September 31	4.17%	23,205	33,042
Sulawesi LNG Development Limited [5]	LNG terminal construction & management	United Kingdom	Indonesia	December 31	25.00%	207,107	248,687
TOMORI E&P Limited [4]	Resource development	United Kingdom	Indonesia	December 31	49.00%	126,847	173,568
Coral South FLNG S.A.[3]	Resource development	Mozambique	Mozambique	December 31	10.00%	182	51,513
Coral South FLNG DMCC[1,3]	Resource development	UAE	UAE	December 31	10.00%	15	15
Hydrogen EnergyNetwork Co, Ltd.	Hydrogen infrastructure construction and operation	Korea	Korea	December 31	28.49%	15,300	14,153
Rovuma LNG S.A.[1,3,]	Resource development	Mozambique	Mozambique	December 31	10.00%	185	174
Rovuma LNG Investments (DIFC) Ltd. [3,6]	Resource development	Mozambique	Mozambique	December 31	10.00%	6	5
Kor-Uz Gas cylinder Investment Ltd.	Cylinder business investment	Korea	Uzbekistan	December 31	40.38%	5,790	1,221
Kor-Uz Gas C&G Investment Ltd.	Charge business investment	Korea	Uzbekistan	December 31	38.85%	2,542	769
TERMINAL KMS de GNL, S. De R.L. De C.V.	LNG terminal construction & management	Mexico	Mexico	December 31	25.00%	34,945	102,182
GLNG Operations Pty. Ltd.[1,7]	LNG Plant management	Australia	Australia	December 31	15.00%	17	13
GLNG Property Pty Ltd. [1,7]	Property lease	Australia	Australia	December 31	15.00%	26	-
ENH - KOGAS, SA.[2]	Pipe construction	Mozambique	Mozambique	June 30	70.00%	78	11,375
LNG Canada Development Inc.[1,7]	LNG Plant construction	Canada	Canada	December 31	5.00%	-	-
Manzanillo Gas Tech, S. de R.L. de C.V. [2]	LNG terminal maintenance & management	Mexico	Mexico	December 31	51.00%	60	1,205
KLBV1 S.A[1,6]	LNG bunkering ship operation	Panama	Netherlands	December 31	40.00%	3,056	3,057
						₩ 790,725	₩1,522,733

[1] The group is not accounted for using the equity method as the difference between the book value and identifiable net asset is not significant.
[2] The group is excluded from the consolidated subsidiaries since the Group is unable to exercise control in several cases such as unanimous approval required when making significant decisions.
[3] Although the percentage of ownership of the above associate is less than 20%, the Group has significant influence considering the Group's right to participate in the investee's board of directors and shareholder constitution.
[4] Capital reductions have occurred in relation to the equity interest of TOMORI E&P in 2020 and 2019, and the Group recognized loss on disposal amounting to ₩2,119 million and gain on disposal amounting to ₩891 million for the years ended December 31, 2020 and 2019, respectively.
[5] Capital increase for Sulawesi LNG Development Limited occurred in 2020 and 2019.

18. Investments in associates and joint ventures (cont'd)

[6] Newly established in 2020.
[7] Although the equity interests of the above entities are less than 20%, they are classified as joint-ventures as unanimous approval is required when making decisions in significant operating and financing activities.

					2019		
	Business	**Country of in Group**	**Country of domicile**	**Fiscal year end**	**Percentage of ownership**	**Acquisition cost**	**Book value**
Korea Ras Laffan LNG Ltd.	Resource development	Bermuda	Qatar	December 31	60.00%	₩ 19,532	₩ 359,241
Korea LNG Ltd.	Resource development	Bermuda	Oman	December 31	24.00%	3,298	53,960
Hyundai Yemen LNG Company	Resource development	Bermuda	Yemen	December 31	49.00%	482	47,152
Korea LNG Trading Co., Ltd.	Shipping industry	Korea	Korea	December 31	28.00%	601	1,818
Kor-Uz Gas Chemical Investment Ltd.	Resource development	Malaysia	Uzbekistan	December 31	45.00%	347,451	564,403
South-East Asia Gas Pipeline Company Limited	Pipe construction	Hong Kong	Myanmar	September 31	4.17%	25,160	37,872
Sulawesi LNG Development Limited	LNG terminal construction & management	United Kingdom	Indonesia	December 31	25.00%	207,045	254,168
TOMORI E&P Limited	Resource development	United Kingdom	Indonesia	December 31	49.00%	172,353	224,690
Coral FLNG S.A	Resource development	Mozambique	Mozambique	December 31	10.00%	182	50,524
Coral South FLNG DMCC	Resource development	UAE	UAE	December 31	10.00%	15	16
Hydrogen Energy Network Co., Ltd.	Hydrogen infrastructure construction and operation	Korea	Korea	December 31	28.38%	6,300	5,890
Rovuma LNG S.A.	Resource development	Mozambique	Mozambique	December 31	10.00%	185	185
Kor-Uz Gas cylinder Investment Ltd.	Cylinder business investment	Korea	Uzbekistan	December 31	40.38%	5,790	1,568
Kor-Uz Gas C&G Investment Ltd.	Charge business investment	Korea	Uzbekistan	December 31	38.85%	2,542	802
TERMINAL KMS de GNL, S. De R.L. De C.V.	LNG terminal construction & management	Mexico	Mexico	December 31	25.00%	34,945	105,032
GLNG Operations Pty. Ltd.	LNG Plant management	Australia	Australia	December 31	15.00%	17	14
GLNG Property Pty. Ltd.	Property lease	Australia	Australia	December 31	15.00%	26	-
ENH - KOGAS, SA.	Pipe construction	Mozambique	Mozambique	June 30	70.00%	78	8,738
LNG Canada Development Inc.	LNG Plant construction	Canada	Canada	December 31	5.00%	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	LNG terminal maintenance & management	Mexico	Mexico	December 31	51.00%	60	1,091
						₩ 826,062	₩1,717,164

18. Investments in associates and joint ventures (cont'd)

(2) Valuations of investments in associates and joint ventures for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020							
	Beginning balance	Acquisition	Disposal	Dividends received	Gain (loss) on equity method	Equity adjustments of investments in associates and joint ventures	Others	Ending balance
Korea Ras Laffan LNG Ltd.	₩ 359,241	₩ -	₩ -	₩ (38,817)	₩ (47,182)	₩ (14,530)	₩ -	₩ 258,712
Korea LNG Ltd.	53,960	-	-	(9,306)	9,191	(24,716)	-	29,129
Hyundai Yemen LNG Company[1]	47,152	-	-	-	(258)	(24,553)	-	22,341
Korea LNG Trading Co., Ltd.	1,818	-	-	-	263	(128)	-	1,953
Kor-Uz Gas Chemical Investment Ltd.	564,403	-	-	-	42,606	(37,390)	-	569,619
South-East Asia Gas Pipeline Company Limited.	37,872	-	(1,955)	(7,944)	7,237	-	(2,168)	33,042
Sulawesi LNG Development Limited.	254,168	62	-	-	12,872	(18,415)	-	248,687
TOMORI E&P Limited.	224,690	-	(45,506)	-	5,174	(10,790)	-	173,568
Coral South FLNG S.A.	50,524	-	-	-	(8,247)	-	9,236	51,513
Coral South FLNG DMCC.	16	-	-	-	-	-	(1)	15
Hydrogen EnergyNetwork Co, Ltd.	5,890	9,000	-	-	(606)	(131)	-	14,153
Rovuma LNG S.A.[1]	185	-	-	-	-	-	(11)	174
Rovuma LNG Investments (DIFC Ltd.	-	6	-	-	-	-	(1)	5
Kor-Uz Gas cylinder Investment Ltd.	1,568	-	-	-	(156)	(191)	-	1,221
Kor-Uz Gas C&G Investment Ltd.	802	-	-	-	4	(37)	-	769
TERMINAL KMS de GNL, S. De R.L. De C.V.	105,032	-	-	(4,425)	9,273	(1,072)	(6,626)	102,182
GLNG Operations Pty. Ltd.	14	-	-	-	-	-	(1)	13
GLNG Property Pty Ltd. [2]	-	-	-	-	-	-	-	-
ENH - KOGAS, SA.	8,738	-	-	-	5,856	-	(3,219)	11,375
LNG Canada Development Inc.	-	-	-	-	-	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	1,090	-	-	-	196	-	(81)	1,205
KLBV1 S.A	-	3,056	-	-	-	-	-	3,057
	₩ 1,717,163	₩ 12,124	₩ (47,461)	₩ (60,492)	₩ 36,223	₩ (131,953)	₩ (2,872)	₩ 1,522,733

[1] Although the percentage of ownership of the Group in the above equity securities is 49%, the equity method is applied considering the contractual terms regarding uneven dividends.

[2] The Group discontinued recognizing changes in investments in the associate as the book value of the equity securities fell below zero.

18. Investments in associates and joint ventures (cont'd)

	2019							
	Beginning balance	Acquisition	Disposal	Dividends received	Gain (loss) on equity method	Equity adjustments of investments in associates and joint ventures	Others	Ending balance
Korea Ras Laffan LNG Ltd.	₩ 460,805	₩ -	₩ -	₩ (61,144)	₩ (57,240)	₩ 16,820	₩ -	₩ 359,241
Korea LNG Ltd.	53,918	-	-	(16,105)	16,221	(74)	-	53,960
Hyundai Yemen LNG Company[1]	21,330	-	-	-	(280)	26,102	-	47,152
Korea LNG Trading Co., Ltd.	1,709	-	-	-	59	50	-	1,818
Kor-Uz Gas Chemical Investment Ltd.	444,560	-	-	-	103,763	16,080	-	564,403
South-East Asia Gas Pipeline Company Limited	30,498	-	-	(3,885)	10,231	-	1,028	37,872
Sulawesi LNG Development Limited	236,145	54	-	-	11,979	5,990	-	254,168
TOMORI E&P Limited	234,730	-	(35,267)	-	17,108	8,119	-	224,690
Coral South FLNG S.A	29,183	-	-	-	(5,749)	-	27,090	50,524
Coral South FLNG DMCC	15	-	-	-	-	-	1	16
Hydrogen EnergyNetwork Co, Ltd.	-	6,300	-	-	(323)	(87)	-	5,890
Rovuma LNG S.A.	-	187	-	-	-	-	(2)	185
Kor-Uz Cylinder Investment Ltd.	1,017	-	-	-	117	434	-	1,568
Kor-Uz CNG Investment Ltd.	646	-	-	-	12	144	-	802
TERMINAL KMS de GNL, S. De R.L. De C.V.	99,353	-	-	-	2,224	-	3,455	105,032
GLNG Operations Pty. Ltd.	13	-	-	-	-	-	1	14
GLNG Property Pty. Ltd.[2]	-	-	-	-	-	-	-	-
ENH-KOGAS, SA.	4,009	-	-	-	4,618	-	111	8,738
LNG Canada Development Inc.	-	-	-	-	-	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	57	-	-	-	1,038	-	(5)	1,091
	₩ 1,617,988	₩ 6,541	₩ (35,267)	₩ (81,134)	₩ 103,778	₩ 73,578	₩ 31,679	₩ 1,717,164

[1] Although the percentage of ownership of the Group in the above equity securities is 49%, the equity method is applied considering the contractual terms regarding uneven dividends.
[2] The Group discontinued recognizing changes in investments in the associate as the book value of the equity securities fell below zero.

18. Investments in associates and joint ventures (cont'd)

(3) Summarized financial information of associates and joint ventures as of December 31, 2020 and 2019, and for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020			
		Assets	Liabilities	Sales	Profit (loss) for the year
Korea Ras Laffan LNG Ltd.	₩	431,406	219	65,671	(78,636)
Korea LNG Ltd.		121,660	290	40,073	38,296
Hyundai Yemen LNG Company		146,718	89,018	-	(584)
Korea LNG Trading Co., Ltd.		522,709	515,734	107,602	939
Kor-Uz Gas Chemical Investment Ltd.		1,269,851	4,030	-	102,502
South-East Asia Gas Pipeline Company Limited		1,701,285	760,802	458,648	161,519
Sulawesi LNG Development Ltd.		994,844	94	-	51,481
TOMORI E&P Limited		414,574	70,615	89,854	10,559
Coral South FLNG S.A.		6,552,972	6,338,701	-	(9,691)
Coral South FLNG DMCC		3,742,173	3,742,025	-	-
Hydrogen EnergyNetwork Co, Ltd.		62,097	12,424	1,348	(2,124)
Rovuma LNG S.A.		1,741	-	-	-
Rovuma LNG Investments (DIFC) Ltd.		54	-	-	-
Kor-Uz Gas cylinder Investment Ltd.		3,037	12	-	(49)
Kor-Uz Gas C&G Investment Ltd.		1,979	-	-	(4)
TERMINAL KMS de GNL, S. De R.L. De C.V.		951,316	542,588	113,241	37,094
GLNG Operations Pty. Ltd.		6	-	-	-
GLNG Property Pty Ltd.		-	-	-	-
ENH - KOGAS, SA.		28,870	12,620	36,578	8,366
LNG Canada Development Inc.		1	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.		3,163	800	11,408	384
KLBV1 S.A		6,831	-	-	(25)

18. Investments in associates and joint ventures (cont'd)

	2019			
	Assets	**Liabilities**	**Sales**	**Profit (loss) for the year**
Korea Ras Laffan LNG Ltd.	₩ 599,162	₩ 426	₩ 104,536	₩ (97,270)
Korea LNG Ltd.	225,165	333	69,596	67,588
Korea LNG Trading Co., Ltd.	208,343	86,689	-	(572)
Kor-Uz Gas Chemical Investment Ltd.	623,060	616,567	134,424	210
South-East Asia Gas Pipeline Company Limited	1,254,233	4	-	193,162
Sulawesi LNG Development Limited	2,018,964	953,215	555,163	254,062
TOMORI E&P Limited	1,016,766	95	-	47,460
Coral FLNG S.A	531,821	83,531	137,130	35,456
Coral South FLNG DMCC	5,669,644	5,686,846	-	(5,932)
Hydrogen Energy Network Co., Ltd.	3,296,780	3,296,622	-	-
Rovuma LNG S.A.	24,603	3,847	188	(1,140)
Kor-Uz Gas cylinder Investment Ltd.	1,852	-	-	-
Kor-Uz Gas C&G Investment Ltd.	3,893	10	-	(44)
Terminal KMS de GNL, S. De R.L. De C.V.	2,065	-	-	14
GLNG Operations Pty Ltd.	1,044,268	624,138	117,512	8,896
GLNG Property Pty Ltd.	97	6	-	-
ENH-KOGAS, SA.	-	-	-	-
LNG Canada Development Inc.	30,825	18,341	30,838	6,386
Manzanillo Gas Tech, S. de R.L. de C.V.	1	-	-	-
Hyundai Yemen LNG Company	2,890	752	10,908	224

19. Property, plant and equipment

(1) Details of property, plant and equipment as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020				
	Acquisition cost	Governments grants	Accumulated depreciation	Accumulated impairment loss	Book value
Land	₩ 3,051,451	₩ -	₩ -	₩ -	₩ 3,051,451
Buildings	1,251,050	(1,811)	(476,727)	(2,612)	769,900
Structures	6,678,709	(1,543)	(2,450,831)	(44,487)	4,181,848
Machinery	17,379,675	(111,229)	(6,253,579)	(1,419,425)	9,595,442
Computerized facility	64,412	(38)	(44,377)	(1,956)	18,041
Vehicles	41,748	(635)	(30,297)	(292)	10,524
Office equipment	56,418	(35)	(44,424)	(497)	11,462
Tools and instruments	66,073	(346)	(55,396)	-	10,331
Timber	55,848	-	(731)	-	55,117
Construction-in-progress	995,397	(4,233)	-	(295,933)	695,231
Right-of-use assets	7,129,680	-	(4,556,212)	-	2,573,468
Others	6,783,092	-	(3,294,781)	(1,326,982)	2,161,329
	₩ 43,553,553	₩ (119,870)	₩ (17,207,355)	₩ (3,092,184)	₩ 23,134,144

	2019				
	Acquisition cost	Governments grants	Accumulated depreciation	Accumulated impairment loss	Book value
Land	₩ 3,022,231	₩ -	₩ -	₩ -	₩ 3,022,231
Buildings	1,208,962	(1,900)	(436,433)	(2,534)	768,095
Structures	6,419,053	(1,648)	(2,215,528)	(42,127)	4,159,750
Machinery	17,148,897	(116,681)	(5,663,559)	(1,315,441)	10,053,216
Computerized facility	56,898	(65)	(40,150)	(1,933)	14,750
Vehicles	40,076	(64)	(30,039)	(359)	9,614
Office equipment	53,819	(25)	(42,179)	(531)	11,084
Tools and instruments	62,045	(490)	(51,858)	-	9,697
Timber	52,886	-	(731)	-	52,155
Construction-in-progress	1,309,761	(2,041)	-	(314,917)	992,803
Right-of-use assets	7,063,312	-	(4,279,866)	-	2,783,446
Others	6,894,620	-	(3,160,251)	(1,233,782)	2,500,587
	₩ 43,332,560	₩ (122,914)	₩ (15,920,594)	₩ (2,911,624)	₩ 24,377,428

19. Property, plant and equipment (cont'd)

(2) Changes in property, plant and equipment for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020							
	Beginning balance	Acquisition	Disposal	Depreciation	Impairment[1]	Others	Changes in the scope of consolidation	Ending balance
Land	₩ 3,022,231	₩ 3,144	₩ (683)	₩ -	₩ -	₩ 26,759	₩ -	₩ 3,051,451
Buildings	769,995	6,683	(1,052)	(40,750)	(253)	37,088	-	771,711
(Government grant)	(1,900)	-	-	89	-	-	-	(1,811)
Structures	4,161,398	1,314	(78)	(235,714)	(5,405)	261,876	-	4,183,391
(Government grant)	(1,648)	-	-	105	-	-	-	(1,543)
Machinery	10,169,897	10,736	(10,656)	(654,245)	(202,274)	393,213	-	9,706,671
(Government grant)	(116,681)	-	-	5,452	-	-	-	(111,229)
Computerized facility	14,815	3,184	(4)	(5,370)	(155)	5,609	-	18,079
(Government grant)	(65)	(1)	-	28	-	-	-	(38)
Vehicles	9,678	4,687	(20)	(3,506)	-	320	-	11,159
(Government grant)	(64)	(350)	-	80	-	(301)	-	(635)
Office equipment	11,109	4,318	(17)	(4,029)	-	116	-	11,497
(Government grant)	(25)	(18)	-	8	-	-	-	(35)
Tools and instruments	10,187	3,396	(26)	(4,683)	-	1,803	-	10,677
(Government grant)	(490)	-	-	144	-	-	-	(346)
Timber	52,155	-	(66)	-	-	3,028	-	55,117
Construction in progress	994,844	577,345	-	-	-	(872,725)	-	699,464
(Government grant)	(2,041)	(2,510)	-	-	-	318	-	(4,233)
Right-of-use assets	2,783,446	89,667	(4,060)	(285,607)	-	(9,978)	-	2,573,468
Others	2,500,587	305,914	(92)	(344,426)	(178,003)	(122,651)	-	2,161,329
	₩ 24,377,428	₩ 1,007,509	₩ (16,754)	₩ (1,572,424)	₩ (386,090)	₩ (275,525)	₩ -	₩ 23,134,144

[1] Impairment loss amounting to ₩386,090 million is recognized in relation to buildings, structures, and other property, plant or equipment of KOGAS Prelude Pty. Ltd. and KOGAS Canada Ltd. and is included in other gains (losses) in the consolidated statement of comprehensive income. (Note 21, 38)

	2019								
	Beginning balance	Changes in accounting policies	Acquisition/ capital expenditure	Disposal	Depreciation	Impairment[1]	Others	Changes in the scope of consolidation	Ending balance
Land	₩ 2,997,901	₩ -	₩ 6,696	₩ (1,383)	₩ -	₩ -	₩ 19,017	₩ -	₩ 3,022,231
Buildings	741,844	-	8,858	(1,098)	(38,879)	(1,320)	60,590	-	769,995
(Government grant)	(1,990)	-	-	-	90	-	-	-	(1,900)
Structures	4,135,066	-	2,620	(450)	(228,092)	(27,579)	279,833	-	4,161,398
(Government grant)	(1,752)	-	-	-	104	-	-	-	(1,648)
Machinery	9,295,021	-	12,737	(7,753)	(624,798)	(259,567)	1,754,257	-	10,169,897
(Government grant)	(122,155)	-	-	-	5,474	-	-	-	(116,681)
Computerized facility	9,085	-	6,576	(2)	(5,302)	(892)	5,350	-	14,815
(Government grant)	(98)	-	(11)	-	44	-	-	-	(65)
Vehicles	7,015	-	5,325	(1)	(3,040)	-	379	-	9,678
(Government grant)	(1)	-	(67)	-	4	-	-	-	(64)
Office equipment	10,363	-	4,643	(7)	(4,546)	(23)	679	-	11,109
(Government grant)	(13)	-	(19)	-	7	-	-	-	(25)
Tools and instruments	9,657	-	4,317	(1)	(4,217)	-	431	-	10,187
(Government grant)	(323)	-	(307)	-	140	-	-	-	(490)
Timber	52,618	-	-	(553)	-	-	90	-	52,155
Construction in progress	2,398,794	-	887,664	-	-	-	(2,291,614)	-	994,844
(Government grant)	-	-	(2,055)	-	-	-	14	-	(2,041)
Financial lease assets	2,832,532	-	-	-	-	-	(2,832,532)	-	-
Right-of-use assets	-	151,819	72,371	(13)	(285,626)	-	2,844,895	-	2,783,446
Others	2,400,522	-	351,416	(8,588)	(459,857)	(170,570)	387,664	-	2,500,587
	₩ 24,764,086	₩ 151,819	₩ 1,360,764	₩ (19,849)	₩ 1,648,494)	₩(459,951)	229,053	₩ -	₩24,377,428

[1] Impairment loss amounting to ₩459,951 million is recognized in relation to buildings, structures, and other property, plant or equipment of KOGAS Prelude Pty. Ltd. and KOGAS Canada Ltd. and is included in other gains (losses) in the consolidated statement of comprehensive income.

20. Construction and service contracts

(1) Changes in the outstanding construction and service contracts for the years ended Deceember 31, 2020 and 2019, are as follows (Korean won in millions):

	2020							
	Beginning balance		Increase[1] (decrease)		Revenue recognized[2]		Ending balance	
Domestic construction contracts	₩	60,152	₩	108,968	₩	55,689	₩	113,431
Domestic service contracts		148		513		328		333
Overseas construction contracts		4,532		206		1,183		3,555
Overseas service contracts		132		5,371		2,253		3,250
	₩	64,964	₩	115,058	₩	59,453	₩	120,569

[1] For the year ended December 31, 2020, the increase in construction and service contracts amounted to ₩119,456 million, respectively, due to the new contracts and the decrease in construction and service contracts amounted to ₩4,398 million, respectively, due to the change in size of existing construction contracts.
[2] The current revenue recognition includes KRW 2,581 million of revenue from service

	2019							
	Beginning balance		Increase[1] (decrease)		Revenue recognized		Ending balance	
Domestic construction contracts	₩	17,971	₩	63,348	₩	21,167	₩	60,152
Domestic service contracts		102		311		265		148
Overseas construction contracts		7,557		1,378		4,403		4,532
Overseas service contracts		3,066		2,960		5,894		132
	₩	28,696	₩	67,997	₩	31,729	₩	64,964

[1] For the year ended December 31, 2019, the increase in construction and service contracts amounted to ₩68,170 million, due to the new contracts and the decrease in construction and service contracts amounted to ₩173million, due to the change in size of existing construction contracts.

(2) Accumulated revenues and costs of construction in progress as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020													
							Contract assets		Contract liabilities					
	Accumulated revenue		Accumulated loss		Accumulated profit or loss		Unbilled amount		Overbilled amount		Advances		Reserves	
Domestic construction contracts	₩	61,362	₩	60,877	₩	485	₩	4,774	₩	3,100	₩	53,876	₩	-
Domestic service contracts		9		8		1		9		-		-		-
Overseas construction contracts		29,293		16,759		12,534		438		68		-		-
Overseas service contracts		2,027		1,982		45		360		124		47		-
Total	₩	92,691	₩	79,626	₩	13,065	₩	5,581	₩	3,292	₩	53,923	₩	-

20. Construction and service contracts (cont'd)

(2) Accumulated revenues and costs of construction in progress as of December 31, 2020 and 2019, are as follows (Korean won in millions): (cont'd)

	2019						
				Contract assets	Contract liabilities		
	Accumulated revenue	Accumulated loss	Accumulated profit or loss	Unbilled amount	Overbilled amount	Advances	Reserves
Domestic construction contracts	₩ 33,066	₩ 29,361	₩ 3,705	₩ 4,597	₩ 3,251	₩ 28,176	₩ -
Domestic service contracts	6	5	1	6	-	109	-
Overseas construction contracts	28,191	16,093	12,098	826	37	-	-
Overseas service contracts	345	309	36	31	13	-	-
Total	₩ 61,608	₩ 45,768	₩ 15,840	₩ 5,460	₩ 3,301	₩ 28,285	₩ -

(3) Contract assets and liabilities, unbilled amount and overbilled amount arising from construction and service contracts as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020		2019	
	Contract assets[1]	Contract liabilities	Contract assets[1]	Contract liabilities
Domestic construction contracts	₩ 4,774	₩ 56,976	₩ 4,597	₩ 31,427
Domestic service contracts	9	-	6	109
Overseas construction contracts	438	68	826	37
Overseas service contracts	360	171	31	13
Total	₩ 5,581	₩ 57,215	₩ 5,460	₩ 31,586

[1] Contract assets irrelevant to construction contracts are excluded.

(4) As of December 31, 2020, the major effects of changes in the estimated total contract costs, estimated total contract revenues and provision for construction losses related to the ongoing constructions of the Group are as follows (Korean won in millions):

	Changes in total contract revenues	Changes in estimated total contract costs	Effect on profit or loss in the current period	Effect on profit or loss in subsequent periods	Provision for construction losses
Domestic construction contracts	₩ 37,346	₩ 46,592	₩ (5,855)	₩ (3,391)	₩ 4,120
Domestic service contracts	(11)	-	(11)	-	-
Overseas service contracts	(1,395)	-	(1,312)	(83)	-
Overseas construction contracts	91	-	91	-	-
Total	₩ 36,031	₩ 46,592	₩ (7,087)	₩ (3,474)	₩ 4,120

(5) During the years ended December 31, 2020, the Group does not have a contract of which the total contract revenue exceeds 5% of the Group's prior year revenue under the percentage-of-completion method.

(6) Revenue recognized for contract liabilities as of December 31, 2020 and 2019 are as follows. (Korean won in millions):

	2020	2019
Contract liabilities recognized as revenue	₩ 1,941	₩ 8,286

21. Intangible assets other than goodwill

(1) Details of intangible assets other than goodwill as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020				
	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment loss	Book value
Intangible exploration and evaluation assets	₩ 636,081	₩ -	₩ -	₩ (223,395)	₩ 412,686
Computer software	112,022	(116)	(92,641)	(3,388)	15,877
Patent	7,418	(40)	(2,781)	-	4,597
Development costs	35,485	-	(35,456)	-	29
Intangible assets under development	3,244	-	-	-	3,244
Right to contributed assets	417,058	-	(130,358)	-	286,700
Land use rights	4,436	-	(2,597)	-	1,839
Mineral rights	1,579,887	-	(244,153)	(511,165)	824,569
Others	383,467	-	(209,985)	(128,311)	45,171
Total	₩ 3,179,098	₩ (156)	₩ (717,971)	₩ (866,259)	₩ 1,594,712

	2019				
	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment loss	Book value
Intangible exploration and evaluation assets	₩ 620,463	₩ -	₩ -	₩ (216,756)	₩ 403,707
Computer software	105,574	(194)	(86,715)	(3,606)	15,059
Patent	7,239	(52)	(2,301)	-	4,886
Development costs	35,485	-	(35,448)	-	37
Right to contributed assets	417,058	-	(122,188)	-	294,870
Land use rights	4,404	-	(2,479)	-	1,925
Mineral rights	1,654,682	-	(211,702)	(473,234)	969,746
Others	407,858	-	(215,857)	(135,603)	56,398
Total	₩ 3,252,763	₩ (246)	₩ (676,690)	₩ (829,199)	₩ 1,746,628

21. Intangible assets other than goodwill (cont'd)

(2) Changes in intangible assets other than goodwill for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020						
	Beginning balance	Acquisition/ capital expenditure	Disposal	Amortization	Impairment[1]	Others	Ending balance
Intangible exploration and evaluation assets	₩ 403,707	₩ 69,095	₩ -	₩ -	₩ (1,303)	₩ (58,813)	₩ 412,686
Computer software	15,253	4,012	-	(6,258)	-	2,986	15,993
(Government grant)	(194)	-	-	78	-	-	(116)
Patent	4,938	14	-	(481)	-	166	4,637
(Government grant)	(52)	(1)	-	13	-	-	(40)
Development costs	37	-	-	(8)	-	-	29
Intangible assets under development	-	3,204	-	-	-	40	3,244
Right to contributed assets	294,870	-	-	(4,047)	-	(4,123)	286,700
Land use rights	1,925	-	(6)	(131)	-	51	1,839
Mineral rights	969,746	6,246	-	(46,389)	(73,345)	(31,689)	824,569
Others	56,398	-	-	(7,742)	(975)	(2,510)	45,171
	₩ 1,746,628	₩ 82,570	₩ (6)	₩ (64,965)	₩ (75,623)	₩ (93,892)	₩ 1,594,712

[1]The impairment loss of ₩ 75,623 million for the year ended December 31, 2020 was recognized in relation to intangible exploration and evaluation assets of KOGAS Australia Pty. Ltd. and KOGAS Prelude Pty. Ltd. and the impairment loss was included in other gains (losses) in consolidated statement of comprehensive income.

	2019						
	Beginning balance	Acquisition/ capital expenditure	Disposal	Amortization	Impairment[1]	Others	Ending balance
Intangible exploration and evaluation assets	₩ 327,526	₩ 61,486	₩ (174)	₩ -	₩ (938)	₩ 15,807	₩ 403,707
Computer software	14,643	5,218	-	(7,105)	-	2,497	15,253
(Government grant)	(181)	(181)	-	168	-	-	(194)
Patent	5,235	30	-	(466)	-	139	4,938
(Government grant)	(65)	-	-	13	-	-	(52)
Development costs	44	-	-	(7)	-	-	37
Right to contributed assets	308,818	-	-	(6,532)	-	(7,416)	294,870
Land use rights	1,960	-	-	(137)	-	102	1,925
Mineral rights	1,045,602	2,987	-	(59,541)	(72,768)	53,466	969,746
Others	68,289	-	-	(14,291)	-	2,400	56,398
	₩ 1,771,871	₩ 69,540	₩ (174)	₩ (87,898)	₩ (73,706)	₩ 66,995	₩ 1,746,628

[1]The impairment loss of ₩ 73,706 million for the year ended December 31, 2019 was recognized in relation to intangible exploration and evaluation assets of KOGAS Prelude Pty. Ltd. and the impairment loss was included in other gains (losses) in consolidated statement of comprehensive income.

21. Intangible assets other than goodwill (cont'd)

(3) The main items related to recognition of impairment loss of property, plant and equipment and intangible assets recognized in the current and prior periods are as follows(Korean won in millions):

	2020				
Country	Canada	Australia	Australia	Mozambique	Iraq
Operating segment	Other segment[1]				
Nature of assets	Property, plant and equipment, and intangible assets including assets for resource development				
Assets to be recognized for impairment	Cash-generating units and individual assets				
Calculation of recoverable amount	Present value of expected cash flows				
Assumptions used					
Post-tax discount rate[2]	8.17%	6.28%	6.28%	10.2%	11.62%
Applied unit price[3,4]	International Index	International Index	International Index	International Index	International Index
Production	Estimated output based on reserve report	Estimated output based on reserve report	Estimated output based on reserve report	Estimated output based on reserve report	Estimated output based on reserve report
Recoverable amount	40,161	2,304,984	1,683,919	905,034	343,169
Impairment loss	41,348	338,717	81,648	-[5]	-[5]
Reason for impairment	Future economic decline caused by changes in development plan	Changes in business environment, long-term decrease in oil price and others	Changes in business environment, long-term decrease in oil price and others	-	-

[1] Cash generating unit of other segment is each mining area and project.

[2] Weighted average cost of capital considering risk of cash-generating units

[3] Applied trends in oil and gas price are based on long-term forecast of major foreign research institutes.

[4] After the forecast period, a 2% increase rate was applied.

[5] The impairment test was conducted due to the presence of impairment signs due to the decline in long-term oil price outlook and changes in the business environment, but there is no amount subject to impairment loss recognition.

21. Intangible assets other than goodwill (cont'd)

	2019	
Country	Australia	Canada
Operating segment	Other segment[1]	
Nature of assets	Property, plant and equipment, and intangible assets including assets for resource development	
Assets to be recognized for impairment	Cash-generating units and individual assets	
Calculation of recoverable amount	Present value of expected cash flows	
Assumptions used		
Post-tax discount rate[2]	6.60%	9.44%
Applied unit price[3]	International Index	International Index
Production	Estimated output based on reserve report	Estimated output based on reserve report
Recoverable amount	₩ 1,755,225	₩ 86,263
Impairment loss	₩ 417,966	₩ 115,691
Reason for impairment	Changes in business environment, long-term decrease in oil price and others	Changes in business environment, long-term decrease in oil price and others

[1] Cash generating unit of other segment is each mining area and project.
[2] Weighted average cost of capital considering risk of cash-generating units
[3] Applied trends in oil and gas price are based on long-term forecast of major foreign research institutes.

21. Intangible assets other than goodwill (cont'd)

(4) Details of individually significant intangible assets as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020			
	Details		**Amount**	**Remaining amortization period**
Intangible exploration assets	Acquisition in exploration phase	₩	412,686	Phase in exploration
Right to contributed assets	Harbor facility usage right and others		286,700	35.22 years
Mineral rights	Mining Rights		120,941	Phase in development
	Mining Rights		272,466	23.00 years
	Mining Rights		35,800	18.02 years
	Mining Rights		395,362	26.00 years

	2019			
	Details		**Amount**	**Remaining amortization period**
Intangible exploration assets	Acquisition in exploration phase	₩	403,707	Phase in exploration
Right to contributed assets	Harbor facility usage right and others		294,870	26.93 years
Mineral rights	Mining Rights		125,281	Phase in development
	Mining Rights		305,415	24 years
	Mining Rights		36,023	19.02 years
	Mining Rights		503,028	27 years

(5) Assets, liabilities, income, expenses, and cash inflows from operating activities and investment activities that arose from exploration and evaluation of mineral resources, are as follows (Korean won in millions):

		2020		2019
Assets	₩	420,618	₩	412,847
Liabilities		610,142		631,623
Income		-		-
Expenses		25,089		15,900
Cash inflows from operating activities		(21)		(198)
Cash inflows from investment activities		(69,095)		(61,486)

21. Intangible assets other than goodwill (cont'd)

(6) The Group's property, plant and equipment and intangible assets include its share of joint assets arising from participation of joint operations. The details of significant joint operations as of December 31, 2020 are as follows:

	2020		
	Main business	**Interest of investments**	**Location**
Mozambique Area 4 mining area	Area 4 mining exploration, development and production	10.0%	Mozambique
Zubair Oil Field	Oil field development and production	23.8%	Iraq
Badra Contract Area	Oil field development and production	22.5%	Iraq
Mansuriya Contract Area	Gas field development and production	15.0%	Iraq
Akkas Contract Area	Gas field development and production	75.0%	Iraq
GLNG Project	Gas field development and production, sales	15.0%	Australia
Prelude mine in Australia	Development of mining area, gas production and sales	10.0%	Australia
Myanmar A-1 and A-3 mining area	Development of mining area, gas production and pipeline operation	8.5%	Myanmar
LNG Canada	LNG development	5.0%	Canada
Canadian Horn River /	Mining Development and Gas Production	50.0%	Canada
Canadian West Cut Bank, Umiak	Mining Development and Gas Production	20.0%	Canada
Cyprus maritime fields	Resource Development	20.0%	Cyprus

22. Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020		2019	
	Current	**Non-current**	**Current**	**Non-current**
Derivatives not designated as hedging instruments	₩ 105,108	₩ 12,736	₩ 40,292	₩ 40,535
Derivatives designated as hedging instruments	-	29,059	34,588	32,817
Total	₩ 105,108	₩ 41,795	₩ 74,890	₩ 73,252

23. Trade and other payables

Trade and other payables as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020		2019	
	Current	Non-current	Current	Non-current
Trade payables	₩ 977,732	₩ -	₩ 1,483,232	₩ -
Non-trade payables	338,674	828	264,869	777
Accrued expenses	210,031	-	218,062	-
Lease liabilities	208,108	1,792,939	310,551	1,958,068
Other payables[1]	2,230	-	2,786	-
Total	₩ 1,736,775	₩ 1,793,767	₩ 2,279,500	₩ 1,958,845

[1] Details of other payables for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020		2019	
	Current	Non-current	Current	Non-current
Royalty	₩ 2,228	₩ -	₩ 2,786	₩ -
Deposit	2	-	-	-
Total	₩ 2,230	₩ -	₩ 2,786	₩ -

24. Borrowings and debentures

(1) Borrowings and debentures as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Current		
Short-term borrowings	₩ 3,110,297	₩ 3,800,315
Current portion of debentures	2,004,000	2,347,556
Less : discount on debentures	(355)	(650)
	5,113,942	6,147,221
Non-current		
Long-term borrowings, net of current portion	760,983	476,493
Debentures, net of current portion	16,332,199	17,819,010
Less : discount on debentures	(47,063)	(52,266)
	17,046,119	18,243,237
	₩ 22,160,061	₩ 24,390,458

(2) Repayment schedules of borrowings and debentures as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020		
	Borrowings	Debentures	Total
1 year or less	₩ 3,110,297	₩ 2,004,000	₩ 5,114,297
1 ~ 5 years	600,000	8,087,788	8,687,788
More than 5 years	160,983	8,244,411	8,405,394
	₩ 3,871,280	₩ 18,336,199	₩ 22,207,479

	2019		
	Borrowings	Debentures	Total
1 year or less	₩ 3,800,315	₩ 2,347,556	₩ 6,147,871
1 ~ 5 years	287,742	7,972,728	8,260,470
More than 5 years	188,751	9,846,282	10,035,033
	₩ 4,276,808	₩ 20,166,566	₩ 24,443,374

24. Borrowings and debentures (cont'd)

(3) Short-term borrowings as of December 31, 2020 and 2019, are as follows (Korean won in millions):

Lender	interest rate	Maturity		2020
Local currency borrowings				
(Electronic short-term debentures)				
DB Securities Co., Ltd.	0.70%~0.96%	2021.01~2021.03	₩	170,000
KTB Investment & Securities Co., Ltd.	0.69%~0.96%	2021.01~2021.03		530,000
SK Securities Co., Ltd	0.73%~0.79%	2021.01		180,000
BNK Investment Securities	0.70%~0.79%	2021.01		110,000
Woori Investment Bank Co., Ltd.	0.69%~0.96%	2021.01~2021.03		240,000
KDB	3.33% ~ 4.23%	2021.02 ~ 2021.11		2,983
				1,232,983
Foreign currency borrowings				
DBS	0.49%~0.66%	2021.02~2021.05		376,634
THe Export-Import Bank of Korea	0.69%	2021.03~2021.07		652,800
KDB	0.53%~0.57%	2021.03~2021.04		636,486
SC Bank	0.53%~0.55%	2021.04~2021.05		211,394
				1,877,314
			₩	3,110,297

Lender	interest rate	Maturity		2019
Local currency borrowings				
(Electronic short-term debentures)				
DB Securities Co., Ltd.	1.39%~1.64%	2020.01~2020.03	₩	200,000
KB Securities Co., Ltd	1.60%~1.62%	2020.02~2020.03		70,000
KTB Investment & Securities Co., Ltd.	1.45%~1.64%	2020.01~2020.03		260,000
SK Securities Co., Ltd	1.38%~1.64%	2020.01~2020.03		570,000
Meritz Securities Co.,Ltd	1.60%~1.62%	2020.01~2020.02		100,000
Bookook Securities Co.,Ltd	1.60%	2020.01		30,000
BNK Investment Securities	1.38%~1.64%	2020.01~2020.03		320,000
SinYoung Securities	1.62%	2020.01		30,000
Woori Investment Bank Co., Ltd.	1.53%~1.62%	2020.01~2020.03		410,000
Cape Investment & Securities co., Ltd.	1.56%~1.62%	2020.01~2020.03		130,000
KDB	3.21%	2020.11		3,000
				2,123,000
Foreign currency borrowings				
DBS	2.16%~2.19%	2020.02~2020.03		439,682
KDB	2.11%~2.21%	2020.02~2020.03		234,890
Nova scotia	2.19%	2020.02		48,064
THe Export-Import Bank of Korea	2.16%~2.23%	2020.03		694,680
BNP Paribas	2.16%	2020.03		106,401
BOA	2.14%	2020.03		112,963
Shinhan Bank	2.16%	2020.03		40,635
				1,677,315
			₩	3,800,315

24. Borrowings and debentures (cont'd)

(4) Long-term borrowings as of December 31, 2020 and 2019, are as follows (Korean won in millions, US dollar in thousands):

Lender	Interest rate	Maturity	2020 Foreign currency (USD)	2020 Local currency (KRW)	2019 Foreign currency (USD)	2019 Local currency (KRW)
Local currency borrowings:						
KEB Bank	CD rate +(0.13~0.30%)	2022.10~ 2025.10	USD	₩ 600,000	USD -	₩ 300,000
Foreign currency borrowings						
Korea Energy Agency [1]	-	- [2]	USD 147,963	₩ 160,983	USD 152,438	₩ 176,493
			USD 147,963	₩ 760,983	USD 152,438	₩ 476,493
Less : current portion			-	-	-	-
			USD 147,963	₩ 760,983	USD 152,438	₩ 476,493

[1] As of December 31, 2020, the Group provided 15 blank promissory notes to the Korea Energy Agency as collateral for the Group's borrowings.

[2] These are the conditional loan system which will be repaid only if the related developments are available as commercial.

24. Borrowings and debentures (cont'd)

(5) Debentures as of December 31, 2020 and 2019, are as follows (Korean won and Japanese yen in millions, US dollars, Euro, and Confoederatio Helvetica Franc in thousands):

			2020		2019	
List	Interest rate	Period	Foreign currency	Local currency (KRW)	Foreign currency	Local currency (KRW)
261st	-	2020.08	-	₩ -	-	₩ 100,000
263~264th	-	2020.03	-	-	-	190,000
271st	-	2020.07	-	-	-	130,000
273rd	-	2020.07	-	-	-	120,000
277th	-	2020.09	-	-	-	20,000
279th	-	2020.09	-	-	-	70,000
283rd	4.71%	2021.05	-	100,000	-	100,000
288th	4.93%	2021.08	-	140,000	-	140,000
291st	4.63%	2021.04	-	200,000	-	200,000
294th	4.20%	2021.08	-	120,000	-	120,000
298th	4.00%	2021.09	-	90,000	-	90,000
304th	4.26%	2022.04	-	140,000	-	140,000
305th	4.19%	2022.05	-	120,000	-	120,000
307th	4.13%	2022.05	-	140,000	-	140,000
309th	4.04%	2021.12	-	140,000	-	140,000
310~311st	4.02%~4.03%	2022.08~2022.09	-	290,000	-	290,000
313rd	3.97%	2022.04	-	100,000	-	100,000
315~316th	3.86%	2022.05~2022.06	-	230,000	-	230,000
318th	3.28%	2027.07	-	170,000	-	170,000
320th	3.12%	2025.09	-	120,000	-	120,000
322~323rd	3.10%~3.13%	2024.09~2025.04	-	170,000	-	170,000
325~340th	2.94%~3.86%	2023.04~2028.08	-	1,830,000	-	1,830,000
342nd	-	2020.10	-	-	-	130,000
343rd	-	2020.04	-	-	-	30,000
344~345th	3.66%~3.71%	2029.04	-	230,000	-	230,000
347~350th	3.73%~3.87%	2024.05~2033.11	-	430,000	-	430,000
351st	-	2020.11	-	-	-	110,000
352~363rd	3.18%~4.02%	2024.03~2034.05	-	1,410,000	-	1,410,000
365th	3.07%	2021.08	-	180,000	-	180,000
366th	2.95%	2021.09	-	140,000	-	140,000
367~375th	2.17%~2.93%	2024.10~2030.08	-	1,270,000	-	1,270,000
376th	-	2020.06	-	-	-	200,000
377~380th	1.77%~2.75%	2030.07~2036.06	-	360,000	-	360,000
382nd	-	2020.08	-	-	-	110,000
383rd	2.79%	2023.02	-	100,000	-	100,000
384th	2.44%	2021.03	-	150,000	-	150,000
385~388th	2.61%~2.90%	2023.04~2038.05	-	450,000	-	450,000
389th	2.02%	2021.09	-	100,000	-	100,000
390~400th	1.42%~2.16%	2022.07~2039.10	-	1,320,000	-	1,320,000
401st	-	2020.11	-	-	-	200,000
402nd	1.59%	2021.11	-	100,000	-	100,000
403rd	1.70%	2039.11	-	40,000	-	40,000

List	Interest rate	Period	2020 Foreign currency	2020 Local currency (KRW)	2019 Foreign currency	2019 Local currency (KRW)
404~411st	1.01%~1.74%	2022.11~2040.02	-	830,000	-	-
CHF 4th	-	2020.02	-	-	CHF 300,000	358,656
GLOBAL 3rd	-	2020.11	-	-	USD 500,000	578,900
GLOBAL 4th	6.25%	2042.01	USD 750,000	816,000	USD 750,000	868,350
MTN 13th	3.02%	2028.06	EUR 38,000	50,853	EUR 38,000	49,302
MTN 15th	3.00%	2023.07	EUR 50,000	66,912	EUR 50,000	64,872
MTN 16th	1.46%	2023.08	JPY 8,000	84,341	JPY 8,000	85,078
MTN 16th(2)	1.46%	2023.08	JPY 4,000	42,170	JPY 4,000	42,539
MTN 17th	4.00%	2024.01	USD 200,000	217,600	USD 200,000	231,560
GLOBAL 7th	3.88%	2024.02	USD 500,000	544,000	USD 500,000	578,900
GLOBAL 8th	3.50%	2026.07	USD 500,000	544,000	USD 500,000	578,900
MTN 18th	3.58%	2029.07	USD 100,000	108,800	USD 100,000	115,780
MTN 19th	3.58%	2029.07	USD 150,000	163,200	USD 150,000	173,670
MTN 20th	3.58%	2029.07	USD 100,000	108,800	USD 100,000	115,780
MTN 21st	3.50%	2029.10	USD 100,000	108,800	USD 100,000	115,780
MTN 22nd	3.13%	2025.10	USD 200,000	217,600	USD 200,000	231,560
MTN 23rd	3.30%	2025.11	USD 50,000	54,400	USD 50,000	57,890
MTN 24th	3.30%	2025.11	USD 50,000	54,400	USD 50,000	57,890
GLOBAL 9th	3.50%	2025.07	USD 500,000	544,000	USD 500,000	578,900
MTN 25th	2.83%	2026.03	USD 100,000	108,800	USD 100,000	115,780
MTN 26th	2.80%	2026.03	USD 100,000	108,800	USD 100,000	115,780
MTN 27th	2.70%	2026.05	USD 100,000	108,800	USD 100,000	115,780
GLOBAL 10-1st	1.88%	2021.07	USD 500,000	544,000	USD 500,000	578,900
GLOBAL 10-2nd	2.25%	2026.07	USD 400,000	435,200	USD 400,000	463,120
GLOBAL 11-1st	2.75%	2022.07	USD 400,000	435,200	USD 400,000	463,120
GLOBAL 11-2nd	3.13%	2027.07	USD 400,000	435,200	USD 400,000	463,120
CHF 5th	0.21%	2023.08	CHF 200,000	246,866	CHF 200,000	239,104
CHF 6th	0.00%	2023.11	CHF 300,000	370,299	CHF 300,000	358,656
GLOBAL 12th	2.88%	2029.07	USD 500,000	544,000	USD 500,000	578,900
MTN 28th	1.42%	2027.07	HKD 450,000	63,158	- -	-
Total			USD 5,700,000 CHF 500,000 JPY 12,000 EUR 88,000 HKD 450,000	₩ 18,336,199	USD 6,200,000 CHF 800,000 JPY 12,000 EUR 88,000 -	₩ 20,166,567
Less : Discount on debentures			USD (39,108) CHF (1,757) HKD (8,550)	₩ (47,418)	USD (43,979) CHF (2,422) EUR -	₩ (52,916)
Balance after deduction			USD 5,660,892 CHF 498,243 JPY 12,000 EUR 88,000 HKD 441,150	₩ 18,288,781	USD 6,156,021 CHF 797,578 JPY 12,000 EUR 88,000 -	₩ 20,113,651
Less : Current portion				₩ (2,004,000)		₩ (2,347,556)

			2020		2019	
List	Interest rate	Period	Foreign currency	Local currency (KRW)	Foreign currency	Local currency (KRW)
Less : Current portion of discount on debentures				₩ 355		₩ 650
Total				₩ 16,285,136		₩ 17,766,745

25. Leases

(1) Lease contract

During the current period, lease contracts with a lease term of 12 months or less were classified as short-term leases and recognized an expense of 1,850 million won and lease contracts with an underlying asset of KRW 5 million or less were recognized as a small lease contract with an expense of KRW 851 million.

(2) Details of lease liabilities as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020		2019	
	Minimum lease payments	Present value of minimum lease payments	Minimum lease payments	Present value of minimum lease payments
Long-term transportation contract lease				
1 year or less	₩ 190,629	₩ 188,797	₩ 297,738	₩ 292,245
1~5 years	616,545	592,294	749,672	683,106
More than 5 years	1,231,074	1,069,493	1,547,278	1,135,779
	₩ 2,038,248	₩ 1,850,584	₩ 2,594,688	₩ 2,111,130
Lease from the adoption of KIFRS 1116 (*)				
1 year or less	₩ 19,712	₩ 19,311	₩ 18,888	₩ 18,307
1~5 years	55,097	51,977	50,112	46,276
More than 5 years	₩ 101,014	₩ 79,175	₩ 116,571	₩ 92,907
	175,823	150,463	185,571	157,490
Total				
1 year or less	₩ 210,341	₩ 208,108	₩ 316,626	₩ 310,552
1~5 years	671,642	644,271	799,784	729,382
More than 5 years	1,332,088	1,148,668	1,663,849	1,228,686
	₩ 2,214,071	₩ 2,001,047	₩ 2,780,259	₩ 2,268,620

(3) Details of liquidity classification of lease liabilities are as follows (Korean won in millions):

	2020	2019
Current liabilities	208,108	310,552
Non-current liabilities	1,792,939	1,958,068
	2,001,047	2,268,620

25. Leases (cont'd)

(4) The changes in lease liabilities for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020					
	Beginning balance	Increase	Interest expenses	Decrease	Others	Ending balance
Lease liabilities	₩ 2,268,620	₩ 88,341	₩ 52,267	₩ (230,493)	₩ (177,688)	₩ 2,001,047

	2019						
	Beginning balance	Changes in accounting policies	Increase	Interest expenses	Decrease	Others	Ending balance
Lease liabilities	₩ 2,315,290	₩ 148,789	₩ 83,808	₩ 88,655	₩ (347,799)	₩ (20,123)	₩ 2,268,620

(5) The details of the composition of right-of-use assets for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020				
	Acquisition cost	Accumulated depreciation	Accumulated impairment loss	Other	Book value
Land	140,385	(18,942)	-	-	121,443
Buildings	15,628	(6,217)	-	-	9,411
Structures	2,524	(112)			2,412
Machinery	9,362	(1,636)	-	-	7,726
Vehicles	11,678	(5,465)	-	-	6,213
Office equipment	6	(2)	-	-	4
Vessel	6,948,805	(4,523,202)	-	-	2,425,603
Aircrafts	1,263	(620)	-	-	643
Software	29	(16)	-	-	13
	₩ 7,129,680	₩ (4,556,212)	₩ -	₩ -	₩ 2,573,468

	2019				
	Acquisition cost	Accumulated depreciation	Accumulated impairment loss	Other	Book value
Land	129,759	(8,155)	-	9,653	131,257
Buildings	8,453	(4,529)	-	4,569	8,493
Structures	2,593	(60)	-	93	2,626
Machinery	8,168	(1,100)	-	148	7,216
Vehicles	1,678	(2,336)	-	8,557	7,899
Office equipment	-	-	-	6	6
Vessel	2,833,700	(269,236)	-	60,431	2,624,895
Aircrafts	-	(204)	-	1,210	1,006
Software	-	(6)	-	54	48
	₩ 2,984,351	₩ (285,626)	₩ -	₩ 84,721	₩ 2,783,446

25. Leases (cont'd)

(6) Changes in right-of-use assets for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020				
	Beginning balance	Increase	Depreciation	Others	Ending balance
Right-of-use assets					
Land	₩ 131,257	₩ 18,858	₩ (15,571)	₩ (13,101)	₩ 121,443
Buildings	8,493	5,901	(4,627)	(356)	9,411
Structures	2,626	-	(61)	(153)	2,412
Machinery	7,216	1,717	(1,144)	(63)	7,726
Vehicles	7,899	2,292	(3,902)	(76)	6,213
Office equipment	6	-	(2)	-	4
Vessel	2,624,895	60,780	(259,818)	(254)	2,425,603
Aircrafts	1,006	138	(466)	(35)	643
Software	48	(19)	(16)	-	13
	₩ 2,783,446	₩ 89,667	₩ (285,607)	₩ (14,038)	₩ 2,573,468

	2019					
	Beginning balance	Changes in accounting policies	Increase	Depreciation	Others	Ending balance
Right-of-use assets [1]						
Land	₩ 2,269	₩ 127,490	₩ 9,488	₩ (8,155)	₩ 165	₩ 131,257
Buildings	-	8,453	4,366	(4,529)	203	8,493
Structures	2,593	-	-	(60)	93	2,626
Machinery	-	8,168	-	(1,100)	148	7,216
Vehicles	-	1,678	8,613	(2,336)	(56)	7,899
Office equipment	-	-	6	-	-	6
Vessel	2,827,670	6,030	60,210	(269,236)	221	2,624,895
Aircrafts	-	-	1,217	(204)	(7)	1,006
Software	-	-	54	(6)	-	48
	₩ 2,832,532	₩ 151,819	₩ 83,954	₩ (285,626)	₩ 767	₩ 2,783,446

[1] Right-of-use assets are included in the property, plant and equipment in the consolidated statements of financial position. The right-of-use assets of ₩2,783,446 million as of December 31, 2019, are comprised of the sum of newly recognized right-of-use assets of ₩158,760 million recognized in accordance with KIFRS 1116 and the right-of-use assets of long-term transportation contract of ₩2,624,686 million recognized in accordance with KIFRS 1017.

25. Leases (cont'd)

(7) Amounts recognized in the consolidated statements of profit or loss related to the leases for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Depreciation of right-of-use assets				
Land	₩	15,571	₩	8,155
Buildings		4,627		4,529
Structures		61		60
Machinery		1,144		1,100
Vehicles		3,902		2,336
Office equipment		2		-
Vessel		259,818		269,236
Aircrafts		466		204
Software		16		6
	₩	285,607	₩	285,626
Interest expenses (finance cost) of lease liabilities	₩	52,267	₩	88,655
Interest income (finance income) on present value discount of deposit		1,908		1,835
Short-term lease payment (included in cost of sales and maintenance expenses)		1,850		5,313
Low-value lease payment (included in cost of sales and maintenance expenses)		851		632

26. Retirement benefits

The Group operates both defined contribution and defined benefit pension plans.

(Defined Contribution Pension Plan)

- For defined contribution plan, the mandatory contribution amount of the Group is set on contractual or voluntary basis. The Group has no further payment obligation once the contribution has been paid.
- Employees select a publicly or privately administered pension insurance plan based on the rule of the plan and bear the risk.
- The pensionable right of employees is guaranteed in the plan as the contribution is accumulated in each employee's name, independently from the Group.

(Defined Benefit Pension Plan)

- For defined benefit plan, the benefit amount of the employees is set, depending on their age, periods of service or salary levels.
- Employees expect their own post-employment benefit amount reasonably and the Group bear the risk.

(1) Defined Contribution Plan

The expense recognized in the current period in relation to defined contribution plan was ₩9,088 million (2019: ₩6,694 million).

Details of recognized expense related to the defined contribution plan for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Cost of sales	₩	4,942	₩	5,669
Selling and administrative expenses		4,096		934
Others		50		91
Total	₩	9,088	₩	6,694

(2) Defined Benefit Plan

According to defined benefit plan, the employees will receive their average salary for the past three months multiplied by the rate of payment considering the year of service on their retirement. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method.

(3) Details of net defined benefit liabilities (assets) recognized in the consolidated statements of financial position as of December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Present value of funded defined benefit liabilities	₩	400,245	₩	362,316
Fair value of plan assets		(397,687)		(368,967)
Net defined benefit liabilities	₩	2,558	₩	(6,651)

(4) Changes in the carrying amount of defined benefit liabilities for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Beginning balance	₩	362,316	₩	299,316
Current service cost		45,324		36,276
Interest expense		11,812		10,431
Remeasurements		(1,253)		17,170
Past service cost		-		14,097
Convert to defined contribution		(5,232)		(12,924)
Benefit payments		(12,706)		(3,412)
Foreign exchange difference		(16)		11
Others		-		1,351
Ending balance	₩	400,245	₩	362,316

26. Retirement benefits (cont'd)

(5) Chenges in the fair value of plan assets for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Beginning balance	₩ 368,967	₩ 369,050
Interest income	10,685	11,778
Remeasurements	(3,622)	(4,523)
Employer's contributions:	36,115	7,355
Benefit payments	(1,752)	(1,769)
Convert to defined contribution	(12,706)	(12,924)
Ending balance	₩ 397,687	₩ 368,967

The Group recognized accumulated actuarial gains and losses, net of tax, as other comprehensive income amounting to ₩ (-)45,689 million and ₩ (-)44,150 million as of December 31, 2020 and 2019, respectively.

(6) Plan assets as of December 31, 2020 and 2019, consist of (Korean won in millions):

	2020	2019
Deposits	₩ 28,907	₩ 24,683
Insurance instrument	121,983	86,845
Debt instrument	190,825	211,837
Equity instruments	-	-
Others	55,972	45,602
	₩ 397,687	₩ 368,967

(7) The principal actuarial assumptions as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Discount rate	3.21% ~ 3.47%	3.21% ~ 3.41%
Future salary growth rate	2.8%+promotion rate ~ 4.95%	2.4%+promotion rate ~ 5.61%

Promotion rate used for future salary increases calculations in 2020, are as follows (Korean won in millions):

	Age	Experience rate
Promotion rate	30	3.005%
	35	2.612%
	40	2.311%
	45	2.071%
	50	1.877%

(8) The amounts recognized in profit or loss in relation to defined benefit plan for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Current service cost	₩ 45,324	₩ 36,276
Interest expense	11,812	10,431
Interest income	(10,685)	(11,778)
Past service cost	-	14,097
Others	-	1,362
	₩ 46,451	₩ 50,388

26. Retirement benefits (cont'd)

(9) The above amounts recognized in the consolidated statements of comprehensive income for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Cost of sales	₩ 34,793	₩ 37,170
Selling and administrative expenses	10,372	11,248
Construction in progress	1,144	1,551
Others	142	419
	₩ 46,451	₩ 50,388

(10) Remeasurements of defined benefit plan recognized as other comprehensive income for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Remeasurements of defined benefit plan	₩ (1,253)	₩ 17,170
Return on plan assets	3,622	4,523
	₩ 2,369	₩ 21,693

(11) The Group predicts that it wil pay ₩30,783 million in relation to the defined benefit plan in 2020 (₩10,686 million in relation to the defined benefit plan in 2019).

(12) The expected maturity analysis of undiscounted pension benefits as of December 31, 2020, are as follows (Korean won in millions):

	2020				
	Less than 1 year	Between 1-2 years	Between 2-5 years	Over 5 years	Total
Pension benefits	₩ 20,397	₩ 27,970	₩ 114,631	₩ 1,556,228	₩ 1,719,226

27. Provisions

(1) Details of provisions as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020			2019		
	Current	Non-current	Total	Current	Non-current	Total
Provision for employee benefits	₩ 80,286	₩ 30,343	₩ 110,629	₩ 87,928	₩ 13,993	₩ 101,921
Greenhouse gas	7,437	-	7,437	9,686	-	9,686
Provision for financial guarantee	-	17,996	17,996	-	10,522	10,522
Lawsuit	11,800	528	12,328	4,200	-	4,200
Provision for post-processing, restoration, and purification	-	130,747	130,747	-	170,653	170,653
Provision for loss-bearing contracts	4,120	-	4,120	-	-	-
Others	1,903	3,254	5,157	2,026	3,211	5,238
	₩ 105,546	₩ 182,868	₩ 288,414	₩ 103,840	₩ 198,380	₩ 302,220

27. Provisions (cont'd)

(2) Changes in provisions for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020					
	Beginning balance	Increase	Utilization	Reversed	Others	Ending balance
Provision for employee benefits	₩ 101,921	₩ 84,794	₩ (76,086)	₩ -	₩ -	₩ 110,629
Greenhouse gas	9,686	3,220	(5,469)	-	-	7,437
Provision for financial guarantee	10,522	7,182	(46)	-	338	17,996
Lawsuit	4,200	135,052	(127,005)	-	81	12,328
Provision for post-processing, restoration, and purification[1]	170,653	20,707	(1,158)	(51,037)	(8,418)	130,747
Provision for loss-bearing contracts	-	4,120	-	-	-	4,120
Others	5,238	250	(22)	(1)	(308)	5,157
	₩ 302,220	₩ 255,325	₩ (209,786)	₩ (51,038)	₩ (8,307)	₩ 288,414

During the current year, provisions related to post-treatment, restoration, and remediation costs of KOGAS Iraq B.V. and KOGAS Badra B.V. were reversed due to changes in estimates.

	2019					
	Beginning balance	Increase	Utilization	Reversed	Others	Ending balance
Provision for employee benefits	₩ 67,288	₩ 84,120	₩ (49,487)	₩ -	₩ -	₩ 101,921
Provision for financial guarantee	7,884	2,941	(48)	-	(255)	10,522
Lawsuit	6,713	18,329	(14,100)	-	(6,742)	4,200
Provision for post-processing, restoration, and purification	180,113	20,529	(598)	-	(29,391)	170,653
Greenhouse gas	5,770	10,240	(6,324)	-	-	9,686
Others	6,775	3	(1,760)	(28)	248	5,238
	₩ 274,543	₩ 136,162	₩ (72,340)	₩ (28)	₩ (36,140)	₩ 302,220

28. Government grants

(1) Government grants relating to property, plant and equipment are presented as the deduction from related assets and unused amounts are recognized as liabilities (deferred government grant income).

(2) Details of government grants as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Liabilities		
Deferred government grants income	₩ 7,622	₩ 323
Assets		
Buildings	1,811	1,900
Structures	1,543	1,648
Machinery	111,229	116,681
Computerized facility	38	65
Furniture and equipment	35	25
Vehicles	635	64
Tools and instruments	346	490
Construction in progress	4,233	2,041
Computer software	116	194
Copy right, patents and other industrial property right	40	52
	120,026	123,160
	₩ 127,648	₩ 123,483

(3) Changes in government grants for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020							
	Beginning balance	Receipt	Acquisition	Offset	Disposal	Revenue recognition	Others	Ending balance
Liabilities								
Deferred government grants income	₩ 323	₩ 5,485	₩ (366)	₩ -	₩ -	₩ (1,072)	₩ 3,252	₩ 7,622
Assets								
Buildings	1,900	-	-	(89)	-	-	-	1,811
Structures	1,648	-	-	(105)	-	-	-	1,543
Machinery	116,681	-	-	(5,452)	-	-	-	111,229
Computerized facility	65	-	1	(28)	-	-	-	38
Furniture and equipment	25	-	18	(8)	-	-	-	35
Vehicles	64	301	350	(80)	-	-	-	635
Tools and instruments	490	-	-	(144)	-	-	-	346
Construction in progress	2,041	2,510	-	-	-	-	(318)	4,233
Computer software	194	-	1	(79)	-	-	-	116
Copy right, patents and other industrial property right	52	-	-	(12)	-	-	-	40
	123,160	2,811	370	(5,997)	-	-	(318)	120,026
	₩ 123,483	₩ 8,296	₩ 4	₩ (5,997)	₩ -	₩ (1,072)	₩ 2,934	₩ 127,648

28. Government grants (cont'd)

(3) Changes in government grants for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2019							
	Beginning balance	Receipt	Acquisition	Offset	Disposal	Revenue recognition	Others	Ending balance
Liabilities								
Deferred government grants income	₩ 415	₩ 3,054	₩ (458)	₩ -	₩ -	₩ (2,688)	₩ -	₩ 323
Assets								
Buildings	1,990	-	-	(90)	-	-	-	1,900
Structures	1,752	-	-	(104)	-	-	-	1,648
Machinery	122,155	-	-	(5,474)	-	-	-	116,681
Computerized facility	98	-	11	(44)	-	-	-	65
Furniture and equipment	14	-	18	(7)	-	-	-	25
Vehicles	1	-	67	(4)	-	-	-	64
Tools and instruments	323	-	307	(140)	-	-	-	490
Construction in progress	-	2,055	-	-	-	-	(14)	2,041
Computer software	180	-	181	(167)	-	-	-	194
Copy right, patents and other industrial property right	65	-	-	(13)	-	-	-	52
	126,578	2,055	584	(6,043)	-	-	(14)	123,160
	₩ 126,993	₩ 5,109	₩ 126	₩ (6,043)	₩ -	₩ (2,688)	₩ (14)	₩ 123,483

(4) Income from government grants for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Offsetting of government grants related to deferred income (sales)	₩ 1,072	₩ 2,688
Offsetting of government grants related to depreciation	5,997	6,043
Others	369	182
	₩ 7,438	₩ 8,913

29. Customers' contribution to construction costs

(1) Changes in gains from contribution to construction for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Offsetting of deferred income related to contribution to construction cost	₩ 967	₩ 91

(2) Changes in deferred income related to contribution to construction for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Beginning balance	₩ 2,734	₩ 2,825
Increase	-	-
Offset	(967)	(91)
Ending balance	₩ 1,767	₩ 2,734

30. Non-financial liabilities

Details of non-financial liabilities as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020		2019	
	Current	Non-Current	Current	Non-Current
Advance receipts	₩ 3,546	₩ -	₩ 12,234	₩ -
Unearned revenues	28,728	-	511	-
Withholdings	20,437	-	21,783	-
Deferred income	1	9,389	41	3,017
Other non-financial liabilities[1]	15,225	45,331	196,723	45,858
	₩ 67,937	₩ 54,720	₩ 231,292	₩ 48,875

[1] Others include liabilities recognized in accordance with natural gas sales charge settlement profit and loss ₩174,565 million as of December 31, 2019. (Note 17).

31. Equity

(1) Details of equity as of December 31, 2020 and 2019, are as follows (Korean won in millions):

				2020			2019		
	Total shares authorized	Total shares issued	Par value	Govern	Non-govern	Total	Govern	Non-govern	Total
Common share	200,000,000 shares	92,313,000 shares	₩ 5,000	₩ 120,722	₩ 340,843	₩ 461,565	₩ 120,722	₩ 340,843	₩ 461,565

(2) Changes in the number of shares outstanding for years ended December 31, 2020 and 2019, are as follows:

	2020	2019
	Common share	Common share
Beginning balance	87,637,240	87,637,240
Acquisition of treasury share	(1,810,290)	-
Ending balance	85,826,950	87,637,240

(3) Details of share premium as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Share premium	₩ 1,303,548	₩ 1,303,548

32. Retained earnings and dividends

(1) Retained earnings as of December 31, 2020 and 2019, consist of (Korean won in millions):

		2020		2019
Legal reserve[1]	₩	230,782	₩	230,783
Other reserves		4,027,335		3,999,969
Unappropriated retained earnings		932,688		1,166,955
	₩	5,190,805	₩	5,397,707

[1] The *Korea Gas Group Act* requires the Group to appropriate as a legal reserve an amount equal to a minimum of 10% of its profits for each accounting period until the reserve equals 50% of the capital. The legal reserve may be used to reduce a deficit or may be transferred to common stock in connection with a free issuance of shares.

(2) Other reserves as of December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Business expansion	₩	3,279,453	₩	3,260,248
Reserve for dividend equalization		219,282		219,282
Business rationalization		792		792
Accident compensation		439,989		431,828
Improvement of financial structure		87,819		87,819
	₩	4,027,335	₩	3,999,969

(3) Changes in retained earnings for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Beginning balance	₩	5,397,707	₩	5,497,914
Effect of accounting policy change		-		27
Profit for the year		(172,060)		38,764
Dividends paid		(33,302)		(119,187)
Remeasurement of defined benefit plan		(1,540)		(15,646)
Interest payment of hybrid bonds		-		(4,165)
Ending balance	₩	5,190,805	₩	5,397,707

(4) Details of dividends for the years ended December 31, 2020 and 2019, are as follows (Korean won):

	2020						
	Total shares issued	Treasury share	Shares eligible for dividends		Dividends per share		Total dividends
Common share	92,313,000	4,675,760	87,637,240	₩	380	₩	33,302,151,200

	2019						
	Total shares issued	Treasury share	Shares eligible for dividends		Dividends per share		Total dividends
Common share	92,313,000	4,675,760	87,637,240	₩	1,360	₩	119,186,646,400

(5) Changes in remeasurements for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Beginning balance	₩	(21,355)	₩	(5,090)
Losses		(2,368)		(21,693)
Tax effect		829		6,046
Disposal of retained earnings		16,805		(618)
Ending balance	₩	(6,089)	₩	(21,355)

33. Statement of disposition of deficit (appropriation of retained earnings)

The accumulated deficit for the year ended December 31, 2020, is expected to be disposed at the shareholders' meeting of the Corporation's to be held on March 30, 2021. The appropriation date for the year ended December 31, 2019, was on March 27, 2020.

The statements of disposition of deficit (appropriation of retained earnings) for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Retained earnings (Deficit) before appropriation (Dispositon)	₩		₩	
Unappropriated retained earnings carried over from prior year		2,000		2,000
Profit (loss) for the year		(93,602)		81,614
Change in accounting policies		-		26
Remeasurements of defined benefit plan		(4,057)		(16,805)
Interest payment of hybrid bonds		-		(4,166)
Retained earnings (deficits) before disposition	₩	(95,659)	₩	62,669
Transfers from voluntary reserves and others				
Reserve for business expansion		95,659		-
Retained earnings available for appropriation	₩	95,659	₩	-
Appropriation of retained earnings	₩		₩	
Reserve for accident compensation		-		8,161
Dividends		-		33,302
Reserve for business expansion		-		19,206
Unappropriated retained earnings to be carried forward subsequent year	₩	-	₩	2,000

34. Other components of equity

(1) Other components of equity as of December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Other capital surplus	₩	20,910	₩	20,910
Accumulated other comprehensive income (loss)		(37,241)		78,161
Treasury share		(152,424)		(102,423)
Other equity		693,877		693,877
	₩	525,122	₩	690,525

(2) Other capital surplus for the years ended December 31, 2020 and 2019, consists of (Korean won in millions):

		2020		2019
Gain on disposal of treasury share	₩	21,353	₩	21,353
Others		(443)		(443)
	₩	20,910	₩	20,910

(3) Accumulated other comprehensive income (loss) for the years ended December 31, 2020 and 2019, consists of follows (Korean won in millions):

		2020		2019
Other comprehensive income - fair value measurement gain on valuation of financial assets	₩	29,627	₩	76,688
Incom (loss) on valuation of cash flow hedges		41,379		(42,043)
Hedges of net investment in a foreign operation		92,232		(6,910)
Share of other comprehensive income (loss) of associates and joint ventures		(68,240)		41,775
Exchange differences on translation of foreign operations		(132,239)		8,651
	₩	(37,241)	₩	78,161

(4) Changes in treasury share for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020			2019		
	Shares	Book amount		Shares	Book amount	
Beginning balance	4,675,760	₩	102,423	4,675,760	₩	102,423
Changes	1,810,290		50,000	-		-
Ending balance	6,486,050	₩	152,423	4,675,760	₩	102,423

(5) Other equity for the years ended December 31, 2020 and 2019, consists of (Korean won in millions):

		2020		2019
Revaluation surplus	₩	693,877	₩	693,877

35. Revenue from contrats with customers

(1) Details of revenue for the year ended December 31, 2020 is as follow (Korean won in millions):

	2020		2019	
Revenue from contracts with customers	₩	20,832,282	₩	24,979,770
Revenue from government grant		1,440		2,870
	₩	20,833,722	₩	24,982,640

(2) Details of revenue from contracts with customers for the years ended December 31, 2020 and 2019 are as follows(Korean won in millions):

	2020		2019	
	Domestic	Overseas	Domestic	Overseas
Revenue by product/services				
Revenue from sale of goods				
Power generating	₩ 7,696,955	₩ -	₩ 10,326,246	₩ -
City gas	11,839,986	-	12,980,577	-
Direct supply	110,595	-	122,216	-
Use of plumbing facilities	115	-	99	-
Others	16,661	-	20,537	-
Overseas operations	-	464,955	-	723,798
	₩ 19,664,312	₩ 464,955	₩ 23,449,675	₩ 723,798
Revenue from Rendering of services	328	420,247	500	602,480
Revenue from construction contracts	55,689	1,183	21,166	4,402
Other revenue	222,697	2,871	157,526	20,223
	₩ 278,714	₩ 424,301	₩ 179,192	₩ 627,105
	₩ 19,943,026	₩ 889,256	₩ 23,628,867	₩ 1,350,903
Timing of revenue recognition				
At a point in time	19,665,194	464,955	23,450,782	723,798
Over a period of time	277,832	424,301	178,085	627,105
	₩ 19,943,026	₩ 889,256	₩ 23,628,867	₩ 1,350,903

Meanwhile, no external customer accounted for more than 10% of revenue during the years ended December 31, 2020 and 2019.

(3) Seasonal characteristics of sales

The Group’s operations are highly cyclical as the revenue is generally higher during the winter season due to the heating demand of gasin the cities. For operating profit and net profit for the year, there were significant differences between the summer and winter seasons in 2020.

36. Selling and administrative expenses

Details of selling and administrative expenses for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions) :

	2020	2019
Salaries	100,220	90,655
Retirement benefits	12,623	9,809
Employee welfare benefits	13,870	15,239
Insurance	2,684	3,612
Depreciation	15,106	16,100
Amortization	4,393	4,713
Impairment loss on trade receivables	377	-
Reversal of allowance for doubtful accounts	(739)	(1,100)
Commission expenses	58,313	57,785
Advertising expenses	4,580	4,741
Training expenses	6,841	8,475
Vehicles maintenance expenses	222	368
Periodicals and printing expenses	543	543
Business promotion expenses	225	370
Rental expenses	4,124	5,065
Communication expenses	586	525
Taxes and duties	94,918	96,178
Supplies expenses	739	710
Water, lighting and heating	1,504	1,553
Repairs and maintenance expenses	1,868	670
Research and development expense	52,694	66,691
Travel and transportation	1,996	3,027
Clothing expenses	652	705
Association fee	909	600
Sales promotion costs	5,277	3,842
Ordering expenses	456	551
Reward	447	483
Resource and development	25,759	24,598
Mining operation	1,029	3,130
Miscellaneous expenses	7,930	1,371
Research referral service cost	1,222	-
Total	₩ 421,368	₩ 421,009

37. Other income and expenses

(1) Details of other income for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Return of other provisions	₩	1	₩	28
Earnings from construction charges (non-operating)		90		90
Compensation and indemnity gains		2,091		1,117
Rental income		1,568		1,732
	₩	3,750	₩	2,967

(2) Details of other expenses for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Recognition of other provision	₩	16	₩	-
Other bad debt expenses		9,453		-
Strike-bound amortization		16,974		16,974
Donation		18,350		18,828
Compensation and indemnity losses		16,023		22,133
Other losses		2		2
	₩	60,818	₩	57,937

38. Other gains and losses

(1) Details of other gains for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Gains on disposal of property, plant and equipment	₩	1,167	₩	988
Gains on disposal of intangible assets		2		-
Other gains		45,540		114,857
	₩	46,709	₩	115,845

(2) Details of other losses for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Losses on disposal of property, plant and equipment	₩	(13,674)	₩	(21,353)
Losses on impairment of property, plant and equipment		(386,090)		(459,951)
Losses on impairment of intangible assets		(75,623)		(73,706)
Other losses		(19,487)		(26,617)
	₩	(494,874)	₩	(581,627)

39. Finance income

(1) Details of finance income for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Interest income	₩	21,680	₩	32,585
Gains on valuation of financial assets at fair value through profit or loss		244		-
Dividend income		10		13
Gains on valuation of derivative instruments		39,060		990
Gains on transaction of derivative instruments		102,925		122,906
Foreign currency translation gains		406,513		180,829
Foreign currency transaction gains		160,060		113,654
	₩	730,492	₩	450,977

(2) Details of content of interest income included in finance income for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Cash and cash equivalents	₩	3,521	₩	10,306
Financial assets at FVTPL		-		885
Financial assets at amortized costs[1]		(4,114)		11,191
Loans and receivables[1]		17,490		6,102
Short-term financial instruments[1]		37		702
Other financial assets[1]		1,778		3,005
Trade and other receivables[1]		2,968		394
	₩	21,680	₩	32,585

[1] Amount of each items are sum up to the interest income of the debt instruments measured at amortized cost which is described in Note 44. (2).

40. Finance costs

(1) Details of finance costs for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Interest expense	₩	712,405	₩	804,642
Loss on valuation of financial assets at fair value through profit or loss		-		827
Loss on disposal of financial assets		-		1
Loss on valuation of derivative instruments		106,934		95,480
Loss on transaction of derivative instruments		122,570		92,935
Loss on foreign currency translation		333,273		86,245
Loss on foreign currency transaction		151,932		172,901
	₩	1,427,114	₩	1,253,031

(2) Details of content of interest expenses included in finance costs for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Short-term borrowings	₩	35,592	₩	55,742
Long-term borrowings		9		11,864
Debentures		628,048		678,147
Derivative financial liabilities		21,169		25,727
Lease liabilities		52,267		88,655
Other financial liabilities		4,003		2,369
		741,088		862,504
Less : capitalization of interests[1]		(28,683)		(57,862)
	₩	712,405	₩	804,642

[1] Borrowing cost were capitalized at the weighted average rate of 3.55% (2019 : 4.38%).

41. Income tax

(1) Major components of income tax expense(benefit) for the years ended December 31, 2020 and 2019, consist of (Korean won in millions):

		2020		2019
Current tax expense:				
Current taxes payable	₩	31,858	₩	37,097
Adjustment on prior year tax returns[1]		(70,447)		(47,790)
Income tax directly recognized to equity		791		956
Deferred tax expenses:				
The effect of change of temporary differences		(111,006)		49,279
Utilization of previously unrecognized tax loss carryforwards, tax credit and temporary difference from prior years		31,419		18,565
Reduction of deferred tax assets		9,069		-
Amount due to carry-over of tax deduction		(313)		-
Amount due to the change of tax rate or tax law		414		-
Income tax expenses (benefits)	₩	(108,215)	₩	58,107

[1] The Group received a tax refund of KRW 1,881 million due to the cancellation of tax complaints and received a tax refund of KRW 60,581 million for the period from 2015 to 2016.

(2) Details of the reconciliation between profit (loss) before income tax and income tax expenses (benefits) for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Profit (loss) before income tax	₩	(268,898)	₩	116,376
Income tax expenses based on statutory tax rate		(65,073)		28,163
Adjustments:				
Effect of progressive tax rate		(11,952)		(36,573)
Effect of non-taxable income		5,233		(1,444)
Effect of non-deductible expense		222		14,378
Effect of deferred tax assets written off		(85,101)		2,729
Effect on change applied tax rate between current tax and deffered tax		(313)		-
Difference in tax rate of those subject to deferred tax		221,995		226,382
Effect of other changes in deferred tax		(64,589)		(105,596)
Utilization of previously unrecognized tax loss carryforwards, tax credit and temporary difference from prior years		(7,267)		18,564
Tax rates differences in overseas subsidiaries and associated operations		(30,923)		(40,707)
		(37,768)		105,896
Adjustment for prior years' income taxes		(70,447)		(47,790)
Income tax expenses (benefits)	₩	(108,215)	₩	58,106
Effective tax rate[1]		-		49.93%

[1] The average effective tax rate is not calculated due to net loss before the current corporate tax revenue and corporate tax expense deduction.

41. Income tax (cont'd)

(3) The income tax credited directly to equity for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Current tax expenses:		
Others	₩ 791	₩ 956
	₩ 791	₩ 956

(4) Deferred taxes that were directly (charged) credited to other comprehensive income and loss for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Deferred tax		
Amounts arising from items recognized in other comprehensive income		
Other comprehensive income - Fair value measurement Equity gain or loss on valuation of equity instruments	₩ 17,848	₩ (19,080)
Gains on valuation of cash flow hedges derivative instruments	(31,308)	22,174
Net investment in foreign operations	(37,606)	35,796
Remeasurements of defined benefit plan	829	6,047
Investments in associates	23,678	(13,311)
Foreign currency translation gains from foreign operations	14,325	(26,080)
	₩ (12,234)	₩ 5,546

41. Income tax (cont'd)

(5) Details of deferred tax assets (liabilities) for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020					
	Beginning balance	Statement of profit or loss	Other comprehensive income	Equity	Others	Ending balance
Price adjustment on raw materials	₩ (280,199)	₩ (79,292)	₩ -	₩ -	₩ -	₩ (359,491)
Gain on valuation of derivatives	(56,262)	(1,922)	-	-	-	(58,184)
Loss on valuation of derivatives	76,032	11,964	-	-	-	87,996
Accrual for post-employment benefits	71,653	6,735	829	-	-	79,217
Deposit for post-employment benefit insurance	(66,649)	(8,272)	-	-	-	(74,921)
Foreign currency translation losses	554,415	60,508	(37,606)	-	-	577,317
Foreign currency translation gains	(522,369)	(108,732)	-	-	-	(631,101)
Derivative financial liabilities (hedge)	30,399	(14,181)	(702)	-	-	15,516
Derivative financial assets (hedge)	(26,051)	14,378	-	-	-	(11,673)
Gains on valuation of fair value through other comprehensive income	(29,227)	-	17,848	-	-	(11,379)
Government grants	35,761	603	-	-	-	36,364
Land (advanced depreciation provision)	(27,049)	-	-	-	-	(27,049)
Customers contribution to construction costs	299	(11)	-	-	-	288
Temporary depreciation	(359)	(2,035)	-	-	-	(2,394)
Accumulated depreciation in excess of tax limit	95,772	58,384	-	-	(1,699)	152,457
Leased vessels	(209,841)	38,054	-	-	-	(171,787)
Lease liabilities	44,158	(23,601)	(1,131)	-	-	19,426
Gain on revaluation	(734,789)	72,382	-	-	-	(662,407)
Deemed depreciation	(760,755)	(147,945)	-	-	-	(908,700)
Evaluation of equity method	(200,479)	7,000	23,677	-	-	(169,802)
Gain on evaluation of equity method (KOLNG, KORAS)	668	-	-	-	-	668
Loss on evaluation of equity method (KOLNG, KORAS)	391	-	-	-	-	391
Investments in securities (KOLNG)	431	-	-	-	-	431
Change in other comprehensive income due to equity method (KGM etc.)	(2,079)	-	-	-	-	(2,079)
Loss on evaluation of equity method (HYLNG)	526	-	-	-	-	526
Consent dividend income (CFC(Jubair))	167,502	-	-	-	-	167,502
Consent dividend income (CFC(Badra))	10,745	-	-	-	-	10,745
Consent dividend income (CFC(KG-SEAGP))	2,478	(458)	-	-	-	2,020
Others	(91,088)	4,520	(15,149)	-	(719)	(102,436)
Subtotal	(1,915,966)	(111,921)	(12,234)	-	(2,418)	(2,042,539)
Deferred tax on unused tax losses and tax credits						
Tax loss carried	937,957	160,088	-	-	(96,961)	1,001,084
Tax credits	55,045	17,311	-	-	-	72,356
Others	60,556	4,939	-	-	98,278	163,773
Subtotal	1,053,558	182,338	-	-	1,317	1,237,213
Total	₩ (862,408)	₩ 70,417	₩ (12,234)	₩ -	₩ (1,101)	₩ (805,326)

41. Income tax (cont'd)

	2019					
	Beginning balance	Statement of profit or loss	Other comprehensive income	Equity	Others	Ending balance
Price adjustment on raw materials	₩ 24,118	₩ (304,317)	₩ -	₩ -	₩ -	₩ (280,199)
Gain on valuation of derivatives	(49,154)	(7,108)	-	-	-	(56,262)
Loss on valuation of derivatives	54,962	21,070	-	-	-	76,032
Accrual for post-employment benefits	56,439	9,167	6,047	-	-	71,653
Deposit for post-employment benefit insurance	(60,932)	(5,717)	-	-	-	(66,649)
Loss on foreign currency translation	493,796	20,247	40,372	-	-	554,415
Gain on foreign currency translation	(485,880)	(31,913)	(4,576)	-	-	(522,369)
Derivative financial liabilities (hedge)	16,332	-	14,067	-	-	30,399
Derivative financial assets (hedge)	(12,015)	-	(14,036)	-	-	(26,051)
Gain on valuation of fair value through other comprehensive income	(9,947)	(200)	(19,080)	-	-	(29,227)
Government grants	36,910	(1,149)	-	-	-	35,761
Land (advanced depreciation provision)	(27,049)	-	-	-	-	(27,049)
Customers contribution to construction costs	312	(13)	-	-	-	299
Temporary depreciation	(377)	18	-	-	-	(359)
Accumulated depreciation in excess of tax limit	88,627	8,503	-	-	(1,358)	95,772
Leased vessels	(245,804)	35,963	-	-	-	(209,841)
Lease liabilities	89,981	(50,843)	5,020	-	-	44,158
Gain on revaluation	(719,166)	(15,623)	-	-	-	(734,789)
Deemed depreciation	(767,470)	6,715	-	-	-	(760,755)
Evaluation of equity method	(183,219)	(3,949)	(13,311)	-	-	(200,479)
Gain on valuation of equity method (KOLNG, KORAS)	668	-	-	-	-	668
Loss on valuation of equity method (KOLNG, KORAS)	391	-	-	-	-	391
Investments in securities (KOLNG)	431	-	-	-	-	431
Change in other comprehensive income due to equity method (KGM etc.)	(2,079)	-	-	-	-	(2,079)
Loss on valuation of equity method (HYLNG)	526	-	-	-	-	526
Consent dividend income (CFC(Jubair))	191,011	(23,509)	-	-	-	167,502
Consent dividend income (CFC(Badra))	10,745	-	-	-	-	10,745
Consent dividend income (CFC(KG-SEAGP))	1,373	1,105	-	-	-	2,478
Others	(186,969)	105,406	(8,957)	-	(568)	(91,088)
Subtotal	(1,683,439)	(236,147)	5,546	-	(1,926)	(1,915,966)
Deferred tax on unused tax losses and tax credits						
Tax loss carried	781,396	141,346	-	-	15,215	937,957
Tax credits	32,995	22,050	-	-	-	55,045
Others	55,810	4,907	-	-	(161)	60,556
Subtotal	870,201	168,303	-	-	15,054	1,053,558
Total	₩ (813,238)	₩ (67,844)	₩ 5,546	₩ -	₩ 13,128	₩ (862,408)

41. Income tax (cont'd)

(6) Details of deferred tax assets (liabilities) in the consolidated statements of financial position as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Deferred tax assets	₩ 1,025,195	₩ 859,646
Deferred tax liabilites	(1,830,521)	(1,722,054)
	₩ (805,326)	₩ (862,408)

(7) Details of unrecognized deductible temporary differences as deferred tax assets, tax loss carryforwards and unused losses as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Temporary deductivble difference	₩ 4,921,957	₩ 4,248,666
Tax loss carryforwards	654,642	572,663
Tax credits	533,662	255,766
	₩ 6,110,261	₩ 5,077,095

(8) Expiration dates for tax credits and tax loss carry forwards which are not recognized as deferred tax asset as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020		2019	
	Tax credit	Tax losses carryforwards	Tax credit	Tax losses carryforwards
Within 1 year	-	-	-	1,830
1 ~ 2 years	₩ -	₩ -	₩ -	₩ -
2 ~ 3 years	-	-	-	-
After 3 years	654,642	533,662	572,663	253,936
	₩ 654,642	₩ 533,662	₩ 572,663	₩ 255,766

(9) The aggregate amount of temporary differences associated with investments in subsidiaries for which deferred tax liability is not recognized as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Domestic and foreign subsidiary companies	₩ 176,384	₩ 233,216

(10) The analysis of deferred tax assets and liabilities as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Deferred tax assets		
Deferred tax asset to be recovered after more than 12 months	2,461,146	2,132,944
Deferred tax asset to be recovered within 12 months	212,286	351,469
	₩ 2,673,432	₩ 2,484,413
Deferred tax liabilities		
Deferred tax liability to be recovered after more than 12 months	(3,054,270)	(3,256,556)
Deferred tax liability to be recovered within 12 months	(424,488)	(90,265)
	(3,478,758)	(3,346,821)
Deferred tax liabilities, net	₩ (805,326)	₩ (862,408)

42. Expenses by nature

Details of nature of expenses for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020			
	Changes in inventories	**Selling and administrative expenses**	**Cost of sales**	**Total**
Changes in inventories:				
Finished goods	₩ (8,837)	₩ -	₩ -	₩ (8,837)
Merchandise	-	-	45,223	45,223
Raw materials used	-	-	17,223,251	17,223,251
Salaries	-	100,220	405,294	505,514
Retirement benefits	-	12,623	39,735	52,358
Employee welfare	-	13,870	40,167	54,037
Insurance premium	-	2,684	12,090	14,774
Depreciation	-	15,106	1,537,766	1,552,872
Amortization	-	4,393	59,770	64,163
Bad debts expenses	-	377	-	377
Reversal of allowance for bad debts	-	(739)	-	(739)
Commission	-	58,313	90,933	149,246
Advertising	-	4,580	581	5,161
Training	-	6,841	1,348	8,189
Vehicles maintenance	-	222	3,328	3,550
Periodicals and printing	-	543	329	872
Business promotion expenses	-	225	204	429
Rents	-	4,124	13,786	17,910
Communication	-	586	1,040	1,626
Taxes and dues	-	94,918	35,212	130,130
Supplies	-	739	1,762	2,501
Utilities	-	1,504	126,671	128,175
Repairs and maintenance	-	1,868	66,870	68,738
Research and development	-	52,694	170	52,864
Travel and transportation	-	1,996	2,328	4,324
Clothing expenses	-	652	1,000	1,652
Association fee	-	909	453	1,362
Sales promotion costs	-	5,277	-	5,277
Promotional expenses	-	456	-	456
Outsourcing	-	-	16,339	16,339
Facility management	-	-	192,866	192,866
Other expenses[1]	-	36,387	(396,180)	(359,793)
Total	₩ (8,837)	₩ 421,368	₩ 19,522,336	₩ 19,934,867

[1] The settlement amount of supply cost is included in cost of sales classified as other expenses and the related details are described in Note 17.

42. Expenses by nature (cont'd)

	2019			
	Changes in inventories	**Selling, general and administrative expenses**	**Cost of sales**	**Total**
Changes in inventories:				
Finished goods	₩ 9,303	₩ -	₩ -	₩ 9,303
Merchandise	-	-	127,127	127,127
Raw materials used	-	-	20,687,820	20,687,820
Salaries	-	90,655	389,368	480,023
Retirement benefits	-	9,809	41,776	51,585
Employee welfare	-	15,239	36,418	51,657
Insurance premium	-	3,612	10,923	14,535
Depreciation	-	16,100	1,612,264	1,628,364
Amortization	-	4,713	82,324	87,037
Reversal of allowance for bad debts	-	(1,100)	-	(1,100)
Commissions	-	57,785	69,705	127,290
Advertising	-	4,741	537	5,278
Training	-	8,475	2,239	10,714
Vehicles maintenance expenses	-	368	3,827	4,195
Periodicals and printing expenses	-	543	330	873
Business promotion expenses	-	370	189	559
Rents	-	5,065	14,808	19,873
Communication	-	525	1,319	1,844
Freight	-	-	616	616
Taxes and dues	-	96,178	35,245	131,423
Supplies	-	710	1,475	2,185
Utilities	-	1,553	146,183	147,736
Repairs and maintenance	-	670	87,885	88,555
Research and development	-	66,691	188	66,879
Travel and transportation	-	3,028	3,859	6,886
Clothing expenses	-	705	859	1,564
Association fee	-	600	634	1,234
Sales promotion costs	-	3,842	-	3,842
Promotional expenses	-	551	-	551
Outsourcing	-	-	12,189	12,189
Facility management	-	-	224,049	224,049
Other expenses[1]	-	29,581	(375,726)	(346,145)
Total	₩ 9,303	₩ 421,009	₩ 23,217,814	₩ 23,648,125

[1] The settlement amount of supply cost is included in cost of sales classified as other expenses and the related details are described in Note 17.

43. Earnings (loss) per share

(1) Basic earnings (loss) per share for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Basic earnings (loss) per share				
Continuing operation	₩	(1,989)	₩	395
Total Basic earnings (loss) per share	₩	(1,989)	₩	395

(*) Basic earnings (loss) per share and diluted earnings per share are the same as no dilution effect occurs in 2020 and 2019.

(2) Diluted earnings (loss) per share for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Diluted earnings (loss) per share				
Continuing operation	₩	(1,989)	₩	395
Total diluted earnings (loss) per share	₩	(1,989)	₩	395

(*) Basic earnings (loss) per share and diluted earnings per share are the same as no dilution effect occurs in 2020 and 2019.

(3) Basic earnings (loss) per share

Earnings (loss) for the year used for deriving basic earnings (loss) per share for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Profit (loss) for the year used for basic earnings (loss) per share	₩	(93,602)	₩	81,614
Interest of the hybrid bonds		-		(4,166)
Profit (loss) for the year from continuing operations attributable to common shares	₩	(93,602)	₩	77,448

Weighted-average number of common shares outstanding used for deriving basic losses per share for the years ended December 31, 2020 and 2019, are as follows:

	2020	2019
Weighted-average number of common shares outstanding	87,637,240	87,637,240
Effect of treasury share	(1,152,891)	-
Weighted-average number of common shares in circulation for calculating basic earnings per share[1]	86,484,349	87,637,240

[1] The parent company acquired 1,810,290 of treasury share in 2020

43. Earnings (loss) per share (cont'd)

(4) Dilbuted earnings (loss) per share

Diluted earnings (loss) per share are calculated using the weighted-average number of common shares adjusted assuming that all potential dilutive common shares are converted into common shares.

The net profit of the diluted earnings (loss) per share calculation for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019
Profit (loss) on controlling interest attributable to common share	₩	(93,602)	₩	77,448
<Effect of assuming conversion>				
Interest expense on hybrid bonds		-		4,166
Diluted earnings (loss) attributable to common stock	₩	(93,602)	₩	81,614

The weighted-average number of common shares to calculate diluted earnings per share is calculated from the weighted-average number of common shares used in calculating basic earnings per share by adjusting as follows:

	2020	2019
Weighted-average number of common shares outstanding	86,484,349	87,637,240
<Number of shares deemed to be issued free of charge>		
Hybrid bonds	-	2,984,800
Weighed-average number of dilbuted common shares outstanding	86,484,349	90,622,040

44. Financial instruments by category

(1) Categorizations of financial instruments as of December 31, 2020 and 2019, are as follows (Korean won on millions):

-2020

① Current financial assets

	2020						
				Financial assets measured at FVTPL			
Current financial assets:	Debt instruments at amortized cost	Debt instruments at FVOCI	Equity instruments at FVOCI	Derivatives not designated as hedging instruments	Derivatives designated as hedging instruments	Others	Total
Cash and cash equivalents	₩ 331,761	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 331,761
Financial assets at fair value through profit or loss	-	-	-	4,406	339	7,800	12,545
Financial assets at amortized cost	1,048	-	-	-	-	-	1,048
Current financial assets	21,760	-	-	-	-	-	21,760
Loans	14,326	-	-	-	-	-	14,326
Trade and other receivables [1]	4,244,755	-	-	-	-	-	4,244,755
Total	₩ 4,613,650	₩ -	₩ -	₩ 4,406	₩ 339	₩ 7,800	₩ 4,626,195

[1] Contract assets are excluded.

44. Financial instruments by category (cont'd)

② Non-current financial assets

	2020						
				Financial assets measured at FVTPL			
Non-current financial assets:	**Debt instruments at amortized cost**	**Debt instruments at FVOCI**	**Equity instruments at FVOCI**	**Derivatives not designated as hedging instruments**	**Derivatives designated as hedging instruments**	**Others**	**Total**
Financial assets at fair value through profit or loss	₩ -	₩ -	₩ -	₩ 5,029	₩ 40,174	₩ 1,808	₩ 47,011
Financial assets at fair value through other comprehensive income	-	-	61,060	-	-	-	61,060
Financial assets at amortized cost	415	-	-	-	-	-	415
Long-term financial instruments	15	-	-	-	-	-	15
Loans	423,548	-	-	-	-	-	423,548
Trade and other receivables [1]	201,207	-	-	-	-	-	201,207
Other non-current financial assets	90,000	-	-	-	-	-	90,000
	₩ 715,185	₩ -	₩ 61,060	₩ 5,029	₩ 40,174	₩ 1,808	₩ 823,256

[1] Contract assets are excluded.

44. Financial instruments by category (cont'd)

③ Current financial liabilities

	2020				
		Financial liabilities at fair value through profit or loss			
Current financial liabilities	**Financial liabilities at amortized cost**	**Derivatives not designated as hedging instruments**	**Hedging derivative instruments**	**Others**	**Total**
Trade and other receivables	₩ 1,736,775	₩ -	₩ -	₩ -	₩ 1,736,775
Financial liabilities at fair value through profit or loss	-	105,108	-	-	105,108
Short-term borrowing	3,110,297	-	-	-	3,110,297
Debentures	2,003,645	-	-	-	2,003,645
	₩ 6,850,717	₩ 105,108	₩ -	₩ -	₩ 6,955,825

(*) Provisions for financial guarantee are excluded.

④ Non-current financial liabilities

	2020				
		Financial liabilities at fair value through profit or loss			
Non-current financial liabilities	**Financial liability at amortized cost**	**Derivatives not designated as hedging instruments**	**Hedging derivative instruments**	**Others**	**Total**
Trade and other receivables	₩ 1,793,767	₩ -	₩ -	₩ -	₩ 1,793,767
Financial liabilities at fair value through profit or loss	-	12,736	29,059	-	41,795
Long-term borrowing	760,983	-	-	-	760,983
Bonds	16,285,136	-	-	-	16,285,136
	₩ 18,839,886	₩ 12,736	₩ 29,059	₩ -	₩ 18,881,681

(*) Provisions for financial guarantee are excluded.

44. Financial instruments by category (cont'd)

-2019

① Current financial assets

Current financial assets:	2019						
				Financial assets measured at FVTPL			
	Debt instruments at amortized cost	Debt instruments at FVOCI	Equity instruments at FVOCI	Derivatives not designated as hedging instruments	Derivatives designated as hedging instruments	Others	Total
Cash and cash equivalents	₩ 257,101	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 257,101
Financial assets at fair value through profit or loss	-	-	-	990	-	10,100	11,090
Financial assets at amortized cost	100	-	-	-	-	-	100
Current financial assets	74,876	-	-	-	-	-	74,876
Loans	12,523	-	-	-	-	-	12,523
Trade and other receivables [1]	5,136,754	-	-	-	-	-	5,136,754
Total	₩ 5,481,354	₩ -	₩ -	₩ 990	₩ -	₩ 10,100	₩ 5,492,444

[1] Contract assets are excluded.

44. Financial instruments by category (cont'd)

② Non-current financial assets

	2019						
				Financial assets measured at FVTPL			
Non-current financial assets:	**Debt instruments at amortized cost**	**Debt instruments at FVOCI**	**Equity instruments at FVOCI**	**Derivatives not designated as hedging instruments**	**Derivatives designated as hedging instruments**	**Others**	**Total**
Financial assets at fair value through profit or loss	₩ -	₩ -	₩ -	₩ -	₩ 22,427	₩ 1,617	₩ 24,044
Financial assets at fair value through other comprehensive income	-	-	125,968	-	-	-	125,968
Financial assets at amortized cost	366	-	-	-	-	-	366
Long-term financial instruments	16	-	-	-	-	-	16
Loans	378,716	-	-	-	-	-	378,716
Trade and other receivables [1]	283,158	-	-	-	-	-	283,158
Other non-current financial assets	70,000	-	-	-	-	-	70,000
	₩ 732,256	₩ -	₩ 125,968	₩ -	₩ 22,427	₩ 1,617	₩ 882,268

[1] Contract assets are excluded.

44. Financial instruments by category (cont'd)

③ Current financial liabilities

Current financial liabilities	2019				
		Financial liabilities at fair value through profit or loss			
	Financial liabilities at amortized cost	Derivatives not designated as hedging instruments	Hedging derivative instruments	Others	Total
Trade and other receivables	₩ 2,279,500	₩ -	₩ -	₩ -	₩ 2,279,500
Financial liabilities at fair value through profit or loss	-	40,292	34,548	-	74,840
Borrowing	3,800,315	-	-	-	3,800,315
Debentures	2,346,906	-	-	-	2,346,906
	₩ 8,426,721	₩ 40,292	₩ 34,548	₩ -	₩ 8,501,561

(*) Provisions for financial guarantee are excluded.

④ Non-current financial liabilities

Non-current financial liabilities	2019				
		Financial liabilities at fair value through profit or loss			
	Financial liability at amortized cost	Derivatives not designated as hedging instruments	Hedging derivative instruments	Others	Total
Trade and other receivables	₩ 1,958,845	₩ -	₩ -	₩ -	₩ 1,958,845
Financial liabilities at fair value through profit or loss	-	40,535	32,817	-	73,252
Borrowing	476,493	-	-	-	476,493
Bonds	17,766,744	-	-	-	17,766,744
	₩ 20,202,082	₩ 40,535	₩ 32,817	₩ -	₩ 20,275,434

(*) Provisions for financial guarantee are excluded.

44. Financial instruments by category (cont'd)

(2) Net gains or losses on each category of financial instruments for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Cash and cash equivalents		
Interest income	₩ 3,032	₩ 10,306
Gain (loss) on foreign currency transactions	119	2,390
Gain (loss) on foreign currency translation	1,561	221
Financial assets at fair value through profit or loss		
Interest income	15,806	885
Gain (loss) on foreign currency transactions	1,803	972
Gain (loss) on valuation of derivatives	39,060	990
Gain (loss) on transactions of derivatives	102,925	122,906
Gain (loss) on foreign currency translation	18	-
Gain (loss) on valuation	(6,546)	(827)
Dividends income	10	-
Financial assets at amortized cost		
Interest income	2,842	21,394
Gain (loss) on foreign currency transactions	(223)	2,005
Gain (loss) on foreign currency translation	(475,782)	158,059
Financial assets at fair value through other comprehensive income		
Dividends income	-	13
Comprehensive income recognized during the year	(64,908)	69,340
Financial liabilities at fair value through profit or loss		
Gain (loss) on foreign currency transactions	(3,239)	(1,807)
Gain (loss) on valuation of derivative instruments	(106,934)	(95,480)
Gain (loss) on transactions of derivative instruments	(122,570)	(92,935)
Financial liability at amortized cost		
Interest expense	(719,918)	(836,776)
Gain (loss) on foreign currency transactions	9,667	(62,807)
Gain (loss) on foreign currency translation	547,444	(63,697)
Comprehensive loss recognized during the year	111,293	(83,453)
Hedging derivative instruments		
Interest expenses	(21,169)	(25,727)
Comprehensive income (loss) recognized during the year	(1,480)	2,848
Others		
Capitalization of interest	28,683	57,862
	₩ (653,589)	₩ (813,318)

45. Risk management

(1) Risk management framework

The Group manages various risks that may incur by each business unit and the main risks are capital risk, credit risk, liquidity risk, currency risk, interest rate risk and others. These risks are recognized, measured, controlled and reported in accordance with the basic policy for risk management determined by the Group.

The Group's risk management policies are established to identify and analyze the risks faced by the Group, to set appropriate risk limits and controls, and to monitor risks and adherence to limits.

Risk management policies and systems are reviewed regularly to reflect changes in market conditions and the Group's activities. The Group's Audit Committee oversees how management monitors compliance with the Group's risk management policies and procedures, and reviews the adequacy of the risk management framework in relation to the risks faced by the Group.

(2) Capital risk management

The Group's objectives when managing capital are to safeguard the Group's ability to continue as a going concern, so the Group can continue to provide returns for shareholders and benefits for other stakeholders, and to maintain an optimal capital structure to reduce the cost of capital.

In order to maintain or adjust the capital structure, the Group may adjust the amount of dividends paid to shareholders, return capital to shareholders, issue new shares or sell assets to reduce debt.

Consistent with others in the industry, the Group monitors capital on the basis of the gearing ratio. This ratio is calculated as net debt divided by total capital. Net debt is total borrowings (including ‘short and long-term borrowings' as shown in the consolidated statement of financial position) less cash and cash equivalents and MMT(Money Market Trust) which has high cashability among FVPL assets. Total capital is ‘equity' as shown in the consolidated statement of financial position plus net debt.

The gearing ratios at December 31, 2020 and 2019 ere as follows (Korean won in millions, except gearing ratio):

	2020	2019
Liabilities		
Short-term borrowings	₩ 3,110,297	₩ 3,800,315
Current portion of debentures	2,003,645	2,346,906
Current portion of lease liabilities	208,108	310,552
Long-term borrowings	760,983	476,493
Debentures, net of current portion	16,285,136	17,766,744
Lease liabilities, net of current portion	1,792,939	1,958,068
Total Liabilities	₩ 24,161,108	₩ 26,659,078
Cash equivalents		
Cash and cash equivalents	331,761	257,101
Current financial assets at fair value through profit or loss[1]	7,800	10,100
Short-term financial instruments	21,760	74,876
Total cash equivalents	₩ 361,321	₩ 342,077
Net debt	23,799,787	26,317,001
Total equity	7,735,155	8,146,521
Total capital	₩ 31,534,942	₩ 34,463,522
Gearing ratio	75.47%	76.36%

[1] Derivative assets are excluded.

45. Risk management (cont'd)

(3) Financial risk management

1) Credit Risk

Credit risk is a risk that a counterparty can not fulfill its obligation under a financial instrument or customer contract, resulting in financial loss. The Group is exposed to credit risks from operating activities (mainly trade receivables), banking and financial institution deposits, foreign exchange transactions and other financial instruments.

In order to control the risk arising from the default of the debtor, the Group has secured sufficient collateral in consideration of the credibility of the counterparty. The credit rating of the counterparty is based on the credit rating provided by an independent external credit rating agency, but if it is not possible to obtain the data, the credit rating is measured using the transaction information obtained with the counterparty, and the credit rating is continuously remeasured.

The Group's investments in debt instruments are considered to be low risk investments. The credit ratings of the investments are monitored for credit deterioration.

There are no significant concentrations of credit risk, whether through exposure to individual customers, specific industry sectors and regions.

The Group has four types of financial assets that are subject to the expected credit loss model:
- trade receivables for sales of goods and rendering of services,
- contract assets relating to rendering of services,
- loans to subsidiaries and associateded
- debt investments carried at fair value through profit or loss
- debt investments carried at fair value through other comprehensive income, and
- other financial assets carried at amortized cost.

While cash equivalents are also subject to the impairment requirement, the identified impairment loss was immaterial.

The Group applies the simplified method to recognize loss allowance for all financial assets held based on lifetime expected credit losses.

The book amount of financial assets means maximum exposure in respect of credit and counterparty risk. Meanwhile, financial guarantee contracts provided by the Group are recognized as provision for financial guarantee according to Note 2.3 (17), and maximum exposure to credit risk of financial guarantee contracts is the maximum guaranteed amount that the Group should pay upon the guarantee's claims.

The maximum exposure to credit risk as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020		2019	
Cash and cash equivalents (excluding cash on hands)	₩	328,295	₩	254,680
Financial assets at FVTPL		59,556		35,134
Short-term and long-term financial assets		21,775		74,892
Financial assets at amortized cost		1,463		467
Loans and receivables		527,874		461,239
Trade and other receivables		4,445,962		5,419,912
Financial guarantee contracts[1]		1,221,577		1,539,602
	₩	6,606,502	₩	7,785,926

[1] The amount is the maximum guaranteed amount that the Group should pay upon the guarantee's claim.

45. Risk management (cont'd)

Details of financial guarantee contracts as of December 31, 2020, are as follows (Korean won in millions, and US dollars in thousnads):

	Currency		Total guaranteed amount	
Related parties[1]				
Terminal KMS de GNL, S. de R.L. de C.V.	USD	22,551	₩	24,535
	USD	9,240		10,053
KLBV1.S.A	USD	24,522	₩	26,680
Coral FLNG S.A.	USD	524,833	₩	571,018
Coral South FLNG DMCC	USD	487,470	₩	530,367
Others[1]				
Empresa Nacional de Hidrocarbonetos, E.P	USD	54,158	₩	58,924

[1] Details of these financial guarantee contracts are described in Note 47. (2). 6). And Note 50. (2).

2) Liquidity risk

Liquidity risk is the risk that the Group will encounter difficulty in meeting the obligations associated with its financial liabilities that are settled by delivering cash or another financial asset. The Group's approach to managing liquidity is to ensure, as far as possible, that it will always have sufficient liquidity to meet its liabilities when due, under both normal and stressed conditions. The management of the Group believes that they are able to repay the financial liabilities by cash flows from operating activities and cash inflows from financial assets.

Aggregate maturities of the Group's financial liabilities as of December 31, 2020, are as follows (Korean won in millions):

	Book value	Cash flows in contract	1 year or less	1 ~ 5 years	More than 5 years
Non-derivative financial liabilities					
Debentures	₩ 18,288,781	₩ 22,022,506	₩ 2,546,418	₩ 9,646,696	₩ 9,829,392
Borrowings	3,871,280	3,915,530	3,122,552	623,520	169,458
Lease liabilities	2,001,047	2,216,721	211,689	671,979	1,333,053
Trade and other payables[1]	1,529,494	1,529,494	1,528,667	827	-
Provision of financial guarantee[2]	17,996	1,221,577	1,221,577	-	-
	₩ 25,708,598	₩ 30,905,828	₩ 8,630,903	₩ 10,943,022	₩ 11,331,903
Derivative financial liabilities					
Derivative financial liabilities[3]	₩ 146,904	₩ 155,214	₩ 115,354	₩ 33,687	₩ 6,173

[1] Lease liabilities are excluded because they are presented separately.
[2] In case of finance guarantee contract, the amount is distributed to the earliest period when the guarantee could be demanded.
[3] Derivative for trading purpose and cash flow hedge ard included.

45. Risk management (cont'd)

Aggregate maturities of the Group's financial liabilities as of December 31, 2019, are as follows (Korean won in millions):

	Book value	Cash flows in contract	1 year or less	1 ~ 5 years	More than 5 years
Non-derivative financial liabilities					
Debentures	₩ 20,113,650	₩ 24,488,618	₩ 2,970,679	₩ 9,781,993	₩ 11,735,946
Borrowings	4,276,808	4,302,340	3,812,613	313,234	176,493
Finance lease liabilities	2,268,619	2,780,259	316,626	799,784	1,663,849
Trade and other payables[1]	1,969,726	1,969,726	1,968,949	777	-
Other payment guarantee[2]	10,522	1,539,602	1,539,602	-	-
	₩ 28,639,325	₩ 35,080,545	₩ 10,608,469	₩ 10,895,788	₩ 13,576,288
Derivative financial liabilities					
Derivative financial liabilities[3]	₩ 148,192	₩ 156,276	₩ 94,477	₩ 56,884	₩ 4,915

[1] Finance lease liabilities are excluded because they are presented separately.
[2] In case of finance guarantee contract, the amount is distributed to the earliest period when the guarantee could be demanded.
[3] Derivatives for trading purpose and cash flow hedge are included.

3) Currency risk

The Group is exposed to currency risk on sales, purchases and borrowings that are denominated in a currency other than the respective functional currencies of the Group, primarily the US Dollars (USD), but also Canadian Dollars (CAD) and Australian Dollars (AUD) and other currencies. The Group uses forward exchange contracts to hedge its currency risk.

In respect of other monetary assets and liabilities denominated in foreign currencies, the Group ensures that its net exposure is kept to an acceptable level by buying or selling foreign currencies at spot rates.

The book amounts of foreign currency assets and liabilities as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020					
	USD	EUR	AUD	CAD	JPY	CHF
Assets						
Cash and cash equivalents	₩ 2,807	₩ 135	₩ 11,689	₩ 5,440	₩ -	₩ -
Trade and other receivables	329,226	-	6,542	94,947	32	-
Financial assets at amortized cost	-	-	-	-	-	-
Loans and receivables	83,875	-	-	-	-	-
Financial assets	-	-	-	-	-	-
Other financial assets	-	-	-	-	-	-
Total assets	415,908	135	18,231	100,387	32	-
Liabilities						
Trade and other payables	873,316	1,849	(518)	(300)	733	212
Debentures	6,201,600	117,765	-	-	126,511	617,165
Borrowings	2,046,347	-	-	-	-	-
Derivative liabilities	1,850,585	-	-	-	-	-
Lease liabilities	18,559	-	-	-	-	-
Other financial liabilities	3,523	-	39	1,851	-	-
Total liabilities	10,993,930	119,614	(479)	1,551	127,244	617,377
Net exposure	₩ (10,578,022)	₩ (119,479)	₩ 18,710	₩ 98,836	₩ (127,212)	₩ (617,377)

45. Risk management (cont'd)

	2020						
	MXN	AED	MZN	GBP	SGD	KWD	HKD
Assets							
Cash and cash equivalents	₩ 6	₩ 26	₩ 74	₩ -	₩ 44	₩ 82	₩ -
Trade and other receivables	-	-	-	-	-	-	-
Financial assets at amortized cost	-	-	954	-	-	-	-
Financial assets	-	-	-	-	-	-	-
Loans and receivables	-	-	-	-	-	-	-
Other financial assets	-	-	-	-	-	-	-
Total assets	6	26	1,028	-	44	82	-
Liabilities							
Trade and other payables	-	-	-	24	206	1	381
Debentures	-	-	-	-	-	-	63,158
Borrowings	-	-	-	-	-	-	-
Derivative liabilities	-	-	-	-	-	-	-
Lease liabilities	-	-	-	-	104	-	-
Other financial liabilities	-	-	-	-	-	-	-
Total liabilities	-	-	-	24	310	1	63,539
Net exposure	₩ 6	₩ 26	₩ 1,028	₩ (24)	₩ (266)	₩ 81	₩ (63,539)

	2019					
	USD	EUR	AUD	CAD	JPY	CHF
Assets						
Cash and cash equivalents	₩ 2,454	₩ 22	₩ 12,554	₩ 536	₩ -	₩ -
Trade and other receivables	42,883	9	5,066	98,542	26	-
Financial assets at amortized cost	274	-	-	-	-	-
Financial assets	84,653	-	-	-	-	-
Loans and receivables	-	-	-	-	-	-
Other financial assets	-	606	1,825	-	111	-
Total assets	130,264	637	19,445	99,078	137	-
Liabilities						
Trade and other payables	1,319,682	2,752	13,414	1,851	739	4,494
Borrowings	1,853,808	-	-	-	-	-
Debentures	7,178,360	114,174	-	-	127,616	956,416
Lease liabilities	2,111,130	-	-	-	-	-
Other financial liabilities	10,522	-	-	2,444	-	-
Total liabilities	12,473,502	116,926	13,414	4,295	128,355	960,910
Net exposure	₩ (12,343,238)	₩ (116,289)	₩ 6,031	₩ 94,783	₩ (128,218)	₩ (960,910)

	2019					
	CNY	MXN	AED	MZN	MYR	GBP
Assets						
Cash and cash equivalents	₩ -	₩ 10	₩ 7	₩ 2,127	₩ -	₩ -
Trade and other receivables	-	-	-	-	-	-
Financial assets at amortized cost	-	-	-	-	-	-
Financial assets	-	-	-	-	-	-
Loans and receivables	-	-	16	-	-	-
Other financial assets	-	-	-	-	42	-
Total assets	-	10	23	2,127	42	-
Liabilities						
Trade and other payables	48	-	-	-	-	23
Borrowings	-	-	-	-	-	-
Debentures	-	-	-	-	-	-
Lease liabilities	-	-	-	-	-	-
Other financial liabilities	-	-	-	-	-	-
Total liabilities	48	-	-	-	-	23
Net exposure	₩ (48)	₩ 10	₩ 23	₩ 2,127	₩ 42	₩ (23)

45. Risk management (cont'd)

Foreign currency exchange rate as of December 31, 2020 and 2019, are as follows

	2020	2019
USD	₩ 1,088.00	₩ 1,157.80
EUR	1,338.24	1,297.43
JPY	10.54	10.63
CAD	853.30	886.56
AUD	836.56	810.34
CHF	1,234.33	1,195.52
GBP	1,482.40	1,518.69
MYR	269.51	281.94
THB	36.34	38.66
CNY	166.96	165.74
RUB	14.62	18.67
HKD	140.35	148.66
SGD	822.22	858.55
AED	296.20	315.21
MZN	16.25	18.84
MXN	54,60	61.11
KWD	3,577.18	3,819.11

Sensitivity analysis of profit before income tax from changes of foreign exchange rate for the year ended December 31, 2020, are as follows (Korean won in millions):

	10% Increase	10% Decrease
Profit (loss) before income tax	₩ (29,285)	₩ 29,285

4) Interest rate risk

The Group borrows funds at fixed and variable interest rate. Also, the Group's management monitors the level of interest rates and maintains the balance of borrowings at variable rates and fixed rates.

Variable interest rate financial instrument([1]) as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020	2019
Long-term borrowings	₩ 153,553	₩ 161,204
Debentures	531,067	510,155
Lease liabilities	₩ 684,620	₩ 671,359

[1] Excluded fully hedged variable interest rate financial instrument.

Sensitivity analysis of profit before income tax from changes of interest rate for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020		2019	
	100bp Increase	100bp decrease	100bp Increase	100bp decrease
Profit (loss) before income tax	₩ (6,846)	₩ 6,846	₩ (6,714)	₩ 6,714

5) Major assets and liabilities affected by estimates

Changes in defined benefit obligation due to changes in actuarial assumptions as of December 31, 2020, are as follows (Korean won in millions):

	1% increase	1% decrease
Salary growth rate	₩ 38,910	₩ (33,879)
Discount rate	(33,337)	38,995

45. Risk management (cont'd)

(4) Fair value of financial assets and liabilities

1) Carrying amounts and fair value of financial assets and liabilities as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020		2019	
	Book value	Fair value	Book value	Fair value
Assets carried at fair value				
Financial assets at fair value through other comprehensive income[1]	₩ 61,060	₩ 61,060	₩ 125,969	₩ 125,969
Financial assets at fair value through profit and loss	59,556	59,556	35,135	35,135
	₩ 120,616	₩ 120,616	₩ 161,104	₩ 161,104
Assets carried at amortized cost[2]				
Trade and other receivables	₩ 4,445,962	₩ -	₩ 5,419,912	₩ -
Financial assets at amortized cost	1,463	-	466	-
Loans and receivables	527,874	-	461,239	-
Short-term and long term financial assets	21,775	-	74,892	-
Cash and cash equivalents	331,761	-	257,101	-
	₩ 5,328,835	₩ -	₩ 6,213,610	₩ -
Liabilities carried at fair value				
Financial liabilities at fair value through profit or loss	146,904	146,904	148,192	148,192
	₩ 146,904	₩ 146,904	₩ 148,192	₩ 148,192
Liabilities carried at amortized cost[3]				
Debentures	₩ 18,288,781	₩ 18,251,794	₩ 20,113,650	₩ 21,679,671
Lease liabilities	2,001,047	-	2,268,620	-
Borrowings	3,871,280	-	4,276,808	-
Trade and other payables [2]	1,529,494	-	1,969,726	-
	₩ 25,690,602	₩ 18,251,794	₩ 28,628,804	₩ 21,679,671

[1] Financial assets at fair value through other comprehensive income of ₩104 million, which is measured at cost, is excluded from the fair value disclosures based on the assumption that the difference between fair value and carrying amount is not material.

[2] Lease liabilities are excluded because they are presented separately.

45. Risk management (cont'd)

2) Rate of interest used in determining fair value

Details of discount ratios as of December 31, 2020 and 2019, are as follows:

	2020	2019
Derivative instruments	0.948~1.042%	0.859%~1.027%
Debentures	(-)0.327~2.725%	(-)0.863%~3.124%

3) The level of fair value hierarchy are as follows:

No Significant changes in the business and economic environment that could affect the fair value of financial assets and financial liabilities occurred during the reporting period.

Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities
Level 2: All inputs other than quoted prices included in level 1 that are observable (either directly that is, prices, or indirectly that is, derived from prices) for the asset or liability
Level 3: Unobservable inputs for the asset or liability

The fair value measurements classified by fair value hierarchy as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value through other comprehensive income	₩ -	₩ -	₩ 61,060	₩ 61,060
Financial assets at fair value through profit or loss	-	57,748	1,808	59,556
Financial liabilities at fair value through profit or loss	-	146,904	-	146,904

	2019			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value through other comprehensive income	₩ -	₩ -	₩ 125,969	₩ 125,969
Financial assets at fair value through profit or loss	-	35,135	-	35,135
Financial liabilities at fair value through profit or loss	-	148,192	-	148,192

There is no movement between Level 1 and Level 2 during 2020 and 2019.

45. Risk management (cont'd)

Changes in financial instruments categorized within Level 3 for the year ended of December 31, 2020, are as follows:

	Beginning balance	Acquisition cost	Profit or loss	Other comprehensive income	Disposal	Transfer	Ending balance
Financial assets at fair value through other comprehensive income	₩ 125,969	₩ -	₩ -	₩ (64,909)	₩ -	₩ -	₩ 61,060

4) Unobservable inputs in the market

The valuation techniques used to measure the fair value of financial instruments classified as Level 2 as of December 31, 2020 are as follows (Korean won in millions):

Description	Fair value	Valuation technique
Financial assets at fair value through profit or loss	₩ 57,748	Market forward exchange rate and yield curve
Financial liabilities at fair value through profit or loss	146,904	Market forward exchange rate and yield curve

The valuation method used in the fair value measurements of financial instruments classified as Level 3 and significant but unobservable inputs as of December 31, 2020, are as follows (Korean won in millions):

	2020				
	Valuation techniques	Type	Book value	Inputs	Range of inputs
Financial assets at fair value through other comprehensive income	Discounted cash flow method	Energy business stock	₩ 60,816	Weighted average cost of equity capital	26.90%
				Selling price	3.44 ~ 11.05 $/MMBTU

Changes in financial assets at fair value through other comprehensive income due to changes WACC used in fair value measurements of financial assets as of December 31, 2020, are as follows (Korean won in millions):

	Fluctuations in the value of books	1% decrease	1% increase
Changes in WACC	Increase(decreas) of financial assets at fair value through other comprehensive income	₩ 4,809	₩ (4,382)

Fair value hierarchy classifications of the financial assets and financial liabilities that are not measured at fair value but those with disclosed fair values as of December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020			
	Level 1	Level 2	Level 3	Total
Debentures	₩ 10,108,214	₩ 8,143,580	₩ -	₩ 18,251,794

	2019			
	Level 1	Level 2	Level 3	Total
Debentures	₩ 12,601,555	₩ 9,078,116	₩ -	₩ 21,679,671

46. Related party transactions

(1) Detail list of related parties as of December 31, 2020 are as follows:

Relationship	Related parties
Ultimate parent	Government of the Republic of Korea[1]
Subsidiaries	Korea Gas Technology Corporation
	KOGAMEX Investment Manzanillo B.V.
	KOMEX-GAS,S.de R.L de C.V
	KOGAS Iraq B.V.
	KOGAS Badra B.V.
	KOGAS Akkas B.V.
	KOGAS Mansuriya B.V.
	KOGAS Canada Energy Ltd.[2]
	KOGAS Australia Pty Ltd.
	KOGAS Prelude Pty Ltd.
	KG Timor Leste Ltd.
	KG Krueng Mane Ltd.
	KG Mozambique Ltd.
	KOGAS Mozambique Lda.
	KOGAS Cyprus Ltd.
	KCLNG TECH Ltd.
	KG-SEAGP Company Limited
	KG Myanmar Ltd.
	KOGAS International Pte Ltd.
	KGLNG E&P Pty Ltd.[3]
	KGLNG Liquefaction Pty Ltd.[3]
	KGLNG E&PⅡ Pty Ltd.[3]
	KOGAS Canada Partner Ltd.[12]
	KOGAS Canada E&P Partnership[12]
	KOGAS Canada LNG Partnership[12]
	Korea LNG Bunkering Ltd.[10]
Associates	Korea Ras Laffan LNG Ltd.
	Korea LNG Ltd.
	Korea LNG Trading Ltd.
	South-East Asia Gas Pipeline Company Limited[4]
	TOMORI E&P LIMITED
	Hydrogen Energy Network Ltd.
	Kor-Uz Cylinder Investments Ltd.
	Kor-Uz CNG Investments Ltd.
	Coral FLNG S.A.[5]
	Coral South FLNG DMCC[5]
	Rovuma LNG, S.A.[5]
	Rovuma LNG Investments (DIFC) Ltd.[5, 10]
Joint ventures	Kor-Uz Gas Chemical Investment Ltd.
	Sulawesi LNG Development Limited
	Hyundai Yemen LNG Company
	KLBV1 S.A.[10]
	TERMINAL KMS de GNL, S. De R.L. De C.V.[6]
	Manzanillo Gas Tech, S. de R.L. de C.V.[6]
	GLNG Operations Pty Ltd.[7]
	GLNG Property Pty Ltd.[7]
	ENH-KOGAS, SA.[8]
	LNG Canada development[9]
Others[2]	Korea Electric Power Group
	Korea Southern Power Co., Ltd.
	Korea Midland Power co., Ltd.

Relationship	Related parties
	Korea Western Power Co., Ltd
	Korea East-West Power Co., Ltd
	Korea South-East Power Co., Ltd
	KOSPO Youngnam Power Co., Ltd.

[1] Exercising control over the consolidated entity, but no significant transactions in 2020, 2019.
[2] New merger between KOGAS Canada Ltd. and KOGAS Canada LNG Ltd.
[3] A subsidiary of KOGAS Australia Pty, Ltd.
[4] An associate of KG-SEAGP Company Ltd.
[5] An associate of KG Mozambique Ltd.
[6] A joint venture of KOGAMEX Investment Manzanillo B.V.
[7] A joint venture of KOGAS Australia Pty, Ltd.
[8] A joint venture of KOGAS Mozambique Lda.
[9] A joint venture of Canada Energy Ltd.
[10] Newly established in 2020.
[11] Korea Electric Power Corporation and major trading partners among it's subsidiaries exerting a significant influence on the consolidated entity
[12] Newly established in 2020 as a subsidiary of KOGAS Canada Energy Ltd.

(2) Transactions between us and our subsidiaries have been removed upon consolidation and are not disclosed in comments. Transactions between the Group and other related parties are as follows.

1) Significant transactions which occurred in the normal course of business with related parties for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		Sales and other income		Purchases and other expense	
Related Party	Transaction	2020	2019	2020	2019
Korea Ras Laffan LNG Ltd.	Dividends	₩ 38,817	₩ 61,144	₩ -	₩ -
	Retirement allowance	74	-	-	-
Korea LNG Ltd.	Dividends	9,306	16,105	-	-
Hyundai Yemen LNG Company	Interest income	811	989	-	-
Korea LNG Trading Co., Ltd.	Costs of sales	-	-	81,370	112,983
	Interest expense	-	-	10,400	20,705
South-East Asia Gas Pipeline Company Limited	Interest income	3,240	4,443	-	-
Terminal KMS de GNL, S. de R.L. de C.V	Miscellaneous gains	113	131	-	-
	Revenue	45	98	-	-
TOMORI E&P LIMITED	Gain on disposition of shares of affiliated companies	-	891	-	-
	Loss on disposition of shares of affiliated companies	-	-	2,119	-
Manzanillo Gas Tech, S. de R.L. de C.V	Revenue	7,914	7,589	-	-
ENH-KOGAS, SA.	Service revenue	295	253	-	-
LNG Canada Development	Miscellaneous gains	877	8	-	-
Hydrogen Energy Network Co., Ltd.	Commissions	-	-	-	2
Korea Electric Power Group	Miscellaneous gains and others	7	7	-	-
	Utility expenses and others	-	-	91,927	91,754
Korea Southern Power Co., Ltd.	Revenue[1]	986,651	1,141,714	-	-
	Rental income	349	-	-	-
	Lease payments	-	-	85	5
	Interest expenses	-	-	4	-
	Penalties and claims	-	-	-	180
Korea Midland Power Co., Ltd.	Revenue[1]	580,097	534,571	-	-
	Miscellaneous gains	5	24	-	-
	Gain on disposal of PP&E	-	172	-	-

Related Party	Transaction	Sales and other income		Purchases and other expense	
		2020	2019	2020	2019
	Rental income	-	2	-	-
	Utility expenses	-	-	-	3
	Lease payments	-	-	345	495
	Interest expenses	-	-	34	-
Korea Western Power Co., Ltd.	Revenue[1]	641,209	953,388	-	-
	Utility expenses and others	-	-	2,162	3,284
	Lease payments	-	-	95	177
	Interest expenses	-	-	24	23
Korea East-West Power Co., Ltd.	Revenue[1]	608,460	817,158	-	-
	Fuel maintenance costs and others	-	-	105	12
	Lease payments	-	-	165	168
	Interest expenses	-	-	8	-
Korea South-East Power Co., Ltd.	Revenue[1]	251,569	341,095	-	-
	Rental income	35	31	-	-
	Fuel maintenance costs and others	-	-	100	160
KOSPO Youngnam Power Co., Ltd.	Revenue[1]	202,596	261,334	-	-

[1] Individual consumption taxes are included.

2) Account balances, excluding loans and borrowings, with related parties as of December 31, 2020 and 2019, are as follows (Korean won in millions):

Related Party	Account	Receivables		Payables	
		2020	2019	2020	2019
LNG Canada development	Non-trade receivables	₩ 258	₩ 279	₩ -	₩ -
Korea Ras Laffan LNG Ltd.	Non-trade receivables	-	2,786	-	-
Korea LNG Trading Co., Ltd.	Lease liabilities	-	-	440,784	528,305
	Current portion of lease liabilities	-	-	55,672	57,193
	Trade payables	-	-	11,036	17,872
	Accrued expense	-	-	2,760	2,784
	Prepaid expense	200	2,626	-	-
Hyundai Yemen LNG Company	Accrued income	11,893	11,784	-	-
Manzanillo Gas Tech, S. de R.L. de C.V	Trade receivables	-	657	-	-
	Trade payables	-	-	124	-
Terminal KMS de GNL, S. de R.L. de C.V	Long-term non-trade receivables	254	307	-	-
	Trade receivables	3	31	-	-
ENH-KOGAS, SA.	Non-trade receivables	91	96	-	-
Korea Electric Power Group	Non-trade payables	-	-	3	31
	Accrued expense	-	-	9,587	8,829
Korea Southern Power Co., Ltd.	Trade receivables	117,253	118,984	-	-
	Lease liabilities	-	-	375	4
Korea Midland Power Co., Ltd.	Trade receivables	77,693	87,748	-	-
	Non-trade payables	-	-	-	32
	Lease liabilities	-	-	4,455	-
Korea Western Power Co., Ltd.	Trade receivables	96,248	101,727	-	-
	Non-trade payables	-	-	56	26
	Lease liabilities	-	-	1,270	1,104
Korea East-West Power Co., Ltd.	Trade receivables	72,143	92,238	-	-
	Lease liabilities	-	-	1,098	-
Korea South-East Power Co., Ltd.	Trade receivables	45,385	48,750	-	-
	Non-trade payables	-	-	40	12
KOSPO Youngnam Power Co., Ltd.	Trade receivables	20,658	13,283	-	-

46. Related party transactions (cont'd)

3) Loans to related parties as of December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020		2019	
Associates	South-East Asia Gas Pipeline Company Limited	₩	19,720	₩	27,959
	Coral FLNG S.A.		163,274		136,656
Joint ventures	Hyundai Yemen LNG Company		35,465		34,477
	ENH-KOGAS, SA		6,914		11,037
		₩	225,373	₩	210,129

4) Limits of financial commitments related parties as December 31, 2020 are as follows (US dollars in thousands) :

		Loan limit	
Associates	Coral FLNG S.A.	USD	371,200
	South-East Asia Gas Pipeline Company Limited	USD	58,721
Joint ventures	Hyundai Yemen LNG Company Limited	USD	93,500
	ENH-KOGAS, SA	USD	38,100

5) Fund transactions with related parties for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

		2020			
		Loan transactions		Cash contribution	
Relationship	Related party	Loans	Collections	Acquisition	Disposal
Associates	TOMORI E&P LIMITED	₩ -	₩ -	₩ -	₩ (45,506)
	Hydrogen Energy Network Co., Ltd.	-	-	9,000	-
	Coral FLNG S.A.	43,508	-	-	-
	Rovuma LNG Investments (DIFC) Ltd.	-	-	6	-
	South-East Asia Gas Piepline Company Ltd.	-	(7,455)	-	-
Joint ventures	Sulawesi LNG Development Limited	-	-	62	-
	Hyundai Yemen LNG	3,211	-	-	-
	KLBV1 S.A	-	-	3,056	-
	ENH-KOGAS, SA.	-	(3,750)	-	-

		2019			
		Loan transactions		Cash contribution	
Relationship	Related party	Loans	Collections	Acquisition	Disposal
Associates	TOMORI E&P LIMITED	₩ -	₩ -	₩ -	₩ (35,267)
	Hydrogen Energy Network Co., Ltd.	-	-	6,300	-
	Coral FLNG S.A.	76,085	-	-	-
	Coral South FLNG DMCC	-	(116)	-	-
	South East Asia Gas Piepline Company Ltd	-	(6,991)	-	-
Joint ventures	Sulawesi LNG Development Limited	-	-	54	-
	Hyundai Yemen LNG	4,667	-	-	-
	ENH-KOGAS, SA.	-	(11,028)	-	-

The Group entered into funding agreements proportionate to its ownership percentage in accordance with the joint arrangements among the Group, and its subsidiaries and associates in relation to the overseas resources development.

46. Related party transaction (cont'd)

6) The payment guarantees provided to related parties as of December 31, 2020, are as follows (US dollars in thousands):

Guarantor	Related party[1]	Detail	Guaranteed amount		Beneficiary
KOGAS	Terminal KMS de GNL, S. de R.L. de C.V.	Operation and maintenance expense guarantee	USD	22,551	Manzanillo Gas Tech
KOGAS	Terminal KMS de GNL, S. de R.L. de C.V.	PF repayment guarantee	USD	9,240	KEB Hana Bank
KOGAS	Coral FLNG S.A	Guarantee payment for outstanding debt indicated in FLNG EPCIC contract [2]	USD	524,833	TJS Consortium
KOGAS	Coral South FLNG DMCC	Payment guarantee for the obligation to repay the principal and interest of the project finance related to Coral South FLNG's business [3]	USD	487,470	Sumitomo Mitsui Banking Corporation
KOGAS	KLBV1.S.A	Payment guarantee for Ship Construction Contract for Shell Bunkering Infrastructure Supply Project	USD	24,522	Hyundai Mipo Dockyard

[1] The related parties are associates or joint ventures of the Group.
[2] Guarantee obligation is effective if the aggregate outstanding debt is more than USD 50 million.
[3] Guarantee obligation on the acutual withdrawn principal and interest occur in the event of a default, and the guantee is provided until the financial completion date (planned on January 31, 2024).

7) The performance guarantees provided to related parties as of December 31, 2020, are as follows (US dollars in thousands):

Guarantor	Related party[1]	Detail	Guaranteed amount		Beneficiary
KOGAS	Sulawesi LNG Development Limited	Guarantee from KOGAS in the percentage of Sulawesi LNG Development(SLD) ownership (25%) on SLD's obligation to provide finance to DSLNG.	USD	13,762	DSLNG, Pertamina, Medco
KOGAS	Sulawesi LNG Development Limited	KOGAS bears obligation in its ownership percentage (25%) of SLD in relation to funding resolution arising as a result of share acquisition, and execution of funding in accordance with DSLNG's shareholder contract	USD	13,762	DSLNG
KOGAS	Sulawesi LNG Development Limited	In the event that SLD fails to comply with the guarantee obligation for the amount of the operation fund, the corporation will be obliged to pay the share ratio (25%) of the SLD.	USD	2,995	MUFG UNION BANK, N,A.
KOGAS	Terminal KMS de GNL, S. de R.L. de C.V.	Guarantee of contract performance[2]	USD	42,500	KEB Hana Bank, HSBC Mexico

[1]The related parties are associates or joint ventures of the Group.
[2]Counter-guarantee through granting credit by KEB Hana Bank

46. Related party transaction (cont'd)

8) The Group provides its shares in KOGAMEX Investment Manzanillo B.V. as collateral in relation to a transaction with Terminal KMS de GNL, S. de R.L. de C.V., and the details are as follows (Korean won in millions and US dollars in thousands):

Beneficiary	Contract date	Maturity date	Collateralized amount		Carrying amount		Remark
Sumitomo Mitsui Ban king Group	2017.05.31	2033.05.26	USD	487,470	USD	47,347	Provided as collateral to LNG sales revenue account, Coral South FLNG S.A and Coral South F LNG DMCC shares owned by the project finance lender[1]
	2017.09.20				USD	14	
KEXIM and others[2]	2009.09.16	2029.08.31	USD	48,800	KRW	25	Shares invested in KOGAMEX Investment Manzanillo B.V. and all related rights[2]

[1] This collateral is provided from the date of the related collateral agreement to the completion date of repayment of sydicate's principal and interest. The effect of the collateral agreement is forfeited when principal and interests are fully repaid at the request of the syndicate before the financial completion date.
[2] The shares invested in KOGAMEX Investment Mazanillo B.V which is owned by the Group, are provided as collateral for non-resident transactions of Terminal KMS at GNL, S. de R.L. de CV

9) The compensation for major management during the current and previous years are as follows. (Korean won in millions):

	2020		2019	
Short-term employees benefits	₩	2,639	₩	3,179
Retirement benefits		97		109
	₩	2,736	₩	3,288

47. Non-cash transactions

(1) The significant non-cash transactions for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020		2019	
Transfer of construction-in-progress to property, plant and equipment	₩	855,752	₩	2,405,129
Transfer of current portion of debentures		2,038,221		2,308,857
Transfer of current portion of lease liabilities		119,423		214,347
Transfer of current portion of long-term loans		1,580		7,618
Increase in lease liabilities due to increase in right-of-sue assets		88,341		78,944
Change in accounting policies		-		148,789

48. Adjustments in liabilities generated from financing activities

Changes in liabilities arising from financing activities for the years ended December 31, 2020 and 2019, are as follows (Korean won in millions):

	2020			
	Current portion of lease liabilities	Non-current portion of lease liabilities	Short-term borrowings	Current portion of debentures
Beginning balance	₩ 310,551	₩ 1,958,068	₩ 3,800,315	₩ 2,346,906
Cash flows	(223,113)	-	(658,528)	(2,339,334)
Acquisition-new leases	947	87,393	-	-
Exchange differences	173	(118,941)	(31,490)	(43,122)
Other non-financial changes	119,550	(133,581)	-	2,039,195
Ending balance	₩ 208,108	₩ 1,792,939	₩ 3,110,297	₩ 2,003,645

	2020				
	Long-term borrowings	Debentures	Current portion of derivative liabilities (assets)	Non-current portion of derivative liabilities (assets)	Total
Beginning balance	₩ 476,493	₩ 17,766,744	₩ 34,425	9,128	₩ 26,702,630
Cash flows	292,643	898,001	(34,425)	-	(2,064,756)
Acquisition-new leases	-	-	-	-	88,340
Exchange differences	(10,911)	(347,310)	-	(19,995)	(571,596)
Other non-financial changes	2,758	(2,032,299)	-	-	(4,377)
Ending balance	₩ 760,983	₩ 16,285,136	₩ -	(10,867)	₩ 24,150,241

	2019				
	Current portion of lease liabilities	Non-current portion of lease liabilities	Short-term borrowings	Current portion of long-term borrowings	Current portion of debentures
Beginning balance	₩ 434,998	₩ 1,880,292	₩ 3,682,824	₩ 2,250	₩ 2,592,902
Cash flows	(347,799)	-	152,557	(2,250)	(2,593,202)
Changes in accounting policies	-	148,789	-	-	-
Exchange differences	4,768	65,762	(35,066)	-	37,639
Other non-financial changes	218,584	(136,775)	-	-	2,309,567
Ending balance	₩ 310,551	₩ 1,958,068	₩ 3,800,315	₩ -	₩ 2,346,906

	2019				
	Long-term borrowings	Debentures	Current portion of derivative liabilities (assets)	Non-current portion of derivative liabilities (assets)	Total
Beginning balance	₩ 265,318	₩ 17,255,484	₩ 104,327	₩ 63,534	₩ 26,281,929
Cash flows	199,045	2,582,418	(104,327)	-	(113,558)
Changes in accounting policies	-	-	-	-	148,789
Exchange differences	5,887	231,641	11,227	(31,208)	290,650
Other non-financial changes	6,243	(2,302,799)	23,198	(23,198)	94,820
Ending balance	₩ 476,493	₩ 17,766,744	₩ 34,425	₩ 9,128	₩ 26,702,630

49. Purchase agreements

(1) As of December 31, 2020, the Group has no purchase agreements for the property, plant and equipment (2019: USD 52 million) related to righ-of-use assets and ₩259,363 million (2019: ₩91,136 million) related to main construction contracts.

(2) The Group's inventory purchase contracts as of December 31, 2020, are as follows (In thousands of tons):

	Contract period	Total contract quantity
Malaysia LNG SDN. BHD.	2008~2028	2,000
	1999~2024	4,920
Rasgas Company Limited	2007~2026	2,100
	2013~2032	2,000
Oman LNG LLC	2000~2024	4,060
Sakhalin Energy Investment Company Ltd.	2008~2028	1,500
Donghae Gas Field	2019~2021	90
Gladstone LNG	2016~2036	3,500
Shell Eastern Trading (Pte.) Ltd.	2013~2038	3,640
TOTAL Gas & Power Limited	2014~2031	2,000
Sabine Pass LNG	2017~2037	2,800
PT Donggi Senoro LNG	2015~2027	700
Petronas Short-term Contract	2018~2021	1,250
Marubeni Short-term Contract	2018~2021	300

(3) The Group entered into a royalty payment agreement with Tri-star Petroleum Company and another company in relation to GLNG in Australia. Relative to this, the Group is required to obtain consent with regard to the disposal of mineral rights (carrying amount of ₩52,687 million).

(4) The shareholders of KG-SEAGP Company Limited, the subsidiary of the Group, consist of the Group and PEF. The Group can execute the redemption right to preferred stock of PEF after seven years (expected 2023). If the right is not executed, the PEF can sell their preferred stock and also the common stock of the Group to a 3rd party.

(5) As of December 31, 2020, the shareholders of KG Myanmar Ltd., the subsidiary of the Group, consist of the Group and trustees. The Group can execute the redemption right to the preferred stock of trustees after seven years (expected 2024). If the right is not executed, trustees can sell their preferred stock and also the common stock of the Group to a 3rd party.

(6) As of December 31, 2020, the Group has expenditure agreements in addition to overseas resource development projects

50. Commitments and contingencies

(1) The Group is involved in various lawsuits and claims for alleged damages totaling to ₩ 86,583 million, AUD 203 million and USD 27 million as of December 31, 2020.

(2) Regarding the DSLNG price renegotiation, the Company has filed a claim for PT DONGGI-SENORO LNG as the arbitration site for Singapore, and the arbitration claim value is undecided.

(3) On October 16, 2020, as a result of the first trial, the consolidated entity lost the lawsuit and raised KRW 12,328 million as a liability for legal action (Note 27).

(4) In relation to the price negotiation for NWS LNG, Shell Australia Pty. Ltd. and five other organizations made an arbitration claim on the Group, designating Singapore as the place of arbitration in 2017. The result was finalized during the current term, paying approximately USD 102 million in arbitration amounts and associated expenses and they were reflected in the financial statements.

(5) As of December 31, 2019, except for note 1, there is no amount as a provision in connection with the above litigation case. Although the results of the above litigation are not expected to have a significant impact on the financial statements, further losses may occur depending on the outcome of the lawsuit in the future.

(6) As of December 31, 2020, the Group has provided guarantees to others, excluding related parties, for the payment of debts amounting to USD 74,027 thousand, KWD 26 thousand, CAD 1,830,047 thousand and EUR 1,540 thousand (USD 68,144 thousand, KWD 476 thousand, CAD 1,694,480 thousand and EUR 1,540 thousand at December 31, 2019).

(7) Details of collateralized amounts of the Group as of December 31, 2020, are as follows (korean won in millions and US dollars in thousnads):

Beneficiary	Contract date	Maturity date	Collateralized amount		Carrying amount		Remark
ING Bank N.V	2013.01.14	2027.06.20	USD	310,140[1]	₩	569,619	Kor-Uz Gas Chemical Investment Ltd. invested by Kor-Uz Gas Chemical Investment Ltd. holds Kor-Uz Gas Chemical Investment Ltd in connection with borrowings from major shareholders. Provide shares and all rights thereof as collateral [2]
Bank of Tokyo Mitsubishi	2008.05.19	Until the completion of the obligation performance (2027 is the expected year)	USD	2		60,816[3]	Providing guarantees to perform obligations related to PF of YLNG (The PF balance, which is equivalent to the construction share at the end of December 31, 2020, is USD 77,041)
			Equity Funding			44,940[4]	
Shell Canada Energy, Diamond LNG Canada Ltd., Brion Kitmat LNG partnership	2014.05.01	Until the end of the guarantee obligation	USD	509,260	USD	503,621	Providing project tangible and intangible assets as guarantees to partner company of LNG Canada business
KDB	2020.11.27	2021.11.27		1,160		963	Provision of patent security for interest rate reduction purposes upon loan

[1] The collateralized amount is subject to change based on the future investment plan.
[2] Although, the delay of opening a Letter of Credit for the stable collection of gas sold by Uz-KorGas Chemical LLC and overdue of purchase payment are corresponding to default condition, the Lenders are holding back its actions.
[3] The book amount of equity instrument as of December 31, 2020, which is classified to Financial assets measured at fair value through non-current comprehensive income, is evaluated at fair-value.
[4] The book amount of loan as of December 31, 2020.

50. Commitments and contingencies (cont'd)

(8) Details of commitments held by the Group as of December 31, 2020, are as follows (Korean won in millions, and US dollars in thousnads, Canadian dollars, Euros and Baht):

	Financial Institution	Limit		Amount	
Corporate card	KEB Hana Bank and other	KRW	4,680	KRW	1,075
Foreign currency loan	The Korea Development Bank and other	USD	3,170,000	USD	1,725,472
Bank overdraft	KEB Hana Bank and other	KRW	400,000	KRW	-
General loan	Daegu Bank and other	KRW	100,000	KRW	-
Foreign currency commitment	KEB Hana Bank and other	CAD	5,740	CAD	5,740
		USD	652,911	USD	466,078
				KWD	26
		EUR	1,540	EUR	1,540
Commitment to acquire commercial paper	KEB Hana Bank	KRW	600,000	KRW	600,000
Commitment to acquire commercial paper	KEB Hana Bank	KRW	3,000	KRW	-
Other commitment in Korean won	Seoul Guarantee Insurance Company	KRW	3,532	KRW	3,532
Win-win growth E-bond discount limit	KEB Hana Bank	KRW	13,000	KRW	-
Commitments to letter of credit	KEB Hana Bank and other	USD	192,000	EUR	3,337
Performance guarantee	Seoul Guarantee Insurance Company and other	CAD	2,500	CAD	2,500
		USD	11,276	USD	11,276
		AUD	89,447	AUD	82,915
		KRW	92,924	KRW	23,942
Industrial operation loan	KDB	KRW	3,613	KRW	2,983
Credit receivables mortgage	Industrial Bank of Korea	KRW	4,000	KRW	-
Win-win payment loan	Industrial Bank of Korea	KRW	3,000	KRW	-
Payment guarantee	Seoul Guarantee Insurance Company	KRW	777	KRW	777

(9) As of December 31, 2020, the Group has provided LOU (Letter of Undertaking) for 13 of the transports currently in operation. If the transporter fails to fulfill the requirements under the contract, the Group will be liable for any obligations related to execution of the contract. The Group accounts lease liabilities of KRW 1,850,585 million related to the contract of long-term transportation as of Decmember 31, 2020.

(10) The Group entered into a settlement agreement (March 2, 2020) with Samsung Engineering for USD 10,000,000 (KOGAS Badra B.V. USD 3,000,000) in connection with Samsung Engineering's claim on CPF-2 (gas treatment facilities). However, under the joint operation agreement, the Group's payment obligation is not determined until the consultation between the Iraq government and the operator is finalized.

(11) In March 2019, Encana Co., Ltd. ("Encana"), the business operator of the Hon River project, claimed a refund of the Infrastructure royalty credit (CAD 4,800,000) of which Encana paid in advance to the Group in 2011, as the Infrastructure royalty credit is not feasible. However, the Group and its legal counsel decided that there is no obligation for the Group to refund of the amount.

(12) The Group entered into an agreement with the Canadian government to receive a total of CAD 11 million grants over four-year period in return for manufacturing, transporting, installing and connecting of 4 LMS wind turbines, compressor packages and the related aid equipments to LNG facilities. Canadian government may request a refund of the grants if certain conditions are not fulfilled and in case the Group were to refund the grants, there would be CAD 5.2 million liabilities recognized as of December 31, 2020.

(13) On September 27, 2018, the Group has entered into a second option contract with Rio Tinto Alcan Inc. in order to secure the LNG project's sites and facilities. The termination fee of the option contract amounts to USD 2.5 million.

50. Commitments and contingencies (cont'd)

(14) On October 31, 2019, the Group has entered into a MERRF (Marine Emergency Response Research Facility) funding agreement with Gitga'at for the compensation to natives in order proceed the LNG project. The termination fee amounts to CAD 18.5 million.

(15) On November 25, 2015, the Group has entered into a service contract with Boskalis Canada Dredging & Marine Service Ltd. for a LNG project, and the termination fee amounts to CAD 27.5 million.

(16) In February 2020, the Group signed a contract with General Electric in order to maintain and repair LNG plants and the termination fee amounts to USD 500,000.

(17) As of December 31, 2020, the minimum expenditure obligation of the Group for overseas resource development projects including Cyprus amounts to approximately EUR 15.4 million.

51. Events after the reporting period

(1) Uncertainty of the outbreak of a coup d'etat in Myanmar

Myanmar's military launched a coup d'etat in February 2021 and declared a state of emergency for a year and detained a number of government officials, including Aung San Suu Kyi. As such, the Company maintained regular communication system with the operater preparing the emergency and improved monitoring of the local situations in order to maintain the business activities. The Company could not reasonably estimate the financial impact of this situation and therefore not reflected in the financial statements.

(2) Providing the payment guarantee related to the contract for building LNG bunkering vessel

The Group provided a payment guarantee to Hyundai Heavy Industries Co., Ltd. on March 3, 2021 for a contract for building LNG bunkering vessel of Korea LNG Bunkering Co., Ltd., a subsidiary of the Company. The maximum guarantee amount amounts to KRW 55.4 billion and the guarantee period is from March 3, 2021 to the time of delivery of the vessel (scheduled for February 2023).

(3) Litigation of quality assurance

On January 22, 2021, the Seoul Central District Court ruled to reject the claim related to quality assurance of SK Shippping, the plaintiff, against the defendents, the Group and Samsung Heavy Industries Co. Ltd.

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