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 30, 2021 as amended and supplemented by the pricing supplement dated July 6, 2021 (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 BNP Paribas, Citigroup Global Markets Inc., Crédit Agricole Corporate and Investment Bank, J.P. Morgan Securities plc, KB Securities Co., Ltd., The Korea Development Bank, Mirae Asset Securities Co., Ltd. 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.

PRICING SUPPLEMENT

KOREA GAS CORPORATION

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

Issue of U.S.$450,000,000 1.125% Senior Unsecured Notes due 2026
Issue of U.S.$350,000,000 2.000% Senior Unsecured Notes due 2031
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

BNP PARIBAS	**Citigroup**	**Crédit Agricole CIB**	**J.P. Morgan**
KB Securities	**Korea Development Bank**	**Mirae Asset Securities**	**UBS**

The date of this Pricing Supplement is July 6, 2021

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 U.S.$450,000,000 1.125% Senior Unsecured Notes due 2026
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 30, 2021 (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:	48
	(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.$450,000,000
	(b)	Tranche:	U.S.$450,000,000

5.	(a)	Issue Price of Tranche:	99.700% of the Aggregate Principal Amount
	(b)	Net Proceeds (after deducting underwriting discounts but not estimated expenses):	U.S.$447,390,000
	(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:	July 13, 2021
	(b)	Interest Commencement Date:	July 13, 2021
8.		Maturity Date:	July 13, 2026
9.		Interest Basis:	1.125% 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:	Singapore Exchange Securities Trading Limited (the "SGX-ST")
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 29, 2020 President's Approval: April 26, 2021
15.		Method of distribution:	Syndicated

PROVISIONS RELATING TO INTEREST (IF ANY) PAYABLE

16.		Fixed Rate Note Provisions:	Applicable
	(a)	Rate(s) of Interest:	1.125% per annum payable semi-annually in arrear
	(b)	Interest Payment Date(s):	January 13 and July 13 in each year up to and including the Maturity Date (with the first interest payment date being January 13, 2022)
	(c)	Fixed Coupon Amount(s):	U.S.$5.625 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:	BNP Paribas Citigroup Global Markets Inc. Crédit Agricole Corporate and Investment Bank J.P. Morgan Securities plc KB Securities Co., Ltd. The Korea Development Bank Mirae Asset Securities Co., Ltd. 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: US50066AAQ67 Regulation S Notes:US50066CAQ24
CUSIP:	Rule 144A Notes: 50066AAQ6 Regulation S Notes: 50066CAQ2

Recent Development

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.

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

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

LISTING AND ADMISSION TO TRADING APPLICATION

This Pricing Supplement comprises the pricing supplement 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.

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 the Notes on, the SGX-ST are not to be taken as an indication of the merits of the Issuer, the Program or the 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 U.S.$350,000,000 2.000% Senior Unsecured Notes due 2031
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 30, 2021 (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:	49
	(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.$350,000,000
	(b)	Tranche:	U.S.$350,000,000

5.	(a)	Issue Price of Tranche:	99.820% of the Aggregate Principal Amount
	(b)	Net Proceeds (after deducting underwriting discounts but not estimated expenses):	U.S.$348,390,000
	(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:	July 13, 2021
	(b)	Interest Commencement Date:	July 13, 2021
8.		Maturity Date:	July 13, 2031
9.		Interest Basis:	2.000% 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:	Singapore Exchange Securities Trading Limited (the "SGX-ST")
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 29, 2020 President's Approval: April 26, 2021
15.		Method of distribution:	Syndicated

PROVISIONS RELATING TO INTEREST (IF ANY) PAYABLE

16.		Fixed Rate Note Provisions:	Applicable
	(a)	Rate(s) of Interest:	2.000% per annum payable semi-annually in arrear
	(b)	Interest Payment Date(s):	January 13 and July 13 in each year up to and including the Maturity Date (with the first interest payment date being January 13, 2022)
	(c)	Fixed Coupon Amount(s):	U.S.$10.000 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:	BNP Paribas Citigroup Global Markets Inc. Crédit Agricole Corporate and Investment Bank J.P. Morgan Securities plc KB Securities Co., Ltd. The Korea Development Bank Mirae Asset Securities Co., Ltd. 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: US50066AAR41 Regulation S Notes: US50066CAR07
CUSIP:	Rule 144A Notes: 50066AAR4 Regulation S Notes: 50066CAR0

Recent Development

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.

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

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

LISTING AND ADMISSION TO TRADING APPLICATION

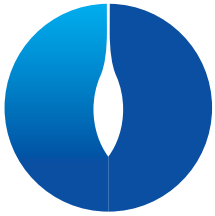
This Pricing Supplement comprises the pricing supplement required to list the issue of Notes described herein pursuant to the U.S.$11,000,000,000 Global Medium Term Note Program of the Issuer.

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 the Notes on, the SGX-ST are not to be taken as an indication of the merits of the Issuer, the Program or the 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 28, 2019 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 63 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 30, 2021.

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. 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 in connection with the Program. To the fullest extent permitted by law, none of the Dealers accept 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."

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.

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 – 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.

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.

In making an investment decision, investors must rely on their own examination of the applicable Issuer and the Guarantor (if applicable) 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 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.

None of the Dealers, the Company or the Guaranteed Issuers 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, Chapter 289 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, 2019 and 2018, the Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019 and the Company's unaudited consolidated financial statements as of March 31, 2021 and for the three months ended March 31, 2021 and 2020 (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, 2018 have been derived from the Company's audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018 included herein and the financial data contained in this offering circular as of and for the years ended December 31, 2019 and 2020 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, 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, 2021 and for the three months ended March 31, 2021 and 2020 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 STABILIZING MANAGER(S) (OR PERSONS ACTING ON BEHALF OF ANY STABILIZING MANAGER(S)) IN THE APPLICABLE PRICING SUPPLEMENT MAY, SUBJECT TO ALL APPLICABLE LAWS AND REGULATIONS, OVER-ALLOT THE NOTES OR EFFECT TRANSACTIONS WITH A VIEW TO SUPPORTING THE MARKET PRICE OF THE NOTES OF A SERIES (AS DEFINED BELOW) OF WHICH SUCH TRANCHE FORMS A PART AT A LEVEL HIGHER THAN THAT WHICH MIGHT OTHERWISE PREVAIL FOR A LIMITED PERIOD AFTER THE ISSUE DATE. HOWEVER, THERE IS NO ASSURANCE THAT THE STABILIZING MANAGER(S) (OR PERSONS ACTING ON BEHALF OF A STABILIZING 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 STABILIZING MANAGER(S) (OR PERSON(S) ACTING ON BEHALF OF ANY STABILIZING 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; and

(c) 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 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.
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 30, 2021 (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] [[LIBOR/EURIBOR/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/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]]
	(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 LIBOR, EURIBOR or other, although additional information is required if other – including fallback provisions in the Agency Agreement)*
	• Interest Determination Date(s):	[●] *(Second London business day prior to the start of each Interest Period if LIBOR (other than Sterling or Euro LIBOR), first day of each Interest Period if Sterling LIBOR and the second day on which the 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)*
	(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:	[●]
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) Stabilizing 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/g*ive 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, CHAPTER 289 OF SINGAPORE (THE "SFA")

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

* To delete accordingly.]

LISTING AND ADMISSION TO TRADING APPLICATION

This Pricing Supplement comprises the pricing supplement 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 [or 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 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 London inter-bank offered rate ("**LIBOR**") or on the Euro-zone inter-bank offered rate ("**EURIBOR**"), the first day of that Interest Period or (ii) in any other case, as specified in the applicable Pricing Supplement.

For the purposes of this sub-paragraph (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

(A) 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, is either:

(1) the offered quotation; or

(2) the arithmetic mean (rounded if necessary to the fifth decimal place, with 0.000005 being rounded upwards) of the offered quotations,

(expressed as a percentage rate per annum) for the Reference Rate which appears or appear, as the case may be, on the Relevant Screen Page as at 11.00 a.m. (London time, in the case of LIBOR, or Brussels time, in the case of EURIBOR) on the Interest Determination Date in question plus or minus (as indicated in the applicable Pricing Supplement) the Margin (if any), all as determined by the Principal Paying Agent. If five or more of such offered quotations are available on the Relevant Screen Page, the highest (or, if there is more than one such highest quotation, one only of such quotations) and the lowest (or, if there is more than one such lowest quotation, one only of such quotations) shall be disregarded by the Principal Paying Agent for the purpose of determining the arithmetic mean (rounded as provided above) of such offered quotations.

(B) If the Reference Rate is specified as LIBOR in the applicable Pricing Supplement and a Benchmark Transition Event (as defined below) has occurred, LIBOR shall be replaced by the Benchmark (as defined below) for all purposes relating to the applicable Notes and the provisions of Condition 6.2(b)(iii) shall apply.

(C) If the preceding paragraph does not apply and the Relevant Screen Page is not available or, if in the case of Condition 6.2(b)(ii)(A)(1) above, no such offered quotation appears or, in the case of Condition 6.2(b)(ii)(A)(2) above, fewer than three such offered quotations appear, in each case as at the time specified in the preceding paragraph the Principal Paying Agent shall request each of the Reference Banks (as defined below) to provide the Principal Paying Agent with its offered quotation (expressed as a percentage rate per annum) for the Reference Rate at approximately 11:00 a.m. (London time, in the case of LIBOR, or Brussels time, in the case of EURIBOR) on the Interest Determination Date in question. If two or more of the Reference Banks provide the Principal Paying Agent with such offered quotations, the Rate of Interest for such Interest Period shall be the arithmetic mean (rounded if necessary to the fifth decimal place with 0.000005 being rounded upwards) of such offered quotations plus or minus (as appropriate) the Margin (if any), all as determined by the Principal Paying Agent.

(D) If on any Interest Determination Date fewer than two Reference Banks provide the Principal Paying Agent with such offered quotations as provided in the preceding paragraph, the Rate of Interest for the relevant Interest Period shall be the rate per annum which the Principal Paying Agent determines as being the arithmetic mean (rounded if necessary to the fifth decimal place, with 0.000005 being rounded upwards) of the rates, as communicated to (and at the request of) the Principal Paying Agent by the Reference Banks or any two or more of them, at which such banks were offered, at approximately 11:00 a.m. (London time, in the case of LIBOR, or Brussels time, in the case of EURIBOR) on the relevant Interest Determination Date, deposits in the Specified Currency for a period equal to that which would have been used for the Reference Rate by leading banks in the London inter-bank market (if the Reference Rate is LIBOR) or the Euro-zone inter-bank market (if the Reference Rate is EURIBOR) plus or minus (as appropriate) the Margin (if any) or, if fewer than two of the Reference Banks provide the Principal Paying Agent with such offered rates, the offered rate for deposits in the Specified Currency for a period equal to that which would have been used for the Reference Rate, or the arithmetic mean (rounded as provided above) of the offered rates for deposits in the Specified Currency for a period equal to that which would have been used for the Reference Rate, at which, at approximately 11:00 a.m. (London time, in the case of LIBOR, or Brussels time, in the case of EURIBOR) on the relevant Interest Determination Date, any one or more banks (which bank or banks is or are in the opinion of the Issuer and the Guarantor suitable for such purpose) informs the Principal Paying Agent it is quoting to leading banks in the London inter-bank market (if the Reference Rate is LIBOR) or the Euro-zone inter-bank market (if the Reference Rate is EURIBOR) plus or minus (as appropriate) the Margin (if any), provided that, if the Rate of Interest cannot be determined in accordance with the foregoing provisions of this paragraph, the Rate of Interest shall be determined as at the last preceding Interest Determination Date (though substituting, where a different Margin or Maximum or Minimum Rate of Interest is to be applied to the relevant Interest Period from that which applied to the last preceding Interest Period, the Margin or Maximum or Minimum Rate of Interest relating to the relevant Interest Period, in place of the Margin or Maximum or Minimum Rate of Interest relating to that last preceding Interest Period).

(E) "**Reference Banks**" means, in the case of Condition 6.2(b)(ii)(A)(1) above, those banks whose offered rates were used to determine such quotation when such quotation last appeared on the Relevant Screen Page and, in the case of Condition 6.2(b)(ii)(A)(2) above, those banks whose offered quotations last appeared on the Relevant Screen Page when no fewer than three such offered quotations appeared.

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

(iii) Effect of Benchmark Transition Event

(i) Benchmark Replacement

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

(ii) Benchmark Replacement Conforming Changes

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

At the request of the Issuer, but subject to receipt by the Agents of a certificate signed by two duly authorized officers of the Issuer pursuant to Condition 6.2(b)(iii)(iv) and at least five London banking days' prior notice thereof, the Agents shall (at the expense of the Issuer) be obliged to concur with the Issuer in using their reasonable endeavors to effect any Benchmark Replacement Conforming Changes (including, inter alia, by amending or supplementing the Agency Agreement) in the circumstances and as otherwise set out in this Condition 6.2(b)(iii), without the consent of the Noteholders, Receiptholders and Couponholders, provided that the Agents shall not be obliged so to concur if, in the opinion of any of the Agents, doing so would impose more onerous obligations upon it or expose it to any additional duties, responsibilities or liabilities or reduce or amend the protective provisions afforded to the Agents in these Terms and Conditions or the Agency Agreement (including, for the avoidance of doubt, any supplements thereto) in any way.

In connection with any Benchmark Replacement Conforming Changes in accordance with this Condition 6.2(b)(iii)(ii), the Issuer shall comply with the rules of any stock exchange on which the applicable Notes are for the time being listed or admitted to trading.

(iii) Decisions and Determinations

Any determination, decision or election that may be made by the Issuer or its designee pursuant to this Condition 6.2(b)(iii), including any determination with respect to a tenor, rate or adjustment or of the occurrence or non-occurrence of an event, circumstance or date and any decision to take or refrain from taking any action or any selection, will be conclusive and binding absent manifest error, may be made in the Issuer's or its designee's sole discretion, and, notwithstanding anything to the contrary in the these Terms and Conditions or the Agency Agreement, shall become effective with respect to the applicable Notes without consent from any other party.

(iv) Notices, etc.

Any Benchmark Replacement (including any Benchmark Replacement Adjustment) and the specific terms of any Benchmark Replacement Conforming Changes determined under this Condition 6.2(b)(iii) will be notified promptly by the Issuer to the Principal Paying Agent and, in accordance with Condition 15, the Noteholders. Such notice shall be irrevocable and shall specify the effective date of the Benchmark Replacement Conforming Changes, if any.

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

(A) confirming (1) that a Benchmark Transition Event has occurred and (2) the Benchmark Replacement (including any Benchmark Replacement Adjustment) and the specific terms of any Benchmark Replacement Conforming Changes, in each case as determined in accordance with the provisions of this Condition 6.2(b)(iii); and

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

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

(v) Survival of Original Reference Rate

Without prejudice to the obligations of the Issuer under Condition 6.2(b)(iii)(i), (ii), (iii) and (iv), the Benchmark and the fallback provisions provided for in Condition 6.2(b)(ii) 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(b)(iii)(iv).

(vi) Certain Defined Terms

As used in this Condition 6.2(b)(iii):

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

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

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

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

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

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

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

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

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

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

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

"**Benchmark Replacement Conforming Changes**" means, with respect to any Benchmark Replacement, any technical, administrative or operational changes (including changes to the definition of "Interest Period," timing and frequency of determining rates and making payments of interest, changes to the definition of "Corresponding Tenor" solely when such tenor is longer than the Interest Period and other administrative matters)

with respect to these Terms and Conditions or the Agency Agreement or otherwise that the Issuer or its designee decides may be appropriate to reflect the adoption of such Benchmark Replacement in a manner substantially consistent with market practice (or, if the Issuer or its designee decides that adoption of any portion of such market practice is not administratively feasible or if the Issuer or its designee determines that no market practice for use of the Benchmark Replacement exists, in such other manner as the Issuer or its designee determines is reasonably necessary).

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(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. For the avoidance of doubt, this Condition 6.2(d) shall not apply if a Benchmark Transition Event has occurred and Condition 6.2(b)(iii) becomes effective.

"**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:

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

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 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:

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

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 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.

(e) 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.

(f) 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 payment*) 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;

(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)		
2016	1,208.5	1,160.5	1,240.9	1,093.2
2017	1,071.4	1,130.8	1,208.5	1,071.4
2018	1,118.1	1,100.3	1,142.5	1,057.6
2019	1,157.8	1,165.7	1,218.9	1,111.6
2020	1,088.0	1,180.1	1,280.1	1,082.7
December	1,088.0	1,095.1	1,108.9	1,082.7
2021 (through June 28)	1,128.8	1,117.5	1,141.1	1,083.1
January	1,114.6	1,097.5	1,114.6	1,083.1
February	1,108.4	1,111.7	1,124.0	1,099.7
March	1,133.5	1,131.0	1,141.1	1,121.3
April	1,107.4	1,119.4	1,132.6	1,107.4
May	1,109.6	1,133.1	1,123.3	1,116.0
June (through June 28)	1,128.8	1,120.4	1,135.8	1,107.0

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, 2021, 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 2020, suggests that the Company reduce its liabilities-to-equity ratio to 324%, 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 354% as of March 31, 2021, 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. For example, the determination of the guaranteed return amounts from February 2013 to October 2017 included adjustments related to recoupment of prior guaranteed return amounts caused by temporary suspension from March 2008 to February 2013 of the periodic bi-monthly adjustments to the sales price that the Company invoices to city gas companies, as further described below. 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.

Due in part to substantial fluctuations in the price of LNG and the value of the Won relative to the U.S. dollar, and 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, from March 2008 to February 2013, the bi-monthly adjustments to the sales prices that the Company invoices to city gas companies. During this 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 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). 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 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 order to at least partly address the adverse effect on the Company's cash flows and financial condition during the suspension period, the Ministry of Trade, Industry and Energy approved annual increases in the invoice sales prices to city gas companies from 2008 to 2013. 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 would enable 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. Since such reformulation of the Formula Prices, when the Company recognizes sales, it reduces 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, in order to mitigate the impact of increases in the price of crude oil, 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 620 billion as of December 31, 2018, Won 843 billion as of December 31, 2019, Won 1,246 billion as of December 31, 2020 and Won 1,062 billion as of March 31, 2021 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 and Won 652 billion as of March 31, 2021 and were recorded as "other non-current non-financial assets." No assurance can be given 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, nine companies, GS Caltex, GS EPS, GS Power, POSCO, POSCO Energy, S-Oil, SK E&S, SK Energy and Korea Zinc, 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, Indonesia, Malaysia, Oman, Qatar, Russia 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 has also decreased the global demand for crude oil and natural gas. See "– Earthquakes, tsunamis, floods, severe health epidemics (including the ongoing global COVID-19 pandemic and any possible recurrence of other types of widespread infectious diseases) and other natural calamities could materially adversely affect the Company's business, results of operations or financial condition." Such developments have been exacerbated by a conflict between OPEC led by Saudi Arabia and Russia relating to crude oil production cuts, and the market price of crude oil fell to a historical low in April 2020. While the market price of crude oil has mostly recovered since then, and the oil producing nations were able to reach and have since sustained a consensus on reduced production levels, future prospects for crude oil prices remain highly uncertain and volatile. Although the full impact of such events cannot be reasonably estimated at this time, the cumulative nature of these events could have a material adverse effect on the Company's business, financial condition and results of operations.

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 88 billion in 2018, 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., KOGAS Canada Energy Ltd. and KOGAS Cyprus Ltd.) that invested in various overseas gas exploration, development and production projects. 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. 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 trillion in planned capital expenditures from 2021 until 2023 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'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.

30 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, 2021, KEPCO held 20.5% of the Company's issued and outstanding shares. Sales volume to the subsidiaries of KEPCO accounted for 16.7%, 15.5%, 16.7% and 15.9% of the Company's sales volume in 2018, 2019, 2020 and the three months ended March 31, 2021, 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 40.0% 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, 2021. 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, 2020 and 2019 and note 8 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018 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, international and national commitments to reduce greenhouse gas emissions and counteract climate change may lead to increased costs for the Company. Carbon tax proposals in various jurisdictions as well as consumer preference changes in response to growing concerns of climate change could stimulate the emergence of alternative technologies and renewable energy availability, which may impact demand for gas while increasing corporate expenses.

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

As of March 31, 2021, approximately 89.5% 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 2020. 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; 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 has had an adverse impact on the Korean economy. Following the government's announcement of the first confirmed case of COVID-19 in Korea in January 2020, it has implemented a number of measures in order to contain the spread of the COVID-19 disease, including a nationwide order for social distancing, implementation of strict self-isolation and quarantine measures for those who may be infected, and the temporary closure of all school and other public facilities. In addition, the government has undertaken a series of actions to mitigate the adverse impact of the COVID-19 pandemic on the Korean economy, including (i) lowering of The Bank of Korea's policy rates, (ii) execution of a bilateral currency swap agreement with the U.S. Federal Reserve, (iii) provision of loans, guarantees and maturity extensions to eligible financial institutions, small- and medium business

enterprises and self-employed business owners facing liquidity crises, and (iv) offering emergency relief payments for those impacted by the COVID-19 pandemic. However, the impact of the on-going COVID-19 pandemic to the Korean economy in 2021 and for the foreseeable future remains highly uncertain.

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

- declines in consumer confidence and a slowdown in consumer spending;
- the occurrence of additional severe health epidemics;
- adverse conditions or uncertainty in the economies of countries and regions that are important export markets for Korea, such as China, the United States, Europe and Japan, or in emerging market economies in Asia or elsewhere, including as a result of the ongoing COVID-19 pandemic, deteriorating relations between the United States and China and increased uncertainties resulting from the UK's exit from the European Union;
- adverse changes or volatility in foreign currency reserve levels, commodity prices (including oil prices), exchange rates;
- deterioration in economic or diplomatic relations between Korea and its trading partners or allies, including deterioration resulting from territorial or trade disputes or disagreements in foreign policy (such as the removal of Korea from Japan's "white list" of preferred trading nations in August 2019 and the controversy between Korea and China regarding the deployment of a Terminal High Altitude Area Defense System in Korea by the United States in March 2017 and the ensuing economic and other retaliatory measures by China against Korea during the remainder of 2017);
- increased sovereign default risk in select countries and the resulting adverse effects on the global financial markets;
- deterioration in the financial condition or performance of small- and medium-sized enterprises and other companies in Korea due to the government's policies to increase minimum wages and limit working hours of employees;
- investigations of large Korean business groups and their senior management for possible misconduct;
- a continuing rise in the level of household debt and increasing delinquencies and credit defaults by retail and small- and medium-sized enterprise borrowers in Korea;
- the economic impact of any pending or future free trade agreements or of any changes to existing free trade agreements;
- social and labor unrest;
- substantial decreases in the market prices of Korean real estate;
- a substantial decrease in tax revenues and a substantial increase in the government's expenditures for fiscal stimulus measures, unemployment compensation and other economic and social programs, in particular in light of the government's ongoing efforts to provide emergency relief payments to households and emergency loans to corporations in need of funding in light of COVID-19, which, together, would likely lead to a national budget deficit as well as an increase in the government's debt;
- financial problems or lack of progress in the restructuring of Korean business groups, other large troubled companies, their suppliers or the financial sector;
- loss of investor confidence arising from corporate accounting irregularities and corporate governance issues concerning certain Korean companies;
- increases in social expenditures to support an aging population in Korea or decreases in economic productivity due to the declining population size in Korea;

- geopolitical uncertainty and risk of further attacks by terrorist groups around the world;

- political uncertainty or increasing strife among or within political parties in Korea;

- hostilities or political or social tensions involving oil producing countries in the Middle East (including a potential escalation of hostilities between the United States and Iran) and Northern Africa and any material disruption in the global supply of oil or sudden increase in the price of oil;

- natural or man-made disasters that have a significant adverse economic or other impact on Korea or its major trading partners; and

- an increase in the level of tensions or an outbreak of hostilities between North Korea and Korea or the United States.

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

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

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

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

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

Although bilateral summit meetings were held between the two Koreas in April, May and September 2018 and between the United States and North Korea in June 2018, February 2019 and June 2019, there can be no assurance that the level of tensions affecting the Korean peninsula will not escalate in the future. Any increase in tensions, which may occur, for example, if North Korea experiences a leadership crisis, high-level contacts between Korea and North Korea break down or military hostilities occur, could have a material adverse effect on the Korean economy and on 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, 2020 and 2019 and its audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018 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 possible discontinuation of the London Interbank Offered Rate ("LIBOR") or any other interest rate benchmark could have adverse consequences for market participants, including the Company.

In 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. It is possible that panel banks will continue to provide rate submissions, and that the ICE Benchmark Administration, the administrator of LIBOR, will continue to determine and announce LIBOR, on the current basis after such announced deadlines, if they are willing and able to do so. However, there is no guarantee that LIBOR will be determined and announced after such announced deadlines on the current basis or at all.

Given the extensive use of LIBOR across financial markets, the transition away from LIBOR presents various risks and challenges to financial markets and institutions, including the Company. The Company holds several 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. While there are a number of international working groups focused on transition plans and the provision of fallback contract language that seek to minimize market disruption, replacement of LIBOR or any other benchmark with a new benchmark rate could adversely impact the value of and return on existing instruments and contracts. Moreover, replacement of LIBOR or other benchmark rates could result in market dislocations and have other adverse consequences for market participants, including the

potential for increased costs, and litigation risks stemming from potential disputes with customers and counterparties regarding the interpretation and enforceability of fallback contract language in the LIBOR-based financial instruments and contracts. Accordingly, the Company's failure to adequately prepare for the potential discontinuation of LIBOR could have a material adverse impact on its business, reputation, results of operations and financial condition.

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

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

In the case of the Notes that are Floating Rate Notes, LIBOR may be the benchmark reference rate used to calculate the rate of interest applicable to such Notes ("LIBOR-based Floating Rate Notes") for each interest period. LIBOR for different periods and currencies is determined and announced on a daily basis by the ICE Benchmark Administration based on rate submissions provided by groups of panel banks for the relevant currencies. In 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 possible discontinuation of the London Interbank Offered Rate ("LIBOR") or any other interest rate benchmark could have adverse consequences for market participants, including the Company."

Upon the occurrence of a Benchmark Transition Event (as defined in Condition 6.2(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 Secured Overnight Financing Rate ("SOFR"), which has been identified by the Alternative Reference Rates Committee convened by the Board of Governors of the U.S. Federal Reserve System and the Federal Reserve Bank of New York as the preferred alternative benchmark reference rate for LIBOR, together with any necessary spread adjustment, may be determined as the Benchmark Replacement to be used to calculate the rate of interest applicable to outstanding LIBOR-based Floating Rate Notes. Any such Benchmark Replacement determined by the 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 and also could have adverse U.S. federal income tax consequences for holders of such Notes.

Risks Relating to Forward-Looking Statements

This offering circular contains forward-looking statements that are the 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, 2021 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, 2021
	Outstanding
	(in billions of Won)
Long-term debt (excluding current portion):	
Debentures, net of discount	₩16,606
Long-term borrowings	768
Total long-term debt	17,374
Equity:	
Share capital	462
Share premium	1,304
Retained earnings	5,707
Other components of equity	557
Equity attributable to owners of the parent	8,029
Non-controlling interests	255
Total equity	8,284
Total capitalization	₩25,658

There has been no material change in the Company's capitalization (on a consolidated basis) since March 31, 2021.

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, 2018, 2019 and 2020 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, 2021 and for the three months ended March 31, 2020 and 2021 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*.

In the fourth quarter of 2018, the Company discontinued its operations of the West Cut Bank business in Canada and sold its assets. As a result, the West Cut Bank operations were accounted for as discontinued operations in the Company's consolidated statements of comprehensive income for the year ended December 31, 2018 included elsewhere in this offering circular, and the Company recognized loss from discontinued operations of Won 27 billion in 2018. See note 42 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018.

The Company has initially adopted Korean IFRS No.1116 Leases from January 1, 2019 using the modified retrospective approach, under which the cumulative effect of initial application is recognized in the Company's retained earnings at January 1, 2019. Accordingly, the comparative information presented for 2018 has not been restated and is presented, as previously reported, under Korean IFRS No. 1017 and related interpretations.

	For the year ended December 31,			For the three months ended March 31,	
	2018	**2019**	**2020**	**2020**	**2021**
	(in billions of Won)				
Selected Statements of Comprehensive Income Data:					
Revenue	₩26,185	₩24,983	₩20,834	₩7,968	₩7,711
Cost of sales	24,509	23,227	19,513	6,902	6,838
Gross profit	1,677	1,756	1,320	1,066	873
Selling and administrative expenses	400	421	421	107	109
Operating profit	1,277	1,335	899	959	765
Other income	3	3	4	1	31
Other expenses	(38)	(58)	(61)	(9)	(4)
Other gains (losses)	(54)	(466)	(448)	10	4
Finance income	494	451	730	439	378
Finance costs	(1,237)	(1,253)	(1,427)	(669)	(524)
Gains (losses) on investments in associates and joint ventures, net	204	105	34	(19)	42
Profit (loss) before income tax	649	116	(269)	713	692
Income tax benefit (expense)	(96)	(58)	108	(171)	(177)
Profit (loss) for the year/period	₩527	₩58	₩(161)	₩542	₩515

	For the year ended December 31,			For the three months ended March 31,	
	2018	2019	2020	2020	2021
	(in billions of Won)				
Profit (loss) for the year/period attributable to:					
Owners of the parent	509	39	(172)	537	513
Non-controlling interests	17	20	11	5	2
Total comprehensive income (loss)	₩408	₩117	₩(286)	₩461	₩556
Total comprehensive income (loss) attributable to:					
Owners of the parent	384	92	(289)	448	548
Non-controlling interests	24	24	3	13	8
Selected Cash Flow Data:					
Net cash provided by (used in) operating activities	₩57	₩1,986	₩3,251	₩967	₩(434)
Net cash used in investing activities	(1,275)	(1,397)	(972)	(257)	(149)
Net cash provided by (used in) financing activities	994	(582)	(2,190)	(421)	748

	As of December 31,			As of March 31,
	2018	2019	2020	2021
	(in billions of Won)			
Selected Statements of Financial Position Data:				
Cash and cash equivalents	₩240	₩257	₩332	₩509
Trade and other receivables	5,424	5,137	4,245	4,960
Inventories	3,169	2,645	1,390	1,693
Current non-financial assets	890	1,085	1,503	1,414
Other current assets	202[1]	108[2]	58[3]	78[3]
Total current assets	9,925	9,233	7,528	8,654
Long-term trade and other receivable	307	283	201	199
Property, plant and equipment	24,764	24,377	23,134	23,153
Non-current non-financial assets	29	469	272	692
Other non-current assets	4,665[4]	4,949[5]	4,774[5]	4,916[5]
Total non-current assets	29,765	30,079	28,382	28,960
Total assets	₩39,690	₩39,312	₩35,910	₩37,615
Total current liabilities (including current portion of long-term debt)	₩9,871	₩8,901	₩7,213	₩7,860
Total non-current liabilities	21,321	22,265	20,962	21,471
Total liabilities	31,192	31,165	28,175	29,331
Total equity	8,498	8,147	7,735	8,284
Total liabilities and equity	₩39,690	₩39,312	₩35,910	₩37,615

(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, derivative financial assets, short-term contract assets, current tax assets and assets held-for-sale.

(2) 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.

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

(4) 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.

(5) 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, derivative financial assets, 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.

SELECTED OPERATING DATA

	For the year ended December 31,			For the three months ended March 31,	
	2018	**2019**	**2020**	**2020**	**2021**
Average daily sales volume (metric tons)	99,230	92,047	88,677	29,896	33,205

	As of December 31,			As of March 31,
	2018	**2019**	**2020**	**2021**
Send-out capacity (metric tons/hour)	15,376	15,360	15,340	15,340
Pipeline length (kilometers)	4,854	4,908	4,945	4,945
Storage capacity (thousands of kiloliters)	11,470	11,560	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 32.4 million metric tons of natural gas in 2020 and 12.1 million metric tons in the first three months of 2021. The Company believes that natural gas supplied by the Company accounted for approximately 18.6% of the primary energy consumed in Korea in 2020. 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, 2021, 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 2024. In overseas gas exploration, development and production projects, the Company invested approximately Won 613 billion in 2018, Won 488 billion in 2019, Won 508 billion in 2020 and Won 126 billion in the first three months of 2021, and it expects to invest approximately Won 586 billion in such projects in the remainder of 2021, 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 4,945 kilometers as of March 31, 2021. The Company has five receiving terminals located in Pyongtaek, Incheon, Tongyeong, Samcheok and Jeju. As of March 31, 2021, 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 20,834 billion in 2020 and had total assets of Won 35,910 billion and total equity of Won 7,735 billion as of December 31, 2020. The Company generated revenue of Won 7,711 billion in the first three months of 2021 and had total assets of Won 37,615 billion and total equity of Won 8,284 billion as of March 31, 2021.

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 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, nine companies, GS Caltex, GS EPS, GS Power, POSCO, POSCO Energy, S-Oil, SK E&S, SK Energy and Korea Zinc, 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, 2021.

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 18,247 thousand metric tons in 2020 and 7,241 thousand metric tons in the first three months of 2021. The residential gas penetration rate in Korea in 2020 was 83.4% 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 14,120 thousand metric tons in 2020 and 4,879 thousand metric tons in the first three months of 2021.

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,			
	2018		2019		2020		2020		2021	
	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. .	8,820	24.4%	8,322	24.8%	8,631	26.7%	3,822	35.0%	4,212	34.8%
Industrial	7,941	21.9	7,534	22.4	6,906	21.3	1,937	17.8	2,104	17.4
Others	3,052	8.4	2,966	8.8	2,710	8.4	845	7.7	925	7.5
Sub-total	19,813	54.7	18,822	56.0	18,247	56.4	6,604	60.5	7,241	59.7
Power generating companies:										
Subsidiaries of KEPCO	6,039	16.7	5,200	15.5	5,396	16.7	1,631	14.9	1,922	15.9
Others	10,367	28.6	9,575	28.5	8,724	27.0	2,676	24.5	2,957	24.4
Sub-total	16,406	45.3	14,775	44.0	14,120	43.6	4,307	39.5	4,879	40.3
Total sales volume . . .	36,219	100.0%	33,597	100.0%	32,367	100.0%	10,911	100.0%	12,120	100.0%

City Gas Companies

As of March 31, 2021, 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, 2020.

Region/City	Total number of households	Households with natural gas supply	Penetration rate[(1)]
	(in thousands)		(%)
Seoul	4,418	4,310	97.5
Gyeonggi	5,676	4,870	85.8
Busan	1,530	1,461	95.5
Gyeongnam	1,485	1,120	75.4
Daegu	1,057	1,028	97.3
Incheon	1,268	1,144	90.2
Choongnam	983	688	70.0
Gyeongbuk	1,255	829	66.1
Daejon	653	622	95.3
Gwangju	634	632	99.7
Chunbuk	837	592	70.8
Chunnam	893	471	52.7
Choongbuk	746	509	68.2
Ulsan	477	457	95.9
Gangwon	736	383	52.0
Jeju	302	32	10.4
Sejong	144	111	76.9
Total	23,093	19,257	83.4

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 21.3% of the Company's total sales volume and 37.8% of the Company's sales volume to city gas companies in 2020 and 17.4% of the Company's total sales volume and 29.1% of the Company's sales volume to city gas companies in the first three months of 2021.

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,	
	2018	2019	2020	2020	2021
	(in thousands of metric tons)				
Samchully	3,142	2,985	2,949	1,021	1,145
Seoul	1,679	1,558	1,511	605	663
Gyeongdong	2,167	1,813	1,461	495	631
Ko-one	1,314	1,237	1,200	459	506
Busan	1,125	1,088	1,084	392	415

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 2020, 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 2020 had an aggregate installed generating capacity of 129,191 megawatts. According to the Korea Power Exchange, it was estimated that natural gas was used for approximately 26.4% of the power generating companies' gross generating production in 2020. 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, 2021.

	Number of power plants	**Capacity (in megawatts)**
Posco Energy Corporation	5	2,276
Pocheon Power Co., Ltd.	2	1,450
GS EPS Co., Ltd.	3	1,416
CGN Yulchon Generation Co., Ltd.	2	1,390
Korea District Heating Co., Ltd.	6	2,076
GS Power Co., Ltd.	2	900
Pyongtaek Energy Co., Ltd.	1	770
Daeryun Power Co., Ltd.	1	524
Daegu Green Power Co., Ltd.	1	371
Incheon Total Energy Company	1	187
Byeollae Energy Co., Ltd.	1	115
Incheon Airport Energy Co., Ltd.	1	127
Suwan Energy Co., Ltd.	1	115
Busan-Jungkwan Energy Co., Ltd.	2	100
S-Power Co., Ltd.	1	751
Dongducheon Dream Power Co., Ltd.	2	1,717
Narae Energy Service Co., Ltd.	1	364
DS Power Co., Ltd.	1	436
Pocheon IPP Co., Ltd.	1	874
KOSPO Youngnam Power Co., Ltd.	1	400
Chuncheon Energy Co., Ltd.	1	431
Korea Land & Housing Corporation	1	102
Total	38	16,892

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. For example, the determination of the guaranteed return amounts from February 2013 to October 2017 included adjustments related to recoupment of prior guaranteed return amounts caused by temporary suspension from March 2008 to February 2013 of the periodic bi-monthly adjustments to the sales price that the Company invoices to city gas companies, as further described in "The Company – Management's Discussion and Analysis of Financial Condition and Results of Operation – Overview – Lifting of Suspension of Sales Prices 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. Due in part to substantial fluctuations in the price of LNG and the value of the Won relative to the U.S. dollar, and 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, from March 2008 to February 2013, the bi-monthly adjustments to the sales prices that the Company invoices to city gas companies. During this 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 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). 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 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 order to at least partly address the adverse effect on the Company's cash flows and financial condition during the suspension period, the Ministry of Trade, Industry and Energy approved annual increases in the sales prices invoiced to city gas companies from 2008 to 2013. 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 would enable 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. Since 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 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.

In October 2018, in order to mitigate the impact of increases in the price of crude oil, 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 620 billion as of December 31, 2018, Won 843 billion as of December 31, 2019, Won 1,246 billion as of December 31, 2020 and Won 1,062 billion as of March 31, 2021 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 and Won 652 billion as of March 31, 2021 and were recorded as "other non-current non-financial assets." See note 10 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, 2020 and 2019 and note 16 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018, included elsewhere in this offering circular. No assurance can be given 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, Indonesia, Malaysia, Oman, Qatar, Russia and the United States. The Company imported 31.9 million metric tons of LNG in 2020 and 12.2 million metric tons of LNG in the first three months of 2021.

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 15% of its LNG annual supply on the spot market. In 2020, the Company obtained approximately 12% of its LNG supply on the spot market. The Company decreased its spot market purchases in 2020 as there was a decrease in demand for natural gas primarily stemming from the global COVID-19 pandemic in 2020.

The following table provides certain information about the Company's long- and medium-term LNG purchase agreements outstanding as of March 31, 2021.

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)]
Rasgas Company Limited (Qatar)	1999 to 2024	FOB[(3)]	4,920
	2007 to 2026	DES	2,100
	2013 to 2032	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
The East Sea gas field (Korea)	2019 to 2021	PNG[(4)]	90
Gladstone LNG (Australia)	2016 to 2036	FOB	3,500
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
Petronas (Malaysia)	2018 to 2021	FOB	1,250
Marubeni (Indonesia)	2018 to 2021	DES	300

(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) Under "pipeline natural gas" ("**PNG**") contracts, the supplier transports natural gas in vapor form through a pipeline to the Company's receiving terminal.

(5) Initially one million metric tons per year from fields in Russia and Nigeria until the satisfaction of certain conditions. 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.

As of March 31, 2021, the Company was a party to short-term supply contracts with two suppliers in two countries.

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 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 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.

With the exception of the purchase price under the supply contract with The East Sea gas fields, which the Company pays in Won, the purchase prices under the other 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, 2021, 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.

In October 2014, the Company selected Samsung Heavy Industries and Daewoo Shipbuilding & Marine Engineering to construct six LNG vessels to be operated by Hyundai LNG Shipping Co., Ltd., SK Shipping Co. Ltd. and Korea Line LNG for the transportation of LNG under the long-term sales and purchase agreement with Sabine Pass Liquefaction LLC (the "**Sabine Pass purchase agreement**"). The shipping contracts for such vessels were entered into in June 2017 and February 2018 and have a duration of 20 years. Four of the six vessels are currently operational and the two remaining vessels are currently under repair.

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 21 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 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, 2021, the Company owned and operated a pipeline network of 4,945 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, 2021. 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, 2021, 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, 2021. The terminal processed approximately 10.5 million metric tons of natural gas in 2020 and approximately 4.1 million metric tons of natural gas in the first three months of 2021.

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, 2021, 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, 2021. The terminal processed approximately 12.3 million metric tons of natural gas in 2020 and approximately 4.6 million metric tons of natural gas in the first three months of 2021.

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, 2021, 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, 2021. The terminal processed approximately 7.0 million metric tons of natural gas in 2020 and approximately 2.6 million metric tons of natural gas in the first three months of 2021.

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, 2021, 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, 2021. The terminal processed approximately 3.5 million metric tons of natural gas in 2020 and approximately 1.3 million metric tons of natural gas in the first three months of 2021.

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, 2021, 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, 2021. The terminal processed approximately 220 thousand metric tons of natural gas in 2020 and approximately 72 thousand metric tons of natural gas in the first three months of 2021.

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, 2021, the Company's transmission system had a total of 4,945 kilometers of pipeline in operation. As of March 31, 2021, the pipelines supplied gas to approximately 212 counties and cities throughout Korea. The Company's transmission system includes 413.4 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 5,383 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 942 billion in 2016, Won 693 billion in 2017, Won 613 billion in 2018, Won 488 billion in 2019, Won 508 billion in 2020 and Won 126 billion in the first three months of 2021, and it expects to invest approximately Won 586 billion in such projects in the remainder of 2021, 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 2035.

  As of March 31, 2021, 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 555 billion in 2018, Won 623 billion in 2019 and Won 504 billion in 2020 and Won 106 billion in the first quarter of 2021, and net loss of Won 68 billion in 2018, Won 80 billion in 2019, Won 230 billion in 2020 and net loss of Won 9 billion in the first quarter of 2021. As of March 31, 2021, KOGAS Australia had total assets of Won 3,525 billion and total liabilities of Won 3,401 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, 2021, 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 68 billion in the first quarter of 2021, and net loss of Won 16 billion in 2018, Won 352 billion in 2019, Won 154 billion in 2020 and net profit of Won 20 billion in the first quarter of 2021. As of March 31, 2021, KOGAS Prelude had total assets of Won 1,993 billion and total liabilities of Won 1,442 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, 2021, 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 409 billion in 2018, Won 385 billion in 2019, Won 299 billion in 2020 and Won 70 billion in the first quarter of 2021, and net profit of Won 66 billion in 2018, Won 61 billion in 2019, Won 42 billion in 2020 and Won 8 billion in the first quarter of 2021. As of March 31, 2021, KOGAS Iraq had total assets of Won 1,026 billion and total liabilities of Won 168 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, 2021, 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 382 billion in 2018, Won 206 billion in 2019, Won 112 billion in 2020 and Won 35 billion in the first quarter of 2021, and net profit of Won 19 billion in 2018 and Won 21 billion in 2019 and net loss of Won 5 billion in 2020 and net profit of Won 1 billion in the first quarter of 2021. As of March 31, 2021, KOGAS Badra had total assets of Won 516 billion and total liabilities of Won 30 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, 2021, 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 2018, 2019, 2020 and the first quarter of 2021, and net loss of Won 13 billion in 2018, Won 22 billion in 2019, Won 30 billion in 2020 and Won 4 billion in the first quarter of 2021. As of March 31, 2021, KG Mozambique had total assets of Won 962 billion and total liabilities of Won 712 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, 2020 and 2019 and note 1 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018, 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 spend Won 3.2 trillion to build hydrogen production facilities by 2030 and it is expected to receive Won 166 billion in government subsidies until 2024. Such plans call for the Company to construct 25 hydrogen production facilities by 2030, 132 hydrogen refueling stations by 2025.

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. Furthermore, in July 2020, the Company signed a memorandum of understanding 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 also 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 2024.

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 OHSAS 18001, 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 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, 2021, the Company had 4,235 employees. The following table provides a breakdown of employees by function as of the dates indicated.

	As of December 31,			As of March 31,
Function	**2018**	**2019**	**2020**	**2021**
Planning	96	89	99	91
Administration	179	186	197	173
Marketing	104	115	113	102
Exploration & production	195	220	217	188
Production	1,114	1,207	1,197	1,161
Operations	1,743	1,783	1,794	1,773
Research & development	311	303	272	377
Others	413	386	398	370
Total	4,155	4,289	4,287	4,235

Labor Relations

As of March 31, 2021, 3,793 of the Company's employees, or approximately 89.5% 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 2020. 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 2020, the Company paid premiums for its major insurance policies totaling approximately Won 15 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, 2021, the Center employed 90 researchers and 71 other employees. The Company incurred research and development expenses of Won 53 billion in 2020.

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 2020, the Company appropriated 1.5% 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;
- natural gas exploration, development and production technologies and technologies for enhancing productivity of gas fields; 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 430 patents and six utility model rights as of March 31, 2021. 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

The following table sets forth certain information relating to the Company's consolidated subsidiaries as of March 31, 2021:

		As of or for the three months ended March 31, 2021			
Subsidiaries	**Primary business**	**Percentage ownership**	**Total assets**	**Total sales**	**Profit (loss) for the period**
			(in millions of Won)		
Korea Gas Technology Corp. . .	Construction and services	100%	258,987	63,835	(77)
KOGAMEX Investment Manzanillo B.V.	Investment and services	100%	112,641	–	1,946
KOMEX-GAS, S. de R.L. de C.V..	LNG terminal construction	99.97%	4,895	1,675	794
KOGAS Iraq B.V.	Resource development	100%	1,026,333	69,845	7,667
KOGAS Badra B.V.	Resource development	100%	516,144	35,013	1,483
KOGAS Akkas B.V.	Resource development	100%	23,300	–	(6,148)
KOGAS Mansuriya B.V.	Resource development	100%	6,525	–	(6,090)
KOGAS Canada Energy Ltd.. . .	Resource development and LNG plant management	100%	788,529	2,838	960
KOGAS Australia Pty. Ltd.	Resource development	100%	3,524,658	105,569	(8,851)
KOGAS Prelude Pty. Ltd.	Resource development	100%	1,992,539	67,931	19,851
KG Timor Leste Ltd.	Resource development	100%	–	–	(339)
KG Krueng Mane Ltd.	Resource development	100%	–	–	(468)
KG Mozambique Ltd.	Resource development	100%	961,647	–	(3,983)
KOGAS Mozambique Lda.	Construction and services	99.99%	23,765	70	1,880
KOGAS Cyprus Ltd.	LNG Plant management	100%	34,139	–	(58)
KC LNG Tech Co., Ltd.	Engineering	50.20%	21,951	8	(1,156)

Subsidiaries	Primary business	As of or for the three months ended March 31, 2021			
		Percentage ownership	Total assets	Total sales	Profit (loss) for the period
			(in millions of Won)		
KG-SEAGP Company Limited .	Resource development	63.40%	175,865	–	3,689
KG-Myanmar Ltd.	Resource development	100%	277,909	–	(424)
KOGAS International Pte. Ltd. .	LNG trading	100%	4,134	64,425	1,797
Korea LNG Bunkering Co., Ltd.	LNG bunkering	100%	31,025	2,449	5

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, 2020 and 2019 and note 1 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018, 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.

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, 2021 presented in this offering circular may not be indicative of the Company's full year results for 2021.

In the fourth quarter of 2018, the Company discontinued its operations of the West Cut Bank business in Canada and sold its assets. As a result, the West Cut Bank operations were accounted for as discontinued operations in the Company's consolidated statements of comprehensive income for the year ended December 31, 2018 included elsewhere in this offering circular, and the Company recognized loss from discontinued operations of Won 27 billion in 2018. See note 42 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018.

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 32.4 million metric tons of natural gas in 2020 and 12.1 million metric tons in the first three months of 2021. The Company believes that natural gas supplied by the Company accounted for approximately 18.6% of the primary energy consumed in Korea in 2020. 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 4,945 kilometers as of March 31, 2021. 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, 2021, 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, 2020 and 2019 and note 4 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018, 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.

For example, determination of the guaranteed return amounts from February 2013 to October 2017 included adjustments related to recoupment of prior guaranteed return amounts caused by temporary suspension from March 2008 to February 2013 of the periodic bi-monthly adjustments to the sales prices that the Company invoices to city gas companies, as further described below. 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. Due in part to substantial fluctuations in the price of LNG and the value of the Won relative to the U.S. dollar, and 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, from March 2008 to February 2013, the periodic bi-monthly adjustments to the sales prices that the Company invoices to city gas companies. During this 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). "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.

During the suspension period, in order to at least partly mitigate the adverse effect on the Company's cash flows and financial condition, the Ministry of Trade, Industry and Energy approved annual increases in the sales prices invoiced to city gas companies from 2008 to 2013. 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 would enable 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. Since 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 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, in order to mitigate the impact of increases in the price of crude oil, 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 620 billion as of December 31, 2018, Won 843 billion as of December 31, 2019, Won 1,246 billion as of December 31, 2020 and Won 1,062 billion as of March 31, 2021 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 and Won 652 billion as of March 31, 2021 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, 2020 and 2019 and note 16 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018, included elsewhere in this offering circular.

No assurance can be given 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.

Reconciliation of the Company's Estimated and Actual Raw Material and Supply Costs

For fiscal years 2018, 2019 and 2020, the income effects associated with the variance between estimated raw material and supply costs and actual raw material and supply costs from the fourth quarter of the prior year to the third quarter of the current year were recognized in the current year, subject to certain additional governmental approvals, and collected or repaid during the following year through the sales price adjustment mechanism described above. While certain adjustments were made throughout the year, a significant portion of the effects associated with the variance between estimated raw material and supply costs and actual raw material and supply costs were typically recognized in the fourth quarter of each fiscal year. The Company's financial information for the fourth quarters of 2018, 2019 and 2020, and the fiscal years 2018, 2019 and 2020 is as follows:

	For the three months ended December 31,			For the year ended December 31,		
	2018	2019	2020	2018	2019	2020
	(in billions of Won)					
Revenue	₩7,629	₩6,886	₩5,382	₩26,185	₩24,983	₩20,834
Operating profit	470	420	260	1,277	1,335	899
Profit (loss) for the period/year	158	(250)	82	527	58	(161)

In part due to such adjustments made in the fourth quarter, the results of operations of each of the first three quarters of any fiscal year are not indicative of the Company's results of operations for the entire fiscal year.

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.

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, 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 613 billion in 2018, Won 488 billion in 2019, Won 508 billion in 2020 and Won 126 billion in the first three months of 2021, and it expects to invest approximately Won 586 billion in such projects in the remainder of 2021, 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 88 billion in 2018, 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., KOGAS Canada Energy Ltd. and KOGAS Cyprus Ltd.) that invested in various overseas gas exploration, development and production projects. 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, 2020 and 2019 and note 1 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018, 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 1,194 billion in 2018, Won 1,223 billion in 2019, Won 912 billion in 2020 and Won 192 billion in the first three months of 2021, 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 1,489 billion in the remainder of 2021 and Won 1,677 billion in 2022. 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, 2020 and 2019 and notes 2 and 3 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018, 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, 2020 and 2019. 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, 2020 and 2019.

RESULTS OF OPERATIONS – FIRST THREE MONTHS OF 2020 COMPARED TO FIRST THREE MONTHS OF 2021

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

	For the three months ended March 31,		Changes	
	2020	2021	Amount	%
	(in billions of Won)			
Revenue	₩7,968	₩7,711	₩(256)	(3.2)%
Cost of sales	6,902	6,838	(64)	(0.9)
Gross profit	1,066	873	(193)	(18.1)
Selling and administrative expenses	107	109	2	1.7
Operating profit	959	765	(194)	(20.3)
Other income	1	31	29	2,060.2
Other expenses	9	4	(5)	(52.0)
Other gains, net	10	4	(6)	(60.5)
Finance income	439	378	(61)	(13.8)
Finance costs	669	524	(145)	(21.7)
Gains (losses) on investments in associates and joint ventures, net	(19)	42	61	N.A.
Profit before income tax	713	692	(21)	(2.9)
Income tax expenses	(171)	(177)	(6)	3.5
Profit for the period	₩ 542	₩ 515	₩ (27)	(4.9)%

N.A. = not available.

Revenue

The Company's revenue decreased by 3.2%, or Won 256 billion, from Won 7,968 billion in the first three months of 2020 to Won 7,711 billion in the first three months of 2021 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 the first three months of 2020 and 2021.

	For the three months ended March 31,		Changes	
	2020	2021	Amount	%
	(in billions of Won)			
Natural gas wholesale segment:				
City gas companies	₩4,842	₩4,591	₩(251)	(5.2)%
Power generating companies	2,728	2,812	84	3.1
Others	118	103	(16)	(13.2)
Sub-total	7,688	7,506	(182)	(2.4)
Others segment	279	205	(74)	(26.5)
Total revenue	₩7,968	₩7,711	₩(256)	(3.2)%

Natural Gas Wholesale Segment

Revenue from the natural gas wholesale segment decreased by 2.4%, or Won 182 billion, from Won 7,688 billion in the first three months of 2020 to Won 7,506 billion in the first three months of 2021 primarily due to a decrease in revenue from sales to city gas companies, which was partially offset by an increase in revenue from sales to power generating companies.

Sales to city gas companies. Revenue from sales to city gas companies decreased by 5.2%, or Won 251 billion, from Won 4,842 billion in the first three months of 2020 to Won 4,591 billion in the first three months of 2021 due to a decrease in the average Formula Price for natural gas sold to such customers, which was offset in part by an increase in the total volume of natural gas sold to such customers.

- The average Formula Price for natural gas sold to city gas companies decreased by 13.5%, or Won 99 thousand per metric ton, from Won 733 thousand per metric ton in the first three months of 2020 to Won 634 thousand per metric ton in the first three months of 2021 primarily due to a decrease in the average Won price of raw materials reflecting a general decrease in average LNG prices in the first three months of 2021 compared to the first three months of 2020, which was enhanced by an appreciation of the Won against the dollar from an average rate of Won 1,193.6 to U.S.$1.00 in the first three months of 2020 to an average rate of Won 1,114.1 to U.S.$1.00 in the first three months of 2021.

- The total volume of natural gas sold to city gas companies increased by 9.6%, or 636 thousand metric tons, from 6,605 thousand metric tons in the first three months of 2020 to 7,241 thousand metric tons in the first three months of 2021, reflecting an 11.4% increase in the sales volume to residential and business heating end-users, which was enhanced by a 9.1% increase in sales volume to industrial end-users. The Company's sales volume to industrial end-users increased primarily due to colder weather during the traditional peak-demand winter months in the first three months of 2021 compared to those in the first three months of 2020. 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 the first three months of 2021 compared to the first three months of 2020.

Sales to power generating companies. Sales to power generating companies increased by 3.1%, or Won 84 billion, from Won 2,728 billion in the first three months of 2020 to Won 2,812 billion in the first three months of 2021, due to a decrease in the average Formula Price of natural gas sold to power generating companies, which was partially offset by an increase 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 9.0%, or Won 57 thousand per metric ton, from Won 633 thousand per metric ton in the first three months of 2020 to Won 576 thousand per metric ton in the first three months of 2021 primarily due to a decrease in the average Won price of raw materials, which was enhanced by an appreciation of the Won against the dollar as discussed above.

- The total volume of natural gas sold to power generating companies increased by 13.3%, or 572 thousand metric tons, from 4,307 thousand metric tons in the first three months of 2020 to 4,879 thousand metric tons in the first three months of 2021, reflecting a 17.8% increase in the sales volume to the five non-nuclear power generating subsidiaries of KEPCO and a 10.5% increase in the sales volume to private sector power generating companies. The Company's sales to the five non-nuclear power generating subsidiaries of KEPCO and to private sector power generating companies increased primarily due to increased power generation caused by colder weather during the traditional peak-demand winter months in the first three months of 2021 compared to those in the first three months of 2020.

Others Segment

Revenue from the others segment decreased by 26.5%, or Won 74 billion, from Won 279 billion in the first three months of 2020 to Won 205 billion in the first three months of 2021 primarily due to decreases in revenue from KOGAS Australia Pty. Ltd. and KOGAS Iraq 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 36.9%, or Won 62 billion, from Won 168 billion in the first three months of 2020 to Won 106 billion in the first three months of 2021, and revenue from KOGAS Iraq B.V., which invested in the Zubair oilfield in Iraq, decreased by 32.0%, or Won 34 billion, from Won 103 billion in the first three months of 2020 to Won 70 billion in the first three months of 2021.

Cost of Sales

The Company's cost of sales decreased by 0.9%, or Won 64 billion, from Won 6,902 billion in the first three months of 2020 to Won 6,838 billion in the first three months of 2021 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.$66.17 per barrel in the first three months of 2020 to U.S.$41.53 per barrel in the first three months of 2021. The impact of such decrease in the average purchase price of LNG in dollar terms in the first three months of 2021 compared to the first three months of 2020 was enhanced by an appreciation of the Won against the dollar in the first three months of 2021 compared to the first three months of 2020 as described above.

Selling and Administrative Expenses

Selling and administrative expenses increased by 1.7%, or Won 2 billion, from Won 107 billion in the first three months of 2020 to Won 109 billion in the first three months of 2021 primarily due to increases in taxes and dues and salaries, which were offset in part by a decrease in other miscellaneous expenses.

Taxes and dues increased by 8.9%, or Won 3 billion, from Won 33 billion in the first three months of 2020 to Won 36 billion in the first three months of 2021 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. Salaries increased by 6.5%, or Won 2 billion, from Won 25 billion in the first three months of 2020 to Won 27 billion in the first three months of 2021 primarily due to an increase in the average salary paid to employees, as well as an increase in the number of employees.

On the other hand, other miscellaneous expenses decreased by 36.4%, or Won 3 billion, from Won 8 billion in the first three months of 2020 to Won 5 billion in the first three months of 2021 mainly due to decreases in research and development expenses related to postponed overseas activities stemming from the global COVID-19 pandemic.

Operating Profit

As a result of the foregoing, the Company's operating profit decreased by 20.3%, or Won 194 billion, from Won 959 billion in the first three months of 2020 to Won 765 billion in the first three months of 2021. The Company's operating profit margin decreased from 12.0% in the first three months of 2020 to 9.9% in the first three months of 2021.

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

	For the three months ended March 31,		Changes	
	2020	2021	Amount	%
	(in billions of Won)			
Natural gas wholesale segment	₩941	₩710	₩(231)	(24.6)%
Others segment	32	54	22	68.9
Intersegment adjustments	(14)	1	15	N.A.
Total operating profit	₩959	₩765	₩(194)	(20.3)%

N.A. = not available.

Natural Gas Wholesale Segment

Operating profit of the Company's natural gas wholesale segment, prior to intersegment adjustments, decreased by 24.6%, or Won 231 billion, from Won 941 billion in the first three months of 2020 to Won 710 billion in the first three months of 2021 primarily due to a decrease in the average price of LNG as discussed above. Due to the reasons described above, operating profit margin of the segment decreased from 12.2% in the first three months of 2020 to 9.5% in the first three months of 2021.

Others Segment

Operating profit of the Company's others segment, prior to intersegment adjustments, increased by 68.9%, or Won 22 billion, from Won 32 billion in the first three months of 2020 to Won 54 billion in the first three months of 2021 primarily due to improvements in operating performance of certain of the Company's wholly-owned subsidiaries that have made investments in natural gas exploration, development and production activities abroad. KOGAS Prelude Pty. Ltd., which invested in the LNG project in Australia, recognized operating profit of Won 37 billion in the first three months of 2021 compared to operating loss of Won 25 billion in the first three months of 2020. Due to such factors, the operating profit margin of the others segment increased from 11.4% in the first three months of 2020 to 26.1% in the first three months of 2021.

Other Income and Expenses

The Company's other income increased significantly by Won 29 billion, from Won 1 billion in the first three months of 2020 to Won 31 billion in the first three months of 2021 primarily due to an increase in compensation and indemnity gains from Won 1 billion in the first three months of 2020 to Won 30 billion in the first three months of 2021 related to indemnity gains from a certain unfulfilled supply contract in the first three months of 2021.

The Company's other expenses decreased by 52.0%, or Won 5 billion, from Won 9 billion in the first three months of 2020 to Won 4 billion in the first three months of 2021 primarily due to the recognition of compensation and indemnity expenses of Won 3 billion in the first three months of 2020 related to an arbitration on certain damages which were not repeated in the first three months of 2021.

Other Gains, Net

The Company's net other gains decreased by 60.5%, or Won 6 billion, from Won 10 billion in the first three months of 2020 to Won 4 billion in the first three months of 2021 primarily due to a decrease in other miscellaneous gains.

Other miscellaneous gains decreased by 55.3%, or Won 6 billion, from Won 11 billion in the first three months of 2020 to Won 5 billion in the first three months of 2021 primarily due to a decrease in gains from changes in inventories relating to the Company's overseas subsidiaries.

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 2020 and 2021.

	For the three months ended March 31,		Changes	
	2020	2021	Amount	%
	(in billions of Won)			
Interest income	₩ 6	₩ 5	₩ (1)	(17.8)%
Gains on valuation of derivative instruments	2	39	37	1,815.3
Gains on transactions of derivative instruments	76	86	11	14.0
Gains on foreign currency translation	314	223	(90)	(28.8)
Gains on foreign currency transactions	41	25	(17)	(40.4)
Total finance income	₩439	₩378	₩(61)	(13.8)%

	For the three months ended March 31,		Changes	
	2020	2021	Amount	%
	(in billions of Won)			
Interest expense	₩203	₩165	₩ (37)	(18.3)%
Losses on valuation of derivative instruments	79	29	(50)	(63.5)
Losses on transaction of derivative instruments	33	19	(14)	(41.5)
Losses on foreign currency translation	268	219	(50)	(18.5)
Losses on foreign currency transactions	85	91	6	7.3
Total finance costs	₩669	₩524	₩(145)	(21.7)%

N.A. = not available.

The Company's net loss on foreign currency transactions increased by 52.3%, or Won 23 billion, from Won 44 billion in the first three months of 2020 to Won 67 billion in the first three months of 2021, and its net gain on foreign currency translation decreased by 89.5%, or Won 41 billion, from Won 46 billion in the first three months of 2020 to Won 5 billion in the first three months of 2021, as the Won depreciated against the dollar from December 31, 2019 to March 31, 2020 and from December 31, 2020 to March 31, 2021. In terms of the market average exchange rates announced by Seoul Money Brokerage Services, Ltd., the Won depreciated from Won 1,157.8 to US$1.00 as of December 31, 2019 to Won 1,222.6 to US$1.00 as of March 31, 2020, and depreciated 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. Against such fluctuations, the Company recognized net loss on valuation of derivative instruments of Won 77 billion in the first three months of 2020 compared to net gain on valuation of derivative instruments of Won 10 billion in the first three months of 2021, and its net gain on transaction of derivative instruments increased by 57.5%, or Won 24 billion, from Won 42 billion in the first three months of 2020 to Won 67 billion in the first three months of 2021.

The Company's interest expense decreased by 18.3%, or Won 37 billion, from Won 203 billion in the first three months of 2020 to Won 165 billion in the first three months of 2021 primarily due to a general decrease in interest rates in Korea during the first three months of 2021, which more than offset an increase in the Company's outstanding interest bearing liabilities in the first three months of 2021 compared to the first three months of 2020. The Company's interest income decreased by 17.8%, or Won 1 billion, from Won 6 billion in the first three months of 2020 to Won 5 billion in the first three months of 2021 primarily due to a decrease in its interest-earning assets in the first three months of 2021 compared to the first three months of 2020.

Gains on Investments in Associates and Joint Ventures, Net

The Company recognized net losses on investments in associates and joint ventures of Won 19 billion in the first three months of 2020 compared to net gains on investments in associates and joint ventures of Won 42 billion in the first three months of 2021 primarily due to the recognition of equity method loss of Won 47 billion of Korea Ras Laffan LNG Ltd. in the first three months of 2020 compared to equity method gain of Won 22 billion in the first three months of 2021.

Profit Before Income Tax

As a result of the foregoing, the Company's profit before income tax decreased by 2.9%, or Won 21 billion, from Won 713 billion in the first three months of 2020 to Won 692 billion in the first three months of 2021.

Income Tax Expense

Income tax expense increased by 3.5%, or Won 6 billion, from Won 171 billion in the first three months of 2020 to Won 177 billion in the first three months of 2021 primarily due to increases in operating income of the Company's overseas subsidiaries, while profit before income tax decreased by 2.9%, or Won 21 billion, from Won 713 billion in the first three months of 2020 to Won 692 billion in the first three months of 2021 as described above. The Company's effective tax rate increased from 23.95% in the first three months of 2020 to 25.54% in the first three months of 2021. See note 24 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 decreased by 4.9%, or Won 27 billion, from Won 542 billion in the first three months of 2020 to Won 515 billion in the first three months of 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	26.3
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 2019.

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.$49.89 per ton in 2019 to U.S.$43.99 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 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 26.3%, 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 each of 2019 and 2020, the Company recognized loss on impairment of property, plant and equipment related to 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 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.

RESULTS OF OPERATIONS – 2018 COMPARED TO 2019

The following table presents selected statement of comprehensive income data and changes therein for 2018 and 2019.

	For the year ended December 31,		Changes	
	2018	2019	Amount	%
	(in billions of Won)			
Revenue	₩26,185	₩24,983	₩(1,202)	(4.6)%
Cost of sales	24,509	23,227	(1,281)	(5.2)
Gross profit	1,677	1,756	79	4.7
Selling and administrative expenses	400	421	21	5.3
Operating profit	1,277	1,335	58	4.5
Other income	3	3	0	5.6
Other expenses	38	58	20	53.2
Other losses, net	(54)	(466)	(412)	761.8
Finance income	494	451	(43)	(8.7)
Finance costs	1,237	1,253	16	1.3
Gains on investments in associates and joint ventures, net	204	105	(100)	(48.8)
Profit before income tax	649	116	(533)	(82.1)
Income tax expense	(96)	(58)	37	(39.2)
Loss from discontinued operations	(27)	–	27	(100.0)
Profit for the year	₩ 527	₩ 58	₩ (468)	(88.9)%

Revenue

The Company's revenue decreased by 4.6%, or Won 1,202 billion, from Won 26,185 billion in 2018 to Won 24,983 billion in 2019 due to a decrease in revenue from the natural gas wholesale segment which was partially offset by an increase in revenue from the others segment.

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

	For the year ended December 31,		Changes	
	2018	2019	Amount	%
	(in billions of Won)			
Natural gas wholesale segment:				
City gas companies	₩13,011	₩12,981	₩ (30)	(0.2)%
Power generating companies	11,634	10,326	(1,308)	(11.2)
Others	306	417	111	36.2
Sub-total	24,951	23,724	(1,227)	(4.9)
Others segment	1,234	1,259	25	2.0
Total revenue	₩26,185	₩24,983	₩(1,202)	(4.6)%

Natural Gas Wholesale Segment

Revenue from the natural gas wholesale segment decreased by 4.9%, or Won 1,227 billion, from Won 24,951 billion in 2018 to Won 23,724 billion in 2019 primarily due to decreases in revenue from sales to power generating companies and, to a lesser extent, city gas companies.

Sales to power generating companies. Sales to power generating companies decreased by 11.2%, or Won 1,308 billion, from Won 11,634 billion in 2018 to Won 10,326 billion in 2019, due to decreases in the total volume of natural gas sold to power generating companies as well as their average Formula Price.

- The total volume of natural gas sold to power generating companies decreased by 9.9%, or 1,631 thousand metric tons, from 16,406 thousand metric tons in 2018 to 14,775 thousand metric tons in 2019, reflecting a 13.9% decrease in the sales volume to the five non-nuclear power generating subsidiaries of KEPCO and a 7.6% decrease in the sales volume to private sector power generating companies. Despite the government's efforts to reduce reliance on coal as a fuel source of power generating companies in 2019 compared to 2018 in efforts to reduce fine dust pollution in Korea, the Company's volume of natural gas sold decreased primarily due to an increase in the utilization rate of nuclear power plants, as well as a decrease in demand for electricity during the traditional peak-demand winter months in 2019 compared to 2018 as a result of warmer weather.

- The average Formula Price of natural gas sold to power generating companies decreased by 1.4%, or Won 10 thousand per metric ton, from Won 709 thousand per metric ton in 2018 to Won 699 thousand per metric ton in 2019 primarily due to a decrease in custom duties relating to natural gas sold to power generating companies, which was offset in part by a depreciation of the Won against the dollar from an average rate of Won 1,100.3 to U.S.$1.00 in 2018 to an average rate of Won 1,165.7 to U.S.$1.00 in 2019.

Sales to city gas companies. Revenue from sales to city gas companies decreased by 0.2%, or Won 30 billion, from Won 13,011 billion in 2018 to Won 12,981 billion in 2019 due to a decrease in the total volume of natural gas sold to such customers, which was offset in large part by an increase in their average Formula Price.

- The total volume of natural gas sold to city gas companies decreased by 5.0%, or 991 thousand metric tons, from 19,813 thousand metric tons in 2018 to 18,822 thousand metric tons in 2019, reflecting a 5.4% decrease in sales volume to residential and business heating end-users and a 5.6% decrease in the sales volume to industrial end-users. The Company's sales volume to residential and business heating end-users decreased primarily due to warmer weather during the traditional peak-demand winter months in 2019 compared to those in 2018. The Company's sales volume to industrial end-users decreased primarily due to a deterioration in price competitiveness of LNG compared to liquefied petroleum gas, an alternative fuel source for industrial end-users, in 2019 compared to 2018.

- The average Formula Price for natural gas sold to city gas companies increased by 5.0%, or Won 33 per thousand metric ton, from Won 657 thousand per metric ton in 2018 to Won 690 thousand per metric ton in 2019 primarily due to an increase in the average Won price of raw materials reflecting a general increase in average LNG prices in 2019 compared to 2018.

Others Segment

Revenue from the others segment increased by 2.0%, or Won 25 billion, from Won 1,234 billion in 2018 to Won 1,259 billion in 2019 primarily due to increases in revenue from certain 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 conducts LNG trading activities, increased by 310.4%, or Won 247 billion, from Won 79 billion in 2018 to Won 326 billion in 2019, and revenue from KOGAS Australia Pty. Ltd., which invested in the GLNG Project in Australia, increased by 12.4%, or Won 69 billion, from Won 555 billion in 2018 to Won 623 billion in 2019. Partially offsetting such impact, revenue from KOGAS Badra B.V., which invested in the Badra oilfield in Iraq, decreased by 46.2%, or Won 176 billion, from Won 382 billion in 2018 to Won 206 billion in 2019.

Cost of Sales

The Company's cost of sales decreased by 5.2%, or Won 1,281 billion, from Won 24,509 billion in 2018 to Won 23,227 billion in 2019 primarily due to the decrease in the Company's sales volume of natural gas sold, as well as a decrease in custom duties relating to natural gas sold to power generating companies as described above. The average market price of Japanese Crude Cocktail increased from U.S.$67.45 per ton in 2018 to U.S.$69.89 per ton in 2019. The impact of such increase in the average purchase price of LNG in dollar terms in 2019 compared to 2018 was enhanced by a depreciation of the Won against the dollar in 2019 compared to 2018 as described above.

Selling and Administrative Expenses

Selling and administrative expenses increased by 5.3%, or Won 21 billion, from Won 400 billion in 2018 to Won 421 billion in 2019 primarily due to increases in taxes and dues and commission expenses, which were offset in part by decreases in impairment loss on trade receivables and sales promotion costs.

Taxes and dues increased by 38.8%, or Won 27 billion, from Won 69 billion in 2018 to Won 96 billion in 2019 primarily due to certain refunds on taxes in 2018 compared to no such refunds in 2019. Commission expenses increased by 22.1%, or Won 10 billion, from Won 47 billion in 2018 to Won 58 billion in 2019 primarily due to increases in facilities management fees and consignment fees.

On the other hand, the Company recognized impairment loss on trade receivables of Won 18 billion in 2018 primarily due to write-downs related to unrecoverable expenses in connection with the Zubair Project in Iraq, compared to a reversal of impairment loss on trade receivables of Won 1 billion in 2019. Sales promotion costs decreased by 78.7%, or Won 14 billion, from Won 18 billion in 2018 to Won 4 billion in 2019 primarily due to subsidies provided to certain hotels and schools for natural gas air-conditioning in 2018, which were not repeated in 2019.

Operating Profit

As a result of the foregoing, the Company's operating profit increased by 4.5%, or Won 58 billion, from Won 1,277 billion in 2018 to Won 1,335 billion in 2019. The Company's operating profit margin increased from 4.9% in 2018 to 5.3% in 2019.

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

	For the year ended December 31,		Changes	
	2018	2019	Amount	%
	(in billions of Won)			
Natural gas wholesale segment	₩1,109	₩1,186	₩ 77	7.0%
Others segment	165	142	(24)	(14.3)
Intersegment adjustments	3	7	4	136.0
Total operating profit	₩1,277	₩1,335	₩ 58	4.5%

Natural Gas Wholesale Segment

Operating profit of the Company's natural gas wholesale segment, prior to intersegment adjustments, increased by 7.0%, or Won 77 billion, from Won 1,109 billion in 2018 to Won 1,186 billion in 2019 primarily due to the decrease in the Company's sales volume of natural gas sold as discussed above. Operating profit margin of the segment increased from 4.4% in 2018 to 5.0% in 2019.

Others Segment

Operating profit of the Company's others segment, prior to intersegment adjustments, decreased by 14.3%, or Won 24 billion, from Won 165 billion in 2018 to Won 142 billion in 2019 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 691.5%, or Won 22 billion, from Won 3 billion in 2018 to Won 25 billion in 2019. Operating profit of KOGAS Australia Pty. Ltd., which invested in the GLNG Project in Australia, decreased by 8.2%, or Won 8 billion, from Won 93 billion in 2018 to Won 86 billion in 2019. Due to such factors, operating profit margin of the segment decreased from 13.4% in 2018 to 11.2% in 2019.

Other Income and Expenses

The Company's other income remained relatively constant at Won 3 billion in 2018 and 2019.

The Company's other expenses increased by 53.2%, or Won 20 billion, from Won 38 billion in 2018 to Won 58 billion in 2019 primarily due to an increase in compensation and indemnity losses. Compensation and tender expenses increased by 229.7%, or Won 15 billion, from Won 7 billion in 2018 to Won 22 billion in 2019 primarily due to damages paid in connection with certain lawsuits in 2019.

Other Gains and Losses

The Company's net other losses increased by 761.8%, or Won 412 billion, from Won 54 billion in 2018 to Won 466 billion in 2019 primarily due to increases in loss on impairment of property, plant and equipment, which was partially offset by an increase in other miscellaneous gains.

Loss on impairment of property, plant and equipment increased significantly, by Won 445 billion, from Won 15 billion in 2018 to Won 460 billion in 2019. In 2019, the Company recognized impairment loss on property, plant and equipment of Won 460 billion related to KOGAS Prelude Pty. Ltd. and KOGAS Canada Ltd. as a result of decreases in the value in use of such assets, compared to no such recognition of loss on impairment of property, plant and equipment in 2018.

Other miscellaneous gains increased by 67.2%, or Won 43 billion, from Won 64 billion in 2018 to Won 107 billion in 2019 primarily due to certain compensation income recognized in connection with investment costs relating to KOGAS Akkas B.V. in 2019 compared to no such compensations in 2018.

Finance Income and Costs

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

	For the year ended December 31,		Changes	
	2018	2019	Amount	%
	(in billions of Won)			
Interest income	₩ 43	₩ 33	₩(10)	(24.0)%
Dividend income	0	0	(0)	(13.3)
Gains on valuation of derivative instruments	2	1	(1)	(41.2)
Gains on transactions of derivative instruments	132	123	(9)	(6.7)
Gain on foreign currency translation	187	181	(7)	(3.5)
Gain on foreign currency transactions	130	114	(16)	(12.6)
Total finance income	₩494	₩451	₩(43)	(8.7)%

	For the year ended December 31,		Changes	
	2018	2019	Amount	%
	(in billions of Won)			
Interest expense	₩ 785	₩ 805	₩ 19	2.5%
Loss on disposal of financial assets at fair value through profit or loss	0	–	(0)	(100.0)
Loss on valuation of financial assets at fair value through profit or loss	4	1	(4)	(81.0)
Loss on disposal of financial assets	–	0	0	N.A.
Loss on valuation of derivative instruments	73	95	22	30.3
Losses on transactions of derivative instruments	74	93	19	25.6
Loss on foreign currency translation	130	86	(43)	(33.4)
Loss on foreign currency transactions	170	173	2	1.4
Total finance costs	₩1,237	₩1,253	₩ 16	1.3%

N.A. = not available.

The Company's net gain on foreign currency translations increased by 63.4%, or Won 37 billion, from Won 58 billion in 2018 to Won 95 billion in 2019, and its net loss on foreign currency transactions increased by 46.6%, or Won 19 billion, from Won 40 billion in 2018 to Won 59 billion in 2019, as the Won depreciated against the dollar in 2018 and further depreciated in 2019. In terms of the market average exchange rates announced by Seoul Money Brokerage Services, Ltd., the Won depreciated from Won 1,071.4 to US$1.00 as of December 31, 2017 to Won 1,118.1 to US$1.00 as of December 31, 2018 and further depreciated to Won 1,157.8 to US$1.00 as of December 31, 2019. Against such fluctuations, the Company's net gain on transaction of derivative instruments decreased by 48.1%, or Won 28 billion, from Won 58 billion in 2018 to Won 30 billion in 2019, and its net loss on valuation of derivative instruments increased by 32.0%, or Won 23 billion, from Won 72 billion in 2018 to Won 94 billion in 2019.

The Company's interest income decreased by 24.0%, or Won 10 billion, from Won 43 billion in 2018 to Won 33 billion in 2019 primarily due to a decrease in financial assets at fair value through profit or loss from 2018 to 2019, as well as a general decrease in interest rates in Korea during such period. The Company's interest expense increased by 2.5%, or Won 19 billion, from Won 785 billion in 2018 to Won 805 billion in 2019 primarily due to an increase in the Company's short-term borrowings in 2019 compared to 2018 in response to the government's re-suspension of the periodic bi-monthly adjustments to the sale price that the Company invoices to city gas companies starting in October 2018, which was offset in part by a general decrease in interest in rates in Korea in 2019 compared to 2018.

Gains on Investments in Associates and Joint Ventures, Net

Gains on investments in associates and joint ventures decreased by 48.8%, or Won 100 billion, from Won 204 billion in 2018 to Won 105 billion in 2019 primarily due to Korea Ras Laffan LNG Ltd.'s recognition of equity method gain of Won 63 billion in 2018 compared to equity method loss of Won 57 billion in 2019 and a decrease in equity method gain of Sulawesi LNG Development Limited from Won 25 billion in 2018 to Won 12 billion in 2019.

Profit Before Income Tax

As a result of the foregoing, the Company's profit before income tax decreased by 82.1%, or Won 533 billion, from Won 649 billion in 2018 to Won 116 billion in 2019.

Income Tax Expense

Income tax expenses decreased by 39.2%, or Won 37 billion from Won 96 billion in 2018 to Won 58 billion 2019 primarily due to the decrease in profit before income tax as described above. The Company's changes in deferred taxes arising from temporary differences decreased by 75.1%, or Won 149 billion, from Won 198 billion in 2018 to Won 49 billion in 2019, and its adjustment for prior year's income taxes decreased by 36.7%, or Won 28 billion, from Won 76 billion in 2018 to Won 48 billion in 2019, leading to an increase in the Company's effective tax rate from 14.72% in 2018 to 49.93% in 2019. See note 40 to the Company's audited consolidated financial statements of and for the years ended December 31, 2019 and 2018.

Profit for the Year

As a result of the foregoing, the Company's profit for the year decreased by 88.9%, or Won 468 billion, from Won 527 billion in 2018 to Won 58 billion in 2019.

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,	
	2018	2019	2020	2020	2021
	(in billions of Won)				
Net cash inflow (outflow) from operating activities	₩ 57	₩1,986	₩ 3,251	₩ 967	₩(434)
Net cash outflow from investing activities	1,275	1,397	972	257	149
Net cash inflow (outflow) from financing activities	994	(582)	(2,190)	(421)	748
Net increase (decrease) in cash and cash equivalents	(202)	17	75	301	177
Cash and cash equivalents at the beginning of the period	441	240	257	257	332
Cash and cash equivalents at the end of the period	240	257	332	558	509

Net Cash Inflow from Operating Activities

The Company recorded net cash inflow from operating activities of Won 967 billion in the first three months of 2020 compared to net cash outflow from operating activities of Won 434 billion in the first three months of 2021. The Company's gross cash flow from its sales activities decreased as discussed above. In addition, the Company recorded cash inflow of Won 101 billion in the first three months of 2020 related to decrease in trade receivables compared to cash outflow of Won 715 billion in the first three months of 2021 related to increase in trade receivables, which negatively impacted net cash provided by operating activities. The changes in trade receivables were primarily due to the increase in Formula Price in the first quarter of 2021 compared to the fourth quarter of 2020. The Company also recorded cash inflow of Won 303 billion in the first three months of 2020 related to decrease in inventories (primarily consisting of raw materials and goods in transit) compared to cash outflow of Won 302 billion in the first three months of 2021 related to increase in inventories, which negatively impacted net cash provided by operating activities. The changes in inventories were primarily due to the Company's efforts to reduce inventory level in the first three months of 2020.

Net cash inflow from operating activities increased by 63.7%, or Won 1,265 billion, 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 inflow from operating activities increased significantly, by Won 1,929 billion, from Won 57 billion in 2018 to Won 1,986 billion in 2019. The Company's gross cash flow from its sales activities decreased as discussed above. However, the Company recorded increase in inventories (primarily consisting of raw materials and goods in transit) of Won 1,616 billion in 2018 compared to decrease in inventories of Won 497 billion in 2019, which positively impacted net cash provided by operating activities. In addition, the Company's increase in other receivables decreased from Won 888 billion in 2018 to Won 538 billion in 2019, which also had a positive impact on net cash provided by operating activities. Partially offsetting such impact, the Company recorded increase in trade payables of Won 566 billion in 2018 compared decrease in trade payables of Won 137 billion in 2019, which negatively impacted net cash provided by operating activities.

Net Cash Outflow from Investing Activities

The Company's net cash outflow from investing activities decreased by 42.3%, or Won 109 billion, from Won 257 billion in the first three months of 2020 to Won 149 billion in the first three months of 2021 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 the reduction of paid-in capital of Sulawesi LNG Development Limited compared to no such recognition in the first three months of 2020. In addition, the Company's cash outflow related to increase in advanced payments and loans decreased from Won 57 billion in the first three months of 2020 to Won 18 billion in the first three months of 2021.

The Company's net cash outflow from investing activities decreased by 30.4%, or Won 425 billion, 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 by 25.4%, or Won 311 billion, 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.

The Company's net cash outflow from investing activities increased by 9.6%, or Won 122 billion, from Won 1,275 billion in 2018 to Won 1,397 billion in 2019 primarily due to decrease in proceeds from disposal of financial assets at amortized cost by 84.7%, or Won 367 billion, from Won 434 billion in 2018 to Won 66 billion in 2019. The Company's cash outflow related to acquisition of financial assets at amortized cost decreased from Won 431 billion in 2018 to Won 79 billion in 2019, and significantly offset the decrease in proceeds from disposal of financial assets at amortized cost. In addition, the Company's cash outflow related to acquisition of property, plant and equipment increased from Won 1,194 billion in 2018 to Won 1,223 billion in 2019 primarily due to the construction of storage facilities and pipelines in connection with the Company's Jeju complex.

Net Cash Inflow (Outflow) from Financing Activities

The Company recorded net cash outflow from financing activities of Won 421 billion in the first three months of 2020 compared to net cash inflow from financing activities of Won 748 billion in the first three months of 2021 primarily due to an increase in net proceeds from borrowings from Won 142 billion in the first three months of 2020 to Won 847 billion in the first three months of 2021. The Company's net repayments of debentures decreased from Won 449 billion in the first three months of 2020 to Won 50 billion in the first three months of 2021.

The Company's net cash outflow from financing activities increased by 276.3%, or Won 1,608 billion, from Won 582 billion 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.

The Company recorded net cash inflow from financing activities of Won 994 billion in 2018 compared to net cash outflow from financing activities of Won 582 billion in 2019. The Company's net proceeds from borrowings decreased from Won 3,174 billion in 2018 to Won 349 billion in 2019. Partially offsetting such impact, the Company's net repayments of debentures decreased from Won 1,794 billion in 2018 to Won 11 billion in 2019.

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 1,194 billion in 2018, Won 1,223 billion in 2019, Won 912 billion in 2020 and Won 192 billion in the first three months of 2021. 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 2021 until 2023 in Korea and abroad.

	Year ended December 31,		
	2021	2022	2023
	(in billions of Won)		
Korea	₩ 967	₩1,031	₩1,074
Abroad	713	647	596
Total planned capital expenditures	₩1,680	₩1,678	₩1,670

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, 2021, the Company provided guarantees for others, excluding related parties, on the payment of debts amounting to U.S.$74.8 million, EUR1.5 million, CAD1,597.7 million and Won 55,400 million. See note 34 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, 2021.

Contractual Obligations	Payments Due by Period			
	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)]	₩23,329	₩5,909	₩9,082	₩8,338
Minimum lease payments[(2)]	2,252	219	693	1,340
Total	₩25,581	₩6,128	₩9,775	₩9,678

(1) Stated at principal amount before discounts.

(2) Stated at book value translated into Won amount at the market average exchange rate of Won 1,133.5 to U.S.$1.00 on March 31, 2021 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 34 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 17,374 billion as of March 31, 2021, Won 17,046 billion as of December 31, 2020, Won 18,243 billion as of December 31, 2019 and Won 17,521 billion as of December 31, 2018 and total short-term borrowings and current portion of long-term borrowings and debentures (less discount) were Won 5,909 billion as of March 31, 2021, Won 5,114 billion as of December 31, 2020, Won 6,147 billion as of December 31, 2019 and Won 6,278 billion as of December 31, 2018.

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 (current assets minus current liabilities) of Won 795 billion as of March 31, 2021, Won 315 billion as of December 31, 2020, Won 332 billion as of December 31, 2019 and Won 54 billion as of December 31, 2018. 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 one 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, 2018, 2019 and 2020 and the three months ended March 31, 2021, with all other variables held constant, would have decreased the Company's profit before income tax by Won 7 billion, with a 100 basis point decrease in interest rates having the opposite effect. See note 31 to the Company's unaudited interim condensed consolidated financial statements, note 45 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019 and note 46 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018, 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 31 to the unaudited interim condensed consolidated financial statements included elsewhere in this offering circular.

For the years ended December 31, 2018, 2019 and 2020 and for the three months ended March 31, 2021, 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 26 billion, Won 48 billion, Won 29 billion and Won 37 billion, respectively, with a 10% decrease in exchange rates having the opposite effect. See note 31 to the Company's unaudited interim condensed consolidated financial statements, note 45 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019 and note 46 to the Company's audited consolidated financial statements as of December 31, 2019 and 2018, 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, Russia 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 33 to the unaudited interim condensed consolidated financial statements included elsewhere in this offering circular.

Inflation

Inflation in Korea was 1.5% in 2018, 0.4% in 2019 and 0.5% in 2020. Based on preliminary data, GDP in 2020 contracted by 1.0% at chained 2015 year prices primarily as a result of the ongoing global outbreak of the COVID-19 pandemic. The effects of inflation in Korea on the Company's financial condition and results of operations are reflected primarily in salary and selling, general and administration expenses. Inflation in Korea has not had a significant impact on the Company's results of operations to date. It is possible that inflation in the future may have an adverse effect on the Company's financial condition or results of operations. See "Risk Factors – Risks related to Korea – Unfavorable financial and economic developments in Korea may have an adverse effect on the Company."

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 Planning and Strategy 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 56, 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 65, 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 60, 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 61, 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

Eui-Hyun Kim, age 59, was appointed as a non-standing director on October 29, 2018. Mr. Kim previously served as a policy researcher at the Trade, Industry, Energy, SMEs and Startups Committee of the National Assembly.

Hong-Bok Ahn, age 56, 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.

Sun-Hee Oh, age 49, was appointed as a non-standing director on February 15, 2021. Ms. Oh is currently an attorney at Hyemyung law firm.

Su-Yi Kim, age 54, 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 51, 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.

Moon-Kyou Song, age 57, 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 54, 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 51, was appointed as a non-standing director on April 1, 2021. Mr. Kim is currently an attorney at Banseok law firm.

Principal Shareholders

The following table describes the Company's shareholders as of March 31, 2021 (the latest date such information is available).

Name	Amount of Paid in Capital (millions of Won)	Number of Shares	Percentage
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	27,714	5,542,822	6.00%
Employee stock ownership association	14,654	2,930,841	3.17%
Others	134,939	26,987,812	29.25%
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 of Won 119 billion in respect of 2018 and Won 33 billion in respect of 2019.

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 4,663 billion in 2018, and Won 1,277 billion in the first three months of 2019, 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,
	2018[(1)]	2019[(1)]	2020[(1)]	2021[(1)]
	(in billions of Won)			
Korea Southern Power Co., Ltd.	₩1,605	₩1,142	₩987	₩338
Korea Midland Power Co., Ltd..	640	535	580	242
Korea Western Power Co., Ltd.	1,067	953	641	233
Korea East-West Power Co., Ltd..	1,044	817	608	206
Korea South-East Power Co., Ltd.	307	341	252	120

(1) Special consumption tax amounts are included.

The table below provides a breakdown of the Company's account 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
	2018	2019	2020	March 31, 2021
	(in billions of Won)			
Korea Southern Power Co., Ltd.	₩162	₩119	₩117	₩124
Korea Midland Power Co., Ltd..	79	88	78	87
Korea Western Power Co., Ltd.	117	102	96	92
Korea East-West Power Co., Ltd..	139	92	72	57
Korea South-East Power Co., Ltd.	72	49	45	30

The Company also receives dividend income from its subsidiaries and affiliates. The Company received dividend income of Won 63 billion in 2018, Won 61 billion in 2019, Won 39 billion in 2020 and Won 18 billion for the three months ended March 31, 2021 from its associate, Korea Ras Laffan LNG Ltd. The Company also received dividend income of Won 13 billion in 2018, Won 16 billion in 2019, Won 9 billion in 2020 and Won 2 billion for the three months ended March 31, 2021 from its associate, Korea LNG Ltd.

For further information relating to the Company's transactions with related parties, see note 32 to the unaudited interim condensed consolidated financial statements, note 46 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2020 and 2019 and note 47 to the Company's audited consolidated financial statements as of and for the years ended December 31, 2019 and 2018 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 2020)

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 DECEMBER 2019)

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 LOW CARBON, GREEN GROWTH (AS LAST AMENDED IN NOVEMBER 2019)

The purpose of the Framework Act on Low Carbon, Green Growth (the "**Green Act**") is to promote the development of the national economy by laying down the foundation necessary for low carbon dioxide emission and by utilizing environmentally friendly technology and industries as new engines for economic growth. Article 41 of the Green Act requires the Basic Plan, which is described below, to include the following:

- trends and forecasts of domestic and overseas energy supply and demand;
- measures to secure and manage stable energy supply;
- target of energy consumption;
- compositions of energy sources;
- saving energy and improving the efficiency of energy usage;
- supply and use of environmentally friendly energy, including new and renewable energy;
- measures to promote safe energy management;
- plans for the development and diffusion of energy related technology;
- measures to promote the training and cultivation of energy professionals and experts; and
- measures to promote (i) international cooperation in implementing energy policies, (ii) the development and use of natural energy resources and (iii) public welfare through energy policies.

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.

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 December 2020)

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, 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, but excluding any pre-issuance accrued interest, will be taxable to a United States holder as ordinary interest income at the time that such payments are accrued or are received (in accordance with the United States holder's method of tax accounting). Interest income on a Note, including any additional amounts and any taxes withheld in respect thereof, generally will constitute foreign source income and generally will be considered "passive category income" in computing the foreign tax credit allowable to a United States holder under U.S. federal income tax laws.

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

with respect to a Foreign Currency Note if the exchange rate in effect on the date the payment is received differs from the rate applicable to a previous accrual of that interest income regardless of whether the payment is in fact converted into U.S. dollars. Amounts attributable to pre-issuance accrued interest will generally not be includable in income, except to the extent of foreign currency gain or loss attributable to any changes in exchange rates during the period between the date the United States holder acquired the Note and the first Interest Payment Date. This foreign currency gain or loss will be treated as U.S. source ordinary income or loss but generally will not be treated as an adjustment to interest income received on the Note.

Additional Amounts

Although interest payments to a United States holder are generally currently exempt from Korean taxation unless such United States holder has a permanent establishment in Korea (see "– Korean Taxation – Tax on Interest on the Senior Notes" below), if the Korean law providing for the exemption is repealed or otherwise limited with respect to the Notes held by such United States holder, then in addition to interest on the Notes, such United States holder would be required to include in income any additional amounts received and any tax withheld from interest payments, notwithstanding that such tax withheld is not in fact received by such United States holder. A United States holder may be entitled to deduct or credit such tax, subject to applicable limitations and conditions under U.S. federal income tax laws. However, the election to deduct or credit foreign taxes applies to all of the United States holder's foreign taxes for a particular taxable year. A United States holder will generally be denied a foreign tax credit for foreign taxes imposed with respect to the Notes where it does not meet a minimum holding period requirement during which it is not protected from risk of loss. The rules governing the foreign tax credit are complex. Investors are urged to consult their own tax advisors regarding the availability of the foreign tax credit and the treatment of additional amounts under their particular circumstances.

Purchase, Sale and Retirement of Notes

A United States holder's adjusted tax basis in a Note generally will equal the cost of such Note to such holder, increased by any amounts includible in income by the holder as original issue discount and market discount and reduced by any amortized premium (each as described below) and any payments other than payments of qualified stated interest made on such Note. In the case of a Foreign Currency Note, the cost of such Note to a United States holder 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.

Any gain or loss recognized by a United States holder on the sale, exchange or retirement of a Note generally will be treated as United States source income. Consequently, United States holders may not be able to claim credit for any Korean tax imposed upon the sale, exchange or retirement of a Note unless such credit can be applied (subject to applicable limitations) against tax due on other income treated as derived from foreign sources. In addition, taxes are only eligible for foreign tax credit if they are compulsory. United States holders who may be eligible for an exemption from Korean taxation in respect of any gain realized on a disposition or sale of Notes due to an applicable treaty or other exemption, as described below under "– Korean Taxation – Tax on Capital Gains," should consult their own tax advisors with respect to their eligibility for benefits under such applicable tax treaty or other exemption and, if they are not eligible, their ability to credit any Korean tax withheld upon the sale, exchange or retirement of Notes against their U.S. federal income tax liability.

A United States holder will recognize foreign currency gain or loss, generally taxable as U.S. source ordinary income or loss, on the sale, exchange or retirement of a Note equal to the difference, if any, between the U.S. dollar values of the United States holder's purchase price for the Note (as adjusted for amortized bond premium, if any) (i) on the date of sale or retirement and (ii) the date on which the United States holder acquired the Note. However, any such foreign currency gain or loss (including any foreign currency gain or loss with respect to the receipt of accrued but unpaid interest) will be realized only to the extent of total gain or loss realized on the sale or retirement. This foreign currency gain or loss will not be treated as an adjustment to interest income received on the Notes.

Original Issue Discount

If 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 Internal Revenue Code of 1986, as amended, and certain regulations promulgated thereunder (the "**OID Regulations**"). United States holders of such Notes should be aware that, as described in greater detail below, they generally must include OID in ordinary gross income for U.S. federal income tax purposes as it accrues, in advance of the receipt of cash attributable to that income.

In general, each United States holder of an Original Issue Discount Note, whether such holder uses the cash or the accrual method of tax accounting, will be required to include in ordinary gross income the sum of the "daily portions" of OID on the Note for all days during the taxable year that the United States holder owns the Note. The daily portions of OID on an Original Issue Discount Note are determined by allocating to each day in any accrual period a ratable portion of the OID allocable to that accrual period. Accrual periods may be of any length and may vary in length over the term of an Original Issue Discount Note, provided that no accrual period is longer than one year and each scheduled payment of principal or interest occurs on either the final day or the first day of an accrual period. In the case of an initial holder, the amount of OID on an Original Issue Discount Note allocable to each accrual period is determined by (a) multiplying the "adjusted issue price" (as defined below) of the Original Issue Discount Note at the beginning of the accrual period by the yield to maturity of such Original Issue Discount Note (appropriately adjusted to reflect the length of the accrual period) and (b) subtracting from that product the amount (if any) of qualified stated interest (as defined below) allocable to that accrual period. The

"yield to maturity" of a Note is the discount rate that causes the present value of all payments on the Note as of its original issue date to equal the issue price of such Note. The "adjusted issue price" of an Original Issue Discount Note at the beginning of any accrual period will generally be the sum of its issue price (generally including accrued interest, if any) and the amount of OID allocable to all prior accrual periods, reduced by the amount of all payments other than payments of qualified stated interest (if any) made with respect to such Note in all prior accrual periods. The term "qualified stated interest" generally means stated interest that is unconditionally payable in cash or property (other than debt instruments of the issuer) at least annually during the entire term of an Original Issue Discount Note at a single fixed rate of interest or, subject to certain conditions, based on one or more interest indices. As a result of this "constant yield" method of including OID in income, the amounts includible in income by a United States holder in respect of an Original Issue Discount Note denominated in U.S. dollars generally are lesser in the early years, and greater in the later years, than the amounts that would be includible on a straight-line basis.

A United States holder generally may make an irrevocable election to include in its income its entire return on a Note (i.e., the excess of all remaining payments to be received on the Note, including payments of qualified stated interest, over the amount paid by such United States holder for such Note) under the constant-yield method described above. For Notes purchased at a premium or bearing market discount in the hands of the United States holder, the United States holder making such election will also be deemed to have made the election (discussed below in "– Premium and Market Discount") to amortize premium or to accrue market discount in income currently on a constant-yield basis.

In the case of an Original Issue Discount Note that is also a Foreign Currency Note, a United States holder should determine the U.S. dollar amount includible in income as OID for each accrual period by (a) calculating the amount of OID allocable to each accrual period in the Specified Currency using the constant-yield method described above, and (b) translating the amount of the Specified Currency so derived at the average exchange rate in effect during that accrual period (or portion thereof within a United States holder's taxable year) or, at the United States holder's election (as described above under "– Payments of Interest"), at the spot rate of exchange on the last day of the accrual period (or the last day of the taxable year within such accrual period if the accrual period spans more than one taxable year), or at the spot rate of exchange on the date of receipt, if such date is within five business days of the last day of the accrual period. Because exchange rates may fluctuate, a United States holder of an Original Issue Discount Note that is also a Foreign Currency Note may recognize a different amount of OID income in each accrual period than would the holder of an otherwise similar Original Issue Discount Note denominated in U.S. dollars. All payments on an Original Issue Discount Note (other than payments of qualified stated interest) will generally be viewed first as payments of previously-accrued OID (to the extent thereof), with payments attributed first to the earliest-accrued OID, and then as payments of principal. Upon the receipt of an amount attributable to OID (whether in connection with a payment of an amount that is not qualified stated interest or the sale or retirement of the Original Issue Discount Note), a United States holder will recognize ordinary income or loss measured by the difference between the amount received (translated into U.S. dollars at the exchange rate in effect on the date of receipt or on the date of disposition of the Original Issue Discount Note, as the case may be) and the amount accrued (using the exchange rate applicable to such previous accrual).

A subsequent United States holder of an Original Issue Discount Note that purchases the Note at a cost less than its remaining redemption amount (as defined below), or an initial United States holder that purchases an Original Issue Discount Note at a price other than the Note's issue price, also generally will be required to include in gross income the daily portions of OID, calculated as described above. However, if the United States holder acquires the Original Issue Discount Note at a price greater than its adjusted issue price, such holder is required to reduce its periodic inclusions of OID income to reflect the premium paid over the adjusted issue price. The "remaining redemption amount" for a Note is the total of all future payments to be made on the Note other than payments of qualified stated interest.

Floating Rate Notes generally will be treated as "variable rate debt instruments" under the OID Regulations. Accordingly, the stated interest on a Floating Rate Note generally will be treated as "qualified stated interest" and such a Note will not have OID solely as a result of the fact that it provides for interest at a variable rate. If a Floating Rate Note qualifying as a "variable rate debt instrument" is an Original Issue Discount Note, for purposes of determining the amount of OID allocable to each accrual period under the rules above, the Note's "yield to maturity" and "qualified stated interest" will generally be determined as though the Note bore interest in all periods at a fixed rate determined at the time of issuance

of the Note. Additional rules may apply if interest on a Floating Rate Note is based on more than one interest index. If a Floating Rate Note does not qualify as a "variable rate debt instrument," such Note will be subject to special rules (the "**Contingent Payment Regulations**") that govern the tax treatment of debt obligations that provide for contingent payments ("**Contingent Debt Obligations**"). A detailed description of the tax considerations relevant to United States holders of any such Notes will be provided in the applicable Pricing Supplement.

Certain of the Notes may be subject to special redemption, repayment or interest rate reset features, as indicated in the applicable Pricing Supplement. Notes containing such features, in particular Original Issue Discount Notes, may be subject to special rules that differ from the general rules discussed above. Purchasers of Notes with such features should carefully examine the applicable Pricing Supplement and should consult their own tax advisors with respect to such Notes since the tax consequences with respect to such features, and especially with respect to OID, will depend, in part, on the particular terms of the purchased Notes.

If a Note provides for a scheduled Accrual Period that is longer than one year (for example, as a result of a long initial period on a Note with interest that is generally paid on an annual basis), then stated interest on the Note will not qualify as "qualified stated interest" under the OID Regulations. As a result, the Note would be an Original Issue Discount Note. In that event, among other things, cash-method United States holders will be required to accrue stated interest on the Note under the rules for OID described above, and all United States holders will be required to accrue OID that would otherwise fall under the *de minimis* threshold.

Premium and Market Discount

A United States holder of a Note that purchases the Note at a cost greater than its remaining redemption amount (as defined in the fourth preceding paragraph) will be considered to have purchased the Note at a premium, and may elect to amortize such premium (as an offset to interest income), using a constant-yield method, over the remaining term of the Note. Such election, once made, generally applies to all bonds held or subsequently acquired by the United States holder on or after the first day of the first taxable year to which the election applies and may not be revoked without the consent of the IRS. A United States holder that elects to amortize such premium must reduce its tax basis in a Note by the amount of the premium amortized during its holding period. Original Issue Discount Notes purchased at a premium will not be subject to the OID rules described above. In the case of premium in respect of a Foreign Currency Note, a United States holder should calculate the amortization of such premium in the Specified Currency. Amortization deductions attributable to a period reduce interest payments in respect of that period and therefore are translated into U.S. dollars at the exchange rate used by the United States holder for such interest payments. Exchange gain or loss will be realized with respect to amortized bond premium on such a Note based on the difference between the exchange rate on the date or dates such premium is recovered through interest payments on the Note and the exchange rate on the date on which the United States holder acquired the Note. With respect to a United States holder that does not elect to amortize bond premium, the amount of bond premium will be included in the United States holder's adjusted tax basis when the Note matures or is disposed of by the United States holder. Therefore, a United States holder that does not elect to amortize such premium and that holds the Note to maturity generally will be required to treat the premium as capital loss when the Note matures.

If a United States holder of a Note purchases the Note at a price that is lower than its remaining redemption amount, or in the case of an Original Issue Discount Note, a price that is lower than its adjusted issue price, by at least 0.25% of its remaining redemption amount multiplied by the number of remaining whole years to maturity, the Note will be considered to have "market discount" in the hands of such United States holder. In such case, gain realized by the United States holder on the disposition of the Note generally will be treated as ordinary income to the extent of the market discount that accrued on the Note while held by such United States holder. In addition, the United States holder could be required to defer the deduction of a portion of the interest paid on any indebtedness incurred or maintained to purchase or carry the Note. In general terms, market discount on a Note will be treated as accruing ratably over the term of such Note, or, at the election of the holder, under a constant-yield method. Market discount on a Foreign Currency Note will be accrued by a United States holder in the Specified Currency. The amount includible in income by a United States holder in respect of such accrued market discount will be the U.S. dollar value of the amount accrued, generally calculated at the exchange rate in effect on the date that the Note is disposed of by the United States holder.

A United States holder may elect to include market discount in income on a current basis as it accrues (on either a ratable or constant-yield basis), in lieu of treating a portion of any gain realized on a sale of a Note as ordinary income. If a United States holder elects to include market discount on a current basis, the interest deduction deferral rule described above will not apply. Any accrued market discount on a Foreign Currency Note that is currently includible in income will be translated into U.S. dollars at the average exchange rate for the accrual period (or portion thereof within the United States holder's taxable year). Any such election, if made, applies to all market discount bonds acquired by the taxpayer on or after the first day of the first taxable year to which such election applies and is revocable only with the consent of the IRS.

Short-Term Notes

The rules set forth above will also generally apply to Notes having maturities of not more than one year ("**Short-Term Notes**"), but with certain modifications.

The OID Regulations treat none of the interest on a Short-Term Note as qualified stated interest. Thus, all Short-Term Notes will be Original Issue Discount Notes. OID will be treated as accruing on a Short-Term Note ratably, or at the election of a United States holder, under a constant yield method.

A United States holder of a Short-Term Note that uses the cash method of tax accounting and is not a bank, securities dealer, regulated investment company or common trust fund, and does not identify the Short-Term Note as part of a hedging transaction, will generally not be required to include OID in income on a current basis. Such a United States holder may not be allowed to deduct all of the interest paid or accrued on any indebtedness incurred or maintained to purchase or carry such Note until the maturity of the Note or its earlier disposition in a taxable transaction. In addition, such a United States holder will be required to treat any gain realized on a sale, exchange or retirement of the Note as ordinary income to the extent such gain does not exceed the OID accrued with respect to the Note during the period the United States holder held the Note. Notwithstanding the foregoing, a cash-basis United States holder of a Short-Term Note may elect to accrue OID into income on a current basis or to accrue the "acquisition discount" on the Note under the rules described below. If the United States holder elects to accrue OID or acquisition discount, the limitation on the deductibility of interest described above will not apply.

A United States holder using the accrual method of tax accounting and certain cash-basis United States holders (including banks, securities dealers, regulated investment companies and common trust funds) generally will be required to include original issue discount on a Short-Term Note in income on a current basis. Alternatively, a United States holder of a Short-Term Note can elect to accrue the "acquisition discount," if any, with respect to the Note on a current basis. If such an election is made, the OID rules will not apply to the Note. Acquisition discount is the excess of the Short-Term Note's stated redemption price at maturity (i.e., all amounts payable on the Short-Term Note) over the purchase price. Acquisition discount will be treated as accruing ratably or, at the election of the United States holder, under a constant-yield method based on daily compounding. The market discount rules will not apply to a Short-Term Note.

Index Linked Notes and Other Notes Providing for Contingent Payments

The Contingent Payment Regulations, which govern the tax treatment of Contingent Debt Obligations, generally require accrual of interest income on a constant-yield basis in respect of such obligations at a yield determined at the time of their issuance, and may require adjustments to such accruals when any contingent payments are made. A detailed description of the tax considerations relevant to United States holders of any Contingent Debt Obligations will be provided in the applicable Pricing Supplement.

Estate and Gift Taxation

As discussed in "– Korean Taxation – Inheritance Tax and Gift Tax," Korea imposes an inheritance tax on (a) all assets (wherever located) of the deceased if at the time of death the deceased was a resident of Korea and (b) property located in Korea (including the Notes) that passes on death, even if the decedent was not a resident of Korea. Korean gift tax is imposed in similar circumstances to the above. Subject to certain conditions and limitations, the amount of any inheritance tax paid to Korea may be eligible for credit against the amount of U.S. federal estate tax imposed on the estate of a United States holder. The Korean gift tax generally will not be treated as a creditable foreign tax for U.S. tax purposes. Prospective purchasers should consult their own tax advisors regarding the consequences of the imposition of the Korean inheritance or gift tax on their U.S. federal income tax liability.

Information Reporting and Backup Withholding

Information returns will be filed with the IRS in connection with payments on the Notes made to, and the proceeds of dispositions of Notes effected by, certain 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 recipient 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 ACCOUNTANTS

With respect to the Company's unaudited interim consolidated financial statements as of March 31, 2021 and for the three months ended March 31, 2021 and 2020 included elsewhere in this offering circular, Ernst & Young Han Young reported that they have applied limited procedures in accordance with professional standards for a review of such information. However, their separate report dated May 17, 2021 appearing herein states that they did not audit and they do not express an opinion on such unaudited interim consolidated financial statements. Accordingly, the degree of reliance on their report 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, 2020, 2019 and 2018, included elsewhere in this offering circular, have been audited by Ernst & Young Han Young, independent accountants, as stated in their report 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.

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, Chapter 289 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)(i)(B) of the SFA;

(ii) where no consideration is or will be given for the transfer;

(iii) where the transfer is by operation of law;

(iv) as specified in Section 276(7) of the SFA; or

(v) as specified in Regulation 37A of the Securities and Futures (Offers of Investments) (Securities and Securities-based Derivatives Contracts) Regulations 2018 of Singapore.

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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한영회계법인
서울특별시 영등포구 여의공원로 111, 태영빌딩 3-8F
07241

Tel: 02 3787 6600
Fax: 02 783 5890
ey.com/kr

Ernst & Young Han Young
Taeyoung Building, 111, Yeouigongwon-ro,
Yeongdeungpo-gu, Seoul 07241 Korea

Tel: +82 2 3787 6600
Fax: +82 2 783 5890
ey.com/kr

Report on review of interim condensed consolidated financial statements

The Shareholders 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, 2021, 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, 2021 and 2020, 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 Standard ("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, 2020, 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 17, 2021 expressed an unqualified opinion thereon. The accompanying consolidated statement of financial position as of December 31, 2020 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 17, 2021

This review report is effective as of May 17, 2021, 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.

A member firm of Ernst & Young Global Limited

Korea Gas Corporation and its subsidiaries
Interim condensed consolidated statements of financial position
as of March 31, 2021 and December 31, 2020

(Korean won in millions)

	Notes	March 31, 2021 (Unaudited)	December 31, 2020
Assets			
Current assets:			
Cash and cash equivalents	6,30	₩ 509,250	₩ 331,761
Current financial assets	6,7,30	66,767	49,679
Trade and other receivables	8,30,32	4,959,923	4,244,754
Short-term contract assets	14	11,837	5,581
Inventories	9	1,692,616	1,390,282
Current tax assets		515	2,822
Current non-financial assets	10,11	1,413,590	1,502,999
		8,654,498	7,527,878
Non-current assets:			
Non-current financial assets	6,7,30	648,067	622,049
Long-term trade and other receivables	8,30,32	199,354	201,207
Property, plant and equipment	13,18	23,153,398	23,134,146
Intangible assets other than goodwill	15	1,635,090	1,594,711
Investments in associates and joint ventures	5,12	1,567,312	1,522,733
Net defined benefit assets	19	1,383	9,452
Deferred tax assets		1,063,420	1,025,195
Non-current non-financial assets	10,11	692,169	272,403
		28,960,193	28,381,896
Total assets		**₩ 37,614,691**	**₩ 35,909,774**

(Continued)

Korea Gas Corporation and its subsidiaries
Interim condensed consolidated statements of financial position
as of March 31, 2021 and December 31, 2020 (cont'd)

(Korean won in millions)

	Notes	March 31, 2021 (Unaudited)	December 31, 2020
Liabilities			
Current liabilities:			
Trade and other payables	16,18,30,32	₩ 1,532,644	₩ 1,736,775
Current financial liabilities	7,17,30	5,914,861	5,219,050
Short-term contract liabilities	14	61,704	57,215
Current tax liabilities		61,360	26,295
Current non-financial liabilities	11,21	169,007	67,938
Current provisions	20	120,349	105,546
		7,859,925	7,212,819
Non-current liabilities:			
Long-term trade and other payables	16,18,30,32	1,829,814	1,793,766
Non-current financial liabilities	7,17,30	17,440,944	17,087,914
Non-current non-financial liabilities	21	56,072	54,720
Net defined benefit liabilities	19	11,595	12,011
Deferred tax liabilities		1,943,730	1,830,521
Non-current provisions	20	188,764	182,868
		21,470,919	20,961,800
Total liabilities		**29,330,844**	**28,174,619**
Equity			
Share capital	1,22	461,565	461,565
Share premium	22	1,303,548	1,303,548
Retained earnings	23	5,706,704	5,190,805
Other components of equity		557,421	525,122
Equity attributable to owners of the parent		8,029,238	7,481,040
Non-controlling interests		254,609	254,115
Total equity		**8,283,847**	**7,735,155**
Total liabilities and equity		₩ **37,614,691**	₩ **35,909,774**

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, 2021 and 2020
(Korean won in millions, except for earnings per share)

	Notes	2021 (Unaudited)	2020 (Unaudited)
Revenue	4,5,32	₩ 7,711,406	₩ 7,967,770
Cost of sales	25,32	6,838,005	6,901,766
Gross profit		873,401	1,066,004
Selling and administrative expenses	25,32	108,814	106,958
Operating profit	5	764,587	959,046
Other income	26	30,631	1,418
Other expenses	26	4,432	9,241
Other gains, net	27	3,861	9,767
Finance income	28,32	378,474	439,170
Finance costs	29,32	523,714	668,580
Gains (losses) on investments in associates and joint ventures, net	12	42,357	(19,043)
Profit before income tax		691,764	712,537
Income tax expenses		176,689	170,687
Profit for the period		₩ 515,075	₩ 541,850
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	19	2,936	(887)
Net gain (loss) on valuation of equity instruments at fair value through other comprehensive income		10,048	(52,399)
Share of other comprehensive income (loss) of associates and joint ventures	12	5,103	(36,070)
Items that will be reclassified subsequently to profit or loss			
Net loss on cash flow hedges	7	(53,661)	(101,689)
Exchange differences on translation of foreign operations		101,551	163,429
Net loss on hedge of net investments in foreign operations		(73,634)	(120,959)
Share of other comprehensive income of associates and joint ventures	12	48,617	67,873
		40,960	(80,702)
Total comprehensive income for the period, net of tax		₩ 556,035	₩ 461,148

(Continued)

Korea Gas Corporation and its subsidiaries
Interim condensed consolidated statements of comprehensive income
for the three-month periods ended March 31, 2021 and 2020 (cont'd)
(Korean won in millions, except for earnings per share)

	Notes	2021 (Unaudited)	2020 (Unaudited)
Profit for the period attributable to:			
Owners of the parent		₩ 512,963	₩ 537,199
Non-controlling interests		2,112	4,651
		515,075	541,850
Total comprehensive income attributable to:			
Owners of the parent		548,198	448,413
Non-controlling interests		7,837	12,735
		556,035	461,148
Earnings per share in Korean won from continuing operaitons			
Basic earnings per share		₩ 5,977	₩ 6,130
Diluted earnings per share		₩ 5,977	₩ 6,130

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, 2021 and 2020

(Korean won in millions)

	Share capital and share premium	Retained earnings	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						
Profit for the period	-	537,199	-	537,199	4,651	541,850
Other comprehensive income (loss)						
Remeasurement loss of defined benefit plans	-	(887)	-	(887)	-	(887)
Loss on valuation of equity instruments at fair value through other comprehensive income	-	-	(52,399)	(52,399)	-	(52,399)
Net loss on cash flow hedges	-	-	(101,689)	(101,689)	-	(101,689)
Net loss on hedge of net investments in foreign operations	-	-	(120,959)	(120,959)	-	(120,959)
Share of other comprehensive income of associates and joint ventures	-	-	31,803	31,803	-	31,803
Exchange differences on translation of foreign operations	-	-	155,344	155,344	8,085	163,429
Transactions with the owners of the parent						
Dividends paid	-	(33,301)	-	(33,301)	(8,009)	(41,310)
Capital reduction of subsidiaries	-	-	-	-	(9,950)	(9,950)
As of March 31, 2020 (Unaudited)	**₩ 1,765,113**	**₩ 5,900,718**	**₩ 602,625**	**₩ 8,268,456**	**₩ 287,953**	**₩ 8,556,409**
As of January 1, 2021	**₩ 1,765,113**	**₩ 5,190,805**	**₩ 525,122**	**₩ 7,481,040**	**₩ 254,115**	**₩ 7,735,155**
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	5,725	101,551
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**

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, 2021 and 2020

(Korean won in millions)

	2021 (Unaudited)	2020 (Unadutied)
Cash flows from operating activities:		
Profit for the period	₩ 515,075	₩ 541,850
Adjustments to reconcile profit for the period to net cash flows provided by (used in) operating activities:		
Income tax expenses	176,689	170,687
Interest expenses	165,401	202,518
Depreciation and amortization	413,098	435,598
Gain on foreign currency translation, net	(4,794)	(45,548)
Loss (gain) on fair value	(10,169)	77,252
Gains on disposal of non-current assets	(210)	(159)
Interest income	(5,090)	(6,192)
Others, net	16,961	61,717
Changes in operating assets and liabilities:		
Decrease (increase) in inventories	(302,013)	303,440
Decrease (increase) in trade receivables	(715,157)	101,274
Increase in other receivables	(13,377)	(877)
Increase in financial assets at fair value through profit or loss	(4,994)	(77,510)
Decrease (increase) in other non-financial assets	(250,266)	28,353
Increase in other operating assets	(8,582)	(85,402)
Decrease in trade payables	(78,518)	(295,650)
Decrease in other payables	(62,501)	(235,670)
Decrease in financial liabilities at fair value through profit or loss	(75,815)	(40,292)
Increase (decrease) in other current liabilities	3,755	(177,189)
Increase in other non-current non-financial liabilities	1,706	-
Increase in other operating liabilities	3,268	247,109
Cash generated from operations	(235,533)	1,205,309
Dividends received	19,821	17,473
Interest paid	(223,657)	(268,710)
Interest received	3,083	18,103
Income taxes refunded (paid)	2,108	(5,591)
Net cash flows provided by (used in) operating activities	(434,178)	966,584
Cash flows from investing activities:		
Proceeds from disposal of equity or debt instruments	53,551	-
Acquisition of equity or debt instruments	(1,943)	(12,150)
Proceeds from disposal of property, plant and equipment	290	295
Acquisition of property, plant and equipment	(191,679)	(184,702)
Receipt of government grants	346	11
Acquisition of intangible assets	(854)	(25,059)
Proceeds from disposal of financial assets at amortized cost	5	18,931
Acquisition of financial assets at amortized cost	(2,000)	(17,002)
Increase in advanced payments and loans	(17,711)	(56,711)
Receipt of advanced payments and loans	5,572	14,502
Others, net	5,840	4,502
Net cash flows used in investing activities	(148,583)	(257,383)

(Continued)

Korea Gas Corporation and its subsidiaries
Interim condensed consolidated statements of cash flows
for the three months ended March 31, 2021 and 2020 (cont'd)

(Korean won in millions)

	2021 (Unaudited)	2020 (Unadutied)
Cash flows from financing activities:		
Proceeds from borrowings	10,113,376	9,200,000
Repayments of borrowings	(9,265,949)	(9,057,848)
Proceeds from issuance of debentures	100,000	100,000
Repayments of debentures	(150,000)	(548,656)
Payments of lease liabilities	(34,801)	(62,004)
Decrease in equity of non-controlling interests	(12,428)	(9,993)
Dividends paid	(2,251)	(7,973)
Contract expiration of current portion of derivative financial liabilities	-	(34,124)
Net cash flows provided by (used in) financing activities	747,947	(420,598)
Effects of exchange rate changes on cash and cash equivalents	12,303	12,018
Net increase in cash and cash equivalents	177,489	300,621
Cash and cash equivalents at the beginning of the period	331,761	257,101
Cash and cash equivalents at the end of the period	₩ 509,250	₩ 557,722

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, 2021 amounts to ₩461,565 million. The shareholders of the Corporation and their shareholdings as of March 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 Corporation	18,900,000	20.5%
Local governments	7,321,122	7.9%
Treasury share	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 March 31, 2021 and December 31, 2020, are as follows:

Subsidiary	Business	Country of incorporation	Country of domicile	Percentage of ownership (%)	
				March 31, 2021	**December 31, 2020**
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 Mansuriyah B.V.	Resource development	Netherlands	Iraq	100.00%	100.00%
KOGAS Canada Energy Ltd.	Resource development & 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	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.	Resource development	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.	LNG plant management	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	63.40%	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. General information (cont'd)

[1] The Corporation has the right to exercise 63.40% 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 37.65%.

(2) Summarized financial information of consolidated subsidiaries as of March 31, 2021 and December 31, 2020 and for the three-month periods ended March 31, 2021 and 2020, are as follows (Korean won in millions):

	March 31, 2021			
Subsidiary	Total assets	Total liabilities	Sales	Profit (loss) for the period
Korea Gas Technology Corporation	₩ 258,987	₩ 136,106	₩ 63,835	₩ (77)
KOGAMEX Investment Manzanillo B.V.	112,641	82,087	-	1,946
KOMEX-GAS, S. de R.L. de C.V.	4,895	964	1,675	794
KOGAS Iraq B.V.	1,026,333	167,524	69,845	7,667
KOGAS Badra B.V.	516,144	30,383	35,013	1,483
KOGAS Akkas B.V.	23,300	18,731	-	(6,148)
KOGAS Mansuriya B.V.	6,525	6,160	-	(6,090)
KOGAS Canada Energy Ltd. [1]	788,529	470,180	2,838	960
KOGAS Australia Pty. Ltd. [2]	3,524,658	3,401,398	105,569	(8,851)
KOGAS Prelude Pty. Ltd.	1,992,539	1,442,440	67,931	19,851
KG Timor Leste Ltd.	-	50,548	-	(339)
KG Krueng Mane Ltd.	-	72,692	-	(468)
KG Mozambique Ltd.	961,647	712,009	-	(3,983)
KOGAS Mozambique, Lda	23,765	14,313	70	1,880
KOGAS Cyprus Ltd.	34,139	17	-	(58)
KC LNG Tech Co.,Ltd.	21,951	14,720	8	(1,156)
KG-SEAGP Company Limited	175,865	2,065	-	3,689
KG Myanmar Ltd.	277,909	633	-	(424)
KOGAS International Pte. Ltd.	4,134	271	64,425	1,797
Korea LNG Bunkering Co.,Ltd.	31,025	2,069	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] Financial information of KGLNG E&P Pty Ltd., KGLNG E&P Ⅱ Pty Ltd., and KGLNG Liquefaction Pty Ltd. are included in the interim condensed statements of financial position and the interim condensed statements of comprehensive income of KOGAS Australia Pty. Ltd.

	December 31, 2020		March 31, 2020	
Subsidiary	Total assets	Total liabilities	Sales	Profit (loss) for the period
Korea Gas Technology Corporation	₩ 244,655	₩ 124,191	₩ 61,127	₩ 3,248
KOGAMEX Investment Manzanillo B.V.	103,820	77,824	-	9,822
KOMEX-GAS, S. de R.L. de C.V.	3,840	727	1,734	1,309
KOGAS Iraq B.V.	950,983	134,134	103,365	22,396
KOGAS Badra B.V.	495,021	30,208	41,539	3,370
KOGAS Akkas B.V.	22,979	11,502	-	(1,062)
KOGAS Mansuriya B.V.	6,321	23	-	(49)
KOGAS Canada Energy Ltd. [1]	681,832	376,841	2,047	(9,094)
KOGAS Australia Pty. Ltd. [2]	3,388,821	3,261,863	167,529	7,015
KOGAS Prelude Pty. Ltd.	1,874,525	1,365,892	9,036	(25,493)
KG Timor Leste Ltd.	-	48,187	-	(365)
KG Krueng Mane Ltd.	-	69,317	-	(499)
KG Mozambique Ltd.	902,954	671,205	-	(7,397)
KOGAS Mozambique, Lda	19,474	13,623	75	(1,162)
KOGAS Cyprus Ltd.	34,461	88	-	(87)
KC LNG Tech Co.,Ltd.	11,824	18,437	14	(752)
KG-SEAGP Company Limited	167,520	7	-	4,219
KG Myanmar Ltd.	296,837	1,839	-	2,448
KOGAS International Pte. Ltd.	2,266	313	25,534	349
Korea LNG Bunkering Co.,Ltd.	28,997	46	-	-

1. General information (cont'd)

[1] The interim 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., and 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 interim condensed statements of financial position and the interim condensed statements of comprehensive income of KOGAS Australia Pty. Ltd.

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, 2021, 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, 2021.

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, 2020, except for the adoption of new standards effective as of January 1, 2021.

(1) Interest Rate Benchmark Reform – Phase 2: Amendments to KIFRS 1109, KIFRS 1039, KIFRS 1107, KIFRS 1104 and KIFRS 1116

This amendment focuses on the impact on financial reporting as a result of the interest rate benchmark reform. This impact includes the effect of changes in contractual cash flows or hedging relationships as interest rate benchmark is replaced with an alternative interest rate benchmark. This amendment is related to changes in the criteria for calculating contractual cash flows of financial assets, financial liabilities and lease liabilities and is substantially simplifying the requirements of KIFRS related to hedge accounting, KIFRS 1109 *Financial Instruments*, KIFRS 1039 *Financial Instruments: Recognition and Measurement*, KIFRS 1107 *Financial Instruments: Disclosure*, KIFRS 1104 *Insurance Contracts* and KIFRS 1116 *Leases*. 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.

The Group's operating performance and related activities, customers and suppliers' operating performance, and related activities are significantly affected by economic factors beyond control of the Group, 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 continuously monitors uncertainty-causing factors such as Covid-19 and will immediately reflect the impact of these factors on the consolidated financial statements if they are reasonably and reliably estimated.

4. Revenue from contracts with customers

(1) The Group's revenue for the three-month periods ended March 31, 2021 and 2020 can be categorized as follows (Korean won in millions):

Classification	2021 (Unaudited)	2020 (Unaudited)
Revenue from contracts with customers	₩ 7,711,020	₩ 7,967,578
Revenue from government subsidies	386	192
	₩ 7,711,406	₩ 7,967,770

(2) The Group's revenue from contracts with customers for the three-month periods ended March 31, 2021 and 2020 can be categorized as follows (Korean won in millions):

	2021 (Unaudited)		2020 (Unaudited)	
Classification	**Domestic**	**Overseas**	**Domestic**	**Overseas**
Revenue by product/services				
Revenue from sale of goods				
Power generating	₩ 2,811,880	₩ -	₩ 2,727,644	₩ -
City gas	4,591,381	-	4,842,394	-
Direct supply	25,498	-	35,103	-
Use of plumbing facilities	25	-	26	-
Others	3,866	-	3,585	-
Overseas operations	-	94,366	-	147,903
Subtotal	7,432,650	94,366	7,608,752	147,903
Revenue from other than sale of goods				
Revenue - Services	197	107,274	1	147,377
Revenue - Construction	15,699	684	11,713	217
Other revenue	59,570	580	50,321	1,295
Subtotal	75,466	108,538	62,035	148,889
	₩ 7,508,116	₩ 202,904	₩ 7,670,787	₩ 296,792
Timing of revenue recognition				
At a point in time	7,432,883	94,366	7,608,967	147,903
Over a period of time	75,233	108,538	61,820	148,889
	₩ 7,508,116	₩ 202,904	₩ 7,670,787	₩ 296,792

Details of an external customer which accounted for more than 10% of revenue for three-month periods ended March 31, 2021 and 2020 are as follows :

	2021 (Unaudited)	2020 (Unaudited)
Customer 1	₩ 771,545	₩ 802,550

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 2021.

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, 2021 and 2020, are as follows (Korean won in millions):

	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.

	2020 (Unaudited)				
	Total revenue	Inter-segment revenue	External revenue	Operating profit[1]	Depreciation and amortization[1]
Natural gas wholesale	₩ 7,696,224	₩ (7,839)	₩ 7,688,385	₩ 941,378	₩ 283,028
Others	411,999	(132,614)	279,385	31,776	154,050
Adjustments[1]	-	-	-	(14,107)	(1,480)
	₩ 8,108,223	₩ (140,453)	₩ 7,967,770	₩ 959,047	₩ 435,598

[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, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)			
	Assets	Investments in associates and joint ventures[1]	Acquisition of non-current assets[2]	Liabilities
Natural gas wholesale	₩ 35,613,445	₩ 1,350,496	₩ 78,816	₩ 28,682,908
Others	9,784,985	216,816	131,314	6,625,310
Adjustments[3]	(7,783,739)	-	-	(5,977,373)
	₩ 37,614,691	₩ 1,567,312	₩ 210,130	₩ 29,330,845

[1] Investments in associates and joint ventures 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 the 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.

	December 31, 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 and joint ventures 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 the 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.

5. Segment information (cont'd)

(4) Details of external revenue for the three-month periods ended March 31, 2021 and 2020 and details of non-current assets as of March 31, 2021 and December 31, 2020 by geographic locations are as follows (Korean won in millions):

	External revenue		Non-current assets[1]	
	2021 (Unaudited)	2020 (Unaudited)	March 31, 2021 (Unaudited)	December 31, 2020
Korea	₩ 7,510,011	₩ 7,679,855	₩ 18,517,025	₩ 18,738,966
Mexico	1,675	1,734	-	-
Australia	75,857	109,975	3,801,884	3,700,807
Canada	2,838	2,047	636,630	536,799
Iraq	104,857	144,904	1,017,682	1,003,506
Mozambique	70	75	608,174	569,311
Cyprus	-	-	26,293	26,528
Singapore	-	190	121	152
Myanmar	16,098	28,990	203,541	166,804
	₩ 7,711,406	₩ 7,967,770	₩ 24,811,350	₩ 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.

6. Restricted financial assets

Restricted cash and cash equivalents and financial instruments provided as collateral for liabilities or contingent liabilities as of March 31, 2021 and December 31, 2020 are as follows (Korean won in millions):

	Description	March 31, 2021 (Unaudited)	December 31, 2020
Cash and cash equivalents	Restriction in use for special purpose business	₩ 66,757	₩ 54,535
Short-term financial instruments	Restriction in use	-	21,760
Long-term financial instruments	Restriction in use	15	15
		₩ 66,772	₩ 76,310

7. Derivative instrument

(1) Details of derivative instruments as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)		December 31, 2020	
	Current	Non-current	Current	Non-current
Derivative financial assets				
Foreign currency forwards	₩ 8,746	₩ 520	₩ 4,745	₩ 248
Foreign currency swaps	-	22,372	-	43,429
Interest rate swaps	-	6,065	-	1,526
Subtotal[1]	₩ 8,746	₩ 28,957	₩ 4,745	₩ 45,203
Derivative financial liabilities				
Foreign currency forwards	₩ (6,105)	₩ -	₩ (105,108)	₩ -
Foreign currency swaps	-	(62,855)	-	(35,943)
Interest rate swaps	-	(3,962)	-	(5,853)
Subtotal[1]	₩ (6,105)	₩ (66,817)	₩ (105,108)	₩ (41,796)

[1]Contains derivatives for trading purposes and cash flow hedges.

(2) Details of foreign currency swap contracts as of March 31, 2021, are as follows (Korean won and Japanese yen in millions and US dollars, Euro, Confoederatio Helvetica Franc and HK dollars in thousands):

			Amount of contract				Interest rate of contract		
Purpose	Financial institution	Contract period	Sell		Buy		Sell	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
	Societe General	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
	Societe General	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, 2021 are as follows (Korean won in millions):

Purpose	Financial institution	Contract period	Amount		Interest rate of contract	
					Sell	Buy
Trading	KEB Hana Bank	2018.10~ 2023.10	KRW	100,000	2.35%	3M CD + 0.21%
	KEB Hana Bank	2019.05~ 2023.05	KRW	100,000	1.78%	3M CD + 0.13%
	KEB Hana Bank	2019.10~ 2022.10	KRW	100,000	1.54%	3M CD + 0.21%
	KEB Hana Bank	2020.09~ 2025.09	KRW	100,000	1.29%	3M CD + 0.31%
	KEB Hana Bank	2020.10~ 2025.10	KRW	200,000	1.30%	3M CD + 0.30%

(4) Details of foreign currency forward contracts as of March 31, 2021 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		
	KEB Hana Bank	2020.10.05	2021.04.02	KRW	34,643	USD	29,787	1,163.02
	KEB Hana Bank	2020.10.05	2021.04.02	KRW	43,148	USD	37,100	1,163.02
	DBS	2020.10.08	2021.04.06	KRW	16,867	USD	14,583	1,156.65
	KEB Hana Bank	2020.10.08	2021.04.06	KRW	16,593	USD	14,340	1,157.15
	KEB Hana Bank	2020.10.08	2021.04.06	KRW	12,593	USD	10,883	1,157.15
	KEB Hana Bank	2020.10.13	2021.04.09	KRW	14,346	USD	12,468	1,150.60
	KEB Hana Bank	2020.10.13	2021.04.09	KRW	27,247	USD	23,680	1,150.60
	KEB Hana Bank	2020.10.13	2021.04.12	KRW	13,627	USD	11,843	1,150.65
	KEB Hana Bank	2020.10.13	2021.04.12	KRW	9,044	USD	7,860	1,150.65
	KEB Hana Bank	2020.10.14	2021.04.12	KRW	34,890	USD	30,412	1,147.23
	KEB Hana Bank	2020.10.13	2021.04.12	KRW	16,736	USD	14,545	1,150.65
	KEB Hana Bank	2020.10.15	2021.04.13	KRW	28,185	USD	24,591	1,146.15
	DBS	2020.10.14	2021.04.13	KRW	14,929	USD	13,034	1,145.43
	KEB Hana Bank	2020.10.15	2021.04.14	KRW	18,116	USD	15,806	1,146.15
	KEB Hana Bank	2020.10.21	2021.04.19	KRW	22,587	USD	19,949	1,132.26
	KEB Hana Bank	2020.10.21	2021.04.19	KRW	14,771	USD	13,046	1,132.26
	SC Bank	2020.10.23	2021.04.21	KRW	14,804	USD	13,033	1,135.85
	KEB Hana Bank	2020.10.23	2021.04.21	KRW	16,256	USD	14,308	1,136.14
Trading	SC Bank	2020.10.27	2021.04.23	KRW	17,830	USD	15,787	1,129.42
	KEB Hana Bank	2020.10.26	2021.04.23	KRW	15,701	USD	13,898	1,129.72
	KEB Hana Bank	2020.10.26	2021.04.23	KRW	24,484	USD	21,672	1,129.72
	KEB Hana Bank	2020.10.26	2021.04.23	KRW	31,266	USD	27,676	1,129.72
	SC Bank	2020.10.26	2021.04.23	KRW	11,878	USD	10,508	1,130.32
	SC Bank	2020.10.28	2021.04.26	KRW	13,198	USD	11,701	1,127.95
	SC Bank	2020.10.28	2021.04.26	KRW	16,346	USD	14,491	1,127.95
	SC Bank	2020.10.29	2021.04.27	KRW	14,789	USD	13,048	1,133.42
	SC Bank	2020.10.29	2021.04.27	KRW	14,825	USD	13,080	1,133.42
	KEB Hana Bank	2020.10.29	2021.04.27	KRW	16,121	USD	14,219	1,133.72
	KEB Hana Bank	2020.11.02	2021.04.30	KRW	28,899	USD	25,489	1,133.78
	SC Bank	2020.11.05	2021.05.03	KRW	17,956	USD	15,861	1,132.05
	SC Bank	2020.11.05	2021.05.03	KRW	17,978	USD	15,881	1,132.05
	SC Bank	2020.11.05	2021.05.03	KRW	17,894	USD	15,806	1,132.05
	SC Bank	2020.11.05	2021.05.03	KRW	14,761	USD	13,039	1,132.05
	KEB Hana Bank	2021.01.29	2021.07.30	USD	37,323	KRW	41,669	1,116.45
	DBS	2021.03.03	2021.08.30	KRW	82,904	USD	73,863	1,122.40
	DBS	2021.03.04	2021.09.01	KRW	75,727	USD	67,271	1,125.70
	DBS	2021.03.04	2021.09.01	KRW	79,081	USD	70,251	1,125.70

7. Derivative instrument (cont'd)

(4) Details of foreign currency forward contracts as of March 31, 2021 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	Societe General	2021.03.05	2021.04.01	KRW	56,479	USD	50,000	1,129.57
	Bank of America	2021.03.10	2021.09.07	KRW	28,306	USD	24,836	1,139.70
	Bank of America	2021.03.11	2021.09.07	KRW	82,992	USD	73,012	1,136.70
	KEB Hana Bank	2021.03.16	2021.04.01	KRW	30,568	USD	27,000	1,132.15
	BNP Paribas	2021.03.16	2021.09.10	KRW	96,691	USD	85,420	1,131.95
	Daegu Bank	2021.03.17	2021.04.01	KRW	24,902	USD	22,000	1,131.90
	NH Bank	2021.03.17	2021.04.01	KRW	29,429	USD	26,000	1,131.90
	Daegu Bank	2021.03.17	2021.09.13	KRW	47,428	USD	41,915	1,131.53
	Woori Bank	2021.03.18	2021.04.02	KRW	44,952	USD	40,000	1,123.80
	KB Bank	2021.03.18	2021.04.05	KRW	44,952	USD	40,000	1,123.81
	Daegu Bank	2021.03.18	2021.04.05	KRW	44,951	USD	40,000	1,123.78
	KEB Hana Bank	2021.03.18	2021.04.06	KRW	47,200	USD	42,000	1,123.81
	BNP Paribas	2021.03.18	2021.09.14	KRW	76,668	USD	68,246	1,123.40
	KDB	2021.03.19	2021.09.15	KRW	80,255	USD	70,978	1,130.70
	KEB Hana Bank	2021.03.22	2021.09.17	KRW	33,939	USD	30,007	1,131.04
	Societe General	2021.03.23	2021.04.05	KRW	30,457	USD	27,000	1,128.05
	KDB	2021.03.23	2021.09.17	KRW	80,866	USD	71,725	1,127.45
	CREDIT AGRICOLE	2021.03.25	2021.04.02	KRW	22,686	USD	20,000	1,134.32
	KEB Hana Bank	2021.03.25	2021.04.02	KRW	11,343	USD	10,000	1,134.32
	SC Bank	2021.03.25	2021.04.09	KRW	27,226	USD	24,000	1,134.40
	DBS	2021.03.25	2021.09.17	KRW	53,920	USD	47,548	1,134.00
	Shinhan Bank	2021.03.26	2021.04.12	KRW	22,639	USD	20,000	1,131.97
	JPM	2021.03.26	2021.04.12	KRW	22,639	USD	20,000	1,131.97
	KEB Hana Bank	2021.03.26	2021.04.13	KRW	33,959	USD	30,000	1,131.96
	KEB Hana Bank	2021.03.26	2021.04.13	KRW	9,057	USD	8,000	1,132.11
	MIZUHO	2021.03.29	2021.04.21	KRW	15,846	USD	14,000	1,131.87
	Societe General	2021.03.30	2021.04.02	KRW	26,072	USD	23,000	1,133.58
	Societe General	2021.03.30	2021.04.08	KRW	19,272	USD	17,000	1,133.64
	Daegu Bank	2021.03.30	2021.04.20	KRW	26,075	USD	23,000	1,133.71
	DBS	2021.03.30	2021.09.27	KRW	24,310	USD	21,447	1,133.49
	DBS	2021.03.30	2021.09.27	KRW	20,006	USD	17,650	1,133.49
	MIZUHO	2021.03.31	2021.04.22	KRW	26,055	USD	23,000	1,132.81
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

7. Derivative instrument (cont'd)

(5) Gains or losses on valuation of derivatives for the three-month periods ended March 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 (Unaudited)	2020 (Unaudited)	2021 (Unaudited)	2020 (Unaudited)	2021 (Unaudited)	2020 (Unaudited)
Foreign currency forwards	₩ 31,577	₩ (15,414)	₩ 67,873	₩ 57,873	₩ (264)	₩ (7,889)
Foreign currency swaps	(27,837)	(59,258)	-	(15,234)	(409)	(17,273)
Interest rate swaps	6,429	(2,580)	(1,007)	(194)	-	240
	₩ 10,169	₩ (77,252)	₩ 66,866	₩ 42,445	₩ (673)	₩ (24,922)

As of March 31, 2021, losses on valuation of derivatives amounting to ₩8,352 million (December 31, 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 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, 2021 and 2020, losses on hedging instruments amount to ₩(-)73,242million and ₩(-)110,759million, respectively, and gains on hedging instruments recognized in other comprehensive income are net of tax effect amounting to ₩20,142 million and ₩30,459 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, 2021 and 2020, are as follows (Korean won in millions):

	2021 (Unaudited)	2020 (Unaudited)
Net loss on hedge of net investments in foreign operations, net of income tax	₩ (73,634)	₩ (120,959)

8. Trade and other receivables

(1) Trade and other receivables as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)				December 31, 2020			
	Principal	Allowance for doubtful accounts	Present value discount	Book value	Principal	Allowance for doubtful accounts	Present value discount	Book value
Current:								
Trade receivables	₩ 4,839,594	₩ (18,476)	₩ -	₩ 4,821,118	₩ 4,111,597	₩ (17,745)	₩ -	₩ 4,093,852
Other receivables	139,818	(1,013)	-	138,805	151,876	(973)	-	150,903
	4,979,412	(19,489)	-	4,959,923	4,263,473	(18,718)	-	4,244,755
Non-current:								
Other receivables	200,325	-	(971)	199,354	211,688	(9,453)	(1,028)	201,207
	₩ 5,179,737	₩ (19,489)	₩ (971)	₩ 5,159,277	₩ 4,475,161	₩ (28,171)	₩ (1,028)	₩ 4,445,962

(2) Other receivables as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)				December 31, 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	₩ 120,425	₩ (1,013)	₩ -	₩ 119,412	₩ 133,281	₩ (973)	₩ -	₩ 132,308
Accrued income	19,242	-	-	19,242	18,460	-	-	18,460
Deposits provided	151	-	-	151	135	-	-	135
	139,818	(1,013)	-	138,805	151,876	(973)	-	150,903
Non-current:								
Non-trade receivables	88,080	-	-	88,080	93,941	(9,453)	-	84,488
Deposits provided	112,245	-	(971)	111,274	117,747	-	(1,028)	116,719
	200,325	-	(971)	199,354	211,688	(9,453)	(1,028)	201,207
	₩ 340,143	₩ (1,013)	₩ (971)	₩ 338,159	₩ 363,564	₩ (10,426)	₩ (1,028)	₩ 352,110

9. Inventories

Details of inventories as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)			December 31, 2020		
	Acquisition cost	Valuation allowance	Book value	Acquisition cost	Valuation allowance	Book value
Raw materials	₩ 1,138,691	₩ -	₩ 1,138,691	₩ 923,089	₩ -	₩ 923,089
Finished goods	80,326	-	80,326	78,110	(5,476)	72,634
Supplies	88,755	-	88,755	82,677	-	82,677
Goods in transit	384,843	-	384,843	311,882	-	311,882
	₩ 1,692,615	₩ -	₩ 1,692,615	₩ 1,395,758	₩ (5,476)	₩ 1,390,282

10. Non-financial assets

(1) Details of non-financial assets as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)		December 31, 2020	
	Current	Non-current	Current	Non-current
Advanced payments	₩ 84,979	₩ -	₩ 113,551	₩ -
Prepaid expenses	10,470	71	10,981	72
Greenhouse gas emission rights	1,872	-	-	-
Other non-financial assets	1,316,269	692,098	1,378,467	272,331
	₩ 1,413,590	₩ 692,169	₩ 1,502,999	₩ 272,403

(2) Details of other non-financial assets as of March 31, 2021 and December 31, 2020 are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)		December 31, 2020	
	Current	Non-current	Current	Non-current
Special consumption tax	₩ 97,580	₩ -	₩ 98,786	₩ -
Deposits	3,104	-	3,102	-
Others[1]	1,215,585	692,098	1,276,579	272,331
	₩ 1,316,269	₩ 692,098	₩ 1,378,467	₩ 272,331

[1] Assets due to settlement gains and losses on natural gas sales charges amounting to ₩1,714,571 million as of March 31, 2021 and ₩1,483,398 million as of December 31, 2020 are included in others. (Note 11)

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, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (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	₩ 41,141	₩ 320,252	₩ 31,961	₩ 488,688	₩ 180,139	₩ -	₩ 1,062,181
Other non-current non-financial assets	237,650	81,336	6,054	327,350	-	-	652,390
Other current non-financial liabilities	-	-	-	-	-	(101,339)	(101,339)
	₩ 278,791	₩ 401,588	₩ 38,015	₩ 816,038	₩ 180,139	₩ (101,339)	₩ 1,613,232

11. Natural gas sales charge settlement gains and losses (cont'd)

Details of other non-financial assets and liabilities arising from the settlement on natural gas sales as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions) (cont'd):

	December 31, 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 amendment to the Natural Gas Supply Regulations during the year ended December 31, 2020 has subdivided the classification of assets and liabilities for the raw material cost of city gas charges.

12. Investments in associates and joint ventures

(1) Details of investments in associates and joint ventures as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions, except percentage of ownership):

					March 31, 2021 (Unaudited)		
	Business	Country of incorporation	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	₩ 273,567
Korea LNG Ltd.	Resource development	Bermuda	Oman	December 31	24.00%	3,298	33,062
Hyundai Yemen LNG Company Limited	Resource development	Bermuda	Yemen	December 31	49.00%	482	27,535
Korea LNG Trading Co., Ltd.	Shipping industry	Korea	Korea	December 31	28.00%	601	1,980
Kor-Uz Gas Chemical Investment Ltd.	Resource development	Malaysia	Uzbekistan	December 31	45.00%	347,451	605,359
South-East Asia Gas Pipeline Company Limited [3,6]	Pipe construction	Hong Kong	Myanmar	September 30	4.17%	22,259	35,533
Sulawesi LNG Development Limited [4]	Liquefaction business investment	United Kingdom	Indonesia	December 31	25.00%	154,549	212,753
TOMORI E&P Limited	Resource development	United Kingdom	Indonesia	December 31	49.00%	126,847	175,791
Coral FLNG S.A [3]	Resource development	Mozambique	Mozambique	December 31	10.00%	182	53,769
Coral South FLNG DMCC[1,3]	Resource development	UAE	UAE	December 31	10.00%	15	15
Hydrogen Energy Network Co., Ltd.	Hydrogen infrastructure construction and operation	Korea	Korea	December 31	28.49%	15,300	13,903
Rovuma LNG S.A. [1,3]	Resource development	Mozambique	Mozambique	December 31	10.00%	185	181
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	1,009
Kor-Uz Gas C&G Investment Ltd.	Charge business investment	Korea	Uzbekistan	December 31	38.85%	2,542	711
TERMINAL KMS de GNL, S. De R.L. De C.V.	LNG terminal construction & management	Mexico	Mexico	December 31	25.00%	34,945	110,868
GLNG Operations Pty. Ltd. [1,5]	LNG Plant management	Australia	Australia	December 31	15.00%	17	13
GLNG Property Pty. Ltd. [1,5]	Property lease	Australia	Australia	December 31	15.00%	26	-
ENH - KOGAS, S.A.[2]	Pipe construction	Mozambique	Mozambique	June 30	70.00%	78	15,106
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	1,323
KLBV1 S.A	LNG bunkering vessel operation	Panama	Netherlands	December 31	40.00%	4,999	4,828
						₩ 739,164	₩ 1,567,312

12. Investments in associates and joint ventures (cont'd)

[1] The entities are not accounted for using the equity method as the difference between the book value and identifiable net asset is not significant.
[2] The entities 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 above 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 composition of shareholders.
[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 ₩63 million in 2021. Capital increase occurred in 2020.
[5] 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.
[6] The capital reduction occurred in relation to investment in South-East Asia Gas Pipeline Company Limited in 2021

12. Investments in associates and joint ventures (cont'd)

	Business	Country of incorporation	Country of domicile	Fiscal year end	December 31, 2020		
					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 Limited	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 30	4.17%	23,205	33,042
Sulawesi LNG Development Limited [5]	Liquefaction business investment	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 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 Energy Network 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, S.A.[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	1,206
KLBV1 S.A	LNG bunkering vessel operation	Panama	Netherlands	December 31	40.00%	3,056	3,056
						₩ 790,725	₩ 1,522,733

[1] The entities are not accounted for using the equity method as the difference between the book value and identifiable net asset is not significant.
[2] The entities 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 above 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 composition of shareholders.
[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 increase occurred in 2020 in relation to investment in Sulawesi LNG Development Limited.
[6] 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.

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, 2021 and for the year ended December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (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.	₩ 258,712	₩ -	₩ -	₩ (17,766)	₩ 21,640	₩ 10,981	₩ -	₩ 273,567
Korea LNG Ltd.	29,129	-	-	(2,056)	2,064	3,925	-	33,062
Hyundai Yemen LNG Company Limited [1]	22,341	-	-	-	(68)	5,262	-	27,535
Korea LNG Trading Co., Ltd.	1,953	-	-	-	(54)	81	-	1,980
Kor-Uz Gas Chemical Investment Ltd.	569,619	-	-	-	11,324	24,416	-	605,359
South-East Asia Gas Pipeline Company Limited	33,042	-	(946)	-	2,020	-	1,417	35,533
Sulawesi LNG Development Limited	248,687	-	(52,558)	-	7,362	9,262	-	212,753
TOMORI E&P Limited	173,568	-	-	-	(5,037)	7,260	-	175,791
Coral FLNG S.A	51,513	-	-	-	(1,381)	-	3,637	53,769
Coral South FLNG DMCC	15	-	-	-	-	-	-	15
Hydrogen Energy Network Co., Ltd.	14,153	-	-	-	(250)	-	-	13,903
Rovuma LNG S.A.	174	-	-	-	-	-	7	181
Rovuma LNG Investments (DIFC) Ltd.	5	-	-	-	-	-	1	6
Kor-Uz Gas cylinder Investment Ltd.	1,221	-	-	-	2	(214)	-	1,009
Kor-Uz Gas C&G Investment Ltd.	769	-	-	-	10	(68)	-	711
Terminal KMS de GNL, S. De R.L. De C.V.	102,182	-	-	-	2,873	1,465	4,348	110,868
GLNG Operations Pty Ltd.	13	-	-	-	-	-	-	13
GLNG Property Pty Ltd [2]	-	-	-	-	-	-	-	-
ENH-KOGAS, S.A .	11,375	-	-	-	1,782	-	1,949	15,106
LNG Canada Development Inc.	-	-	-	-	-	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	1,205	-	-	-	66	-	52	1,323
KLBV1 S.A	3,056	1,943	-	-	(59)	(112)	-	4,828
	₩ 1,522,732	₩ 1,943	₩ (53,504)	₩ (19,822)	₩ 42,294	₩ 62,258	₩ 11,411	₩ 1,567,312

[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 joint venture as the book value of the equity securities fell below zero.

12. Investments in associates and joint ventures (cont'd)

	December 31, 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 Limited[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 Energy Network Co., Ltd.	5,890	9,000	-	-	(606)	(131)	-	14,153
Rovuma LNG S.A.	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, S.A.	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	-	(80)	1,206
KLBV1 S.A	-	3,056	-	-	-	-	-	3,056
	₩ 1,717,163	₩ 12,124	₩ (47,461)	₩ (60,492)	₩ 36,223	₩ (131,953)	₩ (2,871)	₩ 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 joint venture as the book value of the equity securities fell below zero.

12. Investments in associates and joint ventures (cont'd)

(3) Summarized financial information of associates and joint ventures as of March 31, 2021 and December 31, 2020, and for the three-month periods ended March 31, 2021 and 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)			
	Assets	Liabilities	Sales	Profit (loss) for the period
Korea Ras Laffan LNG Ltd.	₩ 456,171	₩ 226	₩ 30,144	₩ 36,066
Korea LNG Ltd.	138,066	307	9,135	8,601
Hyundai Yemen LNG Company Limited	164,758	93,700	-	(138)
Korea LNG Trading Co., Ltd.	544,245	537,175	27,080	(192)
Kor-Uz Gas Chemical Investment Ltd.	1,362,737	17,494	-	40,675
South-East Asia Gas Pipeline Company Limited	1,751,368	744,968	109,419	48,411
Sulawesi LNG Development Limited	851,131	119	-	28,579
TOMORI E&P Limited	416,286	67,789	84,829	461
Coral FLNG S.A	7,096,051	6,321,413	-	3,778
Coral South FLNG DMCC	4,014,271	4,014,117	-	-
Hydrogen Energy Network Co., Ltd.	56,779	7,982	795	(742)
Rovuma LNG S.A.	1,814	-	-	-
Rovuma LNG Investments (DIFC) Ltd.	57	-	-	-
Kor-Uz Gas cylinder Investment Ltd.	2,510	12	-	(11)
Kor-Uz Gas C&G Investment Ltd.	1,829	1	-	(2)
Terminal KMS de GNL, S. De R.L. De C.V.	986,862	543,388	24,906	11,491
GLNG Operations Pty Ltd.	14	1	-	-
GLNG Property Pty Ltd.	-	-	-	-
ENH-KOGAS, S.A.	37,709	16,129	8,444	2,546
LNG Canada Development Inc.	1	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	3,453	859	2,675	130
KLBV1 S.A	12,076	6	-	(34)

	December 31, 2020		March 31, 2020 (Unaudited)	
	Assets	Liabilities	Sales	Profit (loss) for the period
Korea Ras Laffan LNG Ltd.	₩ 431,406	₩ 219	₩ 27,253	₩ (72,457)
Korea LNG Ltd.	121,660	290	12,407	11,805
Hyundai Yemen LNG Company Limited	146,718	89,018	-	(150)
Korea LNG Trading Co., Ltd.	522,709	515,734	38,435	(38)
Kor-Uz Gas Chemical Investment Ltd.	1,269,851	4,030	-	25,306
South-East Asia Gas Pipeline Company Limited	1,701,285	760,802	115,337	47,055
Sulawesi LNG Development Limited	994,844	94	-	3,670
TOMORI E&P Limited	414,574	70,615	29,915	7,406
Coral FLNG S.A	6,552,972	6,338,701	-	(3,975)
Coral South FLNG DMCC	3,742,173	3,742,025	-	-
Hydrogen Energy Network Co., Ltd.	62,097	12,424	193	(473)
Rovuma LNG S.A.	1,741	-	-	-
Rovuma LNG Investments (DIFC) Ltd.	54	-	-	-
Kor-Uz Gas cylinder Investment Ltd.	3,037	12	-	(11)
Kor-Uz Gas C&G Investment Ltd.	1,979	-	-	(2)
Terminal KMS de GNL, S. De R.L. De C.V.	951,316	542,588	28,504	43,437
GLNG Operations Pty Ltd.	6	-	-	-
GLNG Property Pty Ltd.	-	-	-	-
ENH-KOGAS, SA.	28,870	12,620	6,938	(189)
LNG Canada Development Inc.	1	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	3,163	800	2,891	133
KLBV1 S.A	6,831	-	-	(14)

13. Property, plant and equipment

(1) Changes in property, plant and equipment for the three-month period ended March 31, 2021 and for the year ended December 31, 2020, are as follows (Korean won in millions):

	2021 (Unaudited)							
	Beginning balance	Acquisitions	Disposals	Depreciation	Impairment	Others	Changes in the scope of consolidation	Ending balance
Land	₩ 3,051,451	₩ 374	₩ (42)	₩ -	₩ -	₩ 2,620	₩ -	₩ 3,054,403
Buildings	771,711	1,305	(13)	(10,312)	-	1,562	-	764,253
(Government grant)	(1,811)	-	-	23	-	-	-	(1,788)
Structures	4,183,391	8	-	(60,192)	-	4,341	-	4,127,548
(Government grant)	(1,543)	-	-	26	-	-	-	(1,517)
Machinery	9,706,671	2,239	(25)	(160,903)	-	88,731	-	9,636,713
(Government grant)	(111,229)	-	-	1,348	-	-	-	(109,881)
Computerized facility	18,079	1,451	-	(1,512)	-	109	-	18,127
(Government grant)	(38)	-	-	6	-	-	-	(32)
Vehicles	11,159	41	-	(912)	-	10	-	10,298
(Government grant)	(635)	-	-	47	-	-	-	(588)
Office equipment	11,497	449	-	(1,039)	-	25	-	10,932
(Government grant)	(35)	-	-	3	-	-	-	(32)
Tools and instruments	10,677	78	-	(1,164)	-	-	-	9,591
(Government grant)	(346)	-	-	34	-	-	-	(312)
Timber	55,117	-	-	-	-	3	-	55,120
Construction in progress	699,464	149,933	-	-	-	14,168	-	863,565
(Government grant)	(4,233)	(2,900)	-	-	-	(177)	-	(7,310)
Right-of-use assets	2,573,468	4,071	(327)	(68,390)	-	2,372	-	2,511,194
Others	2,161,329	52,227	-	(88,290)	-	87,848	-	2,213,114
	₩ 23,134,144	₩ 209,276	₩ (407)	₩ (391,227)	₩ -	₩ 201,612	₩ -	₩ 23,153,398

	2020							
	Beginning balance	Acquisitions	Disposals	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 of ₩386,090 million for the year ended December 31, 2020 was recognized in relation to buildings, structures, machinery and other property, plant or equipment of KOGAS Australia Pty. Ltd., KOGAS Prelude Pty. Ltd. and KOGAS Canada Ltd. and is included in other gains (losses) in the consolidated statement of comprehensive income. (Note 15)

14. Construction and service contracts

(1) Changes in the outstanding construction and service contracts for the three-month periods ended March 31, 2021 and 2020, are as follows (Korean won in millions):

	Beginning balance	Increase[1]	Revenue recognized[2]	Ending balance
2021 (Unaudited)	₩ 120,569	₩ 15,557	₩ 17,254	₩ 118,872
2020 (Unaudited)	64,964	46,390	12,596	98,758

[1] For the three-month periods ended March 31, 2021 and 2020, the increase in construction and service contracts amounted to ₩16,902 million and ₩48,879 million, respectively, due to the new contracts and the decrease in construction and service contracts amounted to ₩1,345 million and ₩2,489 million, respectively, due to the change in size of existing construction contracts.
[2] The current revenue recognition includes ₩ 871 million of revenue from service.

(2) Accumulated revenues and costs of construction in progress as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	Accumulated revenue	Accumulated costs	Accumulated profit or loss	Contract assets	Contract liabilities	Reserves
As of March 31, 2021 **(Unaudited)**	₩ 108,543	₩ 94,807	₩ 13,736	₩ 11,837	₩ 61,704	₩ -
As of December 31, 2020	92,691	79,626	13,065	5,581	57,215	-

(3) Contract assets and liabilities, unbilled amount and overbilled amount arising from construction and service contracts as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

March 31, 2021 (Unaudited)		December 31, 2020	
Contract assets[1]	Contract liabilities	Contract assets[1]	Contract liabilities
₩ 11,837	₩ 61,704	₩ 5,581	₩ 57,215

[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, 2021 and for the year ended December 31, 2020, are as follows (Korean won in millions):

	2021 (Unaudited)							
	Beginning balance	Acquisition/ capital expenditure	Disposal	Amortization	Impairment	Others	Changes in the scope of consolidation	Ending balance
Intangible exploration and evaluation assets	₩ 412,686	₩ 109	₩ -	₩ -	₩ -	₩ 19,695	₩ -	₩ 432,490
Computer software	15,993	305	-	(1,693)	-	216	-	14,821
(Government grants)	(116)	-	-	12	-	-	-	(104)
Copyright, patent and other industrial property right	4,637	3	-	(243)	-	7,470	-	11,867
(Government grants)	(40)	-	-	3	-	-	-	(37)
Development costs	29	-	-	(1)	-	-	-	28
Intangible assets under development	3,244	240		-		23		3,507
Right to contributed assets	286,700	-	-	(2,366)	-	(1,313)	-	283,021
Land use rights	1,839	16	-	(33)	-	-	-	1,822
Mineral rights	824,569	181	-	(15,101)	-	33,594	-	843,243
Others	45,171	-	-	(2,449)	-	1,710	-	44,432
	₩ 1,594,712	₩ 854	₩ -	₩ (21,871)	₩ -	₩ 61,395	₩ -	₩ 1,635,090

	2020							
	Beginning balance	Acquisition/ capital expenditure	Disposal	Amortization	Impairment[1]	Others	Changes in the scope of consolidation	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 grants)	(194)	-	-	78	-	-	-	(116)
Copyright, patent and other industrial property right	4,938	14	-	(481)	-	166	-	4,637
(Government grants)	(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 and land use rights of KOGAS Australia Pty. Ltd. and KOGAS Prelude Pty. Ltd. and is included in other gains (losses) in consolidated statement of comprehensive income.

15. Intangible assets other than goodwill (cont'd)

(2) Details of individually significant intangible assets as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)		
	Details	**Amount**	**Remaining amortization period**
Intangible exploration and evaluation assets	Acquisition in exploration phase	₩ 432,490	Exploration phase
Right to contributed assets	Harbor facility usage right and others	283,021	34.97 years
Mineral rights	Mining rights	126,853	Development phase
	Mining rights	278,263	22.75 years
	Mining rights	34,996	17.77 years
	Mining rights	403,131	25.75 years

	December 31, 2020		
	Details	**Amount**	**Remaining amortization period**
Intangible exploration and evaluation assets	Acquisition in exploration phase	₩ 412,686	Exploration phase
Right to contributed assets	Harbor facility usage right and others	286,700	35.22 years
Mineral rights	Mining rights	120,941	Development phase
	Mining rights	272,466	23.00 years
	Mining rights	35,800	18.02 years
	Mining rights	395,362	26.00 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, 2021 are as follows:

	Main business	Interest of investments	Location
Mozambique Area 4	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, 2021 and December 31, 2020, 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, 2021.

	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] Trends in oil and gas price applied 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 as the indication of impairment existed 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.

16. Trade and other payables

Trade and other payables as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)		December 31, 2020	
	Current	Non-current	Current	Non-current
Trade payables	₩ 900,974	₩ -	₩ 977,732	₩ -
Non-trade payables	246,393	55	338,674	827
Accrued expenses	164,925	-	210,031	-
Lease liabilities	216,868	1,829,759	208,108	1,792,939
Others	3,484	-	2,230	-
Total	₩ 1,532,644	₩ 1,829,814	₩ 1,736,775	₩ 1,793,766

17. Borrowings and debentures

(1) Borrowings and debentures as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)	December 31, 2020
Current		
Short-term borrowings	₩ 4,032,201	₩ 3,110,297
Current portion of debentures	1,876,750	2,004,000
Less: discount on debentures	(195)	(355)
	5,908,756	5,113,942
Non-current		
Long-term borrowings	768,233	760,983
Debentures, net of current portion	16,651,525	16,332,199
Less: discount on debentures	(45,631)	(47,063)
	17,374,127	17,046,119
	₩ 23,282,883	₩ 22,160,061

(2) Repayment schedules of borrowings and debentures as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)		
	Borrowings	Debentures	Total
1 year or less	₩ 4,032,201	₩ 1,876,750	₩ 5,908,951
1 ~ 5 years	600,689	8,481,594	9,082,283
More than 5 years	167,544	8,169,931	8,337,475
	₩ 4,800,434	₩ 18,528,275	₩ 23,328,709

	December 31, 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

17. Borrowings and debentures (cont'd)

(3) The Group's short-term borrowings as of March 31, 2021 and December 31, 2020 are as follows (Korean won in millions):

Lender	Interest rate	Maturity	March 31, 2021 (Unaudited)	December 31, 2020
Local currency borrowings (Electronic short-term debentures)				
DB Securities Co., Ltd.	0.65%~0.89%	2021.04~2021.06	₩ 360,000	₩ -
KTB Investment & Securities Co., Ltd.	0.55%~0.89%	2021.04~2021.06	810,000	-
SK Securities Co., Ltd.	0.85%	2021.05	10,000	-
BNK Securities Co., Ltd.	0.55%~0.89%	2021.04~2021.06	245,000	-
Woori Investment Bank Co., Ltd.	0.77%~0.89%	2021.04~2021.06	640,000	-
CAPE Investment & Securities Co., Ltd	0.65%~0.89%	2021.04~2021.06	120,000	-
Hana Financial Investment Co., Ltd.	0.61%	2021.04	20,000	-
Korea Development Bank	3.33%~4.04%	2021.06~2021.11	1,463	-
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.	-	2021.01	-	180,000
BNK Securities Co., Ltd.	-	2021.01	-	110,000
Woori Investment Bank Co., Ltd.	-	2021.01~2021.03	-	240,000
Korea Development Bank	-	2021.02~2021.11	-	2,983
			2,206,463	1,232,983
Foreign currency borrowings				
Bank of America	0.48%	2021.09	110,644	-
BNP Paribas	0.45%	2021.09	221,196	-
DBS	0.45%~0.58%	2021.04~2021.09	469,696	-
The Export-Import Bank of Korea	0.69%	2021.07	226,700	-
Korea Development Bank	0.49%~0.54%	2021.04~2021.09	577,267	-
Standard Chartered Bank Korea Ltd.	0.53~0.55%	2021.04~2021.05	220,235	-
DBS	-	2021.02~2021.05	-	376,634
The Export-Import Bank of Korea	-	2021.03~2021.07	-	652,800
Korea Development Bank	-	2021.03~2021.04	-	636,486
Standard Chartered Bank Korea Ltd.	-	2021.04~2021.05	-	211,394
			1,825,738	1,877,314
			₩ 4,032,201	₩ 3,110,297

17. Borrowings and debentures (cont'd)

(4) The Group's long-term borrowings as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions and US dollars in thousands):

			March 31, 2021 (Unaudited)		December 31, 2020	
Lender	Interest rate	Maturity	Foreign currency (USD)	Local currency (KRW)	Foreign currency (USD)	Local currency (KRW)
Local currency borrowings:						
KEB Hana Bank	3M CD rate +0.21%	2022.10	-	₩ 100,000	-	₩ 100,000
KEB Hana Bank	3M CD rate +0.13%	2023.05	-	100,000	-	100,000
KEB Hana Bank	3M CD rate +0.21%	2023.10	-	100,000	-	100,000
KEB Hana Bank	3M CD rate +0.31%	2025.09	-	100,000	-	100,000
KEB Hana Bank	3M CD rate +0.30%	2025.10	-	200,000	-	200,000
Foreign currency borrowings:						
Korea Energy Agency [1]	-	- [2]	USD 148,419	168,233	USD 147,963	160,983
			USD 148,419	₩ 768,233	USD 147,963	₩ 760,983

[1] As of March 31, 2021, 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.

17. Borrowings and debentures (cont'd)

(5) Debentures as of March 31, 2021 and December 31, 2020, are as follows (Korean won and Japanese yen in millions, and US dollars, Euro, and Swiss Franc in thousands):

			March 31, 2021 (Unaudited)		December 31, 2020	
List	Interest rate	Maturity	Foreign currency	Local currency (KRW)	Foreign currency	Local currency (KRW)
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
344~345th	3.66%~3.71%	2029.4	-	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	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
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	2.02%	2021.09	-	100,000	-	100,000
390~400th	1.42%~2.16%	2022.07~2039.10	-	1,320,000	-	1,320,000
402nd	1.59%	2021.11	-	100,000	-	100,000
403rd	1.70%	2039.11	-	40,000	-	40,000
404~411th	1.01%~1.74%	2022.11~2040.02	-	830,000	-	830,000
412nd	1.68%	2026.03	-	100,000	-	-
Global 4th	6.25%	2042.01	USD 750,000	850,125	USD 750,000	816,000
MTN 13rd	3.02%	2028.06	EUR 38,000	50,475	EUR 38,000	50,853
MTN 15th	3.00%	2023.07	EUR 50,000	66,415	EUR 50,000	66,912
MTN 16th	1.46%	2023.08	JPY 8,000	82,186	JPY 8,000	84,341
MTN 16th(2)	1.46%	2023.08	JPY 4,000	41,093	JPY 4,000	42,170
MTN 17th	4.00%	2024.01	USD 200,000	226,700	USD 200,000	217,600
Global 7th	3.88%	2024.02	USD 500,000	566,750	USD 500,000	544,000
Global 8th	3.50%	2026.07	USD 500,000	566,750	USD 500,000	544,000
MTN 18th	3.58%	2029.07	USD 100,000	113,350	USD 100,000	108,800
MTN 19th	3.58%	2029.07	USD 150,000	170,025	USD 150,000	163,200
MTN 20th	3.58%	2029.07	USD 100,000	113,350	USD 100,000	108,800
MTN 21st	3.50%	2029.10	USD 100,000	113,350	USD 100,000	108,800
MTN 22nd	3.13%	2025.10	USD 200,000	226,700	USD 200,000	217,600

17. Borrowings and debentures (cont'd)

(5) Debentures as of March 31, 2021 and December 31, 2020, are as follows (Korean won and Japanese yen in millions, and US dollars, Euro, and Swiss Franc in thousands) (cont'd):

			March 31, 2021 (Unaudited)			December 31, 2020		
			Foreign currency		Local currency (KRW)	Foreign currency		Local currency (KRW)
List	Interest rate	Maturity						
MTN 23rd	3.30%	2025.11	USD	50,000	56,675	USD	50,000	54,400
MTN 24th	3.30%	2025.11	USD	50,000	56,675	USD	50,000	54,400
Global 9th	3.50%	2025.07	USD	500,000	566,750	USD	500,000	544,000
MTN 25th	2.83%	2026.03	USD	100,000	113,350	USD	100,000	108,800
MTN 26th	2.80%	2026.03	USD	100,000	113,350	USD	100,000	108,800
MTN 27th	2.70%	2026.05	USD	100,000	113,350	USD	100,000	108,800
Global 10-1st	1.88%	2021.07	USD	500,000	566,750	USD	500,000	544,000
Global 10-2nd	2.25%	2026.07	USD	400,000	453,400	USD	400,000	435,200
Global 11-1st	2.75%	2022.07	USD	400,000	453,400	USD	400,000	435,200
Global 11-2nd	3.13%	2027.07	USD	400,000	453,400	USD	400,000	435,200
CHF 5th	0.21%	2023.08	CHF	200,000	240,620	CHF	200,000	246,866
CHF 6th	0.00%	2023.11	CHF	300,000	360,930	CHF	300,000	370,299
Global 12th	2.88%	2029.07	USD	500,000	566,750	USD	500,000	544,000
MTN 28th	1.42%	2027.07	HKD	450,000	65,606	HKD	450,000	63,158
			USD	5,700,000		USD	5,700,000	
			CHF	500,000		CHF	500,000	
Total			JPY	12,000	₩ 18,528,275	JPY	12,000	₩ 18,336,199
			EUR	88,000		EUR	88,000	
			HKD	450,000		HKD	450,000	
			USD	(37,885)		USD	(39,108)	
Less: Discount on debentures			CHF	(1,599)	₩ (45,826)	CHF	(1,757)	₩ (47,418)
			HKD	(8,246)		HKD	(8,550)	
			USD	5,662,115		USD	5,660,892	
			CHF	498,401		CHF	498,243	
Balance after deduction			JPY	12,000	₩ 18,482,449	JPY	12,000	₩ 18,288,781
			EUR	88,000		EUR	88,000	
			HKD	441,754		HKD	441,450	
Less: Current portion					₩ (1,876,750)			₩ (2,004,000)
Less: Current portion of discount on debentures					₩ 195			₩ 355
Total					₩ 16,605,894			₩ 16,285,136

18. Leases

(1) Details of lease liabilities as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)		December 31, 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	₩ 197,197	₩ 195,405	₩ 190,629	₩ 188,797
1~5 years	640,138	616,621	616,545	592,294
More than 5 years	1,239,607	1,084,567	1,231,074	1,069,493
	₩ 2,076,942	₩ 1,896,593	₩ 2,038,248	₩ 1,850,584
Lease other than long-term transportation contract				
1 year or less	₩ 21,966	₩ 21,463	₩ 19,712	₩ 19,311
1~5 years	52,979	49,394	55,097	51,977
More than 5 years	100,375	79,177	101,014	79,175
	₩ 175,320	₩ 150,034	₩ 175,823	₩ 150,463
Total				
1 year or less	₩ 219,163	₩ 216,868	₩ 210,341	₩ 208,108
1~5 years	693,117	666,015	671,642	644,271
More than 5 years	1,339,982	1,163,744	1,332,088	1,148,668
	₩ 2,252,262	₩ 2,046,627	₩ 2,214,071	₩ 2,001,047

(2) Changes in right-of-use assets for the three-month period ended March 31, 2021 and for the year ended December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)				
	Beginning balance	Increase	Depreciation	Others	Ending balance
Right-of-use assets					
Land	₩ 121,443	₩ 2,216	₩ (2,327)	₩ 1,680	₩ 123,012
Buildings	9,411	1,507	(1,009)	96	10,005
Structures	2,412	-	(14)	102	2,500
Machinery	7,726	-	(276)	32	7,482
Vehicles	6,213	348	(994)	(59)	5,508
Office equipment	4	-	-	-	4
Vessel	2,425,603	-	(63,659)	169	2,362,113
Aircrafts	643	-	(108)	25	560
Software	13	-	(3)	-	10
	₩ 2,573,468	₩ 4,071	₩ (68,390)	₩ 2,045	₩ 2,511,194

18. Leases (cont'd)

(2) Changes in right-of-use assets for the three-month period ended March 31, 2021 and for the year ended December 31, 2020, are as follows (Korean won in millions) (cont'd) :

	December 31, 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

(3) Amounts recognized in the interim condensed consolidated statements of comprehensive income in relation to leases for the three-month periods ended March 31, 2021 and 2020 are as follows:

	2021 (Unaudited)	2020 (Unaudited)
Right-of-use assets' depreciation expenses		
Land	₩ 2,327	₩ 2,162
Buildings	1,009	1,324
Structures	14	15
Machinery	276	263
Vehicles	994	967
Office equipment	-	1
Vessel	63,659	65,511
Aircrafts	108	117
Software	3	7
	₩ 68,390	₩ 70,367
Interest expenses on lease liabilities (finance costs)	₩ 7,980	20,076
Interest income on present value discount of deposits (finance income)	347	528
Short-term lease payments (included in cost of sales and administrative expenses)	540	502
Low-value lease payments (included in cost of sales and administrative expenses)	300	194

19. 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, 2021 and 2020, are as follows (Korean won in millions):

	2021 (Unaudited)	2020 (Unaudited)
Cost of sales	₩ 1,472	₩ 1,109
Selling and administrative expenses	1,015	260
Others	11	11
	₩ 2,498	₩ 1,380

19. 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, 2021 and for the year ended December 31, 2020, are as follows (Korean won in millions):

	2021 (Unaudited)	2020
Beginning balance	₩ 400,245	₩ 362,316
Current service cost	11,418	45,324
Interest expense	3,315	11,812
Remeasurements	(4,226)	(1,253)
Benefits paid	(4,429)	(12,706)
Conversion to defined contribution	(2,491)	(5,232)
Foreign exchange difference	10	(16)
Ending balance	₩ 403,842	₩ 400,245

(4) Changes in the fair value of plan assets for the three-month period ended March 31, 2021 and for the year ended December 31, 2020, are as follows (Korean won in millions):

	2021 (Unaudited)	2020
Beginning balance	₩ 397,687	₩ 368,967
Interest income	3,313	10,685
Remeasurements	(462)	(3,622)
Employer's contributions	-	36,115
Benefits paid	(2,479)	(1,752)
Conversion to defined contribution	(4,429)	(12,706)
Ending balance	₩ 393,630	₩ 397,687

(5) The amounts recognized in profit or loss for the three-month periods ended March 31, 2021 and 2020, are as follows (Korean won in millions):

	2021 (Unaudited)	2020
Current service cost	₩ 11,418	₩ 10,762
Interest expenses	3,315	2,918
Interest income	(3,313)	(3,024)
	₩ 11,420	₩ 10,656

20. Provisions

(1) Details of provisions as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)		December 31, 2020	
	Current	Non-Current	Current	Non-Current
Provision for employee benefits	₩ 97,879	₩ 34,895	₩ 80,286	₩ 30,343
Provision for greenhouse gas	7,437	800	7,437	-
Provision for financial guarantee	-	17,667	-	17,996
Provision for lawsuit	9,800	528	11,800	528
Provision for post-processing restoration and purification	-	131,501	-	130,747
Provision for onerous contracts	3,250	-	4,120	-
Others	1,983	3,373	1,903	3,254
	₩ 120,349	₩ 188,764	₩ 105,546	₩ 182,868

21. Non-financial liabilities

Details of non-financial liabilities as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)		December 31, 2020	
	Current	Non-Current	Current	Non-Current
Advances received	₩ 5,523	₩ -	₩ 3,546	₩ -
Unearned revenues	29,804	-	28,728	-
Withholdings	17,104	-	20,437	-
Deferred income	1	9,401	1	9,389
Others [1]	116,575	46,671	15,226	45,331
	₩ 169,007	₩ 56,072	₩ 67,938	₩ 54,720

[1] Others include liabilities recognized from natural gas sales charge settlement gain and loss of ₩101,339 million as of March 31, 2021 (Note 11).

22. Equity

(1) Details of share capital as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions except par value in Korean won):

	Total shares authorized	Total shares issued	Par value	March 31, 2021 (Unaudited)			December 31, 2020		
				Government	Non-government	Total	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, 2021 and for the year ended December 31, 2020, are as follows:

	2021 (Unaudited)	2020
	Common share	Common share
Beginning shares	85,826,950	87,637,240
Acquisition of treasury shares	-	(1,810,290)
Ending shares	85,826,950	85,826,950

(3) Details of share premium as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)	December 31, 2020
Share premium	₩ 1,303,548	₩ 1,303,548

23. Retained earnings

(1) Retained earnings as of March 31, 2021 and December 31, 2020, consist of (Korean won in millions):

	March 31, 2021 (Unaudited)	December 31, 2020
Legal reserve[1]	₩ 230,782	₩ 230,782
Voluntary reserves	3,931,677	4,027,335
Unappropriated retained earnings	1,544,245	932,688
	₩ 5,706,704	₩ 5,190,805

[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) Voluntary reserves as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)	December 31, 2020
Business expansion	₩ 3,183,795	₩ 3,279,453
Dividend equalization	219,282	219,282
Business rationalization	792	792
Accident compensation	439,989	439,989
Improvement of financial structure	87,819	87,819
	₩ 3,931,677	₩ 4,027,335

(3) Changes in retained earnings for the three-month period ended March 31, 2021 and for the year ended December 31, 2020, are as follows (Korean won in millions):

	2021 (Unaudited)	2020
Beginning balance	₩ 5,190,805	₩ 5,397,707
Profit (loss) attributable to owners of the parent	512,963	(172,060)
Dividends paid	-	(33,302)
Remeasurement of defined benefit plans	2,936	(1,540)
Ending balance	₩ 5,706,704	₩ 5,190,805

(4) There are no dividends paid for the three-month period ended March 31, 2021.

24. Income tax

Income tax expense was calculated by adjusting the adjustments recognized for the three-month period ended March 31, 2021 in relation to the income tax for the year ended December 31, 2020, 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, 2021 and 2020, the estimated weighted average effective tax rate (income tax expense ÷ profit before income tax) is 25.54% and 23.95%, respectively.

25. Expenses by nature

Details of expenses by nature for the three-month periods ended March 31, 2021 and 2020, are as follows (Korean won in millions):

	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.

25. Expenses by nature(cont'd)

	2020 (Unaudited)			
	Changes in inventories	Selling and administrative expenses	Cost of sales	Total
Changes in inventories:				
Finished goods	₩ 2,457	₩ -	₩ -	₩ 2,457
Merchandise	-	-	16,851	16,851
Raw materials used	-	-	6,563,821	6,563,821
Salaries	-	25,088	99,002	124,090
Retirement benefits	-	2,437	8,902	11,339
Employee welfare benefits	-	2,560	7,722	10,282
Insurance	-	747	3,149	3,896
Depreciation	-	3,715	407,990	411,705
Amortization	-	1,038	18,021	19,059
Reversal of allowance for doubtful accounts	-	(176)	-	(176)
Commission	-	14,540	25,536	40,076
Advertising expenses	-	930	45	975
Training expenses	-	1,143	120	1,263
Vehicles maintenance expenses	-	77	904	981
Periodicals and printing expenses	-	109	68	177
Business promotion expenses	-	75	42	117
Rental expenses	-	944	2,945	3,889
Communication expenses	-	143	294	437
Freight	-	-	80	80
Taxes and dues	-	32,748	1,819	34,567
Supplies expenses	-	179	399	578
Utilities	-	405	44,508	44,913
Repairs and maintenance expenses	-	1,299	12,952	14,251
Research and development expenses	-	10,442	2	10,444
Travel and transportation	-	542	522	1,064
Clothing expenses	-	59	40	99
Association fee	-	132	355	487
Sales promotion costs	-	164	-	164
Promotional expenses	-	107	-	107
Outsourcing	-	-	2,311	2,311
Facility management	-	-	48,637	48,637
Other expenses[1]	-	7,510	(367,728)	(360,218)
	₩ 2,457	₩ 106,957	₩ 6,899,309	₩ 7,008,723

[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.

26. Other income and expenses

(1) Details of other income for the three months ended March 31, 2021 and 2020, are as follows (Korean won in millions):

	2021 (Unaudited)	2020 (Unaudited)
Reversal of other provisions	₩ 16	₩ -
Earnings from construction charges (non-operating)	23	23
Compensation and indemnity gains	29,824	1,107
Rental income	768	288
	₩ 30,631	₩ 1,418

(2) Details of other expenses for the three months ended March 31, 2021 and 2020, are as follows (Korean won in millions):

	2021 (Unaudited)	2020 (Unaudited)
Recognition of other provisions	₩ -	₩ 3
Depreciation of idle assets	4,243	4,243
Donations	189	1,528
Expense from compensation and indemnity	-	3,466
	₩ 4,432	₩ 9,240

27. Other gains and losses

Details of other gains (losses) for the three months ended March 31, 2021 and 2020, are as follows (Korean won in millions):

	2021 (Unaudited)	2020 (Unaudited)
Gains on disposal of property, plant and equipment	221	168
Other gains	4,787	10,702
Losses on disposal of property, plant and equipment	(11)	(50)
Other losses	(1,136)	(1,053)
	₩ 3,861	₩ 9,767

28. Finance income

Details of finance income for the three months ended March 31, 2021 and 2020, are as follows (Korean won in millions):

	2021 (Unaudited)	2020 (Unaudited)
Interest income	₩ 5,090	₩ 6,192
Gains on valuation of derivative instruments	39,073	2,040
Gains on transaction of derivative instruments	86,304	75,697
Gains on foreign currency translation	223,297	313,793
Gains on foreign currency transactions	24,710	41,448
	₩ 378,474	₩ 439,170

29. Finance costs

Details of finance costs for the three months ended March 31, 2021 and 2020, are as follows (Korean won in millions):

	2021 (Unaudited)	2020 (Unaudited)
Interest expenses	₩ 165,401	₩ 202,518
Losses on valuation of derivative instruments	28,904	79,292
Losses on transaction of derivative instruments	19,438	33,252
Losses on foreign currency translation	218,503	268,245
Losses on foreign currency transactions	91,468	85,273
	₩ 523,714	₩ 668,580

30. Financial instruments by category

(1) Details of financial instruments by categories as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)				
		Financial assets at FVTPL			
	Debt instruments measured at amortized cost	Derivatives not designated as hedging instruments	Derivatives designated as hedging instruments	Other	Total
Current financial assets:					
Cash and cash equivalents	₩ 509,250	₩ -	₩ -	₩ -	₩ 509,250
Financial assets at fair value through profit or loss	-	8,389	357	17,200	25,946
Financial assets at amortized cost	1,197	-	-	-	1,197
Short-term financial instruments	24,670	-	-	-	24,670
Short-term loans	14,955	-	-	-	14,955
Trade and other receivables	4,959,923	-	-	-	4,959,923
	₩ 5,509,995	₩ 8,389	₩ 357	₩ 17,200	₩ 5,535,941

	March 31, 2021 (Unaudited)					
			Financial assets at FVTPL			
	Debt instruments measured at amortized cost	Equity instruments measured at FVOCI	Derivatives not designated as hedging instruments	Derivatives designated as hedging instruments	Others	Total
Non-current financial assets:						
Financial assets at fair value through profit or loss	₩ -	₩ -	₩ 6,644	₩ 22,313	₩ 1,867	₩ 30,824
Financial assets at fair value through other comprehensive income	-	74,919	-	-	-	74,919
Financial assets at amortized cost	411	-	-	-	-	411
Long-term financial instruments	15	-	-	-	-	15
Long-term loans	451,897	-	-	-	-	451,897
Trade and other receivables	199,354	-	-	-	-	199,354
Other non-current financial assets	90,000	-	-	-	-	90,000
	₩ 741,677	₩ 74,919	₩ 6,644	₩ 22,313	₩ 1,867	₩ 847,420

30. Financial instruments by category (cont'd)

	March 31, 2021 (Unaudited)			
		Financial liabilities at FVTPL		
	Financial liabilities measured at amortized cost	Derivatives not designated as hedging instruments	Derivatives designated as hedging instruments	Total
Current financial liabilities:				
Trade and other payables	₩ 1,532,644	₩ -	₩ -	₩ 1,532,644
Financial liabilities at fair value through profit or loss	-	6,105	-	6,105
Short-term borrowings	4,032,201	-	-	4,032,201
Current portion of debentures	1,876,555	-	-	1,876,555
	₩ 7,441,400	₩ 6,105	₩ -	₩ 7,447,505

(*) Provision for financial guarantee is excluded.

	March 31, 2021 (Unaudited)			
		Financial liabilities at FVTPL		
	Financial liabilities measured at amortized cost	Derivatives not designated as hedging instruments	Derivatives designated as hedging instruments	Total
Non-current financial liabilities:				
Trade and other payables	₩ 1,829,814	₩ -	₩ -	₩ 1,829,814
Financial liabilities at fair value through profit or loss	-	35,760	31,057	66,817
Long-term borrowings	768,233	-	-	768,233
Debentures	16,605,893	-	-	16,605,893
	₩ 19,203,940	₩ 35,760	₩ 31,057	₩ 19,270,757

(*) Provision for financial guarantee is excluded.

30. Financial instruments by category (cont'd)

	December 31, 2020			
	Financial assets at FVTPL			
	Debt instruments measured at amortized cost	Derivatives not designated as hedging instruments	Derivatives designated as hedging instruments	Other	Total
Current financial assets:					
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
Short-term financial instruments	21,760	-	-	-	21,760
Short-term loans	14,326	-	-	-	14,326
Trade and other receivables[1]	4,244,755	-	-	-	4,244,755
	₩ 4,613,650	₩ 4,406	₩ 339	₩ 7,800	₩ 4,626,195

[1] Contract assets are excluded.

	December 31, 2020					
			Financial assets at FVTPL			
	Debt instruments measured at amortized cost	Equity instruments measured at FVOCI	Derivatives not designated as hedging instruments	Derivatives designated as hedging instruments	Others	Total
Non-current financial assets:						
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
Long-term loans	423,548	-	-	-	-	423,548
Trade and other receivables[1]	201,207	-	-	-	-	201,207
Others financial assets	90,000	-	-	-	-	90,000
	₩ 715,185	₩ 61,060	₩ 5,029	₩ 40,174	₩ 1,808	₩ 823,256

[1] Contract assets are excluded.

30. Financial instruments by category (cont'd)

	December 31, 2020			
		Financial liabilities at FVTPL		
	Financial liabilities measured at amortized cost	Derivatives not designated as hedging instruments	Derivatives designated as hedging instruments	Total
Current financial liabilities:				
Trade and other payables	₩ 1,736,775	₩ -	₩ -	₩ 1,736,775
Financial liabilities at fair value through profit or loss	-	105,108	-	105,108
Short-term borrowings	3,110,297	-	-	3,110,297
Current portion of debentures	2,003,645	-	-	2,003,645
	₩ 6,850,717	₩ 105,108	₩ -	₩ 6,955,825

(*) Provision for financial guarantee is excluded.

	December 31, 2020			
		Financial liabilities at FVTPL		
	Financial liabilities measured at amortized cost	Derivatives not designated as hedging instruments	Derivatives designated as hedging instruments	Total
Non-current financial liabilities:				
Trade and other payables	₩ 1,793,767	₩ -	₩ -	₩ 1,793,767
Financial liabilities at fair value through profit or loss	-	12,736	29,059	41,795
Long-term borrowings	760,983	-	-	760,983
Debentures	16,285,136	-	-	16,285,136
	₩ 18,839,886	₩ 12,736	₩ 29,059	₩ 18,881,681

(*) Provision for financial guarantee is excluded.

30. Financial instruments by category (cont'd)

(3) Net gains or losses on each category of financial instruments for the three-month periods ended March 31, 2021 and 2020, are as follows (Korean won in millions):

	2021 (Unaudited)	2020 (Unaudited)
Cash and cash equivalents		
Interest income	₩ 101	₩ 1,473
Gains on foreign currency transactions	98	21,770
Gains (losses) on foreign currency translation	608	(2,680)
Debt instruments measured at amortized cost		
Interest income	4,852	4,484
Gains on foreign currency transactions	269	2,876
Gains on foreign currency translation	219,432	285,011
Financial assets at fair value through profit or loss		
Interest income	137	234
Gains on foreign currency transactions	1,242	613
Gains on valuation of derivative instruments	24,504	2,040
Gains on transaction of derivative instruments	86,303	75,697
Gains (losses) on foreign currency translation	14	(77)
Equity instruments measured at FVOCI		
Comprehensive income (loss) recognized during the period	13,859	(72,275)
Derivative assets designated as hedging instruments		
Comprehensive income (loss) recognized during the period	(264)	-
Financial liabilities at fair value through profit or loss		
Losses on foreign currency transactions	(1,668)	(966)
Gains on valuation of derivative instruments	14,570	-
Losses on valuation of derivative instruments	(28,904)	(79,292)
Losses on transaction of derivative instruments	(19,437)	(33,252)
Financial liabilities measured at amortized cost		
Interest expense	(163,908)	(206,370)
Losses on foreign currency transactions	(66,700)	(68,117)
Losses on foreign currency translation	(215,259)	(236,706)
Comprehensive loss recognized during the period	(73,242)	(110,759)
Derivative liabilities designated as hedging instruments		
Interest expense	(8,294)	(3,423)
Comprehensive loss recognized during the period	(409)	(24,922)
Others		
Capitalization of borrowing costs	6,800	7,275
	₩ (205,296)	₩ (437,366)

31. 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, MMTs among financial assets at fair value through profit or loss and short-term financial instruments, 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, 2021 and December 31, 2020 are as follows (Korean won in millions, except net liabilities ratio):

	March 31, 2021 (Unaudited)	December 31, 2020
Total borrowings		
Short-term borrowings	₩ 4,032,201	₩ 3,110,297
Current portion of debentures	1,876,555	2,003,645
Current portion of lease liabilities	216,868	208,108
Long-term borrowings	768,233	760,983
Debentures, net of current portion	16,605,893	16,285,136
Lease liabilities, net of current portion	1,829,759	1,792,939
Total borrowings	25,329,509	24,161,108
Cash equivalents		
Cash and cash equivalents	509,250	331,761
Current financial assets at fair value through profit or loss[1]	17,200	7,800
Short-term financial instruments	24,670	21,760
Total cash equivalents	551,120	361,321
Net debt	24,778,389	23,799,787
Total equity	8,283,847	7,735,155
Total capital	₩ 33,062,236	₩ 31,534,942
Capital procurement ratio	74.94%	75.47%

[1] Derivative assets are excluded.

31. 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, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)	December 31, 2020
Cash and cash equivalents (excluding cash held)	₩ 509,250	₩ 328,295
Financial assets at fair value through profit or loss	56,770	59,556
Short-term and long-term financial instruments	24,685	21,775
Financial assets at amortized cost	1,608	1,463
Loans and receivables	556,852	527,874
Trade and other receivables	5,159,277	4,445,962
Financial guarantee contracts[1]	1,270,538	1,221,577
	₩ 7,578,980	₩ 6,606,502

[1] The amount is the maximum guaranteed amount that the Group is obliged to pay upon the guarantee's claims.

31. Risk management (cont'd)

Details of financial guarantee contracts as of March 31, 2021 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	20,675	₩	23,435
	USD	9,240		10,474
KLBV1.S.A.	USD	24,522		27,796
Coral FLNG S.A.	USD	524,833		594,898
Coral South FLNG DMCC	USD	487,470		552,547
Others[2]				
Empresa Nacional de Hidrocarbonetos, E.P	USD	54,158		61,388
Total	USD	1,120,898		1,270,538

[1] Details of these financial guarantee contracts are described in Note 32.(2).6
[2] Details of these financial guarantee contracts are described in Note 34.(2)

31. 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, 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	₩ 18,482,448	₩ 22,161,703	₩ 2,414,850	₩ 10,016,842	₩ 9,730,011
Borrowings	4,800,434	4,845,538	4,044,347	625,080	176,111
Lease liabilities	2,046,627	2,252,262	219,163	693,117	1,339,982
Trade and other payables[1]	1,315,831	1,315,831	1,315,776	55	-
Provision for financial guarantee[2]	17,667	1,270,538	1,270,538	-	-
	₩ 26,663,007	₩ 31,845,872	₩ 9,264,674	₩ 11,335,094	₩ 11,246,104
Derivative financial liabilities					
Derivative financial liabilities[3]	₩ 72,922	₩ 86,649	₩ 23,480	₩ 54,007	₩ 9,162

[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, 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 for 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 hedges are included.

31. 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, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)					
	USD	EUR	AUD	CAD	JPY	CHF
Assets						
Cash and cash equivalents	₩ 18,648	₩ 84	₩ 34,319	₩ 14,527	₩ -	₩ -
Trade and other receivables	72,579	9	5,734	-	-	-
Financial assets at amortized cost	-	-	-	-	-	-
Loans and receivables	91,108	-	1	106,645	-	-
Financial instruments	-	-	-	-	-	-
Total assets	182,335	93	40,054	121,172	-	-
Liabilities						
Trade and other payables	767,974	4,540	24,388	960	265	331
Debentures	6,460,950	116,890	-	-	123,280	601,550
Borrowings	1,993,971	-	-	-	-	-
Lease liabilities	1,896,593	-	245	1,903	-	-
Other financial liabilities	17,667	-	-	-	-	-
Total liabilities	11,137,155	121,430	24,633	2,863	123,545	601,881
Net exposure	₩ (10,954,820)	₩ (121,337)	₩ 15,421	₩ 118,309	₩ (123,545)	₩ (601,881)

	March 31, 2021 (Unaudited)					
	MXN	AED	MZN	SGD	KWD	HKD
Assets						
Cash and cash equivalents	₩ 4	₩ 40	₩ 214	₩ 26	₩ 95	₩ -
Trade and other receivables	-	-	-	-	-	-
Financial assets at amortized cost	-	-	1,103	-	-	-
Loans and receivables	-	-	-	-	-	-
Financial instruments	-	15	-	-	-	-
Total assets	4	55	1,317	26	95	-
Liabilities						
Trade and other payables	-	-	-	140	-	625
Debentures	-	-	-	-	-	65,606
Borrowings	-	-	-	-	-	-
Lease liabilities	-	-	-	-	-	-
Other financial liabilities	-	-	-	-	-	-
Total liabilities	-	-	-	140	-	66,231
Net exposure	₩ 4	₩ 55	₩ 1,317	₩ (114)	₩ 95	₩ (66,231)

31. Risk management (cont'd)

	December 31, 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	-	-	-	-	-	-
Financial assets	83,875	-	-	-	-	-
Loans and receivables	-	-	-	-	-	-
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	-	-	-	-	-
Lease liabilities	1,850,585	-	-	-	-	-
Other financial liabilities	22,082	-	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)

	December 31, 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	-	-	-	-	-	-	-
Lease liabilities	-	-	-	-	104	-	-
Other financial liabilities	-	-	-	-	-	-	-
Total liabilities	-	-	-	24	310	1	63,539
Net exposure	₩ 6	₩ 26	₩ 1,028	₩ (24)	₩ (266)	₩ 81	₩ (63,539)

31. Risk management (cont'd)

Foreign currency exchange rates as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)	December 31, 2020
USD	1,133.50	1,088.00
EUR	1,328.29	1,338.24
JPY	10.27	10.54
CAD	897.72	853.30
AUD	861.35	836.56
CHF	1,203.10	1,234.33
GBP	1,557.66	1,482.40
MYR	273.07	269.51
THB	36.20	36.34
CNY	172.35	166.96
RUB	14.94	14.62
HKD	145.79	140.35
SGD	840.97	822.22
AED	308.59	296.20
MZN	16.31	16.25
MXN	55.06	54.60
KWD	3,751.08	3,577.18

A sensitivity analysis of profit before income tax from changes in foreign exchange rates for the three-month period ended March 31, 2021, is as follows (Korean won in millions):

	10% Increase	10% Decrease
Profit before income tax	₩ 36,675	₩ (36,675)

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, 2021 and December 31, 2020, are summarized as follows (Korean won in millions):

	March 31, 2021 (Unaudited)	December 31, 2020
Long-term borrowings	₩ 160,508	₩ 153,553
Lease liabilities	551,863	531,067
	₩ 712,371	₩ 684,620

[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, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)		December 31, 2020	
	100bp Increase	100bp Decrease	100bp Increase	100bp Decrease
Profit before income tax	₩ (7,124)	₩ 7,124	₩ (6,846)	₩ 6,846

31. 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, 2021 and December 31, 2020, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value through other comprehensive income	₩ -	₩ -	₩ 74,919	₩ 74,919
Financial assets at fair value through profit or loss	-	54,903	1,867	56,770
Financial liabilities at fair value through profit or loss	-	72,922	-	72,922

	December 31, 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

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, 2021, are as follows (Korean won in millions):

	March 31, 2021 (Unaudited)				
	Valuation techniques	Type	Book value	Inputs	Range of inputs
Financial assets at FVOCI	Discounted cash flow method	Energy business stock	₩ 74,675	Weighted average cost of equity capital	26.73%
				Selling price	2.55 ~ 11.05 $/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, 2021, are as follows (Korean won in millions):

	Fluctuations 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	₩ 5,566	₩ (5,077)

32. Related party transactions

(1) Details of the Group's related parties as of March 31, 2021, 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.
	KC LNG Tech Co., 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&P II Pty. Ltd. [3]
	KOGAS Canada Partner Ltd. [11]
	KOGAS Canada E&P Partnership [11]
	KOGAS Canada LNG Partnership [11]
	Korea LNG Bunkering Co., Ltd.
Associates	Korea Ras Laffan LNG Ltd.
	Korea LNG Ltd.
	Korea LNG Trading Co., Ltd.
	South-East Asia Gas Pipeline Company Limited [4]
	TOMORI E&P LIMITED
	Hydrogen Energy Network Co, Ltd.
	Kor-Uz Gas cylinder Investment Ltd.
	Kor-Uz Gas C&G Investment Ltd.
	Coral FLNG S.A. [5]
	Coral South FLNG DMCC [5]
	Rovuma LNG S.A. [5]
	Rovuma LNG Investments (DIFC) Ltd. [5]
Joint ventures	Kor-Uz Gas Chemical Investment Ltd.
	Sulawesi LNG Development Limited
	Hyundai Yemen LNG Company Limited
	KLBV1 S.A.
	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 Inc [9]
Other related parties [10]	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.

32. Related party transactions (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 Group in 2021 and 2020.
[2] Newly established through a merge of KOGAS Canada Ltd. and KOGAS Canada LNG Ltd.
[3] A subsidiary of KOGAS Australia Pty. Ltd.
[4] An associate of KG-SEAGP Company Limited.
[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 KOGAS Canada Energy Ltd.
[10] Korea Electric Power Corporation and significant counter parties of subsidiaries of Korea Electric Power Corporation, which exercises significant influence on the Corporation.
[11] A subsidiary of KOGAS Canada Energy Ltd.

32. 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.

1) Significant transactions which occurred during the normal course of business with related parties for the three-month periods ended March 31, 2021 and 2020, are as follows (Korean won in millions):

		Sales and other income		Purchases and other expense	
Related party	Transaction	2021 (Unaudited)	2020 (Unaudited)	2021 (Unaudited)	2020 (Unaudited)
LNG Canada Development	Miscellaneous income and others	₩ 279	₩ 272	₩ -	₩ -
Korea Ras Laffan LNG Ltd.	Dividends	17,766	15,916	-	-
Korea LNG Ltd.	Dividends	2,056	2,910	-	-
Hyundai Yemen LNG Company Limited	Interest income	15	271	-	-
Korea LNG Trading Co., Ltd.	Costs of sales	-	-	23,718	29,628
	Interest expense	-	-	1,169	3,934
Terminal KMS de GNL, S. de R.L. de C.V	Miscellaneous income	74	97	-	-
	Service revenue	-	42	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	Service revenue	2,085	2,176	-	-
Sulawesi LNG Development Limited	Gain on disposal of investments in associates	63	-	-	-
ENH-KOGAS, SA.	Service revenue	70	75	-	-
South-East Asia Gas Pipeline Company Limited	Interest income	532	948	-	-
Korea Electric Power Corporation	Miscellaneous income and others	23	-	-	-
	Utility expenses and others	-	-	28,626	26,512
Korea Southern Power Co., Ltd.	Revenue [1]	338,404	302,227	-	-
	Rental income	287	-	-	-
	Miscellaneous income	17	-	-	-
	Lease payment	-	-	4	4
	Interest expense	-	-	2	-
	Rental expense	-	-	31	-
Korea Midland Power Co., Ltd.	Revenue [1]	242,071	209,037	-	-
	Miscellaneous income	27	5	-	-
	Rental income	4	-	-	-
	Utility expenses and others	-	-	-	-
	Lease payment	-	-	374	325
	Interest expense	-	-	20	-
Korea Western Power Co., Ltd.	Revenue [1]	232,617	208,632	-	-
	Rental expense	-	-	71	-
	Utility expenses and others	-	-	248	257
	Lease payment	-	-	98	95
	Interest expense	-	-	6	5
Korea East-West Power Co., Ltd.	Revenue [1]	205,907	224,920	-	-
	Rental income	10	-	-	-
	Miscellaneous income	17	-	-	-
	Maintenance costs	-	-	89	21
	Lease payment	-	-	162	165
	Interest expense	-	-	4	-
Korea South-East Power Co., Ltd.	Revenue [1]	119,870	120,640	-	-
	Maintenance costs and others	-	-	58	62
KOSPO Youngnam Power Co., Ltd.	Revenue [1]	58,766	68,579	-	-

[1] Individual consumption taxes are included.

32. Related party transactions (cont'd)

2) Account balances, excluding loans and borrowings, with related parties as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

		Receivables		Payables	
Related party	Account	March 31, 2021 (Unaudited)	December 31, 2020	March 31, 2021 (Unaudited)	December 31, 2020
LNG Canada development	Non-trade receivables	₩ 278	₩ 258	₩ -	₩ -
Korea LNG Trading Co., Ltd.	Lease liabilities	-	-	459,217	440,784
	Current portion of lease liabilities	-	-	43,547	55,672
	Trade payables	-	-	9,933	11,036
	Accrued expense	-	-	2,721	2,760
	Prepaid expense	1,036	200	-	-
Hyundai Yemen LNG Company Limited	Accrued income	12,400	11,893	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	Trade payables	-	-	149	124
Terminal KMS de GNL, S. de R.L. de C.V.	Long-term non-trade receivables	237	254	-	-
	Trade receivables	-	3	-	-
ENH-KOGAS, SA.	Non-trade receivables	-	91	-	-
Korea Electric Power Corporation	Non-trade payables	-	-	2	3
	Accrued expense	-	-	6,658	9,587
Korea Southern Power Co., Ltd.	Trade receivables	123,912	117,253	-	-
	Lease liabilities	-	-	374	375
Korea Midland Power Co., Ltd.	Trade receivables	87,354	77,693	-	-
	Non-trade receivables	24	-	-	-
	Non-trade payables	-	-	662	-
	Lease liabilities	-	-	4,495	4,455
Korea Western Power Co., Ltd.	Trade receivables	91,834	96,248	-	-
	Non-trade payables	-	-	111	56
	Lease liabilities	-	-	1,228	1,270
Korea East-West Power Co., Ltd.	Trade receivables	57,526	72,143	-	-
	Lease liabilities	-	-	918	1,098
Korea South-East Power Co., Ltd.	Trade receivables	29,945	45,385	-	-
	Non-trade payables	-	-	8	40
KOSPO Youngnam Power Co., Ltd.	Trade receivables	23,611	20,658	-	-

32. Related party transactions (cont'd)

3) Loans to related parties as of March 31, 2021 and December 31, 2020, are as follows (Korean won in millions):

		March 31, 2021 (Unaudited)	December 31, 2020
Associates	Coral FLNG S.A.	176,053	163,274
	South-East Asia Gas Pipeline Company Limited	18,461	19,720
Joint ventures	ENH-KOGAS, SA.	7,203	6,914
	Hyundai Yemen LNG Company Limited	37,171	35,465
		₩ 238,888	₩ 225,373

4) Limits of financial commitments for loans to related parties as of March 31, 2021 are as follows (US dollars in thousands):

		Loan limit	
		March 31, 2021 (Unaudited)	
Joint ventures	Hyundai Yemen LNG Company Limited	USD	93,500
	ENH-KOGAS, SA.	USD	38,100
Associates	Coral FLNG S.A	USD	371,200
	South-East Asia Gas Pipeline Company Limited	USD	58,721

5) Fund transactions with related parties for the three-month period ended March 31, 2021 and for the year ended December 31, 2020, are as follows (Korean won in millions):

		2021 (Unaudited)			
		Loan transactions		Cash contribution	
Relationship	Related party	Loans	Repayments	Acquisitions	Disposals
Associates	Coral FLNG S.A.	₩ 5,570	₩ -	₩ -	₩ -
	South-East Asia Gas Pipeline Company Limited	-	(1,824)	-	-
Joint ventures	Sulawesi LNG Development Limited	-	-	-	(52,558)
	Hyundai Yemen LNG Company Limited	295	-	-	-
	KLBV1 S.A.	-	-	1,943	-

32. Related party transactions (cont'd)

5) Fund transactions with related parties for the three-month period ended March 31, 2021 and for the year ended December 31, 2020, are as follows (Korean won in millions) (cont'd):

		2020			
		Loan transactions		Cash contribution	
Relationship	Related party	Loans	Repayments	Acquisitions	Disposals
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 Pipeline Company Ltd	-	(7,455)	-	-
Joint ventures	Sulawesi LNG Development Limited	-	-	62	-
	Hyundai Yemen LNG Company Limited	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, its subsidiaries and associates in relation to the development of foreign resources as of March 31, 2021 and December 31, 2020.

32. Related party transactions (cont'd)

6) The payment guarantees provided to related parties as of March 31, 2021, 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	20,675	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	524,833	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 shipbuilding contract in Shell bunkering infrastructure supply business	USD	24,522	Hyundai Mipo Dockyard Co., Ltd

[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).

32. Related party transactions (cont'd)

7) The performance guarantees provided to related parties as of March 31, 2021, 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

8) Collaterals guarantees provided to related parties by the Group as of March 31, 2021, 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 47,436	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 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) Key management compensation for the three-month periods ended March 31, 2021 and 2020, consists of (Korean won in millions):

	2021 (Unaudited)	2020 (Unaudited)
Short-term employee benefits	₩ 620	₩ 757
Retirement benefits	23	24
	₩ 643	₩ 781

33. Purchase agreements

(1) As of March 31, 2021, the Group has acquisition commitments for up to ₩257,634 million (₩259,363 million as of December 31, 2020) 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, 2021, 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
Oman LNG L.L.C.	2000~2024	4,060
Sakhalin Energy Investment Company Ltd.	2008~2028	1,500
The East Sea 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	2018~2021	1,250
Marubeni	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. In relation to the agreement, the Group is required to obtain consents from the contracting parties with regard to the disposal of drilling rights (carrying amount of ₩ 53,090 million).

(4) As of March 31, 2021, the shareholders of KG-SEAGP Company Limited, the subsidiary of the Group, consist of the Corporation and PEF. The Corporation 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 Corporation to a third party.

(5) As of March 31, 2021, the shareholders of KG Myanmar Ltd., the subsidiary of the Group, consist of the Corporation and trustees. The Corporation can exercise the redemption right to the preferred stock of trustees 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 Corporation to a third party.

(6) As of March 31, 2021, the Group has purchase agreements in relation to overseas resource development business.

34. Commitments and contingencies

(1) The Group is involved in various lawsuits and claims for alleged damages totaling to ₩ 72,662 million, AUD 203 million and USD 6 million as of March 31, 2021, and ₩ 86,583 million, AUD 203 million and USD 27 million as of December 31, 2020 which arose in connection with the Group's ordinary course of business.

(2) Regarding the DSLNG price renegotiation, the Corporation has filed a claim for PT DONGGI-SENORO LNG as the arbitration site for Singapore, and the arbitration claim value is undecided.

(3) As described in Note 20, due to the result of the first trial on October 16, 2020, the Group lost the lawsuit and recognized ₩ 10,328 million as a provision for lawsuit as of March 31, 2021.

(4) As of March 31, 2021, except for 34.(3) 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.

(5) As of March 31, 2021, the Group has provided guarantees to others, excluding related parties, for the payment of debts amounting to ₩ 55,400 million, USD 74,797 thousand, KWD 26 thousand, CAD 1,597,670 thousand and EUR 1,540 thousand (USD 74,797 thousand, KWD 26 thousand, CAD 1,830,047 thousand and EUR 1,540 thousand as of December 31, 2020).

(6) Details of collateralized amounts of the Group as of March 31, 2021, 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]	₩	605,359	In connection with borrowings which Uz-Kor Gas chemical LLC invested by Kor-Uz Gas chemical borrowed 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		74,675[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, 2021, is USD 77,041 thousand)
			Equity Funding			47,406[4]	
Shell Canada Energy, Diamond LNG Canada Ltd., Brion Kitmat LNG partnership	2014.05.01	Until the end of the guarantee obligation	USD	575,072	USD	569,201	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] 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 equity instrument as of March 31, 2021, 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, 2021

34. Commitments and contingencies (cont'd)

(7) Details of commitments held by the Group as of March 31, 2021, 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	496
Foreign currency loan	The Korea Development Bank and other	USD	3,000,000	USD	1,610,708
Bank overdraft	KEB Hana Bank and other	KRW	450,000	KRW	-
General loan	Daegu Bank	KRW	100,000	KRW	-
Foreign currency commitment	KEB Hana Bank and other	CAD	5,740	CAD	-
		USD	652,911	USD	475,336
				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 commitments in Korean won	Seoul Guarantee Insurance Company	KRW	4,170	KRW	4,170
Commitments to letter of credit	KEB Hana Bank	USD	122,000	EUR	2,207
		CAD	2,500	CAD	2,500
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	89,447	AUD	82,915
		KRW	93,248	KRW	39,862
Industrial operation loan	KDB	KRW	2,463	KRW	1,463
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

34. Commitments and contingencies (cont'd)

(8) As of March 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 recognizes lease liabilities of ₩1,896,593 million related to the contract of long-term transportation as of March 31, 2021.

(9) 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.

(10) The Group entered into a settlement agreement (March 2, 2020) with Samsung Engineering Co., Ltd. for USD 10,000,000 (KOGAS Badra B.V.: USD 3,000,000) in connection with Samsung Engineering Co., Ltd.'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, Ovintiv (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.

(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 equipment 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 March 31, 2021.

(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.

(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 to proceed the LNG project. The termination fee amounts to CAD 185 thousand.

(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 275 thousand.

(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) In October 2019, the Group participated in LNG Canada Joint Venture Phase 2, which began operations in November 2019. In case the Phase 2 FID fails, CAD 250 thousand of contingent liabilities could be incurred in relation to the Phase 2 Define withdrawal.

(18) 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.

35. Adjustment in liabilities arising from financing activities

Details of adjustment in liabilities arising from financing activities for the three-month periods ended March 31, 2021 and 2020, are as follows (Korean won in millions):

	2021 (Unaudited)			
	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	(34,801)	-	847,690	(150,000)
Acquisition -New lease	433	5,040	-	-
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	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
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

35. Adjustment in liabilities arising from financing activities (cont'd)

Details of adjustment in liabilities arising from financing activities for the three-month periods ended March 31, 2021 and 2020, are as follows (Korean won in millions) (Cont'd):

	2020 (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	₩ 310,551	₩ 1,958,068	₩ 3,800,315	₩ -	₩ 2,346,906
Cash flows	(62,004)	-	142,685	-	(548,656)
Acquisition - New lease	-	71,093	-	-	-
Exchange differences	(334)	6,675	-	-	32,400
Other non-financial changes	42,862	68,450	-	-	150,209
Ending balance	₩ 291,075	₩ 2,104,286	₩ 3,943,000	₩ -	₩ 1,980,859

	2020 (Unaudited)				
	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	(533)	100,000	(34,123)	-	(402,631)
Acquisition - New lease	-	-	-	-	71,093
Exchange differences	9,853	421,096	(240)	(28,139)	441,311
Other non-financial changes	961	(148,484)	-	-	113,998
Ending balance	₩ 486,774	₩ 18,139,356	₩ 62	₩ (19,011)	₩ 26,926,401

EY 한영
Building a better working world

한영회계법인
서울특별시 영등포구 여의공원로 111, 태영빌딩 3-8F
07241

Tel: 02 3787 6600
Fax: 02 783 5890
ey.com/kr

Ernst & Young Han Young
Taeyoung Building, 111, Yeouigongwon-ro,
Yeongdeungpo-gu, Seoul 07241 Korea

Tel: +82 2 3787 6600
Fax: +82 2 783 5890
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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

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.

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- 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

Korea 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)

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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	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		Interest rate of contract		Exchange rate of contract
			Sell	Buy	Sell	Buy	
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	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		Impairment loss on loans	
			2020	2019	2020	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		2019	
	Current	Non-current	Current	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		2019	
	Current	Non-current	Current	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):

	Business	Country of in Group	Country of domicile	Fiscal year end	2020		
					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):

			2020		2019	
Lender	**Interest rate**	**Maturity**	**Foreign currency (USD)**	**Local currency (KRW)**	**Foreign currency (USD)**	**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			2019		
			Foreign currency		Local currency (KRW)	Foreign currency		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	-	-	-
			USD	5,700,000		USD	6,200,000	
			CHF	500,000		CHF	800,000	
Total			JPY	12,000	₩ 18,336,199	JPY	12,000	₩ 20,166,567
			EUR	88,000		EUR	88,000	
			HKD	450,000			-	
			USD	(39,108)		USD	(43,979)	
Less : Discount on debentures			CHF	(1,757)	₩ (47,418)	CHF	(2,422)	₩ (52,916)
			HKD	(8,550)		EUR	-	
			USD	5,660,892		USD	6,156,021	
			CHF	498,243		CHF	797,578	
Balance after deduction			JPY	12,000	₩ 18,288,781	JPY	12,000	₩ 20,113,651
			EUR	88,000		EUR	88,000	
			HKD	441,150			-	
Less : Current portion					₩ (2,004,000)			₩ (2,347,556)

List	Interest rate	Period	2020 Foreign currency	2020 Local currency (KRW)	2019 Foreign currency	2019 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 Minimum lease payments	2020 Present value of minimum lease payments	2019 Minimum lease payments	2019 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

	2019						
				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	₩ 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

	2019				
		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	₩ 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

	2019				
		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	₩ 1,958,845	₩ -	₩ -	₩ -	₩ 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 Banking 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
		CAD	2,500	CAD	2,500
Performance guarantee	Seoul Guarantee Insurance Company and other	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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한영회계법인
서울특별시 영등포구 여의공원로 111, 태영빌딩 3-8F
07241

Tel: 02 3787 6600
Fax: 02 783 5890
ey.com/kr

Ernst & Young Han Young
Taeyoung Building, 111, Yeouigongwon-ro,
Yeongdeungpo-gu, Seoul 07241 Korea

Tel: +82 2 3787 6600
Fax: +82 2 783 5890
ey.com/kr

Independent auditor's report

The Shareholders and Board of Directors
Korea Gas Corporation

Opinion

We have audited the consolidated financial statements of Korea Gas Corporation and its subsidiaries (the "Group"), which comprise the consolidated statements of financial position as of December 31, 2019 and 2018, 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, 2019 and 2018, 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 16 (3) 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.
- 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 testing of property, plant and equipment and intangible assets related to the resource development projects of KOGAS Prelude Pty Ltd. (hereinafter referred to as "Australia Prelude FLNG") and KOGAS Canada Ltd. (hereinafter referred to as "Canada Horn River").

As of December 31, 2019, property, plant and equipment and intangible assets related to the Australia Prelude FLNG and Canada Horn River resource development projects are ₩1,848,060 million in total.

As described in Note 3 (5) 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 Canada Horn River 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

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.

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- 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 19, 2020

This audit report is effective as of March 19, 2020, the independent auditor's report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the date of the independent auditor's report to the time this report is used. Such events and circumstances could significantly affect the accompanying consolidated financial statements and may result in modifications to this report.

Korea Gas Corporation and its subsidiaries
Consolidated statements of financial position
As of December 31, 2019 and 2018
(Korean won in millions)

	Notes	2019	2018
Assets			
Current assets:			
Cash and cash equivalents	5,6,46	₩ 257,101	₩ 239,767
Financial assets at fair value through profit or lo	7,8	11,090	4,611
Financial assets at amortized cost	11	100	408
Short-term loans	12	12,523	7,330
Short-term financial instruments	13	74,876	43,559
Derivative financial assets	8	-	1,078
Trade and other receivables	9,45,47	5,136,755	5,423,959
Short-term contract assets	19	6,001	5,904
Inventories	15	2,645,254	3,168,552
Current tax assets		3,754	139,491
Non-financial assets	16	1,085,310	889,725
Assets held-for-sale	41	-	558
		9,232,764	9,924,942
Non-current assets:			
Financial assets at fair value through profit or lo	7,8	1,617	20,875
Financial assets at fair value through other comprehensive income	10	125,968	56,732
Financial assets at amortized cost	11	367	374
Long-term loans	12	378,716	297,466
Long-term financial instruments	13	16	15
Derivative financial assets	8	22,427	-
Other financial assets	14	70,000	60,000
Long-term trade and other receivables	9,45,47	283,158	307,111
Property, plant and equipment	18	24,377,428	24,764,086
Intangible assets other than goodwill	20	1,746,628	1,771,871
Investments in associates and joint ventures	4,17	1,717,164	1,617,988
Net defined benefit assets	25	26,699	83,961
Deferred tax assets	40	859,646	755,510
Non-financial assets	16	469,257	28,760
		30,079,091	29,764,749
Total assets		**₩ 39,311,855**	**₩ 39,689,691**

(Continued)

Korea Gas Corporation and its subsidiaries
Consolidated statements of financial position
As of December 31, 2019 and 2018
(Korean won in millions)

	Notes	2019	2018
Liabilities			
Current liabilities:			
Trade and other payables	22,45	₩ 2,279,500	₩ 2,545,062
Financial liabilities at fair value through profit or	8,21	40,292	46,091
Short-term borrowings	23	3,800,315	3,682,824
Current portion of long-term borrowings	23	-	2,250
Current portion of debentures	23	2,346,906	2,592,901
Derivative financial liabilities	8	34,548	105,405
Short-term contract liabilities	19	31,586	13,399
Current tax liabilities	40	32,264	22,764
Non-financial liabilities	27,29	231,292	792,904
Provisions	26	103,840	67,593
		8,900,543	9,871,193
Non-current liabilities:			
Long-term trade and other payables	22,45	1,958,845	1,881,069
Financial liabilities at fair value through profit or	8,21	40,535	7,549
Long-term borrowings	23	476,493	265,318
Bonds	23	17,766,744	17,255,484
Derivative financial liabilities	8	32,817	63,534
Non-financial liabilities	16,29	48,875	57,634
Net defined benefit liabilities	25	20,048	14,228
Deferred tax liabilities	40	1,722,054	1,568,748
Provisions	26	198,380	206,950
		22,264,791	21,320,514
Total liabilities		**31,165,334**	**31,191,707**
Equity:			
Share capital	1,30	461,565	461,565
Share premium		1,303,548	1,303,548
Retained earnings	31	5,397,707	5,497,914
Hybrid bonds	33	-	308,157
Other components of equity	34	690,525	621,639
Equity attributable to owners of the parent		7,853,345	8,192,823
Non-controlling interests		293,176	305,161
Total equity		**8,146,521**	**8,497,984**
Total liabilities and equity		**₩ 39,311,855**	**₩ 39,689,691**

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, 2019 and 2018
(Korean won in millions)

	Notes	2019	2018
Revenue	4,35	₩ 24,982,640	₩ 26,185,038
Cost of sales	43	23,227,117	24,508,531
Gross profit		1,755,523	1,676,507
Selling and administrative expenses	37	421,009	399,648
Operating profit		1,334,514	1,276,859
Other income		2,967	2,812
Reversal of other provisions		28	25
Construction charges (non-operating)		90	236
Compensation and tender income		1,117	985
Rental income		1,732	1,566
Other expenses		57,937	37,828
Other bad debt expenses		-	984
Depreciation of assets not in use		16,974	11,296
Donations		18,828	18,835
Compensation and tender expenses		22,133	6,713
Others		2	-
Other gains (losses)	18,20,37	(465,782)	(54,048)
Finance income	38	450,977	493,830
Finance costs	39	1,253,031	1,237,108
Gains on investments in associates and joint ventures, net	17	104,667	204,462
Profit before income tax		116,375	648,979
Income tax expense	40	58,107	95,517
Profit from continuing operations		58,268	553,462
Loss from discontinued operations	42	-	(26,717)
Profit for the year		₩ 58,268	₩ 526,745
Other comprehensive income (loss), net of tax			
Items that will not be reclassified subsequently to profit or loss			
Remeasurement of deifned benefit plan		(15,646)	(597)
Loss on valuation of equity instruments at fair value through other comprehensive income		50,261	(83,065)
Items that will be reclassified subsequently to profit or loss			
Net loss on cash flow hedges		(58,427)	(97,019)
Foreign currency translation gain from foreign operations		128,891	144,115
Hedges of net investment in a foreign operations		(106,435)	(113,309)
Share of other comprehensive income of associates and joint ventures		59,939	30,819
		58,583	(119,056)
Total comprehensive income		₩ 116,851	₩ 407,689

(Continued)

Korea Gas Corporation and its subsidiaries
Consolidated statements of comprehensive income
for the years ended December 31, 2019 and 2018
(Korean won in millions)

	Notes	2019	2018
Profit for the year attributable to:			
Owners of the parent		₩ 38,764	₩ 509,350
Non-controlling interests		19,505	17,394
		58,269	526,744
Total comprehensive income attributable to:			
Owners of the parent		92,448	383,511
Non-controlling interests		24,404	24,177
		116,852	407,688
Earnings per share in Korean won from continuing operaitons	49		
Basic earnings per share		₩ 395	₩ 6,071
Diluted earnings per share		₩ 395	₩ 5,807
Loss per share in Korean won from discontinued operaitons			
Basic loss per share		₩ -	₩ (305)
Diluted loss per share		₩ -	₩ (289)

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, 2019 and 2018
(Korean won in millions)

	Share capital and share premium	Retained earnings	Hybrid bonds	Other components of equity	Total	Non-controlling interests	Total equity
As of January 1, 2018	₩ 1,765,113	₩ 4,601,193	₩ 308,157	₩ 1,138,876	₩ 7,813,339	₩ 327,075	₩ 8,140,414
Effect of changes in accounting policies	-	391,995	-	(391,995)	-	-	-
Beginning balance after adjustments	1,765,113	4,993,188	308,157	746,881	7,813,339	327,075	8,140,414
Comprehensive income							
Profit for the year	-	509,350	-	-	509,350	17,394	526,744
Other comprehensive income							
Remeasurement of defined benefit plan	-	(597)	-	-	(597)	-	(597)
Loss on valuation of equity instruments at fair value through other comprehensive income	-	-	-	(83,065)	(83,065)	-	(83,065)
Net loss on cash flow hedges	-	-	-	(97,019)	(97,019)	-	(97,019)
Hedges of net investment in foreign operation	-	-	-	(113,309)	(113,309)	-	(113,309)
Share of other comprehensive income of associates and joint ventures	-	-	-	30,819	30,819	-	30,819
Foreign currency translation gain from foreign operations	-	-	-	137,332	137,332	6,783	144,115
Transactions with owners of the parent:							
Dividends paid	-	-	-	-	-	(8,808)	(8,808)
Changes in scope of consolidation	-	-	-	-	-	(37,283)	(37,283)
Others (loss from hybrid bonds)	-	(4,027)	-	-	(4,027)	-	(4,027)
As of December 31, 2018	₩ 1,765,113	₩ 5,497,914	₩ 308,157	₩ 621,639	₩ 8,192,823	₩ 305,161	₩ 8,497,984
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 (Note 2)	-	27	-	-	27	-	27
Beginning balance after adjustments	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							
Remeasurement of defined benefit plan	-	(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)
Hedges of net investment in foreign operation	-	-	-	(106,435)	(106,435)	-	(106,435)
Share of other comprehensive income of associates and joint ventures	-	-	-	59,939	59,939	-	59,939
Foreign currecny translation gains from 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

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, 2019 and 2018

(Korean won in millions)

	2019	2018
Cash flows from operating activities:		
Profit for the year	₩ 58,269	₩ 526,745
Adjustments to reconcile profit for the year to net cash flow provided by operating activities:		
Income tax expense	58,107	95,517
Finance costs adjustments	804,642	785,374
Depreciation and amortization	1,735,257	1,802,713
Gain on foreign currency translation, net	(94,583)	(57,894)
Impairment loss recongnized in profit or loss	533,656	103,144
Loss on fair value	95,317	75,957
Loss (gain) on disposal of non-current assets	20,366	(6,359)
Others, net	25,972	(105,083)
Changes in operating assets and liabilities:		
Decrease (increase) in inventories	497,123	(1,615,533)
Decrease in trade receivables	211,141	30,293
Increase in other receivables	(538,183)	(887,798)
Increase (decrease) in trade payables	(136,743)	565,807
Increase in other payables	(704,528)	(205,507)
Net cash provided by operating activities	2,565,813	1,107,376
Dividends received	79,639	75,655
Interest paid	(835,839)	(853,110)
Interest received	8,097	26,426
Income taxes refunded (paid)	168,130	(299,261)
Net cash flows provided by operating activities	1,985,840	57,086
Cash flows from investing activities:		
Proceeds from disposal of equity or debt instruments	36,158	25,502
Acquisition of equity or debt instruments	(6,487)	-
Acquisition of investments in joint ventures	(54)	(63)
Proceeds from disposal of property, plant and equipment	(358)	46,696
Acquisition of property, plant and equipment	(1,222,798)	(1,193,778)
Receipt of government grants	1,446	792
Acquisition of intangible assets	(69,617)	(62,013)
Proceeds from disposal of assets held for sale	227	-
Proceeds from disposal of financial assets at amortized cost	66,484	433,960
Acquisition of financial assets at amortized cost	(78,885)	(431,180)
Increase in advanced payments and loans	(124,560)	(107,724)
Decrease in advanced payments and loans	27,652	27,717
Others, net	(26,242)	(15,084)
Net cash flows used in investing activities	(1,397,034)	(1,275,175)

(Continued)

Korea Gas Corporation and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2019 and 2018

(Korean won in millions)

	2019	2018
Cash flows from financing activities:		
Interest payment of hybrid bonds	(4,165)	(5,555)
Repayments of hybrid bonds	(308,600)	-
Proceeds from borrowings	26,929,383	16,729,179
Repayments of borrowings	(26,580,031)	(13,555,474)
Proceeds from issuance of debentures	2,582,418	1,023,759
Repayments of debentures	(2,593,202)	(2,817,830)
Payments of lease liabilities	(347,799)	(334,595)
Dividends paid	(133,660)	(8,842)
Decrease in non-controlling interest equity	(21,928)	(36,442)
Contract expiration of current portion of derivative financial assets	1,078	-
Contract expiration of current portion of derivative financial liabilities	(105,406)	-
Net cash flows provided by (used in) financing activities	(581,912)	994,200
Effects of exchange rate changes on cash and cash equivalents	10,440	22,379
Net increase(decrease) in cash and cash equivalents	17,334	(201,510)
Cash and cash equivalents at the beginning of the year	239,767	441,277
Cash and cash equivalents at the end of the year	₩ 257,101	₩ 239,767

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 Group was designated as "Market-type Public Group" on April 2, 2007.

The Corporation's stock was listed on the Korea Stock Exchange since December 15, 1999 and share capital as of December 31, 2019 amounts to ₩461,565 million. The shareholders of the Group and their shareholdings as of December 31, 2019 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%
Others	37,271,765	40.3%
	87,637,240	94.9%
Treasury stock	4,675,760	5.1%
	92,313,000	100.0%

1. General information (cont'd)

(1) Details of the consolidated subsidiaries as of December 31, 2019 and 2018, are as follows:

Subsidiary	Business	Country of incorporation	Country of domicile	Percentage of ownership (%)	
				2019	2018
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 Mansuriyah B.V.	Resource development	Netherlands	Iraq	100.00%	100.00%
KOGAS Canada Ltd.	Resource development	Canada	Canada	100.00%	100.00%
KOGAS Canada LNG Ltd.	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	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.	Resource development	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	60.94%	59.47%
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%

[1] The Corporation has the right to exercise 60.94% 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 36.84%.

1. General information (cont'd)

(2) Summarized financial information of consolidated subsidiaries as of December 31, 2019 and 2018, and the year ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019				
Subsidiary	Total assets	Total liabilities	Sales	Operating profit (loss)	Profit (loss) for the year
Korea Gas Technology Corporation	₩ 235,616	₩ 116,617	₩ 249,868	₩ 13,834	₩ 5,335
KOGAMEX Investment Manzanillo B.V.	106,147	82,268	-	(127)	(1,161)
KOMEX-GAS, S. de R.L. de C.V.	2,939	631	6,031	3,310	2,160
KOGAS Iraq B.V.	1,016,033	188,222	384,548	79,681	61,004
KOGAS Badra B.V.	577,038	41,883	205,755	15,237	20,821
KOGAS Akkas B.V.	43,477	12,415	-	(6,913)	70,454
KOGAS Mansuriyah B.V.	41	17	-	(258)	479
KOGAS Canada Ltd.	90,732	7,353	7,751	(10,448)	(126,690)
KOGAS Canada LNG Ltd.	435,287	194,117	-	(4,405)	2,442
KOGAS Australia Pty. Ltd[1]	3,671,314	3,316,321	623,163	85,653	(79,720)
KOGAS Prelude Pty. Ltd.	2,006,177	1,314,903	44,091	(25,130)	(351,960)
KG Timor Leste Ltd.	8,428	49,786	-	(13)	(1,367)
KG Krueng Mane Ltd.	-	71,841	-	(12)	(1,884)
KG Mozambique Ltd.	829,927	724,020	-	(7,482)	(21,962)
KOGAS Mozambique, Lda.	22,148	18,685	253	74	4,286
KOGAS Cyprus Ltd.	33,662	17	-	(91)	(1,235)
KC LNG Tech Co.,Ltd.	15,845	4,564	5,416	(2,958)	(2,323)
KG-SEAGP Company Limited	181,683	30	-	(86)	18,688
KG Myanmar Ltd.	323,952	1,965	-	(56)	9,041
KOGAS International Pte. Ltd.	3,659	1,975	326,223	1,742	1,543

[1] The summarized financial information of KOGAS Australia Pty. Ltd. includes the financial information of KGLNG E&P Pty Ltd., KGLNG E&P Ⅱ Pty Ltd. and KGLNG Liquefaction Pty Ltd., the subsidiaries.

	2018				
Subsidiary	Total assets	Total liabilities	Sales	Operating profit (loss)	Profit (loss) for the year
Korea Gas Technology Corporation	₩ 184,397	₩ 69,944	₩ 243,345	₩ 4,895	₩ 4,839
KOGAMEX Investment Manzanillo B.V.	99,433	75,205	-	(133)	3,040
KOMEX-GAS, S. de R.L. de C.V.	2,665	556	5,568	2,977	1,988
KOGAS Iraq B.V.	1,051,015	220,657	409,295	82,523	65,541
KOGAS Badra B.V.	760,887	37,300	382,240	13,864	19,333
KOGAS Akkas B.V.	4,816	14,684	-	(7,990)	(7,984)
KOGAS Mansuriyah B.V.	85	805	-	(615)	(1,599)
KOGAS Canada Ltd.	200,492	6,902	8,866	(7,804)	(35,074)
KOGAS Canada LNG Ltd.	287,437	58,567	-	(2,366)	471
KOGAS Australia Pty. Ltd[1]	3,601,358	3,182,070	554,657	93,306	(68,246)
KOGAS Prelude Pty. Ltd.	2,233,148	1,272,705	-	(3,175)	(16,474)
KG Timor Leste Ltd.	8,037	46,666	-	(19)	(1,261)
KG Krueng Mane Ltd.	-	67,571	-	(19)	(1,738)
KG Mozambique Ltd.	611,371	664,277	-	(4,148)	(13,011)
KOGAS Mozambique, Lda.	28,900	29,666	220	36	3,239
KOGAS Cyprus Ltd.	34,442	-	-	(546)	(88,834)
KC LNG Tech Co.,Ltd.	17,350	3,746	7,429	(4,705)	(3,827)
KG-SEAGP Company Limited	171,948	26	-	(36)	11,639
KG Myanmar Ltd.	354,896	2,555	-	(9)	14,771
KOGAS International Pte. Ltd.	35,674	35,528	79,485	(927)	(944)

[1] The summarized financial information of KOGAS Australia Pty. Ltd. includes the financial information of KGLNG E&P Pty Ltd., KGLNG E&P Ⅱ Pty Ltd. and KGLNG Liquefaction Pty Ltd., the subsidiaries.

(3) There was no change in the scope of consolidation during the year.

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 consolidated 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 judgment 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 has applied the following standards and amendments for the first time for their annual reporting period commencing January 1, 2019.

(1) Enactment of KIFRS 1116 *Leases*

This standard supersedes KIFRS 1017 *Leases*, KIFRIC 2104 *Determining whether an Arrangement contains a Lease*, KIFRIC 2015 *Operating Leases-Incentive*, KIFRIC 2027 *Evaluating the Substance of Transactions Involving the Legal.* The standard sets out the principles or the recognition, measurement, presentation and disclosure of leases and requires the lessee to account for most leases in accordance with a single model for recognizing assets and liabilities.

The Group adopted KIFRS 1116 using the modified retrospective method of adoption, with the date of initial application of January 1, 2019. Under this method, the cumulative effect of adopting KIFRS 1116 is reflected at the date of initial application. The Group elected to use the transition practical expedient to not reassess whether a contract is, or contains, a lease at January 1, 2019. Instead, the Group applied the standard only to contracts that were previously identified as leases applying KIFRS 1017 and KIFRIC 2104 at the date of initial application. The Group also elected to use the recognition exemptions for lease contracts that, at the commencement date, have a lease term of 12 months or less and do not contain a purchase option (short-term leases), and lease contracts for which the underlying asset is of low value (low-value assets). An explanation for the adoption impact of the new accounting policy and the practical expedient used by the Group is given in Note 52.

2.2.1 New and amended standards and interpretations (cont'd)

(2) Amendments of KIFRS 1109 *Financial Instruments*

Under KIFRS 1109, a debt instrument can be measured at amortized cost or at fair value through other comprehensive income, provided that the contractual cash flows are 'solely payments of principal and interest on the principal amount outstanding' (the SPPI criterion) and the instrument is held within the appropriate business model for that classification. The amendments to KIFRS 1109 clarify that a financial asset passes the SPPI criterion regardless of an event or circumstance that causes the early termination of the contract and irrespective of which party pays or receives reasonable compensation for the early termination of the contract. These amendments had no impact on the consolidated financial statements of the Group.

(3) Amendments of KIFRS 1019 *Employee benefits*

The amendments to KIFRS 1019 address the accounting when a plan amendment, curtailment or settlement occurs during a reporting period. The amendments specify that when a plan amendment, curtailment or settlement occurs during the annual reporting period, an entity is required to determine the current service cost for the remainder of the period after the plan amendment, curtailment or settlement, using the actuarial assumptions used to remeasure the net defined benefit liability (asset) reflecting the benefits offered under the plan and the plan assets after that event. An entity is also required to determine the net interest for the remainder of the period after the plan amendment, curtailment or settlement using the net defined benefit liability (asset) reflecting the benefits offered under the plan and the plan assets after that event, and the discount rate used to remeasure that net defined benefit liability (asset). These amendments had no impact on the consolidated financial statements of the Group.

(4) Amendments of KIFRS 1028 *Investments in Associates and Joint Ventures*

The amendments clarify that an entity applies KIFRS 1109 to long-term interests in an associate or joint venture to which the equity method is not applied but that, in substance, form part of the net investment in the associate or joint venture (long-term interests). This clarification is relevant because it implies that the expected credit loss model in KIFRS 1109 applies to such long-term interests. The amendments also clarified that, in applying KIFRS 1109, an entity does not take account of any losses of the associate or joint venture, or any impairment losses on the net investment, recognized as adjustments to the net investment in the associate or joint venture that arise from applying KIFRS 1028 *Investments in Associates and Joint Ventures.* These amendments had no impact on the consolidated financial statements of the Group.

(5) Enactment of KIFRS 2123 *Uncertainty over income tax treatments*

The revised KIFRS 2123 applies to the recognition and measurement of current and deferred income tax when uncertainty exists about whether the tax authorities will recognize the income tax treatment applied by the Group and includes guidance on the accounting unit of uncertainty in the handling of income tax and circumstances in which a reassessment is required. There is no material effect on the consolidated financial statements under the amendments of the Standard.

(6) Annual improvements 2015 - 2017 cycle

(a) KIFRS 1103 *Business Combination*

The amendments clarify that when a party to a joint arrangement obtains control of a business that is a joint operation, and had rights to the assets and obligations for the liabilities relating to that joint operation immediately before the acquisition date, the transaction is a business combination achieved in stages. These amendments had no impact on the consolidated financial statements of the Group.

2.2.1 New and amended standards and interpretations (cont'd)

(b) KIFRS 1111 *Joint arrangement*

The amendments made to KIFRS 1109 *Financial Instruments* enable entities to measure certain prepayable financial assets with negative compensation at amortized cost. When a modification of a financial liability measured at amortized cost that does not result in the derecognition, a modification gain or loss shall be recognized in profit or loss. These amendments have no effect on the consolidated financial statements.

(c) KIFRS 1012 *Income tax*

KIFRS 1012 in paragraph 57A (which specify when an income tax consequences of dividend is recognized and in which accounts it is recognized) applies to all the income tax consequences of dividends and requires an entity to recognize the income tax consequences of dividends in profit or loss, other comprehensive income or equity. These amendments have no effect on the consolidated financial statements.

(d) KIFRS 1023 *Borrowing Costs*

The amendments clarify that if a specific borrowing remains outstanding after the related qualifying asset is ready for its intended use (or sale), it becomes part of general borrowings. These amendments have no effect on the consolidated financial statements.

2.2.2 New standards and interpretations not yet adopted by the Group

Certain new accounting standards and interpretations that have been published that are not mandatory for annual reporting period commencing on January 1, 2020 and have not been early adopted by the Group are set out below

- Amendments to Conceptual Framework for Financial Reporting
- Definition of a Business (Amendments to KIFRS 1103 *Business Combinations)*
- Definition of Material (Amendments to KIFRS 1001 *Presentation of Financial Statements* and KIFRS 1008 *Accounting Policies, Changes in Accounting Estimates and Errors*)
- KIFRS 1117 *Insurance Contracts*

These new or amended standards above are expected to have no material effect on the consolidated financial statements.

2.3 Accounting policies

2.3.1 Revenue recognition

As of January 1, 2018, the Group applied KIFRS 1115, *Revenue from Contracts with Customers.*

Under the new KIFRS 1115, 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 matters related to performance obligations

Contractual arrangements with customers Other matters related to the principal performance obligations of the group 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) Cooperative agreement for facilities use

The service to transfer goods to the pre-agreed point of entry between the users and the group through the plumbing facilities of the group provides the use of a single plumbing facility, so no additional performance obligation is identified.

(iii) Provision of warranty rated to sales of goods

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.

(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

(e) 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.

(i) 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 described in Note 9 (3), the Group generally provides short-term lending to its customers, therefore contracts with customers do not include significant financial elements.

2.3.2 Leases

The Group has applied KIFRS 1116 using the modified retrospective approach and therefore the comparative information has not been restated and continues to be reported under KIFRS 1017 and KIFRIC 2104. The details of accounting policies under KIFRS 1017 and KIFRIC 2104 are disclosed separately.

- Policy applicable from January 1, 2019

At inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. To assess whether a contract conveys the right to control the use of an identified asset, the Group uses the definition of a lease in KIFRS 1116.

This policy is applied to contracts entered into, on or after January 1, 2019.

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 accounts for the lease and non-lease components as a single lease component.

The Group recognizes 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 Group has applied KIFRS 1116 using the modified retrospective approach. In order to provide information of change in significant accounting policies for the years ended December 31, 2019 and 2018, the details of both accounting policies under KIFRS 1116 (2019) and KIFRS 1017 (2018) are disclosed separately.

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 amortized 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 assets, 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 recognize right-of-use assets and lease liabilities for leases of low-value assets and short-term leases, including IT equipment. The Group recognizes 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 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 recognizes lease payments received under operating leases as income on a straight-line basis over the lease term as part of 'other income'.

Generally, the accounting policies applicable to the Group as a lessor in the comparative period were not different from KIFRS 1116 except for the classification of the sub-lease entered into during current reporting period that resulted in a finance lease classification.

- Policy applicable before January 1, 2019

A lease is an agreement, whereby the lessor conveys to the lessee, in return for a payment or series of payments, the right to use an asset for an agreed period of time. Leases in which a significant portion of the risks and rewards of ownership are not transferred to the Group are classified as operating leases. Payments made under operating leases are charge to profit or loss on a straight-line basis over the period of lease.

Leases where the Group, as lessee, has substantially all the risks and rewards of ownership are classified as finance leases. Finance leases are capitalized at the lease's inception at the fair value of the leased property or, if lower, the present value of the minimum lease payments. The corresponding rental obligations, net of finance charges, are included in finance lease assets and finance lease liabilities.

2.3.2 Leases (cont'd)

The Group determination to whether an arrangement is, or contains, a lease is based on the substance of the arrangement at the inception of the lease. The arrangement is, or contains, a lease if i) fulfilment of the arrangement is dependent on the use of a specific asset or assets and ii) the arrangement conveys a right to use the asset or assets, even if that right is not explicitly specified in an arrangement.

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 equities 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 consolidated 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 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, retirement 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 consolidated 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.

2.3.6 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.

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.

2.3.7 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.

2.3.8 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.

	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.

2.3.9 Intangible assets

2.3.10.1 Intangible assets acquired separately

Intangible assets, except for resource development with finite useful lives that is acquired 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 at acquisition 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.

2.3.10.2 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.

2.3.10.3 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.

2.3.11 Greenhouse emission rights

In accordance with *Act on the Allocation and Trading of Greenhouse-gas Emission Permits*, the Group accounts for the emission rights and emission liabilities as follows:

2.3.11.1 Greenhouse emission rights

Greenhouse emission rights consist of emission rights which gratuitously allocated by the government and purchasing emission rights. Emission rights are directly related to the acquisition of purchase cost and are recognized as cost by adding other costs incurred in normal course.

The Group holds emission rights for the purpose of executing its legal obligations. The emission rights are classified as intangible assets, but the current portion to be submitted to the government within one year from the end of the reporting period is classified as current assets.

The Group derecognizes the greenhouse-gas emissions rights when it is no longer expected to have future economic benefits as the greenhouse-gas emission rights are submitted to the government, disposed, or unusable.

2.3.11.2 Emission liabilities

Emission liabilities is a present obligation to submit the emission right to the government by releasing greenhouse-gas, and the Group recognizes emission liabilities when it is probable that an outflow of resources will be required to settle the obligation and a reliable estimate can be made. Emission liabilities are measured by adding the carrying amount held by the Group which to be submitted to the government for the corresponding year and the expenditure expected to be used in order to settle the obligation in relation to the emission exceeding the amount of emission rights. Emission liabilities are derecognized when submitted to the government.

2.3.12 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.

2.3.13 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.

2.3.14 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.

2.3.15 Financial assets

2.3.15.1 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.

2.3.15.2 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.

2.3.15.2.1 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.

2.3.15 Financial assets(cont'd)

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'.

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.

2.3.15.2.2 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 consolidated comprehensive income as applicable. Impairment loss (reversal of impairment loss) on equity investments measured at fair value through other comprehensive income are not reported separately from other changes in fair value.

2.3.15.3 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.

2.3.15.4 Derecognition

Financial assets are derecognized 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.

2.3.16. Financial liabilities

2.3.16.1 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.

2.3.16.2 Derecognition

Financial liabilities are removed from the consolidated 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.

2.3.17. 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.

2.3.17.1 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.

2.3.17.2 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 consolidated 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.

2.3.17.3 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 consolidated 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.

2.3.18. 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 KIFRS 1115, *Revenue from contracts with customers*

2.4 Approval of Issuance of the consolidated financial statements

The consolidated financial statements 2019 were approved for issue by the Board of Directors on February 28, 2020 and are subject to change with the approval of shareholders at their Annual General Meeting.

3. Significant accounting estimates and assumptions

The preparation of financial statements requires the Group to make estimates and assumptions concerning the future. Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances. The resulting accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are discussed below.

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.

3.2 Fair value of financial instruments

The fair value of financial instruments that are not traded in an active market is determined by using valuation techniques. The Group uses its judgment to select a variety of methods and make assumptions that are mainly based on market conditions existing at the end of each reporting period. Refer to Note 46 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 26).

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 25.

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 20.(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, 2019 and 2018, are as follows (Korean won in millions):

	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	1,853,098	(594,294)	1,258,804	141,551	610,657
Adjustments[1]	-	-	-	7,206	(4,697)
	₩ 25,756,945	₩ (774,306)	₩ 24,982,639	₩ 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.

	2018				
	Total revenue	Inter-segment revenue	External revenue	Operating profit[1]	Depreciation and amortization[1]
Natural gas wholesale	₩ 24,985,604	₩ (34,270)	₩ 24,951,334	₩ 1,108,698	₩ 1,101,889
Others	1,691,105	(457,402)	1,233,703	165,107	701,705
Adjustments[1]	-	-	-	3,054	(874)
	₩ 26,676,709	₩ (491,672)	₩ 26,185,037	₩ 1,276,859	₩ 1,802,720

[1] Changes from elimination of intra-group transactions in reportable segment operating profit and depreciation are presented as adjustments.

(3) Details of assets and liabilities of operating segments as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	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 and joint ventures 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)

	2018			
	Assets	Investments in associates and joint ventures[1]	Acquisition of non-current assets[2]	Liabilities
Natural gas wholesale	₩ 37,771,849	₩ 1,454,860	₩ 1,019,924	₩ 30,690,775
Others	9,688,352	163,128	743,940	5,789,430
Adjustments[3]	(7,770,509)	-	-	(5,288,497)
	₩ 39,689,692	₩ 1,617,988	₩ 1,763,864	₩ 31,191,708

[1] Investments in associates and joint vetures 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 years ended December 31, 2019 and 2018, and details of non-current assets as of December 31, 2019 and 2018, by geographic locations are as follows (Korean won in millions):

	External revenue from customers		Non-current assets[1]	
	2019	2018	2019	2018
Republic of Korea	₩ 23,648,264	₩ 24,940,647	₩ 19,392,260	₩ 19,578,294
Mexico	6,031	5,568	3	7
Australia	412,143	340,188	4,440,647	4,742,967
Canada	7,751	8,866	379,446	322,268
Iraq	590,302	791,535	1,151,266	1,224,989
Mozambique	253	220	533,992	423,343
Timor	-	-	8,428	8,037
Cyprus	-	-	24,522	25,057
Singapore	197,633	34,476	464	85
Myanmar	120,262	63,537	212,911	226,566
	₩ 24,982,639	₩ 26,185,037	₩ 26,143,939	₩ 26,551,613

[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):

	2019	2018
Cash on hand	₩ 2,421	₩ 2,175
Demand deposits	257,680	188,540
Short-term deposits classified as cash equivalents	-	49,052
Government grants	(3,000)	-
	₩ 257,101	₩ 239,767

6. Restricted financial assets

Restricted financial assets as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	Description	2019	2018
Cash and cash equivalents	Restriction in use	₩ 21,835	₩ 105
	Restriction in use for special purpose business	15,441	19,505
Short-term financial instruments	Restriction in use	-	22,362
		₩ 37,276	₩ 41,972

7. Financial assets at fair value through profit or loss

Financial assets at fair value through profit or loss('FVTPL') as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019		2018	
	Current	Non-current	Current	Non-current
Financial assets at FVTPL:				
Derivative held for trading	₩ 990	₩ -	₩ 311	₩ 18,551
Beneficiary certificate	10,100	-	4,300	732
Debt instruments	-	1,617	-	1,592
	₩ 11,090	₩ 1,617	₩ 4,611	₩ 20,875

8. Derivative instruments

(1) Details of derivative instruments as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019		2018	
	Current	Non-current	Current	Non-current
Derivative financial assets:				
Currency forwards	₩ 990	₩ -	₩ 1,388	₩ -
Currency swaps	-	22,427	-	18,551
Total[1]	₩ 990	₩ 22,427	₩ 1,388	₩ 18,551

	2019		2018	
	Current	Non-current	Current	Non-current
Derivative financial liabilities:				
Currency forwards	₩ (56,278)	₩ (1,262)	₩ (18,803)	₩ (3,651)
Currency swap	(18,260)	(68,063)	(132,693)	(64,982)
Interest rate swap	(302)	(4,027)	-	(2,450)
Total[1]	₩ (74,840)	₩ (73,352)	₩ (151,496)	₩ (71,083)

[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, 2019, are as follows (Korean won and Japanese yen in millions, and US dollars, Euro, and Confoederatio Helvetica Franc in thousands):

Purpose	Financial institutions	Contract Period	Amount of contract		Interest rate of contract		Exchange rate of contract
			Sell	Buy	Sell	Buy	
Trading	BNP Paribas	2013.02~2020.02	USD 108,613	KRW 118,801	2.54%	3.11%	USD 1 = KRW 1,093.8
	Credit Suisse	2013.02~2020.02	USD 108,613	KRW 118,801	2.55%	3.11%	USD 1 = KRW 1,093.8
	JP Morgan	2013.02~2020.02	USD 108,613	KRW 118,801	2.54%	3.11%	USD 1 = KRW 1,093.8
	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
Cash flow hedge	BNP Paribas	2013.02~2020.02	KRW 118,801	CHF 100,000	3.11%	1.13%	CHF 1 = KRW 1,188.0
	Credit Suisse	2013.02~2020.02	KRW 118,801	CHF 100,000	3.11%	1.13%	CHF 1 = KRW 1,188.0
	JP Morgan	2013.02~2020.02	KRW 118,801	CHF 100,000	3.11%	1.13%	CHF 1 = KRW 1,188.0
	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, 2019, are as follows (Korean won in millions)

Purpose	Financial institutions	Period	Amount		Interest rate of contract	
					Sell	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%
Cash flow hedge	Morgan Stanley	2010.09~2020.09	KRW	20,000	4.69%	Min{10.0%, Max[2.0%,(28X index)]}

8. Derivative instruments (cont'd)

(4) Details of foreign currency forward contract as of December 31, 2019, 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	2019-12-05	2020-01-02	KRW	118,970	USD	100,000	1,189.70
	NongHyup	2019-12-30	2020-01-03	KRW	57,894	USD	50,000	1,157.87
	KEB Hana Bank	2019-12-05	2020-01-06	KRW	118,957	USD	100,000	1,189.57
	Daegu Bank	2019-12-30	2020-01-06	KRW	46,312	USD	40,000	1,157.80
	Bank of America	2019-12-30	2020-01-07	KRW	69,467	USD	60,000	1,157.78
	Mizuho Bank	2019-12-30	2020-01-07	KRW	69,467	USD	60,000	1,157.78
	Daegu Bank	2019-12-05	2020-01-08	KRW	136,789	USD	115,000	1,189.47
	Daegu Bank	2019-12-06	2020-01-10	KRW	73,719	USD	62,000	1,189.02
	KEB Hana Bank	2019-12-09	2020-01-13	KRW	78,437	USD	66,000	1,188.44
	Daegu Bank	2019-12-10	2020-01-14	KRW	63,134	USD	53,000	1,191.21
	KEB Hana Bank	2019-12-30	2020-01-15	KRW	78,707	USD	68,000	1,157.45
	KEB Hana Bank	2019-12-11	2020-01-15	KRW	38,160	USD	32,000	1,192.50
	Woori Bank	2019-12-12	2020-01-16	KRW	53,451	USD	45,000	1,187.80
	Shinhan Bank	2019-12-12	2020-01-17	KRW	53,447	USD	45,000	1,187.72
	KEB Hana Bank	2019-12-12	2020-01-20	KRW	53,447	USD	45,000	1,187.70
	KDB	2019-12-12	2020-01-21	KRW	29,690	USD	25,000	1,187.60
	Bank of America	2019-12-12	2020-01-21	KRW	24,585	USD	20,700	1,187.68
	KEB Hana Bank	2019-12-17	2020-01-22	KRW	111,925	USD	96,000	1,165.89
	Daegu Bank	2019-12-18	2020-01-23	KRW	65,184	USD	56,000	1,164.00
	Daegu Bank	2019-12-18	2020-01-23	KRW	3,502	USD	3,000	1,167.22
	Nova scotia	2019-12-19	2020-01-28	KRW	43,045	USD	37,000	1,163.38
	KDB	2019-12-19	2020-01-29	KRW	46,530	USD	40,000	1,163.24
	Daegu Bank	2019-12-19	2020-01-30	KRW	93,058	USD	80,000	1,163.23
	KEB Hana Bank	2019-12-19	2020-01-31	KRW	93,057	USD	80,000	1,163.21
	Daegu Bank	2019-12-23	2020-02-03	KRW	58,032	USD	50,000	1,160.63
	Daegu Bank	2019-12-23	2020-02-04	KRW	61,512	USD	53,000	1,160.61
	KEB Hana Bank	2019-12-23	2020-02-06	KRW	81,216	USD	70,000	1,160.23
	KEB Hana Bank	2019-12-24	2020-02-07	KRW	17,432	USD	15,000	1,162.15
	KEB Hana Bank	2019-12-26	2020-02-10	KRW	115,928	USD	100,000	1,159.28
	KEB Hana Bank	2019-12-30	2020-02-11	USD	60,000	KRW	69,318	1,155.30
	Daegu Bank	2019-12-26	2020-02-11	KRW	159,977	USD	138,000	1,159.25
	KEB Hana Bank	2019-07-29	2020-01-30	USD	50,172	KRW	59,047	1,176.90
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
	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)

KEB Hana Bank	2018-11-07	2020-09-04	USD	3,855	CAD	5,000	1.30
KEB Hana Bank	2018-11-07	2020-08-04	USD	3,852	CAD	5,000	1.30
KEB Hana Bank	2018-11-07	2020-07-03	USD	3,850	CAD	5,000	1.30
KEB Hana Bank	2018-11-07	2020-05-04	USD	3,846	CAD	5,000	1.30
KEB Hana Bank	2018-11-07	2020-04-03	USD	3,843	CAD	5,000	1.30
KEB Hana Bank	2018-11-07	2020-03-04	USD	3,841	CAD	5,000	1.30
DBS	2019-11-21	2020-02-21	KRW	22,509	USD	19,171	1,174.10
DBS	2019-11-22	2020-02-24	KRW	39,375	USD	33,502	1,175.30
DBS	2019-11-25	2020-02-25	KRW	39,134	USD	33,342	1,173.70
Nova scotia	2019-11-25	2020-02-26	KRW	48,996	USD	41,745	1,173.70
DBS	2019-11-26	2020-02-26	KRW	37,986	USD	32,411	1,172.00
DBS	2019-11-29	2020-02-28	KRW	24,162	USD	20,509	1,178.10
DBS	2019-11-29	2020-02-28	KRW	20,350	USD	17,274	1,178.10
DBS	2019-11-28	2020-02-28	KRW	38,535	USD	32,738	1,177.10
KDB	2019-12-12	2020-02-10	KRW	44,709	USD	37,514	1,191.80
KDB	2019-12-13	2020-02-11	KRW	19,668	USD	16,569	1,187.00
DBS	2019-12-02	2020-03-02	KRW	84,258	USD	71,514	1,178.20
KEB Hana Bank	2019-12-02	2020-03-03	KRW	236,916	USD	201,100	1,178.10
BNP Paribas	2019-12-04	2020-03-04	KRW	24,033	USD	20,177	1,191.10
BNP Paribas	2019-12-04	2020-03-04	KRW	39,844	USD	33,452	1,191.10
BNP Paribas	2019-12-04	2020-03-04	KRW	46,175	USD	38,767	1,191.10
Bank of America	2019-12-04	2020-03-05	KRW	38,728	USD	32,517	1,191.02
KEB Hana Bank	2019-12-04	2020-03-05	KRW	239,508	USD	201,093	1,191.03
Bank of America	2019-12-05	2020-03-06	KRW	39,742	USD	33,460	1,187.75
Shinhan Bank	2019-12-09	2020-03-06	KRW	41,898	USD	35,282	1,187.50
Bank of America	2019-12-06	2020-03-09	KRW	38,143	USD	32,118	1,187.60
DBS	2019-12-11	2020-03-11	KRW	39,813	USD	33,425	1,191.10
DBS	2019-12-11	2020-03-11	KRW	38,883	USD	32,645	1,191.10
DBS	2019-12-12	2020-03-12	KRW	27,598	USD	23,262	1,186.40
DBS	2019-12-13	2020-03-13	KRW	37,456	USD	32,027	1,169.50
KDB	2019-12-23	2020-03-20	KRW	27,133	USD	23,390	1,160.06
KDB	2019-12-23	2020-03-20	KRW	81,643	USD	70,378	1,160.06
KDB	2019-12-23	2020-03-20	KRW	41,681	USD	35,930	1,160.06
KDB	2019-12-24	2020-03-23	KRW	23,281	USD	20,088	1,158.95
KEB Hana Bank	2019-12-24	2020-03-24	KRW	151,523	USD	130,725	1,159.10
KEB Hana Bank	2019-12-26	2020-03-27	KRW	81,517	USD	70,395	1,158.00

8. Derivative instruments(cont'd)

(5) Gain or loss on valuation of derivatives for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	Valuation gain (loss)		Transaction gain (loss)		Changes in accumulated other comprehensive income (loss)	
	2019	2018	2019	2018	2019	2018
Foreign currency forwards	₩ (25,113)	₩ (10,590)	₩ 54,156	₩ 58,150	₩ (137)	₩ 4,709
Foreign currency swap	(67,018)	(59,342)	(23,783)	-	2,506	(16,558)
Interest rate swap	(2,358)	(1,669)	(401)	(372)	479	260
	₩ (94,489)	₩ (71,601)	₩ 29,972	₩ 57,778	₩ 2,848	₩ (11,589)

As of December 31, 2019, losses on valuation of derivatives amounting to ₩10,527 million (2018: ₩12,603 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, 2019 and 2018, losses on valuation of hedging instruments amounts to ₩(-)83,453 million and ₩(-)122,231 million, respectively, and losses on valuation of hedging instruments recognized in other comprehensive income are net of tax effect amounting to ₩(-)60,503 million and ₩(-)88,618 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, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Net losses on hedges of net investment in foreign operation, net of income tax	₩ (106,435)	₩ (113,309)

(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 46.

As of December 31, 2019, 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, and US dollars, Canada dollars, Euro and Confoederatio Helvetica Franc in thousands):

	Currency	Contract amount	Description
Foreign currency swap	CHF	800,000	Purchase amount
	EUR	88,000	
	JPY	12,000	
Interest rate swap	KRW	20,000	Interest amount
Foreign currency forwards	USD	1,456,520	Purchase amount
	CAD	115,000	Purchase amount

Because the terms of interest rate swaps, 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, 2019, there is no ineffective portion of hedge accounting.

9. Trade and other receivables

(1) Trade and other receivables as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019				2018			
	Principal	Allowance for doubtful accounts	Present value discount	Book value	Principal	Allowance for doubtful accounts	Present value discount	Book value
Current:								
Trade receivables	₩ 4,993,137	₩ (19,233)	₩ (2)	₩ 4,973,902	₩ 5,190,225	₩ (19,077)	₩ (30)	₩ 5,171,118
Other receivables	163,888	(1,035)	-	162,853	253,841	(1,000)	-	252,841
	5,157,025	(20,268)	(2)	5,136,755	5,444,066	(20,077)	(30)	5,423,959
Non-current:								
Trade receivables	-	-	-	-	1,440	(773)	(142)	525
Other receivables	283,158	-	-	283,158	306,587	-	-	306,587
	283,158	-	-	283,158	308,027	(773)	(142)	307,112
	₩ 5,440,183	₩ (20,268)	₩ (2)	₩ 5,419,913	₩ 5,752,093	₩ (20,850)	₩ (172)	₩ 5,731,071

(2) Other receivables as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019				2018			
	Principal	Allowance for doubtful accounts	Present value discount	Book value	Principal	Allowance for doubtful accounts	Present value discount	Book value
Current:								
Non-trade receivables	₩ 145,381	₩ (1,035)	₩ -	₩ 144,346	₩ 237,378	₩ (1,000)	₩ -	₩ 236,378
Accrued income	18,335	-	-	18,335	16,329	-	-	16,329
Deposits	172	-	-	172	134	-	-	134
	163,888	(1,035)	-	162,853	253,841	(1,000)	-	252,841
Non-current:								
Non-trade receivables	158,860	-	-	158,860	195,257	-	-	195,257
Deposits	124,298	-	-	124,298	111,330	-	-	111,330
	283,158	-	-	283,158	306,587	-	-	306,587
	₩ 447,046	₩ (1,035)	₩ -	₩ 446,011	₩ 560,428	₩ (1,000)	₩ -	₩ 559,428

9. Trade and other receivables (cont'd)

(3) Credit risk and allowance for doubtful accounts

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 recognizes 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, 2019.

Trade receivables and contract assets are derecognized if recovery can no longer be reasonably expected. Indicators that are no longer reasonably expected to be recovered include those that do not comply with debt settlement with the Group, and do not pay contractual cash flows for more over 120 days.

Impairment losses on trade receivables and contract assets are presented as net of bad debt expense in the consolidated statement of comprehensive income. Subsequent withdraw of the amount deducted is recognized as a deduction for the same account.

1) The aging analysis of trade receivables as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Receivables that are neither past due nor impaired	₩ 4,972,936	₩ 5,170,583
Receivables that are past due but not impaired		
45~60 days	-	-
60~90 days	182	24
90~120 days	156	24
Over 120 days	-	-
Receivables tested for the impairment		
60~90 days	132	87
90~120 days	189	-
Over 120 days	19,542	20,948
Subtotal	4,993,137	5,191,666
Less: allowance for doubtful accounts	(19,233)	(19,850)
Less: present value discount	(2)	(173)
Total	₩ 4,973,902	₩ 5,171,643

9. Trade and other receivables(cont'd)

2) The aging analysis of other receivables as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Receivables that are neither past due nor impaired	₩ 446,002	₩ 559,428
Receivables that are past due but not impaired		
60~90 days	-	-
90~120 days	-	-
Receivables tested for the impairment		
90~120 days	1,044	1,000
Subtotal	447,046	560,428
Less: allowance for doubtful accounts	(1,035)	(1,000)
Total	₩ 446,011	₩ 559,428

3) Changes in allowance for doubtful accounts on trade and other receivables during the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019		2018	
	Trade receivables	Other receivables	Trade receivables	Other receivables
Beginning balance	₩ (19,850)	₩ (1,000)	₩ (1,649)	₩ -
Bad debt expenses for impaired receivables	(542)	-	(18,899)	(1,000)
Write-off of trade and other receivables	133	-	-	-
Reversal of unused amount	1,642	-	976	-
Others (effect of exchange rate)	(616)	(35)	(278)	-
Ending balance	₩ (19,233)	₩ (1,035)	₩ (19,850)	₩ (1,000)

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, 2019 and 2018, are as follows (Korean won in millions):

	2019					
	Beginning balance	Acquisition	Disposals	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 46.

	2018					
	Beginning balance	Acquisition	Disposals	Valuation	Others	Ending balance
Unlisted equity securities[1]	₩ 171,315	₩ -	₩ -	₩ (114,853)	₩ -	₩ 56,732
	171,315	-	-	(114,853)	-	56,732
Non-current other financial assets at FVOCI	₩ 171,315	₩ -	₩ -	₩ (114,853)	₩ -	₩ 56,732

[1] Details of fair value measurement are disclosed in Note 46.

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, 2019 and 2018, are as follows (Korean won in millions):

	2019				
	Number of shares	Percentage of ownership	Acquisition cost	Book value	Fair value
Unlisted shares					
K.K.Korea Kamchatka Co. Ltd. [1]	328	10%	₩ -	₩ -	₩ -
Yemen LNG Company Limited	1,500	6%	19,355	125,694	125,694
Kor-Kaz CNG Investment Limited	691,985	8%	798	274	274
Primorsky Gaz[2]	-	-	-	-	-
			₩ 20,153	₩ 125,968	₩ 125,968

[1] Acquisition cost, book value and fair value of this financial assets are ₩ 1,000.
[2] Primorsky Gaz has been disposed during the year ended December 31, 2019.

	2018				
	Number of shares	Percentage of ownership	Acquisition cost	Book value	Fair value
Unlisted shares					
K.K.Korea Kamchatka Co. Ltd. [1]	328	10%	₩ -	₩ -	₩ -
Yemen LNG Company Limited	1,500	6%	19,355	56,148	56,148
Primorsky Gaz[2]	586	2%	104	104	104
Kor-Kaz CNG Investment Limited	691,985	8%	798	480	480
			₩ 20,257	₩ 56,732	₩ 56,732

[1] Acquisition cost, book value and fair value of this financial assets are ₩ 1,000.
[2] These financial assets have been measured at cost because the difference between the fair value and carrying amount is not significant.

11. Financial assets at amortized cost

(1) Changes in financial assets measured at amortized cost as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019					
	Beginning balance	Acquisition	Disposals	Valuation	Others[1]	Ending balance
Government and public bond	₩ 782	₩ 126	₩ (442)	₩ -	₩ -	₩ 466
	₩ 782	₩ 126	₩ (442)	₩ -	₩ -	₩ 466
Current financial assets at amortized cost	₩ 408	₩ 34	₩ (442)	₩ -	₩ 100	₩ 100
Non-current financial assets at amortized cost	374	93	-	-	(100)	367

[1] Transfer to current portion of its financial assets

11. Financial assets at amortized cost (cont'd)

	2018					
	Beginning balance	Acquisition	Disposals	Valuation	Others[1]	Ending balance
Government and public bond	₩ 1,405	₩ 103	₩ (726)	₩ -	₩ -	₩ 782
	₩ 1,405	₩ 103	₩ (726)	₩ -	₩ -	₩ 782
Current financial assets at amortized cost	₩ 726	₩ -	₩ (726)	₩ -	₩ 408	₩ 408
Non-current financial assets at amortized cost	679	103	-	-	(408)	374

[1] Transfer to current portion of its financial assets

(2) Details of financial assets at amortized cost as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019			
	Financial assets at amortized cost	Allowance for doubtful accounts	Others	Book value
Government and public bond	₩ 466	₩ -	₩ -	₩ 466
	₩ 466	₩ -	₩ -	₩ 466
Current financial assets at amortized cost	100	-	-	100
Non-current financial assets at amortized cost	367	-	-	367

	2018			
	Financial assets at amortized cost	Allowance for doubtful accounts	Others	Book value
Government and public bond	₩ 782	₩ -	₩ -	₩ 782
	₩ 782	₩ -	₩ -	₩ 782
Current financial assets at amortized cost	408	-	-	408
Non-current financial assets at amortized cost	374	-	-	374

12. Loans

(1) Details of long-term loans as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	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, 2019) 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.

	2018				
	Face value	Present value discount	Present value premium	Allowance for doubtful accounts	Book value
Student loans[1]	₩ 7,004	₩ -	₩ -	₩ -	₩ 7,004
Employee shareholders loans[2]	2,173	-	-	-	2,173
Housing loans[3]	20,910	-	-	-	20,910
Housing lease support loans[4]	21,679	-	-	-	21,679
Associates	142,859	(29,988)	-	-	112,871
Joint ventures	50,241	-	-	-	50,241
Others	118,394	-	-	(28,476)	89,918
	₩ 363,260	₩ (29,988)	₩ -	₩ (28,476)	₩ 304,796
Short-term loans	₩ 7,330	₩ -	₩ -	₩ -	₩ 7,330
Long-term loans	355,930	(29,988)	-	(28,476)	297,466

[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 and joint ventures and other loans as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	Maturity	Interest rate	Book value		Bad debt expenses recognized	
			2019	2018	2019	2018
Associates :						
Coral FLNG S.A.	2035	-	₩ 136,656	₩ 78,959	₩ -	₩ -
Coral South FLNG DMCC	2019	-	-	112	-	-
South East Asia Gas Pipeline Company Ltd.	After CTD('13.12) 1 year grace period, 8 years repayment of principal	10.00%	27,959	33,800	-	-
Joint Ventures						
Hyundai Yemen LNG Company Limited	In case YLNG Project has repayable cash	Interest-free	13,152	9,179	-	-
		Min{ Weighted average of YLNG PF interest rate after May, 2008 - 1%, 8%}	16,682	16,110	-	-
		Libor+5%	2,664	1,689	-	-
	In case of receiving dividends when the project has distributable cash	10%	1,851	1,851	-	-
			128	104	-	-
ENH KOGAS S.A.	2020	-	11,036	21,308	-	-
Others:						
Yemen LNG Company Limited	In case YLNG Project has repayable cash	Interest-free	8,364	8,077	-	-
		Min{ Weighted average of YLNG PF interest rate after May, 2008 - 1%, 8%}	27,399	19,123	-	-
		Libor+5%	5,550	3,519	-	-
Empresa Nacional de Hidrocarbonetos, E.P	-	8.7%	2,309	129	-	-
	-	Libor+1%	80,586	59,071	-	-

13. Long-term and short-term financial instruments

Details of long-term and short-term financial instruments as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019		2018	
	Current	Non-current	Current	Non-current
Financial instruments	₩ 74,876	₩ 16	₩ 43,559	₩ 15

14. Other financial assets

Details of other financial assets as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019		2018	
	Current	Non-current	Current	Non-current
Fund management deposits	₩ -	₩ 70,000	₩ -	₩ 60,000

15. Inventories

Details of inventories as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019				2018			
	Acquisition cost	Government grants	Loss on valuation allowance	Book value	Acquisition cost	Government grants	Loss on valuation allowance	Book value
Raw materials	₩ 1,959,863	₩ -	₩ -	₩ 1,959,863	₩ 2,655,144	₩ -	₩ -	₩ 2,655,144
Finished goods	73,790	-	(5,129)	68,661	81,955	-	-	81,955
Supplies	73,719	-	-	73,719	61,129	-	-	61,129
Goods in transit	543,011	-	-	543,011	370,324	-	-	370,324
	₩ 2,650,383	₩ -	₩ (5,129)	₩ 2,645,254	₩ 3,168,552	₩ -	₩ -	₩ 3,168,552

16. Non-financial assets

(1) Details of non-financial assets as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019		2018	
	Current	Non-current	Current	Non-current
Advanced payments	₩ 38,459	₩ -	₩ 40,698	₩ -
Prepaid expenses	12,771	5	13,525	1,212
Greenhouse gas emission rights	174	-	-	-
Other non-financial assets	1,033,906	469,253	835,502	27,548
	₩ 1,085,310	₩ 469,258	₩ 889,725	₩ 28,760

(2) Details of other non-financial assets as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019		2018	
	Current	Non-current	Current	Non-current
Special consumption tax	₩ 135,342	₩ -	₩ 187,978	₩ -
Deposits	2,098	-	2,060	-
Others[1]	896,466	469,253	645,464	27,548
	₩ 1,033,906	₩ 469,253	₩ 835,502	₩ 27,548

[1] The Group has the right to purchase land for the LNG Canada business and, in connection with this, has recognized USD 3 million as other non-current non-financial assets. In addition, USD 23 million accruing to LNG Canada business pipeline construction is recorded as other non-current non-financial assets.

16. Non-financial assets (cont'd)

(3) 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 other non-financial liabilities, respectively.

Details of other non-financial assets and liabilities arising from settled income of natural gas as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019				
	Raw 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

	2018				
	Raw material cost		Supply cost		
	City gas	Power generating	City gas	Power generating	Total
Other current non-financial assets	₩ 620,001	₩ -	₩ -	₩ -	₩ 620,001
Other current non-financial liabilities	-	(137,423)	(322,153)	(266,913)	(726,489)
	₩ 620,001	₩ (137,423)	₩ (322,153)	₩ (266,913)	₩ (106,488)

17. Investments in associates and joint ventures

(1) Details of investments in associates and joint ventures as of December 31, 2019 and 2018, are as follows (Korean won in millions, except percentage of ownership):

	Main business activity	Country of incorporation	Country of domicile	Fiscal year end	2019		
					Percentage of ownership	Acquisition cost	Book value
Korea Ras Laffan LNG Ltd.[2]	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 [3]	Pipe construction	Hong Kong	Myanmar	September 31	4.17%	25,160	37,872
Sulawesi LNG Development Limited [5]	LNG terminal construction & management	United Kingdom	Indonesia	December 31	25.00%	207,045	254,168
TOMORI E&P Limited [4]	Resource development	United Kingdom	Indonesia	December 31	49.00%	172,353	224,690
Coral FLNG S.A [3]	Resource development	Mozambique	Mozambique	December 31	10.00%	182	50,524
Coral South FLNG DMCC[1,3]	Resource development	UAE	UAE	December 31	10.00%	15	16
Hydrogen Energy Network Co., Ltd. [6]	Hydrogen infrastructure construction and operation	Korea	Korea	December 31	28.38%	6,300	5,890
Rovuma LNG S.A.[1,3,6]	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.[1,7]	LNG Plant management	Australia	Australia	December 31	15.00%	17	14
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	8,738
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	1,090
						₩ 826,062	₩1,717,163

[1] The entity is not accounted for using the equity method as the difference between the book value and identifiable net asset is not significant.
[2] The entity 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 2019 and 2018, and the Group recognized gain on disposal amounting to ₩891 million and loss on disposal amounting to ₩1,455 million for the years ended December 31, 2019 and 2018, respectively.
[5] Capital increase for Sulawesi LNG Development Limited occurred in 2019 and 2018.
[6] Newly acquired in 2019
[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.

17. Investments in associates and joint ventures (cont'd)

	Main business activity	Country of incorporation	Country of domicile	Fiscal year end	2018		
					Percentage of ownership	Acquisition cost	Book value
Korea Ras Laffan LNG Ltd.	Resource development	Bermuda	Qatar	December 31	60.00%	₩ 19,532	₩ 460,805
Korea LNG Ltd.	Resource development	Bermuda	Oman	December 31	24.00%	3,298	53,918
Hyundai Yemen LNG Company	Resource development	Bermuda	Yemen	December 31	49.00%	482	21,330
Korea LNG Trading Co., Ltd.	Shipping industry	Korea	Korea	December 31	28.00%	601	1,709
Kor-Uz Gas Chemical Investment Ltd.	Resource development	Malaysia	Uzbekistan	December 31	45.00%	347,451	444,560
South-East Asia Gas Pipeline Company Limited	Pipe construction	Hong Kong	Myanmar	September 31	4.17%	25,160	30,498
Sulawesi LNG Development Limited	LNG terminal construction & management	United Kingdom	Indonesia	December 31	25.00%	206,991	236,145
TOMORI E&P Limited	Resource development	United Kingdom	Indonesia	December 31	49.00%	207,620	234,730
Coral FLNG S.A	Resource development	Mozambique	Mozambique	December 31	10.00%	182	29,183
Coral South FLNG DMCC	Resource development	UAE	UAE	December 31	10.00%	15	15
Kor-Uz Gas cylinder Investment Ltd.	Cylinder business investment	Korea	Uzbekistan	December 31	40.38%	5,790	1,017
Kor-Uz Gas C&G Investment Ltd.	Charge business investment	Korea	Uzbekistan	December 31	38.85%	2,542	646
TERMINAL KMS de GNL, S. De R.L. De C.V.	LNG terminal construction & management	Mexico	Mexico	December 31	25.00%	34,945	99,353
GLNG Operations Pty. Ltd.	LNG Plant management	Australia	Australia	December 31	15.00%	17	13
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	4,009
LNG Canada Development Inc.	LNG Plant construction	Canada	Canada	December 31	15.00%	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	LNG terminal maintenance & management	Mexico	Mexico	December 31	51.00%	60	57
						₩ 854,790	₩1,617,988

17. Investments in associates and joint ventures (cont'd)

(2) Changes in investments in associates and joint ventures for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019							
	Beginning balance	Acquisition	Disposals	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 Energy Network Co., Ltd. [5]	-	6,300	-	-	(323)	(87)	-	5,890
Rovuma LNG S.A.	-	187	-	-	-	-	(2)	185
Kor-Uz Gas cylinder Investment Ltd.	1,017	-	-	-	117	434	-	1,568
Kor-Uz Gas C&G 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.	-	-	-	-	-	-	-	-
ENH-KOGAS, SA.[2]	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)	1,090
	₩ 1,617,988	₩ 6,541	₩ (35,267)	₩ (81,134)	₩ 103,778	₩ 73,578	₩ 31,679	₩ 1,717,163

[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.

17. Investments in associates and joint ventures (cont'd)

	2018							
	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.	₩ 442,655	₩ -	₩ -	₩ (62,957)	₩ 62,591	₩ 18,516	₩ -	₩ 460,805
Korea LNG Ltd.	44,698	-	-	(12,653)	12,642	9,231	-	53,918
Hyundai Yemen LNG Company[1]	63,194	-	-	-	(218)	(41,646)	-	21,330
Korea LNG Trading Co., Ltd.	601	-	-	-	1,056	52	-	1,709
Kor-Uz Gas Chemical Investment Ltd.	354,253	-	-	-	74,538	15,769	-	444,560
South-East Asia Gas Pipeline Company Limited	34,957	-	(2,465)	(4,870)	1,497	1,379	-	30,498
Sulawesi LNG Development Limited	200,752	63	-	-	24,861	10,469	-	236,145
TOMORI E&P Limited	222,601	-	(19,909)	-	21,561	10,477	-	234,730
AMEC Partners Korea Ltd.	558	-	(558)	-	-	-	-	-
Coral South FLNG S.A	14,481	-	-	-	(3,935)	17,780	857	29,183
Coral South FLNG DMCC	15	-	-	-	-	-	-	15
Kor-Uz Gas cylinder Investment Ltd.	1,036	-	-	-	(19)	-	-	1,017
Kor-Uz Gas C&G Investment Ltd.	647	-	-	-	(1)	-	-	646
Terminal KMS de GNL, S. De R.L. De C.V.	84,586	-	-	-	7,417	3,485	3,865	99,353
GLNG Operations Pty Ltd.	12	-	-	-	2	(2)	1	13
GLNG Property Pty Ltd.	20	-	-	-	(20)	-	-	-
ENH-KOGAS, SA.[2]	-	-	-	-	3,945	-	64	4,009
LNG Canada Development Inc.	-	-	-	-	-	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	55	-	-	-	-	-	2	57
	₩ 1,465,121	₩ 63	₩ (22,932)	₩ (80,480)	₩ 205,917	₩ 46,510	₩ 4,789	₩ 1,617,988

[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.

17. Investments in associates and joint ventures (cont'd)

(3) Summarized financial information of associates and joint ventures as of December 31, 2019 and 2018, and for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	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
Hyundai Yemen LNG Company	208,343	86,689	-	(572)
Korea LNG Trading Co., Ltd.	623,060	616,567	134,424	210
Kor-Uz Gas Chemical Investment Ltd.	1,254,233	4	-	193,162
South-East Asia Gas Pipeline Company Limited	2,018,964	953,215	555,163	254,062
Sulawesi LNG Development Limited	1,016,766	95	-	47,460
TOMORI E&P Limited	531,821	83,531	137,130	35,456
Coral FLNG S.A	5,669,644	5,686,846	-	(5,932)
Coral South FLNG DMCC	3,296,780	3,296,622	-	-
Hydrogen Energy Network Co., Ltd.	24,603	3,847	188	(1,140)
Rovuma LNG S.A.	1,852	-	-	-
Kor-Uz Gas cylinder Investment Ltd.	3,893	10	-	(44)
Kor-Uz Gas C&G Investment Ltd.	2,065	-	-	14
Terminal KMS de GNL, S. De R.L. De C.V.	1,044,268	624,138	117,512	8,896
GLNG Operations Pty Ltd.	97	6	-	-
GLNG Property Pty Ltd.	-	-	-	-
ENH-KOGAS, SA.	30,825	18,341	30,838	6,386
LNG Canada Development Inc.	1	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	2,890	752	10,908	224

	2018			
	Assets	Liabilities	Sales	Profit (loss) for the year
Korea Ras Laffan LNG Ltd.	₩ 768,169	₩ 161	₩ 107,283	₩ 82,971
Korea LNG Ltd.	224,767	110	54,317	52,674
Hyundai Yemen LNG Company	127,677	73,551	-	(446)
Korea LNG Trading Co., Ltd.	653,023	646,919	96,897	257
Kor-Uz Gas Chemical Investment Ltd.	987,910	-	-	94,213
South-East Asia Gas Pipeline Company Limited	1,703,501	946,599	343,465	61,596
Sulawesi LNG Development Limited	944,676	95	-	99,714
TOMORI E&P Limited	567,683	98,902	111,645	37,279
Coral FLNG S.A	3,215,545	2,690,143	-	-
Coral South FLNG DMCC	2,106	2,106	-	-
Kor-Uz Gas cylinder Investment Ltd.	2,527	8	-	(47)
Kor-Uz Gas C&G Investment Ltd.	1,662	-	-	(2)
Terminal KMS de GNL, S. De R.L. De C.V.	1,012,680	615,270	84,133	29,667
GLNG Operations Pty Ltd.	104	6	-	-
GLNG Property Pty Ltd.	-	-	-	-
ENH-KOGAS, SA.	37,427	31,699	37,737	6,631
LNG Canada Development Inc.	1	-	-	-
Manzanillo Gas Tech, S. de R.L. de C.V.	2,687	837	9,848	128

18. Property, plant and equipment

(1) Details of property, plant and equipment as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	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 fixtures	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

	2018				
	Acquisition cost	Governments grants	Accumulated depreciation	Accumulated impairment loss	Book value
Land	₩ 2,997,901	₩ -	₩ -	₩ -	₩ 2,997,901
Buildings	1,141,673	(1,990)	(399,312)	(517)	739,854
Structures	6,124,591	(1,752)	(1,998,721)	(804)	4,133,314
Machinery	15,260,752	(122,155)	(5,083,247)	(882,483)	9,172,867
Computerized facility	46,583	(98)	(36,980)	(519)	8,986
Vehicles	36,773	(1)	(29,412)	(347)	7,013
Office equipment	46,718	(14)	(35,875)	(479)	10,350
Tools and fixtures	58,384	(323)	(48,727)	-	9,334
Timber	53,353	-	(735)	-	52,618
Construction in progress	2,881,523	-	-	(482,729)	2,398,794
Finance lease assets	6,826,861	-	(3,994,329)	-	2,832,532
Others	6,000,176	-	(2,613,163)	(986,490)	2,400,523
	₩ 41,475,288	₩ (126,333)	₩ (14,230,501)	₩ (2,354,368)	₩ 24,764,086

18. Property, plant and equipment (cont'd)

(2) Changes in property, plant and equipment for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019							
	Beginning balance	Changes in accounting policies	Acquisition/ capital expenditure	Disposals	Depreciation	Impairment[1]	Others	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 fixtures	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)
Finance 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. (Note 20)

	2018						
	Beginning balance	Acquisition/ capital expenditure	Disposals	Depreciation[1]	Impairment	Others[2]	Ending balance
Land	₩ 2,964,463	₩ 27,253	₩ (5,070)	₩ -	₩ -	₩ 11,255	₩ 2,997,901
Buildings	763,361	2,513	(1,147)	37,696	-	14,813	741,844
(Government grant)	(2,079)	-	-	(89)	-	-	(1,990)
Structures	4,315,376	175	(545)	225,429	-	45,489	4,135,066
(Government grant)	(1,863)	-	(7)	(104)	-	-	(1,752)
Machinery	9,229,102	2,791	(7,257)	579,091	-	649,477	9,295,021
(Government grant)	(127,808)	-	-	(5,653)	-	-	(122,155)
Computerized facility	11,830	2,708	(2)	5,459	-	7	9,085
(Government grant)	(148)	(5)	-	(55)	-	-	(98)
Vehicles	6,922	3,230	(1)	3,150	-	13	7,015
(Government grant)	(2)	-	-	(1)		-	(1)
Office equipment	12,825	2,573	(27)	5,126	-	118	10,363
(Government grant)	(7)	(9)	-	(3)	-	-	(13)
Tools and fixtures	10,526	3,326	(324)	4,886	-	1,015	9,657
(Government grant)	(378)	(72)	-	(127)	-	-	(323)
Timber	52,316	2	-	-	-	300	52,618
Construction-in-progress	2,287,627	832,053	(113,233)	-	-	(607,653)	2,398,794
Finance lease assets	2,674,088	428,653	-	270,763	-	554	2,832,532
Others	2,527,102	396,660	-	592,666	-	69,427	2,400,522
	₩ 24,723,253	₩ 1,701,851	₩ (127,599)	₩ 1,718,234	₩ -	₩ 184,815	₩ 24,764,086

[1] Depreciation of West Cut Bank project amounting to ₩ 7 million recognized in loss from discontinued operation is included in the depreciation column.

[2] Other property, plant and equipment which was reclassified as assets held for sale amounting to ₩ 25,769 million(book value before recognition of impairment loss) are included(Note 20).

19. Construction and service contracts

(1) Changes in the outstanding construction and service contracts for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019			
	Beginning balance	Increase[1]	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 ₩173 million, due to the change in size of existing construction contracts.

	2018			
	Beginning balance	Increase[1] (decrease)	Revenue recognized	Ending balance
Domestic construction contracts	₩ 11,522	₩ 23,800	₩ 17,351	₩ 17,971
Domestic service contracts	3,078	(2,767)	209	102
Overseas construction contracts	-	17,940	10,383	7,557
Overseas service contracts	19,638	(11,581)	4,991	3,066
	₩ 34,238	₩ 27,392	₩ 32,934	₩ 28,696

[1] For the year ended December 31, 2018, the increase in construction and service contracts amounted to ₩28,708 million, due to the new contracts and the decrease in construction and service contracts amounted to ₩1,316 million, due to the change in size of existing construction contracts.

(2) Accumulated revenue and cost of construction in progress as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019						
				Contract assets	Contract liabilities		
	Accumulated revenue	Accumulated cost	Accumulated profit or loss	Unbilled amount	Overbilled amount	Advances	Reserves
Domestic construction contracts	₩ 33,066	₩ 29,361	₩ 3,705	₩ 4,597	₩ 31,427	₩ -	₩ -
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	₩ 31,586	₩ -	₩ -

19. Construction and service contracts (cont'd)

(2) Accumulated revenue and cost of construction in progress as of December 31, 2019 and 2018, are as follows (Korean won in millions): (cont'd)

	2018						
				Contract assets	Contract liabilities		
	Accumulated revenue	Accumulated cost	Accumulated profit or loss	Unbilled amount	Overbilled amount	Advances	Reserves
Domestic construction contracts	₩ 30,733	₩ 24,861	₩ 5,872	₩ 3,470	₩ 8,971	₩ -	₩ -
Domestic service contracts	179	139	40	151	-	-	-
Overseas construction contracts	30,102	17,866	12,236	488	3,310	-	-
Overseas service contracts	5,320	4,351	969	465	1,118	-	-
Total	₩ 66,334	₩ 47,217	₩ 19,117	₩ 4,574	₩ 13,399	₩ -	₩ -

(3) Contract assets and liabilities, unbilled amount and overbilled amount arising from construction and service contracts as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019		2018	
	Contract assets[1]	Contract liabilities	Contract assets[1]	Contract liabilities
Domestic construction contracts	₩ 4,597	₩ 31,427	₩ 3,471	₩ 8,971
Domestic service contracts	6	109	151	-
Overseas construction contracts	826	37	488	3,310
Overseas service contracts	31	13	465	1,118
Total	₩ 5,460	₩ 31,586	₩ 4,574	₩ 13,399

[1] Contract assets irrelevant to construction contracts are excluded.

(4) As of December 31, 2019, 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	₩ 1,174	₩ 1,075	₩ 142	₩ (43)	₩ -
Overseas service contracts	1,137	16	1,010	111	-
Overseas construction contracts	2,416	1,093	1,323	-	-
Total	₩ 4,727	₩ 2,184	₩ 2,475	₩ 68	₩ -

(5) During the years ended December 31, 2019, 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, 2019 and 2018 are as follows. (Korean won in millions):

	2019	2018
Contract liabilities recognized as revenue	₩ 8,286	₩ 12,366

20. Intangible assets other than goodwill

(1) Details of intangible assets as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	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
Copy right, patent and other industrial property right	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

	2018				
	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment loss	Book value
Intangible exploration and evaluation assets	₩ 536,307	₩ -	₩ -	₩ (208,781)	₩ 327,526
Computer software	97,470	(180)	(79,346)	(3,482)	14,462
Copy right, patent and other industrial property right	7,069	(65)	(1,834)	-	5,170
Development costs	35,485	-	(35,441)	-	44
Right to contributed assets	420,143	-	(111,325)	-	308,818
Land use rights	4,301	-	(2,341)	-	1,960
Mineral rights	1,580,329	-	(147,992)	(386,735)	1,045,602
Others	394,008	-	(194,766)	(130,953)	68,289
Total	₩ 3,075,112	₩ (245)	₩ (573,045)	₩ (729,951)	₩ 1,771,871

20. Intangible assets other than goodwill (cont'd)

(2) Changes in intangible assets for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019						
	Beginning balance	Acquisition/ capital expenditure	Disposals	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)
Copy right, patent and other industrial property right	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 included in other gains (losses) in consolidated statement of comprehensive income.

	2018						
	Beginning balance	Acquisition/ capital expenditure	Disposals	Amortization	Impairment[1]	Others	Ending balance
Intangible exploration and evaluation assets	₩ 368,636	₩ 40,460	₩ -	₩ -	₩ (88,288)	₩ 6,718	₩ 327,526
Computer software	15,681	3,863	-	(7,897)	-	2,996	14,643
(Government grant)	(347)	-	-	175	-	(9)	(181)
Copy right, patent and other industrial property right	5,555	19	-	(552)	-	213	5,235
(Government grant)	(62)	(15)	-	12	-	-	(65)
Development costs	51	-	-	(7)	-	-	44
Right to contributed assets	302,276	17,459	-	(7,113)	-	(3,804)	308,818
Land use rights	1,658	71	-	(140)	-	371	1,960
Mineral rights	1,020,487	146	-	(36,172)	-	61,141	1,045,602
Others	100,022	10	-	(32,792)	-	1,049	68,289
(Government grant)	(9)	-	-	-	-	9	-
	₩ 1,813,948	₩ 62,103	₩ -	₩ (84,486)	₩ (88,288)	₩ 68,684	₩ 1,771,871

[1] The impairment loss of ₩ 88,288 million for the year ended December 31, 2018 was recognized in relation to intangible exploration and evaluation assets of KOGAS Cyprus Ltd and was included in other gains (losses) in consolidated statement of comprehensive income.

20. 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.

	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.

20. Intangible assets other than goodwill (cont'd)

	2018	
Country	Cyprus	
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]	-[2]	
Applied unit price	-[2]	
Production	-[2]	
Recoverable amount	₩	-
Impairment loss	₩	88,288
Reason for impairment	Changes in business environment	

[1] Cash generating unit of other segment is each mining area and project.

[2] Considering uncertainty in future cash flow and other factors, the Group recognized the full amount as impairment loss.

20. Intangible assets other than goodwill (cont'd)

(4) Details of individually significant intangible assets as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	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 approval
	Mining rights	305,415	24.00 years
	Mining rights	36,022	19.02 years
	Mining rights	503,028	27.00 years

	2018		
	Details	**Amount**	**Remaining amortization period**
Intangible exploration assets	Acquisition in exploration phase	₩ 327,526	Phase in exploration
Right to contributed assets	Harbor facility usage right and others	308,818	26.95 years
Mineral rights	Mining rights	494,216	Phase in development approval
	Mining rights	39,884	20.02 years
	Mining rights	511,501	28 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):

	2019	2018
Assets	₩ 412,847	₩ 336,912
Liabilities	631,623	593,415
Income	-	-
Expenses	15,900	101,191
Cash inflows from operating activities	(198)	(991)
Cash inflows from investment activities	(61,486)	(40,460)

20. 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, 2019 are as follows:

	2019		
	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	8.50%	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

21. Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
	Current	Non-current	Current	Non-current
Derivatives held for trading	₩ 40,292	₩ 40,535	₩ 46,091	₩ 7,549

22. Trade and other payables

Trade and other payables as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019		2018	
	Current	Non-current	Current	Non-current
Trade payables	₩ 1,483,232	₩ -	₩ 1,628,455	₩ -
Non-trade payables	264,869	777	267,615	777
Accrued expenses	218,062	-	212,588	-
Lease liabilities	310,551	1,958,068	434,997	1,880,292
Other payables[1]	2,786	-	1,406	-
Total	₩ 2,279,500	₩ 1,958,845	₩ 2,545,061	₩ 1,881,069

[1] Details of other payables for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
	Current	Non-current	Current	Non-current
Royalty	₩ 2,786	₩ -	₩ 1,406	₩ -
Total	₩ 2,786	₩ -	₩ 1,406	₩ -

23. Borrowings and debentures

(1) Borrowings and debentures as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Current		
Short-term borrowings	₩ 3,800,315	₩ 3,682,824
Current portion of long-term borrowings	-	2,250
Current portion of debentures	2,347,556	2,593,202
Less : discount on debentures	(650)	(300)
	6,147,221	6,277,976
Non-current		
Long-term borrowings	476,493	265,318
Debentures	17,819,010	17,305,428
Less : discount on debentures	(52,266)	(49,944)
	18,243,237	17,520,802
	₩ 24,390,458	₩ 23,798,778

(2) Repayment schedules of borrowings and debentures as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	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

	2018		
	Borrowings	Debentures	Total
1 year or less	₩ 3,685,074	₩ 2,593,202	₩ 6,278,276
1 ~ 5 years	58,493	6,998,990	7,057,483
More than 5 years	206,825	10,306,438	10,513,264
	₩ 3,950,392	₩ 19,898,630	₩ 23,849,023

23. Borrowings and debentures (cont'd)

(3) Short-term borrowings as of December 31, 2019 and 2018, are as follows (Korean won in millions):

Lender	Interest rate	Maturity	2019
Local currency borrowings (asset backed 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
KOREA Exchange Bank	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

Lender	Interest rate	Maturity	2018
Local currency borrowings (asset backed short-term debentures)			
DB Securities Co., Ltd.	1.87%~2.01%	2019.01~2019.03	₩ 230,000
KB Securities Co., Ltd	1.85%~1.92%	2019.01~2019.03	60,000
SK Securities Co., Ltd	1.81%~1.94%	2019.01~2019.03	180,000
BNK Investment Securities	1.81%~2.01%	2019.01~2019.03	790,000
SinYoung Securities	1.89%~1.92%	2019.02~2019.03	50,000
Woori Investment Bank Co., Ltd.	1.85%~1.99%	2019.01~2019.03	595,000
Hanynag Securities	1.85%~1.89%	2019.02	30,000
			1,935,000
Foreign currency borrowings			
DBS	2.87%~3.04%	2019.02~2019.03	405,055
Deutsche Bank	3.07%	2019.03	87,227
KDB	2.97%~3.08%	2019.02~2019.03	598,946
KOREA Exchange Bank	2.91%~2.96%	2019.02	447,240
Mizuho Bank	2.98%	2019.03	40,202
Standart Chartered Bank	3.03%	2019.02	84,461
Nova scotia	2.91%	2019.02	38,820
SOGE	3.03%	2019.02	45,873
			1,747,824
			₩ 3,682,824

23. Borrowings and debentures (cont'd)

(4) Long-term borrowings as of December 31, 2019 and 2018, are as follows (Korean won in millions, US dollar in thousands):

			2019		2018	
Lender	**Interest rate**	**Maturity**	**Foreign currency (USD)**	**Local currency (KRW)**	**Foreign currency (USD)**	**Local currency (KRW)**
Local currency borrowings:						
Korea Energy Agency	3-year government bond floating rate	-	USD -	₩ -	USD -	₩ 2,250
KEB Hana Bank	CD rate +0.21%	2023.10	-	300,000	-	100,000
Foreign currency borrowings						
Korea Energy Agency [1]	-	-[2]	152,438	176,493	147,857	165,318
			152,438	476,493	147,857	267,568
Less : current portion			-	-	-	(2,250)
			USD 152,438	₩ 476,493	USD 147,857	₩ 265,318

[1] As of December 31, 2019, 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.

23. Borrowings and debentures (cont'd)

(5) Debentures as of December 31, 2019 and 2018, are as follows (Korean won and Japanese yen in millions, and US dollars, Euro, and Confoederatio Helvetica Franc in thousands):

			2019			2018		
List	Interest rate	Maturity	Foreign currency		Local currency (KRW)	Foreign currency		Local currency (KRW)
246 ~ 247th	-	-		-	₩ -		-	₩ 240,000
251st	-	-		-	-		-	80,000
254 ~ 256th	-	-		-	-		-	280,000
261 ~ 273rd	4.84% ~ 5.33%	2020.03~2021.05		-	540,000		-	540,000
277th	MIN{10.0%,MAX(2.0%,28x Index)}	2020.09		-	20,000		-	20,000
279th	4.50%	2020.09		-	70,000		-	70,000
281 ~ 282nd	-	-		-	-		-	200,000
283rd	4.71%	2021.05		-	100,000		-	100,000
284th	-	-		-	-		-	90,000
288 ~ 298th	4.00% ~ 4.93%	2021.04~2021.09		-	550,000		-	550,000
302nd	-	-		-	-		-	80,000
304~305th	4.19% ~ 4.26%	2022.04~2022.05		-	260,000		-	260,000
306th	-	-		-	-		-	170,000
307 ~ 311st	4.02% ~ 4.13%	2021.12~2022.09		-	570,000		-	570,000
312nd	-	-		-	-		-	140,000
313rd	3.97%	2022.04		-	100,000		-	100,000
314th	-	-		-	-		-	140,000
315 ~ 316th	3.86%	2022.05~2022.06		-	230,000		-	230,000
317th	-	-		-	-		-	180,000
318th	3.28%	2027.07		-	170,000		-	170,000
319th	-	-		-	-		-	120,000
320 ~ 323rd	3.10%~3.13%	2024.09~2025.09		-	290,000		-	290,000
325 ~ 355th	2.94% ~ 4.02%	2020.04~2034.05		-	3,230,000		-	3,230,000
356 ~ 370th	2.75% ~ 3.85%	2021.08~2034.04		-	1,760,000		-	1,760,000
371 ~ 378th	2.17% ~ 2.78%	2020.06~2030.08		-	1,190,000		-	1,190,000
379 ~ 380th	1.77% ~ 2.01%	2036.03~2036.06		-	140,000		-	140,000
381st	-	-		-	-		-	120,000
382nd	1.92%	2020.08		-	110,000		-	110,000
383 ~ 389th	2.02% ~ 2.90%	2021.03~2038.05		-	800,000		-	800,000
390 ~ 398th	1.63% ~ 2.16%	2027.04~2039.03		-	1,080,000		-	-
399 ~ 403rd	1.44% ~ 1.70%	2020.11~2039.11		-	580,000		-	-
Global 3rd	4.25%	2020.11	USD	500,000	578,900	USD	500,000	559,050
Switzerland franc 3rd	-	-		-	-	CHF	100,000	113,622
Global 4th	6.25%	2042.01	USD	750,000	868,350	USD	750,000	838,575
Switzerland franc 4th	1.13%	2020.02	CHF	300,000	358,656	CHF	300,000	340,866
MTN 13rd	3.015%	2028.06	EUR	38,000	49,302	EUR	38,000	48,608
MTN 15th	3.00%	2023.07	EUR	50,000	64,872	EUR	50,000	63,958
MTN 16th	1.458%	2023.08	JPY	8,000	85,078	JPY	8,000	81,054
MTN 16th(2)	1.458%	2023.08	JPY	4,000	42,539	JPY	4,000	40,527
EUR BOND	-	-		-	-	EUR	500,000	639,580
MTN 17th	4.00%	2024.01	USD	200,000	231,560	USD	200,000	223,620
Global 7th	3.875%	2024.02	USD	500,000	578,900	USD	500,000	559,050
Global 8th	3.50%	2026.07	USD	500,000	578,900	USD	500,000	559,050
MTN 18th	3.577%	2029.07	USD	100,000	115,780	USD	100,000	111,810
MTN 19th	3.577%	2029.07	USD	150,000	173,670	USD	150,000	167,715
MTN 20th	3.577%	2029.07	USD	100,000	115,780	USD	100,000	111,810
MTN 21st	3.50%	2029.10	USD	100,000	115,780	USD	100,000	111,810
MTN 22nd	3.125%	2025.10	USD	200,000	231,560	USD	200,000	223,620
MTN 23rd	3.30%	2025.11	USD	50,000	57,890	USD	50,000	55,905
MTN 24th	3.30%	2025.11	USD	50,000	57,890	USD	50,000	55,905

23. Borrowings and debentures (cont'd)

Global 9th	3.50%	2025.07	USD	500,000		578,900	USD	500,000	559,050
MTN 25th	2.83%	2026.03	USD	100,000		115,780	USD	100,000	111,810
MTN 26th	2.80%	2026.03	USD	100,000		115,780	USD	100,000	111,810
MTN 27th	2.70%	2026.05	USD	100,000		115,780	USD	100,000	111,810
Global 10-1st	1.875%	2021.07	USD	500,000		578,900	USD	500,000	559,050
Global 10-2nd	2.25%	2026.07	USD	400,000		463,120	USD	400,000	447,240
Global 11-1st	2.75%	2022.07	USD	400,000		463,120	USD	400,000	447,240
Global 11-2nd	3.125%	2027.07	USD	400,000		463,120	USD	400,000	447,240
Global 12th	2.875%	2029.07	USD	500,000		578,900		-	-
Switzerland franc 5th	0.2075%	2023.08	CHF	200,000		239,104	CHF	200,000	227,245
Switzerland franc 6th	0.000%	2023.11	CHF	300,000		358,655		-	-
Total			USD	6,200,000			USD	5,700,000	
			CHF	800,000	₩	20,166,566	CHF	600,0000	₩ 19,898,630
			JPY	12,000			JPY	12,000	
			EUR	88,000			EUR	588,000	
Less : discount on debentures			USD	(43,979)			USD	(48,303)	
			CHF	(2,422)	₩	(52,916)	CHF	(1,993)	₩ (50,244)
				-			EUR	(324)	
Balance after deduction			USD	6,156,021			USD	5,655,997	
			CHF	797,578	₩	20,113,650	CHF	598,007	₩ 19,848,386
			JPY	12,000			JPY	12,000	
			EUR	88,000			EUR	587,676	
Less : current portion					₩	(2,347,556)			₩ (2,593,202)
Less : current portion of discount on debentures					₩	650			₩ 300
Total					₩	17,766,744			₩ 17,255,484

24. Lease liabilities

(1) Lease contract

Before the adoption of KIFRS 1116, the Group recognized lease liabilities which are only relating to finance leases (lease contracts with shipping agents for the use of LNG transportation vessels) in accordance with KIFRS 1017, but due to the adoption of KIFRS1116 as of January 1, 2019, it recognized lease liabilities which was classified as operating leases under the KIRS 1017.

(2) Details of lease liabilities as of December31, 2019 and 2018, are as follows (Korean won in millions):

	2019		2018	
	Minimum lease payments	Present value of minimum lease payments	Minimum lease payments	Present value of minimum lease payments
Leases related to long-term transportation contract				
1 year or less	₩ 297,738	₩ 292,245	₩ 449,107	₩ 434,998
1~5 years	749,672	683,106	846,907	751,718
More than 5 years	1,547,278	1,135,779	1,707,914	1,128,574
	₩ 2,594,688	₩ 2,111,130	₩ 3,003,928	₩ 2,315,290
Leases related to initial adoption of KIFRS 1116[1]				
1 year or less	₩ 18,888	₩ 18,307	₩ -	₩ -
1~5 years	50,112	46,276	-	-
More than 5 years	₩ 116,571	₩ 92,907	₩ -	₩ -
	185,571	157,490	-	-
Total				
1 year or less	₩ 316,626	₩ 310,552	₩ 449,107	₩ 434,998
1~5 years	799,784	729,382	846,907	751,718
More than 5 years	1,663,849	1,228,686	1,707,914	1,128,574
	₩ 2,780,259	₩ 2,268,620	₩ 3,003,928	₩ 2,315,290

[1] Details of the impact of the adoption of KIFRS 1116 are described in Note 52.

(3) Details of current portion classification of lease liabilities are as follows (Korean won in millions):

	2019	2018
Current liabilities	310,552	434,998
Non-current liabilities	1,958,068	1,880,292
	2,268,620	2,315,290

25. Retirement benefit plans

The Group operates both defined contribution and defined benefit pension plans.

(Defined Contribution Pension Plan)

- For a 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 a defined benefit plan, the benefit amount of the employees is determined, depending on their age, periods of service or salary levels.
- Employees expect their own retirement benefit amount reasonably, and the Group bears the risk.

(1) Defined contribution plan

The expense recognized in the current period in relation to defined contribution plan was ₩6,693,622 thousand (2018: ₩3,240,494 thousand).

Details of recognized expense related to the defined contribution plan for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Cost of sales	₩ 5,669	₩ 2,808
Selling and administrative expenses	934	341
Others	91	91
Total	₩ 6,694	₩ 3,240

(2) Defined benefit plan

According to the 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.

Details of net defined benefit liabilities (assets) recognized in the consolidated statements of financial position as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Present value of funded defined benefit obligations	₩ 362,316	₩ 299,316
Fair value of plan assets	(368,967)	(369,050)
	₩ (6,651)	₩ (69,734)

Changes in the carrying amount of defined benefit obligations for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Beginning balance	₩ 299,316	₩ 302,875
Current service cost	36,276	38,984
Interest expense	10,431	12,984
Remeasurements	17,170	(5,857)
Past service cost	14,097	-
Convert to defined contribution plan	(12,924)	(43,647)
Benefits paid	(3,412)	(6,555)
Foreign exchange difference	11	14
Others	1,351	518
Ending balance	₩ 362,316	₩ 299,316

25. Retirement benefit plans (cont'd)

Changes in the fair value of plan assets for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Beginning balance	₩ 369,050	₩ 303,777
Interest income	11,778	12,015
Remeasurements	(4,523)	(6,563)
Employer's contributions:	7,355	107,850
Benefits pad	(1,769)	(4,383)
Convert to defined contribution plan	(12,924)	(43,646)
Ending balance	₩ 368,967	₩ 369,050

The Group recognized accumulated actuarial gains and losses, net of tax, as other comprehensive income amounting to ₩ (-)44,150 million and ₩ (-)28,504 million as of December 31, 2019 and 2018, respectively.

Plan assets as of December 31, 2019 and 2018, consist of (Korean won in millions):

	2019	2018
Deposits	₩ 24,683	₩ 24,370
Insurance instruments	86,845	96,492
Debt instruments	211,837	204,434
Equity instruments	-	1,023
Others	45,602	42,731
	₩ 368,967	₩ 369,050

The principal actuarial assumptions as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Discount rate	3.21% ~ 3.41%	3.58% ~ 3.68%
Future salary increasing rate	2.4%+promotion rate ~ 5.61%	1.8%+promotion rate ~ 5.94%

Promotion rate used for future salary increasing rate calculations in 2019, are as follows (Korean won in millions):

	Age	Experience rate
Promotion rate	30	2.891%
	35	2.526%
	40	2.243%
	45	2.017%
	50	1.832%

The amounts recognized in profit or loss in relation to defined benefit plan for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Current service cost	₩ 36,276	₩ 38,984
Interest expense	10,431	12,984
Interest income	(11,778)	(12,015)
Past service cost	14,097	-
Others	1,362	-
	₩ 50,388	₩ 39,953

25. Retirement benefit plans (cont'd)

The above amounts recognized in the consolidated statements of comprehensive income for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Cost of sales	₩ 37,170	₩ 29,639
Selling and administrative expenses	11,248	8,666
Construction-in-progress	1,551	1,648
Others	419	-
	₩ 50,388	₩ 39,953

Remeasurements of defined benefit plan recognized as other comprehensive income for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Remeasurements of defined benefit plan	₩ 17,170	₩ (5,857)
Return on plan assets	4,523	6,563
	₩ 21,693	₩ 706

The Group predicts that it will pay ₩10,686 million in relation to the defined benefit plan in 2019 (₩1,129 million in relation to the defined benefit plan in 2018).

The information of maturity of defined benefit obligations as of December 31, 2019, are as follows (Korean won in millions):

	2019				
	Less than 1 year	Between 1-2 years	Between 2-5 years	Over 5 years	Total
Benefits paid	₩ 18,813	₩ 26,923	₩ 98,490	₩ 1,445,869	₩ 1,590,095

26. Provisions

(1) Details of provisions as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019			2018		
	Current	Non-current	Total	Current	Non-current	Total
Provision for employee benefits	₩ 87,928	₩ 13,993	₩ 101,921	₩ 51,466	₩ 15,822	₩ 67,288
Provision for financial guarantee	-	10,522	10,522	-	7,884	7,884
Provision for lawsuit	4,200	-	4,200	6,713	-	6,713
Provision for post-processing, restoration, and purification	-	170,653	170,653	-	180,113	180,113
Provision for greenhouse gas	9,686	-	9,686	5,770	-	5,770
Others	2,025	3,213	5,238	3,644	3,131	6,775
	₩ 103,839	₩ 198,381	₩ 302,220	₩ 67,593	₩ 206,950	₩ 274,543

26. Provisions (cont'd)

(2) Changes in provisions for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	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
Provision for 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
Provision for greenhouse gas	5,770	10,240	(6,324)	-	-	9,686
Others	6,775	3	(1,760)	(28)	248	5,238
	₩ 274,543	₩ 136,280	₩ (72,340)	₩ (28)	₩ (36,236)	₩ 302,220

	2018					
	Beginning balance	Increase	Utilization	Reversed	Others	Ending balance
Provision for employee benefits	₩ 96,777	₩ 85,446	₩ (105,440)	₩ (9,495)	₩ -	₩ 67,288
Provision for financial guarantee	386	4,201	(225)	-	3,522	7,884
Provision for lawsuit	-	6,713	-	-	-	6,713
Provision for post-processing, restoration, and purification	160,904	40,199	(1,165)	-	(19,825)	180,113
Provision for greenhouse gas	-	5,770	-	-	-	5,770
Others	12,637	114	(24,216)	(25)	18,265	6,775
	₩ 270,704	₩ 142,443	₩ (131,046)	₩ (9,520)	₩ 1,962	₩ 274,543

27. 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, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Liabilities		
Deferred government grants income	₩ 323	₩ 415
Assets		
Buildings	1,900	1,990
Structures	1,648	1,752
Machinery	116,681	122,155
Computerized facility	65	98
Furniture and equipment	25	14
Vehicles	64	1
Tools and fixtures	490	323
Construction in progress	2,041	-
Computer software	194	180
Copy right, patents and other industrial property rights	52	65
	123,160	126,578
	₩ 123,483	₩ 126,993

(3) Changes in government grants for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019							
	Beginning balance	Receipt	Acquisition	Offset	Disposals	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 fixtures	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 rights	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

27. Government grants (cont'd)

(3) Changes in government grants for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2018							
	Beginning balance	Receipt	Acquisition	Offset	Disposals	Revenue recognition	Others	Ending balance
Liabilities								
Deferred government grants income	₩ 742	₩ 2,190	₩ (29)	₩ -	₩ -	₩ (2,446)	₩ (42)	₩ 415
Assets								
Buildings	2,079	-	-	(89)	-	-	-	1,990
Structures	1,863	-	-	(104)	(7)	-	-	1,752
Machinery	127,808	-	-	(5,653)	-	-	-	122,155
Computerized facility	148	-	5	(55)	-	-	-	98
Furniture and equipment	7	-	9	(2)	-	-	-	14
Vehicles	1	-	-	-	-	-	-	1
Tools and fixtures	378	72	-	(127)	-	-	-	323
Computer software	347	-	-	(176)	-	-	9	180
Copy right, patents and other industrial property rights	62	-	15	(12)	-	-	-	65
Other intangible assets	9	-	-	-	-	-	(9)	-
	132,702	72	29	(6,218)	(7)	-	-	126,578
	₩ 133,444	₩ 2,262	₩ -	₩ (6,218)	₩ (7)	₩ (2,446)	₩ (42)	₩ 126,993

(4) Income from government grants for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Offsetting of government grants related to deferred income (sales)	₩ 2,688	₩ 2,446
Offsetting of government grants related to depreciation	6,043	6,218
Others	182	71
	₩ 8,913	₩ 8,735

28. Customers' contribution to construction costs

(1) Changes in gains from contribution to construction for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Offsetting of deferred income related to contribution to construction cost	₩ 91	₩ 236

(2) Changes in deferred income related to contribution to construction for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Beginning balance	₩ 2,825	₩ 2,038
Increase	-	1,023
Offset	(91)	(236)
Ending balance	₩ 2,734	₩ 2,825

29. Non-financial liabilities

Details of non-financial liabilities as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019		2018	
	Current	Non-Current	Current	Non-Current
Advances received	₩ 12,234	₩ -	₩ 22,499	₩ -
Unearned revenues	511	-	498	-
Withholdings	21,783	-	20,864	-
Deferred income	41	3,017	45	3,194
Others[1]	196,723	45,858	748,998	54,440
	₩ 231,292	₩ 48,875	₩ 792,904	₩ 57,634

[1] Others include liabilities recognized in accordance with natural gas sales charge settlement profit and loss ₩174,565 million and ₩726,489 million as of December 31, 2019 and 2018, respectively (Note 16.(3)).

30. Equity

(1) Details of share capital as of December 31, 2019 and 2018, are as follows (Korean won in millions, except for par value per share):

				2019			2018		
	Total shares authorized	Total shares issued	Par value per share	Government	Non-government	Total	Government	Non-government	Total
Common stock	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, 2019 and 2018, are as follows:

	2019	2018
	Common stock	Common stock
Beginning balance	87,637,240	87,637,240
Ending balance	87,637,240	87,637,240

(3) Details of share premium as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Share premium	₩ 1,303,548	₩ 1,303,548

31. Retained earnings and dividends

(1) Retained earnings as of December 31, 2019 and 2018, consist of (Korean won in millions):

	2019	2018
Legal reserve[1]	₩ 230,783	₩ 208,086
Voluntary reserves	3,999,969	3,841,948
Unappropriated retained earnings	1,166,955	1,447,880
	₩ 5,397,707	₩ 5,497,914

[1] The *Korea Gas Corporation 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 share 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.

31. Retained earnings and dividends (cont'd)

(2) Voluntary reserves as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Business expansion	₩ 3,260,248	₩ 3,132,758
Dividend equalization	219,282	219,282
Business rationalization	792	792
Accident compensation	431,828	401,297
Improvement of financial structure	87,819	87,819
	₩ 3,999,969	₩ 3,841,948

(3) Changes in retained earnings for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Beginning balance	₩ 5,497,914	₩ 4,601,193
Effect of changes in accounting policy	27	391,996
Profit for the year attributable to owners of the parent	38,764	509,350
Dividends paid	(119,187)	-
Remeasurement of defined benefit plan	(15,646)	(598)
Interest payment of hybrid bonds	(4,165)	(4,027)
Ending balance	₩ 5,397,707	₩ 5,497,914

(4) Details of dividends paid for the years ended December 31, 2019 and 2018, are as follows (Korean won):

	2019				
	Total shares issued	Treasury stock	Shares eligible for dividends	Dividends per share	Total dividends
Common stock	92,313,000	4,675,760	87,637,240	₩ 1,360	₩ 119,186,646,400

	2018				
	Total shares issued	Treasury stock	Shares eligible for dividends	Dividends per share	Total dividends
Common stock	92,313,000	4,675,760	87,637,240	₩ -	₩ -

(5) Changes in remeasurement of defined benefit plan for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Beginning balance	₩ (28,503)	₩ (27,906)
Changes during the year	(21,693)	(824)
Tax effect	6,046	227
Ending balance	₩ (44,150)	₩ (28,503)

32. Statement of appropriation of retained earnings

The retained earnings for the year ended December 31, 2019, is expected to be appropriated at the shareholders' meeting of the Corporation's to be held on March 27, 2020. The appropriation date for the year ended December 31, 2018, was on March 27, 2019.

The Corporation's statements of appropriation of retained earnings for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Retained earnings before appropriation	₩	₩
Unappropriated retained earnings carried over from prior year	2,000	-
Profit for the year	81,614	305,313
Effect of changes in accounting policies	26	-
Remeasurements of defined benefit plan	(16,805)	618
Interest payment of hybrid bonds	(4,166)	(4,027)
Unappropriated retained earnings	62,669	301,904
Transfers from voluntary reserves and others	-	-
Reserve for business expansion	-	-
Retained earnings available for appropriation	-	-
Appropriation of retained earnings		
Legal reserve	-	22,696
Reserve for accident compensation	8,161	30,531
Dividends	33,302	119,187
Reserve for business expansion	19,206	127,490
Unappropriated retained earnings to be carried forward to subsequent year	₩ 2,000	₩ 2,000

33. Hybrid bonds

On August 22, 2019, the Group redeemed the hybrid bonds issued in 2014 in full amount of ₩3,082 hundred million before the maturity date.

34. Other components of equity

(1) Other components of equity as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Other capital surplus	₩ 20,910	₩ 21,353
Accumulated other comprehensive income	78,161	8,832
Treasury stock	(102,423)	(102,423)
Other equity	693,877	693,877
	₩ 690,525	₩ 621,639

(2) Other capital surplus for the years ended December 31, 2019 and 2018, consists of (Korean won in millions):

	2019	2018
Gain on disposal of treasury stock	₩ 21,353	₩ 21,353
Others	(443)	-
	₩ 20,910	₩ 21,353

(3) Accumulated other comprehensive income for the years ended December 31, 2019 and 2018, consists of follows (Korean won in millions):

	2019	2018
Other comprehensive income - fair value measurement gain on valuation of financial assets	₩ 76,688	₩ 26,427
Gain (loss) on valuation of cash flow hedges	(42,043)	16,384
Hedges of net investment in a foreign operation	(6,910)	99,526
Share of other comprehensive income (loss) of associates and joint ventures	41,775	(18,165)
Foreign currency translation gains from foreign operations	8,651	(115,340)
	₩ 78,161	₩ 8,832

(4) Changes in treasury stock for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions, except for number of shares):

	2019		2018	
	Shares	Book amount	Shares	Book amount
Beginning balance	4,675,760	₩ 102,423	4,675,760	₩ 102,423
Changes	-	-	-	-
Ending balance	4,675,760	₩ 102,423	4,675,760	₩ 102,423

(5) Other equity for the years ended December 31, 2019 and 2018, consists of (Korean won in millions):

	2019	2018
Revaluation surplus	₩ 693,877	₩ 693,877

35. Revenue from contracts with customers

(1) Details of revenue for the year ended December 31, 2019 and 2018, are as follow (Korean won in millions):

	2019	2018
Revenue from contracts with customers	₩ 24,979,770	₩ 26,174,008
Revenue from government grant	2,869	2,517
Revenue from others[1]	-	8,512
	₩ 24,982,639	₩ 26,185,037

[1] Revenue from others are non-monetary exchanges between entities in the same line of business that are intended to facilitate sales to customers or potential customers and therefore do not fall within the scope of KIFRS 1115, "*Revenue from Contracts with Customers*", therefore, it is classified separately. Other income in the consolidated financial statements of comprehensive income which is amounting to ₩169,101 million is consisted of other income from others of ₩8,512 million, and other income from customers of ₩160,589 million.

(2) Details of revenue from contracts with customers for the years ended December 31, 2019 and 2018 are as follows(Korean won in millions):

	2019		2018	
	Domestic	Overseas	Domestic	Overseas
Revenue by product/services				
Revenue from sale of goods				
Power generating	₩ 10,326,246	₩ -	₩ 11,633,778	₩ -
City gas	12,980,577	-	13,010,642	-
Direct supply	122,216	-	116,918	-
Use of plumbing facilities	99	-	242	-
Others	20,537	-	24,785	-
Overseas operations	-	723,798	-	396,381
	₩ 23,449,675	₩ 723,798	₩ 24,786,365	₩ 396,381
Revenue from rendering of services	500	602,480	624	802,315
Revenue from construction contracts	21,166	4,402	17,351	10,383
Other revenue	157,526	20,223	100,034	60,555
	₩ 179,192	₩ 627,105	₩ 118,009	₩ 873,253
	₩ 23,628,867	₩ 1,350,903	₩ 24,904,374	₩ 1,269,634
Timing of revenue recognition				
At a point in time	23,450,782	723,798	24,787,389	440,520
Over a period of time	178,085	627,105	116,985	829,114
	₩ 23,628,867	₩ 1,350,903	₩ 24,904,374	₩ 1,269,634

Meanwhile, no external customer accounted for more than 10% of revenue during the years ended December 31, 2019 and 2018.

(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 gas in the cities. For operating profit and profit for the year, there were significant differences between the summer and winter seasons in 2019.

36. Other selling and administrative expenses

(1) Details of selling and administrative expenses for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions) :

	2019	2018
Contribution to employee welfare	₩ 5,150	₩ 121
Salaries	90,655	88,486
Retirement benefits	9,809	4,584
Employee welfare	10,089	10,398
Insurance	3,612	2,696
Depreciation	16,100	13,845
Amortization	4,713	5,763
Impairment loss (reversal of impairment loss) on trade receivables	(1,100)	17,922
Commission	57,785	47,313
Advertising	4,741	5,428
Training	8,475	8,065
Vehicles maintenance expenses	368	398
Periodicals and printing expenses	543	575
Business promotion expenses	370	378
Rent	5,065	5,581
Communication	525	1,292
Taxes and dues	96,178	69,312
Supplies	710	758
Water, lighting and heating	1,553	1,568
Repairs and maintenance expenses	670	1,531
Research and development expense	66,691	60,410
Travel and transportation	3,027	3,226
Clothing expenses	705	561
Association fee	600	567
Sales promotion costs	3,842	18,046
Facility management	551	418
Other expenses	29,582	30,404
Total	₩ 421,009	₩ 399,647

(2) Details of other expenses under selling and administrative expenses for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Reward	₩ 483	₩ 448
Resource and development	24,598	24,021
Mining operation	3,131	4,050
Miscellaneous expenses	1,370	1,302
Research referral service cost	-	583
Total	₩ 29,582	₩ 30,404

37. Other gains and losses

(1) Details of other gains for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Gain on disposal of inventories	₩ 7,402	₩ 7,450
Miscellaneous gain	107,456	64,258
	₩ 114,858	₩ 71,708

(2) Details of other losses for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Loss on disposal of inventories	₩ 5,504	₩ 1,947
Loss on valuation of inventories	5,163	-
Loss on disposal of assets held for sale	434	-
Miscellaneous loss	15,515	27,024
	₩ 26,616	₩ 28,971

38. Finance income

(1) Details of finance income for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Interest income	₩ 32,585	₩ 42,867
Dividend income	13	15
Gains on valuation of derivative instruments	990	1,683
Gains on transactions of derivative instruments	122,906	131,758
Gain on foreign currency translation	180,828	187,451
Gain on foreign currency transactions	113,653	130,056
	₩ 450,975	₩ 493,830

(2) Details of content of interest income included in finance income for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Cash and cash equivalents	₩ 10,306	₩ 7,092
Financial assets at FVTPL	885	8,634
Financial assets at amortized costs[1]	11,191	7,144
Loans and receivables[1]	6,102	10,639
Short-term financial instruments[1]	702	1,354
Other financial assets[1]	3,005	6,521
Trade and other receivables[1]	394	1,483
	₩ 32,585	₩ 42,867

[1] Amount of each items are sum up to the interest income of the debt instruments at amortized cost which is described in Note 45. (2).

39. Finance costs

(1) Details of finance costs for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Interest expense	₩ 804,642	₩ 785,374
Loss on disposal of financial assets at fair value through profit or loss	-	79
Loss on valuation of financial assets at fair value through profit or loss	827	4,356
Loss on disposal of financial assets	1	-
Loss on valuation of derivative instruments	95,480	73,283
Loss on transactions of derivative instruments	92,935	73,981
Loss on foreign currency translation	86,246	129,556
Loss on foreign currency transactions	172,901	170,477
	₩ 1,253,032	₩ 1,237,106

(2) Details of content of interest expense included in finance costs for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Short-term borrowings	₩ 55,742	₩ 18,150
Long-term borrowings	11,864	9,681
Debentures	678,147	739,818
Derivative financial liabilities	25,727	15,046
Other financial liabilities	91,024	78,303
	862,504	860,998
Less : capitalization of interests[1]	(57,862)	(75,624)
	₩ 804,642	₩ 785,374

[1] Borrowing cost were capitalized at the weighted average rate of 4.38% (2018: 4.82%).

40. Income tax

(1) Major components of income tax expense for the years ended December 31, 2019 and 2018, consist of (Korean won in millions):

	2019	2018
Current income tax:		
Current taxes payable	₩ 37,097	₩ 28,673
Current taxes payable (unappropriated earnings)	-	(70,971)
Adjustment on prior year tax returns[1]	(47,790)	(75,512)
Income tax directly recognized to equity	956	1,528
Deferred tax expense:		
Changes in deferred taxes arising from temporary differences	49,279	198,025
Utilization of previously unrecognized tax loss carryforwards, tax credit and temporary difference from prior years	18,565	13,774
Income tax expense	₩ 58,107	₩ 95,517

[1] The Corporation received a tax refund for the year from 2015 to 2016, which amounts to ₩60,581 million

(2) Reconciliation of profit before income taxes at the Korea statutory rate to income tax expense at the effective tax rate of the Group for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Profit before income tax	₩ 116,376	₩ 648,979
Tax at the applicable statutory tax rate of 22% (24.2% including residence tax)	28,163	157,053
Adjustments:		
Effect of progressive tax rate	(36,573)	(715)
Effect of non-taxable income	(1,444)	(19,199)
Effect of non-deductible expenses	14,378	16,352
Temporary differences arising from deferred tax assets not recognized	2,729	85,809
Tax credit and tax reduction	-	(109)
Difference in tax rate applied between profit for the year before tax and deferred taxes	-	(5,588)
Difference in tax rate of those subject to deferred tax	226,382	-
Effect of other changes in deferred tax	(105,596)	-
Utilization of previously unrecognized tax loss carryforwards, tax credit and temporary difference from prior years	18,565	13,774
Current tax expense on unappropriated earnings	-	(70,971)
Effect of tax rates differences in overseas subsidiaries, etc.	(40,707)	(5,377)
	105,897	171,029
Adjustment for prior years' income taxes	(47,790)	(75,512)
Income tax expense	₩ 58,107	₩ 95,517
Effective tax rate	49.93%	14.72%

[1] Effect on changes in deferred tax due to change in statutory tax rate (24.2% to 27.5% including local income tax) in 2018.

40. Income tax (cont'd)

(3) The income tax credited directly to equity for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Current income tax:		
Interest expenses on hybrid bonds	₩ -	₩ 1,528
Others	956	-
	₩ 956	₩ 1,528

(4) Deferred taxes that were directly (charged) credited to other comprehensive income and loss for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Deferred tax		
Amounts arising from items recognized in other comprehensive income		
Gain (loss) on equity instruments at FVOCI	₩ (19,080)	₩ 31,548
Cash flow hedges	22,174	36,800
Net investment in foreign operations	35,796	37,827
Remeasurements	6,047	108
Investments in associates	(13,311)	4,869
Gain (loss) on translation of foreign operations	(26,080)	10,221
	₩ 5,546	₩ 121,373

40. Income tax (cont'd)

(5) Details of deferred tax assets (liabilities) for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019					
	Beginning balance	Recognized in profit or loss	Recognized in other comprehensive income	Recognized in 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 retirement benefits	56,439	9,167	6,047	-	-	71,653
Deposit for retirement 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 financial assets at 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)
Depreciation of property, plant and equipment	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
Changes 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 losses carried forwards	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)

40. Income tax (cont'd)

	2018					
	Beginning balance	Recognized in profit or loss	Recognized in other comprehensive income	Acquisition/ disposals	Others	Ending balance
Price adjustment on raw materials	₩ 100,923	₩ (76,805)	₩ -	₩ -	₩ -	₩ 24,118
Gain on valuation of derivatives	(52,837)	3,683	-	-	-	(49,154)
Loss on valuation of derivatives	48,397	6,565	-	-	-	54,962
Accrual for retirement benefits	59,851	(3,520)	108	-	-	56,439
Deposit for retirement benefit insurance	(56,112)	(4,820)	-	-	-	(60,932)
Loss on foreign currency translation	434,134	16,683	42,979	-	-	493,796
Gain on foreign currency translation	(475,230)	(5,498)	(5,152)	-	-	(485,880)
Derivative financial liabilities (hedge)	12,376	-	3,956	-	-	16,332
Derivative financial assets (hedge)	(11,186)	-	(829)	-	-	(12,015)
Gain on valuation of available-for-sale financial assets	(38,477)	-	-	-	41,666	3,189
Gains on valuation of financial assets at fair value through other comprehensive income	-	(3,104)	31,548	-	(41,580)	(13,136)
Government grants	38,304	(1,394)	-	-	-	36,910
Land (advanced depreciation provision)	(28,133)	1,084	-	-	-	(27,049)
Customers contribution to construction costs	329	(17)	-	-	-	312
Temporary depreciation	(399)	22	-	-	-	(377)
Depreciation of property, plant and equipment	166,075	(100,285)	-	23,577	(740)	88,627
Leased vessels	(293,453)	47,649	-	-	-	(245,804)
Lease liabilities	153,388	(74,339)	10,932	-	-	89,981
Loss (gain) on revaluation	(767,828)	48,662	-	-	-	(719,166)
Deemed depreciation	(542,796)	(224,674)	-	-	-	(797,470)
Valuation of equity method	(153,116)	(34,973)	4,870	-	-	(183,219)
Others	(31,274)	10,910	32,961	3,720	(220)	16,097
Subtotal	(1,437,064)	(394,171)	121,373	27,297	(874)	(1,683,439)
Deferred tax on unused tax losses and tax credits						
Tax losses carried forwards	689,956	110,963	-	(18,121)	(1,402)	781,396
Tax credits	1,857	31,138	-	-	-	32,995
Others	-	53,559	-	-	2,251	55,810
Total	691,813	195,660	-	(18,121)	849	870,201
	₩ (745,251)	₩ (198,511)	₩ 121,373	₩ 9,176	₩ (25)	₩ (813,238)

(6) Details of deferred tax assets (liabilities) in the consolidated statements of financial position as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Deferred tax assets	₩ 859,646	₩ 755,510
Deferred tax liabilities	(1,722,054)	(1,568,748)
	₩ (862,408)	₩ (813,238)

40. Income tax (cont'd)

(7) Details of unrecognized deductible temporary differences as deferred tax assets, tax losses carried forwards and unused losses as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Temporary differences to be deducted	₩ 4,248,666	₩ 3,780,081
Tax losses carried forwards	572,663	528,457
Tax credits	255,766	247,058
	₩ 5,077,095	₩ 4,555,596

(8) Expiration dates for tax credits and tax loss carry forwards which are not recognized as deferred tax asset as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019		2018	
	Tax credit	Tax losses carried forwards	Tax credit	Tax losses carried forwards
Within 1 year	-	1,830	-	-
1 ~ 2 years	₩ -	₩ -	₩ -	₩ 1,830
2 ~ 3 years	-	-	-	-
After 3 years	572,663	253,936	528,457	245,228
	₩ 572,663	₩ 255,766	₩ 528,457	₩ 247,058

(9) The aggregate amount of temporary differences associated with investments in subsidiaries for which deferred tax liability is not recognized as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Domestic and foreign subsidiary companies	₩ 233,216	₩ 235,018

(10) The analysis of deferred tax assets and liabilities as of December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Deferred tax assets		
Deferred tax asset to be recovered after more than 12 months	2,132,944	1,812,695
Deferred tax asset to be recovered within 12 months	351,469	281,901
	₩ 2,484,413	₩ 2,094,596
Deferred tax liabilities		
Deferred tax liability to be recovered after more than 12 months	(3,256,556)	(2,807,896)
Deferred tax liability to be recovered within 12 months	(90,265)	(99,938)
	(3,346,821)	(2,907,834)
Deferred tax liabilities, net	₩ (862,408)	₩ (813,238)

41. Assets held for sale or held for distribution by owners

Details of assets held for sale as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	Description	2019	2018
Investments in associates	AMEC Partners Korea LTD[1]	₩ -	₩ 558
Financial assets at FVOCI	Primorsky Gas[2]	-	-

[1] In December 2018, the carrying amount of the investment was classified as a group of assets held for sale or distribution to owners as the resolution to dissolve the corporation was finalized at the Board of Directors and extraordinary shareholders' meetings of AMEC Partners Korea LTD. The Group recognized loss on disposal amounting to ₩405 million as the liquidation process has been completed in May 2019.

[2] As the Board of Directors approved the sale of the shares in April 2019, the carrying amount of the investment had been classified as group of assets held for sale or distribution to owners, and the Group recognized loss on disposal amounting to ₩29 million as a result of the disposal.

42. Discontinued operation

(1) Nature of the discontinued operation

The Group plans to discontinue and dispose of its operation of the West Cut Bank business in 2018 in order to concentrate its core business, such as the operation and development of natural gas from Horn River Shale and others. And the assets were sold off in 2018. The difference between fair value and book value of the asset was recognized as impairment loss.

(2) Details of discontinued operation losses for the year ended December 31, 2018, are as follows (Korean won millions):

	2018
Revenue	₩ 83
Costs	(214)
Loss before income taxes	(131)
Income tax expense	-
Loss on valuation of net fair value	(26,320)
Loss on disposal of discontinued operation	(266)
Loss from discontinued operations	₩ (26,717)
Owners of the parent	(26,717)
Non-controlling interests	-

(3) Details of cash flows from discontinued operation losses for the year ended December 31, 2018, are as follows (Korean won millions):

	2018
Cash flows from operating activities	₩ (93)
Cash flows from investment activities	(9)
Cash flows from financing activities	-
Net cash flow	₩ (103)

43. Expenses by nature

Details of nature of expenses for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019			
	Changes in inventories	Selling 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 doubtful accounts	-	(1,100)	-	(1,100)
Commissions	-	57,785	77,267	135,052
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	-	3,027	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	(383,904)	(354,323)
	₩ 9,303	₩ 421,008	₩ 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 16.

43. Expenses by nature (cont'd)

	2018			
	Changes in inventories	Selling and administrative expenses	Cost of sales	Total
Changes in inventories:				
Finished goods	₩ (34,156)	₩ -	₩ 248,654	₩ 214,498
Merchandise	-	-	79,081	79,081
Raw materials used	-	-	21,098,624	21,098,624
Contribution to employee welfare	-	121	-	121
Salaries	-	88,486	353,466	441,952
Retirement benefits	-	4,584	26,712	31,296
Employee welfare	-	10,398	33,310	43,708
Insurance premium	-	2,697	10,333	13,030
Depreciation	-	13,835	1,686,241	1,700,086
Amortization	-	5,763	77,913	83,676
Bad debt expenses		18,898	-	18,898
Reversal of allowance for doubtful accounts		(976)	-	(976)
Commissions	-	47,313	49,051	96,364
Advertising	-	5,428	358	5,786
Training	-	8,065	3,227	11,292
Vehicles maintenance	-	398	3,972	4,370
Periodicals and printing	-	575	320	895
Business promotion expenses	-	378	206	584
Rents	-	5,581	24,122	29,703
Communication	-	1,292	5,461	6,753
Freight		-	1,171	1,171
Taxes and dues	-	69,312	35,995	105,307
Supplies	-	758	1,111	1,869
Utilities	-	1,568	165,731	167,299
Repairs and maintenance	-	1,531	69,418	70,949
Research and development	-	60,410	184	60,594
Travel and transportation	-	3,226	3,636	6,862
Clothing expenses	-	561	698	1,259
Association fee	-	567	655	1,222
Sales promotion costs	-	18,046	-	18,046
Promotional expenses		419	-	419
Outsourcing		-	893	893
Facility management		-	211,892	211,892
Other expenses[1]	-	30,404	350,251	380,655
	₩ (34,156)	₩ 399,648	₩ 24,542,686	₩ 24,908,178

[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 16.

44. Earnings per share

(1) Basic earnings per share for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Basic earnings per share		
Continuing operations	₩ 395	₩ 6,071
Discontinued operations	-	(305)
Total basic earnings per share	₩ 395	₩ 5,766

(2) Diluted earnings per share for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Diluted earnings per share		
Continuing operations	₩ 395	₩ 5,807
Discontinued operations	-	(289)
Total diluted earnings per share	₩ 395	₩ 5,518

(3) Earnings and weighted-average number of common shares outstanding used for deriving basic earnings per share for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019		2018	
	Continuing operations	Discontinued operations	Continuing operations	Discontinued operations
Profit for the year used for basic earnings per share	₩ 38,764	₩ -	₩ 536,067	₩ (26,717)
Interest expense on hybrid bonds	(4,166)	-	(4,027)	-
Profit for the year from continuing operations attributable to common shares	₩ 34,598	₩ -	₩ 532,040	₩ (26,717)

	2019	2018
Weighted-average number of common shares outstanding	87,637,240	87,637,240

(4) The Group has potential common stock without dilutive effects. Therefore, basic earnings per share is identical to diluted earnings per share.

(5) Profit for the year used to calculate diluted earnings per share for the years ended December 2019 and 2018, are as follows(Korean won in millions):

	2019	2018	
	Continuing operations	Continuing operations	Discontinued operations
Profits (loss) on attributable to common shares	₩ 34,598	₩ 532,040	₩ (26,717)
<Effect of assuming conversion>			
Interest expense on hybrid bonds	4,166	4,027	-
Diluted earnings attributable to common shares	₩ 38,764	₩ 536,067	₩ (26,717)

44. Earnings per share (cont'd)

The weighted-average number of common shares outstanding for the purpose of calculating diluted earnings per share is calculated by adjusting the weighted-average number of common shares used in the calculation of basic earnings per share as follows:

	2019	2018
Weighted-average number of common shares outstanding	87,637,240	87,637,240
<Number of shares deemed to be issued free of charge>		
Hybrid bonds	2,984,800	4,675,760
Weighted-average number of diluted common shares outstanding	90,622,040	92,313,000

45. Financial instruments by category

Categorizations of financial instruments as of December 31, 2019 and 2018, are as follows (Korean won on millions):

	2019						
				Financial assets 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	₩ 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
Short-term financial instruments	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.

45. Financial instruments by category (cont'd)

	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	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 1,617	₩ 1,617
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
Derivative financial assets	-	-	-	-	22,427	-	22,427
Other non-current financial assets	70,000	-	-	-	-	-	70,000
	₩ 732,256	₩ -	₩ 125,968	₩ -	₩ 22,427	₩ 1,617	₩ 882,268

[1] Contract assets are excluded.

45. Financial instruments by category (cont'd)

	2019				
		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 payables	₩ 2,279,500	₩ -	₩ -	₩ -	₩ 2,279,500
Financial liabilities at fair value through profit or loss	-	40,292	-	-	40,292
Borrowings	3,800,315	-	-	-	3,800,315
Debentures	2,346,906	-	-	-	2,346,906
Derivative financial liabilities	-	-	34,548	-	34,548
	₩ 8,426,721	₩ 40,292	₩ 34,548	₩ -	₩ 8,501,561

(*) Provision for financial guarantee is excluded.

	2019				
		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 payables	₩ 1,958,845	₩ -	₩ -	₩ -	₩ 1,958,845
Financial liabilities at fair value through profit or loss	-	40,535	-	-	40,535
Borrowings	476,493	-	-	-	476,493
Debentures	17,766,744	-	-	-	17,766,744
Derivative financial liabilities	-	-	32,817	-	32,817
	₩ 20,202,082	₩ 40,535	₩ 32,817	₩ -	₩ 20,275,434

(*) Provision for financial guarantee is excluded.

45. Financial instruments by category (cont'd)

	2018						
				Financial assets measured at FVTPL			
Current financial assets:	Debt instruments measured 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	₩ 239,767	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 239,767
Financial assets at fair value through profit or loss	-	-	-	311	-	4,300	4,611
Financial assets at amortized cost	408	-	-	-	-	-	408
Derivative financial assets	-	-	-	-	1,078	-	1,078
Short-term financial instruments	43,559	-	-	-	-	-	43,559
Loans	7,330	-	-	-	-	-	7,330
Trade and other receivables[1]	5,423,959	-	-	-	-	-	5,423,959
Total	₩ 5,715,023	₩ -	₩ -	₩ 311	₩ 1,078	₩ 4,300	₩ 5,720,712

[1] Contract assets are excluded.

45. Financial instruments by category (cont'd)

	2018						
				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	₩ -	₩ -	₩ -	₩ 18,551	₩ -	₩ 2,324	₩ 20,875
Financial assets at fair value through other comprehensive income	-	-	56,732	-	-	-	56,732
Financial assets at amortized cost	374	-	-	-	-	-	374
Long-term financial instruments	15	-	-	-	-	-	15
Loans	297,466	-	-	-	-	-	297,466
Trade and other receivables[1]	307,111	-	-	-	-	-	307,111
Other non-current financial assets	60,000	-	-	-	-	-	60,000
	₩ 664,966	₩ -	₩ 56,732	₩ 18,551	₩ -	₩ 2,324	₩ 742,573

[1] Contract assets are excluded.

45. Financial instruments by category (cont'd)

	2018				
		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 payables	₩ 2,545,061	₩ -	₩ -	₩ -	₩ 2,545,061
Financial liabilities at fair value through profit or loss	-	46,091	-	-	46,091
Borrowings	3,685,074	-	-	-	3,685,074
Debentures	2,592,902	-	-	-	2,592,902
Derivative financial liabilities	-	-	105,405	-	105,405
	₩ 8,823,037	₩ 46,091	₩ 105,405	₩ -	₩ 8,974,533

(*) Provision for financial guarantee is excluded.

	2018				
		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 payables	₩ 1,881,069	₩ -	₩ -	₩ -	₩ 1,881,069
Financial liabilities at fair value through profit or loss	-	7,549	-	-	7,549
Borrowings	265,318	-	-	-	265,318
Debentures	17,255,484	-	-	-	17,255,484
Derivative financial liabilities	-	-	63,534	-	63,534
	₩ 19,401,871	₩ 7,549	₩ 63,534	₩ -	₩ 19,472,954

(*) Provision for financial guarantee is excluded.

45. Financial instruments by category (cont'd)

Net gains or losses on each category of financial instruments for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Cash and cash equivalents		
Interest income	₩ 10,306	₩ 7,092
Gain on foreign currency transactions	2,390	6,245
Gain (loss) on foreign currency translation	221	(2,280)
Dividend income	-	15
Financial assets at fair value through profit or loss		
Interest income	885	8,634
Gain on foreign currency transactions	972	1,056
Gain on valuation of derivatives	990	1,683
Gain on transactions of derivatives	122,906	131,758
Loss on foreign currency translation	-	(288)
Loss on valuation	(827)	(4,356)
Financial instruments at amortized cost		
Interest income	21,394	27,141
Gain on foreign currency transactions	2,005	1,677
Gain on foreign currency translation	158,059	176,419
Equity instruments at fair value through other comprehensive income		
Dividends income	13	-
Comprehensive income recognized during the year	69,340	-
Financial liabilities at fair value through profit or loss		
Loss on foreign currency transactions	(1,807)	(1,322)
Loss on valuation of derivatives	(95,480)	(73,283)
Loss on transactions of derivatives	(92,935)	(73,981)
Financial liability at amortized cost		
Interest expenses	(836,776)	(845,952)
Loss on foreign currency transactions	(62,807)	(48,077)
Loss on foreign currency translation	(63,697)	(115,957)
Comprehensive loss recognized during the year	(83,453)	(122,231)
Hedging derivative instruments		
Interest expenses	(25,727)	(15,046)
Comprehensive income (loss) recognized during the year	2,848	(11,589)
Others		
Capitalization of interest	57,862	75,624
	₩ (813,318)	₩ (877,018)

46. 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. Total capital is 'equity' as shown in the consolidated statement of financial position plus net debt.

The gearing ratios at December 31, 2019 and 2018 are as follows (Korean won in millions, except gearing ratio):

	2019	2018
Liabilities		
Short-term borrowings	₩ 3,800,315	₩ 3,682,824
Current portion of long-term borrowings	-	2,250
Current portion of debentures	2,346,906	2,592,902
Current portion of lease liabilities	310,552	434,998
Long-term borrowings	476,493	265,318
Debentures	17,766,744	17,255,484
Lease liabilities	1,958,068	1,880,292
Total Liabilities	₩ 26,659,078	₩ 26,114,068
Cash equivalents		
Cash and cash equivalents	257,101	239,767
Current financial assets at fair value through profit or loss[1]	10,100	4,300
Short-term financial instruments	74,876	43,559
Total cash equivalents	₩ 342,077	₩ 287,626
Net liabilities	26,317,001	25,826,442
Total equity	8,146,521	8,497,984
Total capital	₩ 34,463,522	₩ 34,324,426
Gearing ratio	76.36%	75.24%

[1] Derivative assets are excluded.

46. 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 financial assets that are subject to the expected credit loss model as follows:
- Trade and other receivables relating to sales of goods and rendering of services,
- Loans to subsidiaries and associates,
- Debt instruments carried at fair value through profit or loss,
- Debt instruments carried 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 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 (18), 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, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Cash and cash equivalents (excluding cash on hands)	₩ 254,680	₩ 237,592
Financial assets at FVTPL	12,707	25,486
Short-term and long-term financial instruments	74,892	43,574
Financial assets at amortized cost	467	782
Loans and receivables	461,239	364,796
Trade and other receivables	5,419,912	5,731,070
Derivative financial assets	22,427	1,078
Financial guarantee contracts[1]	1,539,602	1,486,972
	₩ 7,785,926	₩ 7,891,350

[1] The amount is the maximum guaranteed amount that the Group should pay upon the guarantee's claim.

46. Risk management (cont'd)

Details of financial guarantee contracts as of December 31, 2019, 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	24,340	₩	28,181
Terminal KMS de GNL, S. de R.L. de C.V.	USD	9,240	₩	10,698
Sulawesi LNG Development Limited	USD	228,698	₩	264,787
Coral FLNG S.A.	USD	524,832	₩	607,650
Coral South FLNG DMCC	USD	487,470	₩	564,393
Others[2]				
KNPC(Kuwait National Petroleum Company)	USD	1,027	₩	1,189
Empresa Nacional de Hidrocarbonetos, E.P	USD	54,158	₩	62,704

[1] Details of these financial guarantee contracts are described in Note 47. (2). 6).
[2] Details of these financial guarantee contracts are described in 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, 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
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] Lease liabilities are excluded because they are presented separately.
[2] In case of finance guarantee contract, the maximum guaranteed amount is distributed to the earliest period when the guarantee could be demanded.
[3] Derivative for trading purpose and cash flow hedge are included.

46. Risk management (cont'd)

Aggregate maturities of the Group's financial liabilities as of December 31, 2018, 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	₩ 19,848,386	₩ 23,906,081	₩ 3,243,035	₩ 8,706,753	₩ 11,956,293
Borrowings	3,950,392	3,970,982	3,696,258	109,406	165,318
Finance lease liabilities	2,315,290	3,003,928	449,107	846,907	1,707,914
Trade and other payables[1]	2,100,841	2,110,841	2,110,841	-	-
Other payment guarantee[2]	7,884	1,486,972	1,486,972	-	-
	₩ 28,232,793	₩ 34,478,804	₩ 10,986,213	₩ 9,663,066	₩ 13,829,525
Derivative financial liabilities					
Derivative financial liabilities[3]	₩ 222,579	₩ 284,910	₩ 180,030	₩ 95,823	₩ 9,057

[1] Finance lease liabilities are excluded because they are presented separately.
[2] In case of finance guarantee contract, the maximum guaranteed 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, 2019 and 2018, are as follows (Korean won in millions):

	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	-	-	-	-	-
Loans and receivables	84,653	-	-	-	-	-
Financial instruments	-	-	-	-	-	-
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)

46. Risk management (cont'd)

	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	-	-	-	-	-	-
Loans and receivables	-	-	-	-	-	-
Financial instruments	-	-	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)

	2018				
	USD	EUR	JPY	AUD	CHF
Assets					
Cash and cash equivalents	₩ 320	₩ 4	₩ -	₩ 320	₩ 4
Trade and other receivables	72,569	9	-	72,569	9
Loans and receivables	57,801	-	-	57,801	-
Financial instruments	-	-	-	-	-
Other financial assets	480	-	-	480	-
Total assets	131,170	13	-	131,170	13
Liabilities					
Trade and other payables	1,363,716	13,371	704	1,363,716	13,371
Borrowings	1,913,142	-	-	1,913,142	-
Debentures	6,373,170	752,850	121,582	6,373,170	752,850
Lease liabilities	2,315,290	-	-	2,315,290	-
Other financial liabilities	8,629	-	-	8,629	-
Total liabilities	11,973,947	766,221	122,286	11,973,947	766,221
Net exposure	₩ (11,842,777)	₩ (766,208)	₩ (122,286)	₩ (11,842,777)	₩ (766,208)

	2018			
	CAD	MXN	SGD	MZN
Assets				
Cash and cash equivalents	₩ 3,919	₩ 2,163	₩ 46	₩ 173
Trade and other receivables	3,523	508	-	-
Loans and receivables	-	-	-	-
Financial instruments	-	-	-	-
Other financial assets	-	-	-	3,197
Total assets	7,442	2,671	46	3,370
Liabilities				
Trade and other payables	955	416	-	-
Borrowings	-	-	-	-
Debentures	-	-	-	-
Lease liabilities	-	-	-	-
Other financial liabilities	-	-	-	-
Total liabilities	955	416	-	-
Net exposure	₩ 6,487	₩ 2,255	₩ 46	₩ 3,370

46. Risk management (cont'd)

Foreign currency exchange rate as of December 31, 2019 and 2018, are as follows:

	2019	2018
USD	₩ 1,157.80	₩ 1,118.10
EUR	1,297.43	1,279.16
JPY	10.63	10.13
CAD	886.56	820.35
AUD	810.34	787.81
CHF	1,195.52	1,136.22
GBP	1,518.69	1,420.32
MYR	281.94	269.26
CNY	165.74	162.76
RUB	18.67	16.08
SGD	858.55	818.28
AED	315.21	304.40
MZN	18.84	18.09
MXN	61.11	56.91

Sensitivity analysis of profit before income tax from changes of foreign exchange rate for the year ended December 31, 2019, are as follows (Korean won in millions):

	10% Increase	10% Decrease
Profit before income tax	₩ (48,048)	₩ 48,048

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, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Long-term borrowings	₩ 161,204	₩ 267,568
Lease liabilities	510,155	438,340
	₩ 671,359	₩ 705,908

[1] Financial instruments at variable interest rate that are fully hedged are excluded.

If the interest rate changed by 100 basis points as of December 31, 2019 profit or loss would have increased or decreased. This analysis assumes that no other variables, such as the exchange rate, changes, and has been analyzed in the same way in the previous year. The specific amount of changes in profit or loss for the year ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
	100bp Increase	100bp decrease	100bp Increase	100bp decrease
Profit before income tax	₩ (6,714)	₩ 6,714	₩ (7,059)	₩ 7,059

5) Major assets and liabilities affected by estimates

Changes in defined benefit obligations due to changes in actuarial assumptions as of December 31, 2019, are as follows (Korean won in millions):

	1% increase	1% decrease
Future salary increasing rate	₩ 34,696	₩ (30,304)
Discount rate	(29,772)	34,730

46. 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, 2019 and 2018, are as follows (Korean won in millions):

	2019		2018	
	Book value	Fair value	Book value	Fair value
Assets carried at fair value				
Financial assets at fair value through other comprehensive income[1]	₩ 125,969	₩ 125,969	₩ 56,732	₩ 56,628
Financial assets at fair value through profit and loss	12,708	12,708	25,486	25,486
Derivative financial assets/ currency forwards(hedging)	-	-	1,078	1,078
Derivative financial assets/ currency swaps(hedging)	22,427	22,427	-	-
	₩ 161,104	₩ 161,104	₩ 83,296	₩ 83,192
Assets carried at amortized cost[2]				
Trade and other receivables	₩ 5,419,912	₩ -	₩ 5,731,070	₩ -
Financial assets at amortized cost	466	-	782	-
Loans and receivables	461,239	-	364,796	-
Short-term and long-term financial assets	74,892	-	43,574	-
Cash and cash equivalents	257,101	-	239,767	-
	₩ 6,213,610	₩ -	₩ 6,379,989	₩ -
Liabilities carried at fair value				
Financial liabilities at fair value through profit or loss	80,827	80,827	53,640	53,640
Derivative financial liabilities/ interest rate swap(hedging)	302	302	781	781
Derivative liabilities / currency forward (hedging)	31,437	31,437	11,483	11,483
Derivative financial liabilities/ currency swap(hedging)	35,626	35,626	156,675	156,675
	₩ 148,192	₩ 148,192	₩ 222,579	₩ 222,579
Liabilities carried at amortized cost[3]				
Debentures	₩ 20,113,650	₩ 21,679,671	₩ 19,848,386	₩ 20,861,718
Lease liabilities	2,268,620	-	2,315,290	-
Borrowings	4,276,808	-	3,950,392	-
Trade and other payables [2]	1,969,726	-	2,110,841	-
	₩ 28,628,804	₩ 21,679,671	₩ 28,224,909	₩ 20,861,718

[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.

[3] Assets and liabilities (excluding debentures) recognized at amortized cost are excluded from the fair value disclosures based on the assumption that the difference between fair value and carrying amount is not material.

46. Risk management (cont'd)

2) Rate of interest used in determining fair value

Details of discount ratios as of December 31, 2019 and 2018, are as follows:

	2019	2018
Derivative instruments	0.859%~1.027%	0.774% ~ 1.024%
Debentures	(-)0.863%~3.124%	(-)0.658% ~ 4.097%

3) The level of fair value hierarchy are 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 December 31, 2019 and 2018, are as follows (Korean won in millions):

	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	-	12,708	-	12,708
Derivative assets/currency forward (hedging)	-	22,427	-	22,427
Financial liabilities at fair value through profit or loss	-	80,827	-	80,827
Derivative financial liabilities / interest rate swap(hedging)	-	302	-	302
Derivative financial liabilities/currency forward (hedging)	-	31,437	-	31,437
Derivative financial liabilities / currency swap(hedging)	-	35,626	-	35,626

	2018			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value through other comprehensive income	₩ -	₩ -	₩ 56,732	₩ 56,732
Financial assets at fair value through profit or loss	-	25,486	-	25,486
Derivative assets/currency forward (hedging)	-	1,078	-	1,078
Financial liabilities at fair value through profit or loss	-	53,640	-	53,640
Derivative financial liabilities / interest rate swap (hedging)	-	781	-	781
Derivative financial liabilities/currency forward (hedging)	-	11,483	-	11,483
Derivative financial liabilities / currency swap(hedging)	-	156,675	-	156,675

There is no movement between Level 1 and Level 2 during 2019 and 2018.

46. Risk management (cont'd)

Changes in financial instruments categorized within Level 3 for the year ended of December 31, 2019, are as follows:

	Beginning balance	Acquisition cost	Profit or loss	Other comprehensive income	Disposals	Transfer	Ending balance
Financial assets at fair value through other comprehensive income	₩ 56,732	₩ -	₩ -	₩ 69,340	₩ (103)	₩ -	₩ 125,969

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, 2019 are as follows (Korean won in millions):

Description	Fair value	Valuation technique
Financial assets at fair value through profit or loss	₩ 12,708	Market forward exchange rate and yield curve
Derivative financial assets/currency forward(risk hedging)	22,427	Market forward exchange rate and yield curve
Financial liabilities at fair value through profit or loss	80,827	Market forward exchange rate and yield curve
Derivative financial liabilities/interest swap(risk hedging)	302	Yield curve
Derivative financial liabilities/currency forward(risk hedging)	31,437	Market forward exchange rate and yield curve
Derivative financial liabilities/currency swap(risk hedging)	35,626	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, 2019, are as follows (Korean won in millions):

	2019				
	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	₩ 125,694	Weighted average cost of equity capital	18.98%
				Selling price	3.5 ~ 7.8 $/MMBTU

Changes in financial assets at fair value through other comprehensive income due to changes in WACC used in fair value measurements of financial assets as of December 31, 2019, are as follows (Korean won in millions):

	Fluctuations in the book value	1% decrease	1% increase
Changes in WACC	Increase (decrease) of financial assets at fair value through other comprehensive income	₩ 11,590	₩ (10,397)

46. Risk management (cont'd)

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, 2019 and 2018, are as follows (Korean won in millions):

	2019			
	Level 1	**Level 2**	**Level 3**	**Total**
Debentures	₩ 12,601,555	₩ 9,078,116	₩ -	₩ 21,679,671

	2018			
	Level 1	**Level 2**	**Level 3**	**Total**
Debentures	₩ 12,752,163	₩ 8,109,555	₩ -	₩ 20,861,718

Details of fair value through other comprehensive income financial assets measured at cost are as follows:

Category	**2018**
Financial assets at fair value through other comprehensive income [1]	₩ 104

[1] Financial assets at fair value through other comprehensive income are unlisted equity instruments. As these assets do not have a quoted price in an active market and their fair value cannot be measured reliably, these instruments are measured at cost.

47. Related party transactions

(1) Detail list of related parties as of December 31, 2019 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 Ltd.
	KOGAS Canada LNG 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
	KGLNG E&P Pty Ltd.
	KGLNG Liquefaction Pty Ltd.
	KGLNG E&PⅡ Pty Ltd.
	KG Myanmar Ltd
	KOGAS International Pte. Ltd.
Associates	Korea Ras Laffan LNG Ltd.
	Korea LNG Ltd.
	Korea LNG Trading Co., Ltd.
	South-East Asia Gas Pipeline Company Limited
	TOMORI E&P LIMITED
	AMEC Partners Korea LTD[4]
	Kor-Uz Gas cylinder Investment Ltd.
	Kor-Uz Gas C&G Investment Ltd.
	Coral FLNG S.A.
	Coral South FLNG DMCC
	Hydrogen Energy Network Co., Ltd.[3]
	Rovuma LNG S.A. [3]
Joint ventures	Kor-Uz Gas Chemical Investment Ltd.
	Sulawesi LNG Development Limited
	TERMINAL KMS de GNL, S. De R.L. De C.V.
	Manzanillo Gas Tech, S. de R.L. de C.V.
	GLNG Operations Pty Ltd
	GLNG Property Pty Ltd
	ENH-KOGAS, SA.
	LNG Canada Development Inc.
	Hyundai Yemen LNG Company
Others[2]	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.

47. Related party transactions(cont'd)

[1] Government of the Republic of Korea can exercise control in making decision, but there are no significant transactions with the Group in 2019 and 2018.
[2] Korea Electric Power Corporation and significant subsidiaries of Korea Electric Power Corporation, which exercise a significant influence on the Group.
[3] Newly established in 2019.
[4] Disposed in 2019.

(2) Significant transactions which occurred in the normal course of business with related parties for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

Related Party	Transaction	Sales and other income		Purchases and other expense	
		2019	2018	2019	2018
Korea Ras Laffan LNG Ltd.	Dividends	₩ 61,144	₩ 62,957	₩ -	₩ -
Korea LNG Ltd.	Dividends	16,105	12,653	-	-
Hyundai Yemen LNG Company	Interest income	989	858	-	-
Korea LNG Trading Co., Ltd.	Costs of sales	-	-	112,983	128,962
	Interest expense	-	-	20,705	18,299
	Miscellaneous gains	-	12	-	-
South-East Asia Gas Pipeline Company Limited	Interest income	4,443	6,600	-	-
	Dividends	-	4,918	-	-
Terminal KMS de GNL, S. de R.L. de C.V	Miscellaneous gains	131	92	-	-
	Revenue	98	-	-	-
TOMORI E&P LIMITED	Gain on disposition of shares of affiliated companies	891	-	-	-
	Loss on disposition of shares of affiliated companies	-	-	-	1,455
Manzanillo Gas Tech, S. de R.L. de C.V	Revenue	7,589	7,811	-	-
ENH-KOGAS, SA.	Service revenue	253	220	-	-
LNG Canada Development Inc.	Miscellaneous gains	8	-	-	-
Hydrogen Energy Network Co., Ltd.	Commissions	-	-	2	-
Korea Electric Power Corporation	Miscellaneous gains and others	7	9	-	-
	Utility expenses and others	-	-	91,754	94,475
Korea Southern Power Co., Ltd.	Revenue[1]	1,141,714	1,604,501	-	-
	Repair and maintenance expenses and others	-	-	-	762
	Paid rent fee	-	-	-	4
	Lease payments	-	-	5	-
	Penalties and claims	-	-	180	-
Korea Midland Power Co., Ltd.	Revenue[1]	534,571	640,116	-	-
	Miscellaneous gains	24	53	-	-
	Gain on disposal of PP&E	172	-	-	-
	Rental income	2	-	-	-
	Utility expenses	-	-	3	-
	Lease payments	-	-	495	-
	Repair and maintenance expenses and others	-	-	-	417
Korea Western Power Co., Ltd.	Revenue[1]	953,388	1,067,199	-	-
	Utility expenses and others	-	-	3,284	7,795
	Lease payments	-	-	177	-
	Interest expenses	-	-	23	-
Korea East-West Power Co., Ltd.	Revenue[1]	817,158	1,043,608	-	-
	Rental income	-	9	-	-

47. Related party transactions(cont'd)

	Fuel maintenance costs and others	-	-	12	8
	Lease payments	-	-	168	-
Korea South-East Power Co., Ltd.	Revenue[1]	341,095	307,464	-	-
	Rental income	31	31	-	-
	Fuel maintenance costs and others	-	-	160	232
KOSPO Youngnam Power Co., Ltd.	Revenue[1]	261,334	310,751	-	-

[1] Individual consumption taxes are included.

(3) Account balances, excluding loans and borrowings, with related parties as of December 31, 2019 and 2018, are as follows (Korean won in millions):

		Receivables		Payables	
Related Party	**Account**	**2019**	**2018**	**2019**	**2018**
LNG Canada development	Non-trade receivables	₩ 279	₩ 125	₩ -	₩ -
Korea Ras Laffan LNG Ltd.	Non-trade receivables	2,786	-	-	-
Korea LNG Ltd.	Non-trade receivables	-	1,265	-	-
Korea LNG Trading Co., Ltd.	Lease liabilities	-	-	528,305	565,422
	Current portion of lease liabilities	-	-	57,193	53,321
	Trade payables	-	-	17,872	18,768
	Accrued expense	-	-	2,784	3,165
	Prepaid expense	2,626	-	-	172
Terminal KMS de GNL, S. de R.L. de C.V	Long-term non-trade receivables	307	354	-	-
	Trade receivables	31	-	-	-
Hyundai Yemen LNG Company	Accrued income	11,784	2,916	-	-
Manzanillo Gas Tech, S. de R.L. de C.V	Trade receivables	657	950	-	-
ENH-KOGAS, SA.	Non-trade receivables	96	-	-	-
Korea Electric Power Corporation	Non-trade payables	-	-	31	15
	Accrued expense	-	-	8,829	9,675
Korea Southern Power Co., Ltd.	Trade receivables	118,984	161,986	-	-
	Lease liabilities	-	-	4	-
Korea Midland Power Co., Ltd.	Trade receivables	87,748	78,942	-	-
	Non-trade payables	-	-	32	-
Korea Western Power Co., Ltd.	Trade receivables	101,727	116,514	-	-
	Non-trade payables	-	-	26	426
	Lease liabilities	-	-	1,104	-
Korea East-West Power Co., Ltd.	Trade receivables	92,238	138,969	-	-
Korea South-East Power Co., Ltd.	Trade receivables	48,750	71,672	-	-
	Non-trade payables	-	-	12	72
KOSPO Youngnam Power Co., Ltd.	Trade receivables	13,283	33,439	-	-

(4) Loans to related parties as of December 31, 2019 and 2018, are as follows (Korean won in millions):

		2019	2018
Associates	South-East Asia Gas Pipeline Company Limited	₩ 27,959	₩ 33,800
	Coral FLNG S.A.	136,656	78,959
	Coral South FLNG DMCC	-	112
Joint venture	ENH-KOGAS, SA.	11,037	21,308
	Hyundai Yemen LNG Company	34,477	28,933
		₩ 210,120	₩ 163,112

47. Related party transaction (cont'd)

(5) Limits of financial commitments for loans to related parties as December 31, 2019 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	ENH-KOGAS, SA.	USD	38,100
	Hyundai Yemen LNG Company	USD	93,500

(6) Fund transactions with related parties for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

		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 Company	4,667	-	-	-
	ENH-KOGAS, SA.	-	(11,028)	-	-

		2018			
		Loan transactions		Cash contribution	
Relationship	Related party	Loans	Collections	Acquisition	Disposal
Associates	TOMORI E&P LIMITED	₩ -	₩ -	₩ -	₩ (19,909)
	South East Asia Gas Piepline Company Ltd	-	(5,036)	-	-
	Coral FLNG S.A.	52,182	-	-	-
Joint ventures	Sulawesi LNG Development Limited	-	-	63	-
	Hyundai Yemen LNG Company	5,194	-	-	-
	ENH-KOGAS, SA.	-	(7,682)	-	-

The Group entered into funding agreements proportionate to its ownership percentage in accordance with the joint arrangements among the Group, its subsidiaries and associates in relation to the overseas resources development.

47. Related party transaction (cont'd)

(7) The payment guarantees provided to related parties as of December 31, 2019, are as follows (US dollars in thousands):

Guarantor	Related party[1]	Details	Credit line	Beneficiary
KOGAS	Terminal KMS de GNL, S. de R.L. de C.V.	Operation and maintenance expense guarantee	USD 24,340	Manzanillo Gas Tech
KOGAS	Terminal KMS de GNL, S. de R.L. de C.V.	PF repayment guarantee	USD 9,240	KEB Hana
KOGAS	Sulawesi LNG Development Limited	KOGAS is liable in the percentage of ownership in SLD share (25%) for non-execution of obligation arising from principal payment guarantee by SLD.	USD 228,698	MUFG UNION BANK, N.A.
KOGAS	Coral FLNG S.A.	Guarantee payment for outstanding debt indicated in FLNG EPCIC contract [2]	USD 524,833	TJS Consortium
KOGAS	Coral FLNG DMCC	Guarantee payment for repayment duty Coral FLNG DMCC of Coral South FLNG business related project financing principal and interest[3]	USD 487,470	Sumitomo Mitsui Banking Group

[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 actual 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).

(8) The performance guarantees provided to related parties as of December 31, 2019, are as follows (US dollars in thousands):

Guarantor	Related party[1]	Details	Credit line	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	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

47. Related party transaction (cont'd)

(9) 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	43,638	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

[1] This collateral is provided from the date of the related collateral agreement to the completion date of repayment of syndicate'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 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) The compensation for major management during the years ended December 31, 2019 and 2018 are as follows. (Korean won in millions):

	2019	2018
Short-term employees benefits	₩ 3,179	₩ 2,095
Retirement benefits	109	72
	₩ 3,288	₩ 2,167

48. Non-cash transactions

(1) The significant non-cash transactions for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	2019	2018
Transfer of construction-in-progress to property, plant and equipment	₩ 2,405,129	₩ 666,630
Transfer of current portion of debentures	2,308,857	2,589,097
Transfer of current portion of lease liabilities	214,347	399,891
Transfer of current portion of long-term loans	7,618	-
Increase in lease liabilities due to increase in right-of-use assets	78,944	424,345
Change in accounting policies	148,789	-

48. Non-cash transactions (cont'd)

(2) Changes in liabilities arising from financing activities for the years ended December 31, 2019 and 2018, are as follows (Korean won in millions):

	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)
Effect of changes in accounting policies	-	148,789	-	-	-
Foreign 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)
Change in accounting policies	-	-	-	-	148,789
Foreign 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
Beginning balance	₩ 476,493	₩ 17,766,744	₩ 34,425	₩ 9,128	₩ 26,702,630

	2018			
	Current portion of lease liabilities	Non-current portion of lease liabilities	Short-term borrowings	Current portion of long-term borrowings
Beginning balance	₩ 369,537	₩ 1,762,352	₩ 610,000	₩ 1,967
Cash flows	(334,595)	-	3,087,938	(20,512)
Acquisition - lease	-	424,345	-	-
Exchange differences	164	93,487	(15,114)	-
Other non-financial changes	399,892	(399,892)	-	20,795
Ending balance	₩ 434,998	₩ 1,880,292	₩ 3,682,824	₩ 2,250

	2018			
	Current portion of debentures	Long-term borrowings	Debentures	Total
Beginning balance	₩ 2,816,838	₩ 162,508	₩ 18,526,283	₩ 24,249,485
Cash flows	(2,817,830)	106,280	1,023,758	1,045,039
Acquisition - leases		-	-	424,345
Exchange differences	4,105	6,706	287,842	377,190
Other non-financial changes	2,589,789	(10,176)	(2,582,399)	18,009
Ending balance	₩ 2,592,902	₩ 265,318	₩ 17,255,484	₩ 26,114,068

49. Purchase agreements

(1) As of December 31, 2019, the Group has purchase agreements for the property, plant and equipment amounting to USD 52 million (2018: USD 101 million) related to right-of-use assets and ₩91,136 million (2018: ₩98,749 million) related to main construction contracts.

(2) The Group's inventory purchase contracts as of December 31, 2019, 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 L.L.C.	2000~2024	4,060
Sakhalin Energy Investment Company Ltd.	2008~2028	1,500
The East Sea 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 the other 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 ₩65,005 million).

(4) The shareholders of KG-SEAGP Company Limited, the subsidiary of the Group, consist of the Corporation and PEF. The Corporation can execute the redemption right to preferred stock of PEF after seven years(expected 2023). If the right is not executed, the PEF has a right to sell their preferred stock and also the common stock owned by the Corporation to a 3rd party.

(5) As of December 31, 2019, the Group has expenditure agreements in addition to overseas resource development projects

(6) As of December 31, 2019, the shareholders of KG Myanmar Ltd., the subsidiary of the Group, consist of the Corporation and trustees. The Corporation can execute the redemption right to the preferred stock of trustees after seven years (expected 2024). If the right is not executed, trustees have a right to sell their preferred stock and also the common stock owned by the Corporation to a 3rd party.

50. Commitments and contingencies

(1) The Group in involved in various lawsuits and claims for alleged damages totaling to ₩ 84,544 million, AUD 231 million, USD 23 million and EUR 1 million as of December 31, 2019, and ₩ 98,797 million and USD 57 million as of December 31, 2018, which arose in connection with the Group's ordinary course of business. Except for (below), there are no provisions as of December 31, 2019, regards with the above litigations. Management expects the total claims of the lawsuits will not have a materially adverse effect on the Group's consolidated financial statements. However, additional losses may incur depending on the results of the lawsuits.

(2) As of December 31, 2019, the Group has accounted a single lawsuit for alleged damage amounting to AUD 28 million with the amount necessary to satisfy the obligation as a legal action provision.

(3) 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 amount of arbitration claimed amounts to USD 115 million and related interest expenses and legal costs may be incurred in addition to the claimed amount.

(4) As of December 31, 2019, the Group has provided guarantees to others, excluding related parties, for the payment of debts amounting to USD 68,144 thousand, KWD 476 thousand, CAD 1,694,480 thousand and EUR 1,540 thousand (USD 118,578 thousand, EUR 4,200 thousand and CAD 1,600,680 thousand at December 31, 2018).

(5) Details of collateralized amounts of the Group as of December 31, 2019, are as follows (Korean won in millions and US dollars in thousands):

Beneficiary	Commencement date	Maturity date	Collateralized amount	Carrying amount	Remark
ING Bank N.V	2013.01.14	2027.06.20	USD 310,140[1]	₩ 564,403	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	USD 2	125,694[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, 2019, is USD 77,041)
			Equity Funding	41,313[4]	
Shell Canada Energy and others	2014.05.01	Until the end of the guarantee obligation	USD 288,169	USD 282,880	Providing project tangible and intangible assets as guarantees to partner company of LNG Canada business

[1] The collateralized amount is subject to change based on the future investment plan.
[2] Due to 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 in discussion.
[3] The book amount of equity instrument as of December 31, 2019, 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, 2019.

50. Commitments and contingencies (cont'd)

(6) Details of commitments held by the Group as of December 31, 2019, are as follows (Korean won in millions, and US dollars, Canadian dollars, Euros and Baht in thousands):

	Financial Institution	Limit		Amount	
Corporate card	KEB Hana Bank and other	KRW	4,680	KRW	1,509
Foreign currency loan	KDB and other	USD	2,662,000	USD	1,448,709
Bank overdraft	KEB Hana Bank and others	KRW	410,000	KRW	-
General loan	Daegu Bank	KRW	100,000	KRW	-
Foreign currency commitment	KEB Hana Bank and others	CAD	5,740	CAD	-
				USD	193,685
		USD	328,698	KWD	476
				EUR	-
		EUR	1,540	EUR	1,540
Commitment to acquire commercial paper	KEB Hana Bank	KRW	300,000	KRW	300,000
Commitment to acquire commercial paper	KEB Hana Bank	KRW	3,000	KRW	-
Other commitment in Korean won	Seoul Guarantee Insurance Company	KRW	5,205	KRW	5,205
Win-win growth etc.	KEB Hana Bank	KRW	103,000	KRW	-
Commitments to letter of credit	KEB Hana Bank and other	USD	52,000	EUR	7
		CAD	2,500	CAD	2,500
Performance guarantee	KEB Hana Bank and others	USD	18,269	USD	-
		AUD	95,447	AUD	-
		KRW	89,443	KRW	15,260
Judicial bond	Seoul Guarantee Insurance Company	KRW	666	KRW	666
Approval and permit guarantee	Seoul Guarantee Insurance Company	KRW	12	KRW	12
Bidding guarantees	KEB Hana Bank	USD	800	USD	-
Industrial operation loan(Research and development and operation fund)	KDB	KRW	4,500	KRW	3,000
Invoice financing etc.	KEB Hana Bank, Singapore Branch	USD	70,000	USD	-
Loans secured by trade receivables	Industrial Bank of Korea	KRW	4,000	KRW	-

(7) As of December 31, 2019, the Group has provided LOU (Letter of Undertaking) for 25 of the transporters currently in operation or planned to be introduced. 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.

(8) In March 2019, Encana Co., Ltd., the operator of the Hon River project in which the Group participated requested a return of the infrastructure royalty credit (CAD 4,800,000) due to the operator deeming the project unfeasible. However, the Group and its legal advisors determined that the Group has no reason to make the payment.

(9) The Group has possibility of arbitration on the claim of Samsung Engineering in relation to CPE-2 (Gas treatment equipment). The amount claimed by Samsung Engineering is USD 87,947,100 (allocated to the Group: USD 26,384,130).

(10) On September 27, 2018, the Group has entered into a second option contract with Rio Tinto Alcan Inc. to secure the LNG project site and facilities. The termination fee of the option contract amounts to USD 2.5 million.

(11) On October 31, 2019, the Group has entered into a MERRF (Marine Emergency Response Research Facility) funding agreement with Gitga'at for indigenous compensation to carry out the LNG project, and the termination fee amounts to CAD 250 thousand.

50. Commitments and contingencies (cont'd)

(12) On November 25, 2015, the Group has entered into a major service contract with Boskalis Canada Dredging & Marine Service Ltd. for a LNG project, and the termination fee amounts to CAD 27.5 million.

(13) The Group has entered into an agreement with the Canadian government amounting total of CAD 11 million of subsidies for four years in consideration for the promise of manufacturing, transportation, installation and on-site connection of four LMS wind turbines, compressor packages and related auxiliary equipment to the LNG facility. The Canadian government may require the subsidies to be repaid if specific conditions are not met, and the liabilities amounting to approximately CAD 2.3 million may arise if the repayment of subsidies is requested as of December 31, 2019.

(14) As of December 31, 2019, 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) Integration of KOGAS Canada Ltd. and KOGAS Canada LNG Ltd.

After the reporting period, on January 1, 2020, KOGAS Canada Ltd. and KOGAS Canada LNG Ltd., the subsidiaries of the Group, have been integrated into KOGAS Canada Energy Ltd.

(2) Establishment of corporation, named 'Shell overseas LNG bunkering infrastructure business'

In December 2019, the Group decided to participate in the 'Shell overseas LNG bunkering infrastructure business'. In order to carry out the project, the Group completed the establishment of a corporation (KLBV1 S.A.) in February 2020. The estimated capital for establishment amounts to approximately USD 12.8 million, and the expected investment amount of the Group amounts to USD 5.1 million (share: 40%).

(3) Payment guarantee provided for 'LNG bunkering ship construction'

After the reporting period, in the meeting of Board of Directors held in January 2020, the Group has determined to provide payment guarantees in relation to the shipbuilding contract between Hyundai Mipo Dockyard Co., Ltd and the corporation (KLBV1 S.A.) for the Shell overseas LNG bunkering infrastructure project proportionate to its ownership percentage (40%). This payment guarantee is expected to be provided at the end of February 2020, and the guaranteed period is until the final delivery of the vessel.

Guarantor	Beneficiary	Guarantee period	Credit line		Details
KLBV1 S.A.	Hyundai Mipo Dockyard Co., Ltd	Upon final delivery	₩	24,522,000	Payment guarantee in relation to shipbuilding contract

(4) Termination of gas field (Mansuriyah, Iraq) development contract

After the reporting period, on January 29, 2020, the Group has determined to terminate the contract to develop the gas field in Mansuriya, Iraq. Meanwhile, as of December 31, 2019, the carrying amount of assets related to Mansuriya gas field is zero ("0").

(5) Disposal of interest of exploration business in Krueng Mane, Indonesia

After the reporting period, on January 14, 2020, the Group entered into a contract with a local Indonesian company to fully dispose all of the interest held by the Group (15%).
The Group only entered into a contract with the local company, and the agreement of the original operator (ENI) and the approval of the Indonesian government are required in order to complete the sale.
The amount is USD 380 thousand including 7% of transfer tax in Indonesia, and the Group plans to collect the payment on the date of completion of the sale.

51. Events after the reporting period (cont'd)

(6) Incorporation of Rovuma LNG Investments (DIFC) Ltd.

In order to fund the project financing of the first step of Mozambique Area4 Rovuma LNG, Mozambique Area4 Rovuma LNG Investments (DIFC) Ltd. was established in February 2020, and the Group acquired 10% of the shares through KG Mozambique, the Group's subsidiary.

(7) After the reporting period, in accordance with the resolution of the Board of Directors held on January 22, 2020, KOGAS International Pte Ltd, a subsidiary of the Group, entered into a financial agreement with DBS Bank Ltd. to provide the Standby Letter of Credit, LNG payments and working capital loans required for LNG transactions. The details are as follow:

Counterparty	Financial institution	Agreement period	Details	Remarks
Uncommitted Omnibus Facility	DBS Bank Ltd.	2020.1.22 ~ 2021.1.21	Total limit: USD 70,000 Standby Letter of Credit: USD 70,000 Invoice financing: USD 70,000 Working capital loans: USD 35,000	KOGAS provides a letter of comfort valid through the agreement period at the request of DBS Bank Ltd. to enter into the financial contract.

52. Changes in accounting policies

52.1 Effects of changes in accounting policies on consolidated financial statements

As noted in Note 2.2, the Group adopted KIFRS 1116 using the modified retrospective method of adoption with the date of initial application of January 1, 2019. Under this method, the standard is applied retrospectively with the cumulative effect of initially applying the standard recognized at the date of initial application. Therefore, reclassifications and adjustments due to the adoption of KIFRS 1116 were recognized in the beginning consolidated statement of financial position on January 1, 2019.

(1) Adjustments recognized from the adoption of KIFRS 1116 *Leases*

With the application of KIFRS 1116, the Group recognized lease liabilities in relation to leases previously classified as an 'operating lease' in accordance with the KIFRS 1017. The lease liabilities were measured as the present value of the remaining lease payments discounted at the lessee's incremental borrowing interest rate as of January 1, 2019. As of January 1, 2019, the weighted average incremental borrowing rate for the lessee was 1.94% ~ 4.60%.

For leases previously classified as 'finance leases', the carrying amount of the leased assets and the lease liabilities were recognized as the carrying amount of the right-of-use assets and the lease liabilities as of the date of initial application. The measurement principle in KIFRS 1116 was applied after the date of initial application. The remeasurement of the lease liabilities were recognized immediately after the date of initial application as adjustments to the related right-of-use assets.

(Korean won in millions)		Amount
Operating lease commitments as of December 31, 2018	₩	181,583
Discounts using the weighted-average incremental borrowing rate as of January 1, 2019		153,652
Less : Commitments relating to short-term leases		(3,063)
Less : Commitments relating to leases of low-value assets		(1,800)
Lease liabilities as of January 1, 2019	₩	148,789

52. Changes in accounting policies (cont'd)

1) Amount recognized in the consolidated statements of financial position

The amounts recognized in the consolidated statements of financial position for the lease are as follows (Korean won in millions):

	December 31, 2019					
	Beginning balance	Changes in accounting policies	Increase	Depreciation	Others	Ending balance
Right-of-use assets (*)						
Land	₩ -	₩ 127,490	₩ 9,488	₩ (8,155)	₩ 84	₩ 128,907
Buildings	-	8,453	4,366	(4,529)	203	8,493
Machinery	-	8,168	-	(1,100)	148	7,216
Vehicles	-	1,678	8,613	(2,336)	(56)	7,899
Office equipment	-	-	6	-	-	6
Vessel	-	6,030	-	(1,066)	221	5,185
Aircrafts	-	-	1,217	(204)	(7)	1,006
Software	-	-	54	(6)	-	48
	₩ -	₩ 151,819	₩ 23,744	₩ (17,396)	₩ 593	₩ 158,760

(*) Right-of-use assets are included in "Property, Plant and Equipment" in the consolidated statement of financial position. The asset amount of ₩2,783,446 million is composed of the sum of the newly recognized right-of-use assets of ₩158,760 million in accordance with KIFRS 1116 and the right-of-use of long-term transportation contract of ₩2,624,686 million recognized in accordance with KIFRS 1017.

	December 31, 2019						
	Beginning balance	Changes in accounting policies	Increase	Interest expense	Cash outflow for leases	Others	Ending balance
Lease liabilities(*)	₩ -	₩ 148,789	₩ 23,598	₩ 3,524	₩ (17,353)	₩ (1,068)	₩ 157,490

(*) Lease liabilities are included in lease liabilities in the consolidated statement of financial position. The liability amount of ₩ 2,268,620 million is composed of the sum of the newly recognized lease liabilities of ₩157,490 million in accordance with KIFRS 1116 and the lease liabilities of long-term transportation contract of ₩2,111,130 million recognized in accordance with KIFRS 1017.

52. Changes in accounting policies (cont'd)

2) Amount recognized in the consolidated statements of comprehensive income

The amounts recognized in consolidated statements of comprehensive income for the lease as of December 31, 2019 are as follows (Korean won in millions):

		2019
Depreciation of right-of-use assets		
Land	₩	8,155
Buildings		4,529
Structures		-
Machinery		1,100
Vehicles		2,336
Office equipment		-
Vessel		1,066
Aircrafts		204
Software		6
Total	₩	17,396
Interest expense on lease liabilities (finance cost)	₩	3,524
Interest income on present value discount of deposits (finance income)		1,835
Short-term lease payments (included in cost of sales and administrative expenses)		5,313
Low-value asset lease payments (included in cost of sales and administrative expenses)		632

52.1 Impacts of changes in accounting policies on consolidated statements of financial position

As a result of changes in accounting policies, the following items in the consolidated statement of financial position as of the initial application date have been adjusted:

	2019			
	December 31, 2018	Effect of changes in accounting policy	Reclassification of account (*)	January 1, 2019
Assets				
Current assets	₩ 9,924,942	₩ -	₩ -	₩ 9,924,942
Non-current assets	29,764,749	148,816	-	29,913,565
Long-term trade and other receivables	307,111	(1,801)	-	305,310
Long-term deposits	111,330	(1,801)	-	109,529
Property, plant and equipment	24,764,086	151,819	-	24,915,905
Finance lease assets	2,832,532	-	(2,832,532)	-
Right-of-use assets	-	151,819	2,832,532	2,984,351
Deferred tax assets	755,510	-	-	755,510
Non-current non-financial Assets	28,760	(1,202)	-	27,558
Long-term prepaid expense	1,212	(1,202)	-	10
Total assets	₩ 39,689,691	₩ 148,816	₩ -	₩ 39,838,507
Liabilities				
Current liabilities	9,871,193	-	-	9,871,193
Trade and other payables	2,545,062	-	-	2,545,062
Lease liabilities	434,998	-	-	434,998
Non-current liabilities	21,320,514	148,789	-	21,469,303
Long-term trade and other payables	1,881,069	148,789	-	2,029,858
Lease liabilities	1,880,292	148,789	-	2,029,081
Deferred tax liabilities	1,568,748	-	-	1,568,748
Total liabilities	₩ 31,191,707	₩ 148,789	₩ -	₩ 31,340,496
Equity				
Unappropriated retained earnings	5,497,914	27	-	5,497,941
Total equity	₩ 8,497,984	₩ 27	₩ -	₩ 8,498,011

(*) Finance lease assets in relation to long-term transportation contracts ₩2,832,532 million were recognized in accordance with KIFRS 1017, all of which were reclassified as right-of-use assets.

3) Application of the practical expedients

The Group adopted the following practical expedients that are allowed in the standard as it applies for adopting KIFRS 1116:

- Assessment of whether leases are onerous contract immediately before the date of initial adoption as an alternative to performing an impairment review.
- Operating lease term ending within 12 months of the date of initial adoption are accounted for in the same way as short-term leases.
- Exclude the initial direct costs from the measurement of the right-of-use assets at the date of initial adoption.
- Use hindsight in determining the lease where the contract contains the options to extend or terminate.

THE ISSUER

Korea Gas Corporation
120 Cheomdan-ro
Dong-gu, Daegu
41062, Korea

PRINCIPAL PAYING AGENT, PAYING AGENT, TRANSFER AGENT AND REGISTRAR

Citibank, N.A., London Branch
c/o Citibank, N.A., Dublin Branch
1 North Wall Quay
Dublin 1
Ireland

DEALERS

BNP Paribas
63/F, Two International Finance Centre
8 Finance Street, Central
Hong Kong

Citigroup Global Markets Inc.
388 Greenwich Street
New York, NY 10013
United States of America

Crédit Agricole Corporate and Investment Bank
30/F, Two Pacific Place
88 Queensway
Hong Kong

The Hongkong and Shanghai Banking Corporation Limited
Level 17, HSBC Main Building
1 Queen's Road Central
Hong Kong

J.P. Morgan Securities plc
25 Bank Street, Canary Wharf
London E14 5JP
United Kingdom

KB Securities Co., Ltd.
50 Yeouinaru-ro
Yeongdeungpo-gu
Seoul 07328, Korea

The Korea Development Bank
14 Eunhaeng-ro
Youngdeungpo-gu
Seoul 07242, Korea

Merrill Lynch International
2 King Edward Street
London EC1A 1HQ
United Kingdom

Mirae Asset Securities Co., Ltd.
East Tower, 26
Eulji-ro 5 gil, Jung-gu
Seoul 04539, Korea

Mizuho Securities Asia Limited
14-15/F., K11 Atelier
18 Salisbury Road
Tsim Sha Tsui, Kowloon

Standard Chartered Bank
One Basinghall Avenue
London EC2V 5DD
United Kingdom

Société Générale
34/F Three Pacific Place
1 Queen's Road East
Hong Kong

UBS AG, Hong Kong Branch
52th Floor, Two International Finance Centre
8 Finance Street, Central
Hong Kong

LEGAL ADVISOR TO THE ISSUER

As to Korean law

Lee & Ko
18th Fl., Hanjin Main Building
63 Namdaemun-ro
Jung-gu
Seoul 04532, Korea

LEGAL ADVISOR TO THE DEALERS

As to New York law

Cleary Gottlieb Steen & Hamilton LLP Foreign Legal Consultant Office
19th Floor, Ferrum Tower
19, Eulji-ro 5-gil, Jung-gu
Seoul 04539, Korea

SINGAPORE LISTING AGENT

Shook Lin & Bok LLP
1 Robinson Road
#18-00 AIA Tower
Singapore 048542

INDEPENDENT ACCOUNTANTS OF THE COMPANY

Ernst & Young Han Young
4-8th Floor, Taeyoung Bldg
111 Yeouigongwon-ro, Yeongdeungpo-gu
Seoul 07241
Korea