IMPORTANT NOTICE

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

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

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

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

Confirmation of your Representation: In order to be eligible to view the following offering circular or make an investment decision with respect to the securities, investors must be either (I) qualified institutional buyers ("QIBs") (within the meaning of Rule 144A under the Securities Act) or (II) non-U.S. persons (within the meaning of Regulation S under the Securities Act) outside the United States. By accepting the e-mail and accessing the following offering circular, you shall be deemed to have represented to 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., The Hongkong and Shanghai Banking Corporation Limited, The Korea Development Bank, Mizuho Securities USA LLC 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 National Oil Corporation

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

Issue of U.S.$550,000,000 1.750% Notes due 2025
Issue of U.S.$550,000,000 2.125% Notes due 2027
Issue of U.S.$400,000,000 2.625% Notes due 2032

under the U.S.$10,000,000,000
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 STABILISING MANAGERS (OR ANY PERSON ACTING ON BEHALF OF ANY STABILISING 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 IS NO OBLIGATION ON THE STABILISING MANAGERS (OR ANY PERSON ACTING ON BEHALF OF ANY STABILISING MANAGER) TO UNDERTAKE STABILISATION ACTION. SUCH STABILISING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME, AND, IF BEGUN, MUST BE BROUGHT TO AN END AFTER A LIMITED PERIOD. ANY STABILISATION ACTION OR OVER-ALLOTMENT MUST BE CONDUCTED BY THE RELEVANT STABILISING MANAGERS (OR PERSONS ACTING ON BEHALF OF ANY STABILISING MANAGER) IN ACCORDANCE WITH ALL APPLICABLE LAWS, REGULATIONS AND RULES.

Joint Bookrunners and Joint Lead Managers

BNP PARIBAS	**Citigroup**	**HSBC**
The Korea Development Bank	**Mizuho Securities**	**UBS**

The date of this Pricing Supplement is January 10, 2022.

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

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

Korea National Oil Corporation
Issue of U.S.$550,000,000 1.750 per cent. Notes due 2025
under the U.S.$10,000,000,000
Global Medium Term Note Program

This document constitutes the Pricing Supplement relating to the issue of Notes described herein. Terms used herein shall be deemed to be defined as such for the purposes of the Conditions set forth in the Offering Circular dated December 23, 2021 (the "Offering Circular"). This Pricing Supplement contains the final terms of the Notes and must be read in conjunction with the Offering Circular.

1.	Issuer:	Korea National Oil Corporation
2.	(i) Series Number:	57
	(ii) Tranche Number:	1
3.	Specified Currency or Currencies:	United States dollars ("U.S.$")
4.	Aggregate Nominal Amount:	
	(i) Series:	U.S.$550,000,000
	(ii) Tranche:	U.S.$550,000,000
5.	(i) Issue Price:	99.869 per cent. of the Aggregate Nominal Amount
	(ii) Net proceeds (after deducting a combined management and underwriting commission but not estimated expenses):	Approximately U.S.$548 million
	(iii) Use of proceeds:	The Issuer expects to use the net proceeds from the Notes offering principally for general corporate purposes and such proceeds will not be used for any activities relating to the construction or development of oil sand projects.
6.	Specified Denominations:	U.S.$200,000 and, in excess thereof, integral multiples of U.S.$1,000
7.	(i) Issue Date:	January 18, 2022
	(ii) Interest Commencement Date:	January 18, 2022
8.	Maturity Date:	April 18, 2025
9.	Interest Basis:	1.750 per cent. Fixed Rate (further particulars specified below)

10.	Redemption/Payment Basis:	Redemption at par
11.	Change of Interest Basis or Redemption/Payment Basis:	None
12.	Put (other than Condition 8(d)(i))/Call Options:	Not Applicable
13.	(i) Status of the Notes:	Senior
	(ii) Date Board approval for issuance of Notes obtained:	December 23, 2021
14.	Listing:	Singapore Exchange Securities Trading Limited (the "SGX-ST")
15.	Method of distribution:	Syndicated
	PROVISIONS RELATING TO INTEREST (IF ANY) PAYABLE	
16.	Fixed Rate Note Provisions:	Applicable
	(i) Rate of Interest:	1.750 per cent. per annum payable semi-annually in arrear
	(ii) Interest Payment Date(s):	April 18 and October 18 in each year up to and including the Maturity Date (with the first interest payment date being April 18, 2022)
	(iii) Fixed Coupon Amount(s):	US$8.750 per US$1,000 in nominal amount (except that such amount shall be US$4.375 per US$1,000 in nominal amount for the first interest payment date of April 18, 2022)
	(iv) Broken Amount(s):	Not Applicable
	(v) Day Count Fraction:	30/360, unadjusted
	(vi) Determination Date(s):	Not Applicable
	(vii) Business Day Convention:	Following Business Day Convention
	(viii) 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 Note Provisions:	Not Applicable
	PROVISIONS RELATING TO REDEMPTION	
21.	Issuer Call:	Not Applicable
22.	Investor Put (other than Condition 8(d)(i)):	Not Applicable
23.	Final Redemption Amount of each Note:	Par
24.	Early Redemption Amount of each Note payable on redemption for taxation reasons or on event of default and/or the method of calculating the same (if required or if different from that set out in Condition 8(e)):	Not Applicable

GENERAL PROVISIONS APPLICABLE TO THE NOTES

25.	Form of Notes:	Registered Notes
26.	Additional Financial Centre(s) or other special provisions relating to Payment Days:	
	(i) Additional Financial Centre(s):	Seoul
	(ii) Relevant cities for Payment Days:	London, New York City, Seoul
27.	Talons for future Coupons or Receipts to be attached to Definitive Bearer Notes (and dates on which such Talons mature):	No
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: amount of each installment, date on which each payment is to be made:	Not Applicable
30.	Redenomination applicable:	Redenomination not applicable.
31.	Other terms or special conditions:	Not Applicable

DISTRIBUTION

32.	(i) If syndicated, names of Managers:	Joint Lead Managers: BNP Paribas, Citigroup Global Markets Inc., The Hongkong and Shanghai Banking Corporation Limited, The Korea Development Bank, Mizuho Securities USA LLC and UBS AG, Hong Kong Branch
	(ii) Stabilising Manager (if any):	Each of the Joint Lead Managers
33.	If non-syndicated, name of relevant Dealer:	Not Applicable
34.	U.S. Selling Restrictions:	Reg. S Category 2 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	
		CUSIP:	Rule 144A: 50066PAR1
			Regulation S: 50066RAR7
		ISIN:	Rule 144A: US50066PAR10
			Regulation S: US50066RAR75
39.	Delivery:	Delivery against payment	

40.	In the case of Registered Notes, specify the Registrar:	Citibank, N.A., London Branch
41.	Specify the Principal Paying Agent:	Citibank, N.A., London Branch
42.	In the case of Registered Notes, specify the location of the office of the Registrar if other than New York:	Dublin, Ireland
43.	Additional Paying Agent(s) (if any):	Not Applicable

NOTIFICATION UNDER SECTION 309B(1)(C) OF THE SECURITIES AND FUTURES ACT 2001 (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 APPLICATION

This Pricing Supplement comprises the final terms required to list the issue of Notes described herein pursuant to the U.S.$10,000,000,000 Global Medium Term Note Program of Korea National Oil Corporation.

RESPONSIBILITY

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

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

Korea National Oil Corporation
Issue of U.S.$550,000,000 2.125 per cent. Notes due 2027
under the U.S.$10,000,000,000
Global Medium Term Note Program

This document constitutes the Pricing Supplement relating to the issue of Notes described herein. Terms used herein shall be deemed to be defined as such for the purposes of the Conditions set forth in the Offering Circular dated December 23, 2021 (the "Offering Circular"). This Pricing Supplement contains the final terms of the Notes and must be read in conjunction with the Offering Circular.

1.	Issuer:	Korea National Oil Corporation
2.	(i) Series Number:	58
	(ii) Tranche Number:	1
3.	Specified Currency or Currencies:	United States dollars ("U.S.$")
4.	Aggregate Nominal Amount:	
	(i) Series:	U.S.$550,000,000
	(ii) Tranche:	U.S.$550,000,000
5.	(i) Issue Price:	99.469 per cent. of the Aggregate Nominal Amount
	(ii) Net proceeds (after deducting a combined management and underwriting commission but not estimated expenses):	Approximately U.S.$546 million
	(iii) Use of proceeds:	The Issuer expects to use the net proceeds from the Notes offering principally for general corporate purposes and such proceeds will not be used for any activities relating to the construction or development of oil sand projects.
6.	Specified Denominations:	U.S.$200,000 and, in excess thereof, integral multiples of U.S.$1,000
7.	(i) Issue Date:	January 18, 2022
	(ii) Interest Commencement Date:	January 18, 2022

8.	Maturity Date:	April 18, 2027
9.	Interest Basis:	2.125 per cent. Fixed Rate (further particulars specified below)
10.	Redemption/Payment Basis:	Redemption at par
11.	Change of Interest Basis or Redemption/Payment Basis:	None
12.	Put (other than Condition 8(d)(i))/Call Options:	Not Applicable
13.	(i) Status of the Notes:	Senior
	(ii) Date Board approval for issuance of Notes obtained:	December 23, 2021
14.	Listing:	Singapore Exchange Securities Trading Limited (the "SGX-ST")
15.	Method of distribution:	Syndicated
	PROVISIONS RELATING TO INTEREST (IF ANY) PAYABLE	
16.	Fixed Rate Note Provisions:	Applicable
	(i) Rate of Interest:	2.125 per cent. per annum payable semi-annually in arrear
	(ii) Interest Payment Date(s):	April 18 and October 18 in each year up to and including the Maturity Date (with the first interest payment date being April 18, 2022)
	(iii) Fixed Coupon Amount(s):	US$10.625 per US$1,000 in nominal amount (except that such amount shall be US$5.3125 per US$1,000 in nominal amount for the first interest payment date of April 18, 2022)
	(iv) Broken Amount(s):	Not Applicable
	(v) Day Count Fraction:	30/360, unadjusted
	(vi) Determination Date(s):	Not Applicable
	(vii) Business Day Convention:	Following Business Day Convention
	(viii) 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 Note Provisions:	Not Applicable
	PROVISIONS RELATING TO REDEMPTION	
21.	Issuer Call:	Not Applicable
22.	Investor Put (other than Condition 8(d)(i)):	Not Applicable
23.	Final Redemption Amount of each Note:	Par
24.	Early Redemption Amount of each Note payable on redemption for taxation reasons or on event of default and/or the method of calculating the same (if required or if different from that set out in Condition 8(e)):	Not Applicable

GENERAL PROVISIONS APPLICABLE TO THE NOTES

25.	Form of Notes:	Registered Notes
26.	Additional Financial Centre(s) or other special provisions relating to Payment Days:	
	(i) Additional Financial Centre(s):	Seoul
	(ii) Relevant cities for Payment Days:	London, New York City, Seoul
27.	Talons for future Coupons or Receipts to be attached to Definitive Bearer Notes (and dates on which such Talons mature):	No
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: amount of each installment, date on which each payment is to be made:	Not Applicable
30.	Redenomination applicable:	Redenomination not applicable.
31.	Other terms or special conditions:	Not Applicable

DISTRIBUTION

32.	(i) If syndicated, names of Managers:	Joint Lead Managers: BNP Paribas, Citigroup Global Markets Inc., The Hongkong and Shanghai Banking Corporation Limited, The Korea Development Bank, Mizuho Securities USA LLC and UBS AG, Hong Kong Branch
	(ii) Stabilising Manager (if any):	Each of the Joint Lead Managers
33.	If non-syndicated, name of relevant Dealer:	Not Applicable
34.	U.S. Selling Restrictions:	Reg. S Category 2 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	
		CUSIP:	Rule 144A: 50066PAS9
			Regulation S: 50066RAS5
		ISIN:	Rule 144A: US50066PAS92
			Regulation S: US50066RAS58
39.	Delivery:	Delivery against payment	

40.	In the case of Registered Notes, specify the Registrar:	Citibank, N.A., London Branch
41.	Specify the Principal Paying Agent:	Citibank, N.A., London Branch
42.	In the case of Registered Notes, specify the location of the office of the Registrar if other than New York:	Dublin, Ireland
43.	Additional Paying Agent(s) (if any):	Not Applicable

NOTIFICATION UNDER SECTION 309B(1)(C) OF THE SECURITIES AND FUTURES ACT 2001 (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 APPLICATION

This Pricing Supplement comprises the final terms required to list the issue of Notes described herein pursuant to the U.S.$10,000,000,000 Global Medium Term Note Program of Korea National Oil Corporation.

RESPONSIBILITY

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

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

Korea National Oil Corporation
Issue of U.S.$400,000,000 2.625 per cent. Notes due 2032
under the U.S.$10,000,000,000
Global Medium Term Note Program

This document constitutes the Pricing Supplement relating to the issue of Notes described herein. Terms used herein shall be deemed to be defined as such for the purposes of the Conditions set forth in the Offering Circular dated December 23, 2021 (the "Offering Circular"). This Pricing Supplement contains the final terms of the Notes and must be read in conjunction with the Offering Circular.

1.	Issuer:	Korea National Oil Corporation
2.	(i) Series Number:	59
	(ii) Tranche Number:	1
3.	Specified Currency or Currencies:	United States dollars ("U.S.$")
4.	Aggregate Nominal Amount:	
	(i) Series:	U.S.$400,000,000
	(ii) Tranche:	U.S.$400,000,000
5.	(i) Issue Price:	99.512 per cent. of the Aggregate Nominal Amount
	(ii) Net proceeds (after deducting a combined management and underwriting commission but not estimated expenses):	Approximately U.S.$397 million
	(iii) Use of proceeds:	The Issuer expects to use the net proceeds from the Notes offering principally for general corporate purposes and such proceeds will not be used for any activities relating to the construction or development of oil sand projects.
6.	Specified Denominations:	U.S.$200,000 and, in excess thereof, integral multiples of U.S.$1,000
7.	(i) Issue Date:	January 18, 2022
	(ii) Interest Commencement Date:	January 18, 2022
8.	Maturity Date:	April 18, 2032

9.	Interest Basis:	2.625 per cent. Fixed Rate (further particulars specified below)
10.	Redemption/Payment Basis:	Redemption at par
11.	Change of Interest Basis or Redemption/Payment Basis:	None
12.	Put (other than Condition 8(d)(i))/Call Options:	Not Applicable
13.	(i) Status of the Notes:	Senior
	(ii) Date Board approval for issuance of Notes obtained:	December 23, 2021
14.	Listing:	Singapore Exchange Securities Trading Limited (the "SGX-ST")
15.	Method of distribution:	Syndicated
	PROVISIONS RELATING TO INTEREST (IF ANY) PAYABLE	
16.	Fixed Rate Note Provisions:	Applicable
	(i) Rate of Interest:	2.625 per cent. per annum payable semi-annually in arrear
	(ii) Interest Payment Date(s):	April 18 and October 18 in each year up to and including the Maturity Date (with the first interest payment date being April 18, 2022)
	(iii) Fixed Coupon Amount(s):	US$13.125 per US$1,000 in nominal amount (except that such amount shall be US$6.5625 per US$1,000 in nominal amount for the first interest payment date of April 18, 2022)
	(iv) Broken Amount(s):	Not Applicable
	(v) Day Count Fraction:	30/360, unadjusted
	(vi) Determination Date(s):	Not Applicable
	(vii) Business Day Convention:	Following Business Day Convention
	(viii) 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 Note Provisions:	Not Applicable
	PROVISIONS RELATING TO REDEMPTION	
21.	Issuer Call:	Not Applicable
22.	Investor Put (other than Condition 8(d)(i)):	Not Applicable
23.	Final Redemption Amount of each Note:	Par
24.	Early Redemption Amount of each Note payable on redemption for taxation reasons or on event of default and/or the method of calculating the same (if required or if different from that set out in Condition 8(e)):	Not Applicable

GENERAL PROVISIONS APPLICABLE TO THE NOTES

25.	Form of Notes:	Registered Notes
26.	Additional Financial Centre(s) or other special provisions relating to Payment Days:	
	(i) Additional Financial Centre(s):	Seoul
	(ii) Relevant cities for Payment Days:	London, New York City, Seoul
27.	Talons for future Coupons or Receipts to be attached to Definitive Bearer Notes (and dates on which such Talons mature):	No
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: amount of each installment, date on which each payment is to be made:	Not Applicable
30.	Redenomination applicable:	Redenomination not applicable.
31.	Other terms or special conditions:	Not Applicable

DISTRIBUTION

32.	(i) If syndicated, names of Managers:	Joint Lead Managers: BNP Paribas, Citigroup Global Markets Inc., The Hongkong and Shanghai Banking Corporation Limited, The Korea Development Bank, Mizuho Securities USA LLC and UBS AG, Hong Kong Branch
	(ii) Stabilising Manager (if any):	Each of the Joint Lead Managers
33.	If non-syndicated, name of relevant Dealer:	Not Applicable
34.	U.S. Selling Restrictions:	Reg. S Category 2 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	
		CUSIP:	Rule 144A: 50066PAT7
			Regulation S: 50066RAT3
		ISIN:	Rule 144A: US50066PAT75
			Regulation S: US50066RAT32
39.	Delivery:	Delivery against payment	
40.	In the case of Registered Notes, specify the Registrar:	Citibank, N.A., London Branch	

41.	Specify the Principal Paying Agent:	Citibank, N.A., London Branch
42.	In the case of Registered Notes, specify the location of the office of the Registrar if other than New York:	Dublin, Ireland
43.	Additional Paying Agent(s) (if any):	Not Applicable

NOTIFICATION UNDER SECTION 309B(1)(C) OF THE SECURITIES AND FUTURES ACT 2001 (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 APPLICATION

This Pricing Supplement comprises the final terms required to list the issue of Notes described herein pursuant to the U.S.$10,000,000,000 Global Medium Term Note Program of Korea National Oil Corporation.

RESPONSIBILITY

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

OFFERING CIRCULAR

Korea National Oil Corporation

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

U.S.$10,000,000,000

Global Medium Term Note Program

This Offering Circular replaces and supersedes the offering circular dated March 23, 2021 describing the Program (as defined below). Any Notes (as defined below) issued under this Program on or after the date of this Offering Circular are issued subject to the provisions described herein. This does not affect any Notes issued prior to the date of this Offering Circular.

Under this U.S.$10,000,000,000 Global Medium Term Note Program (the "Program"), Korea National Oil Corporation (the "Issuer" or the "Company") may from time to time issue notes (the "Notes") denominated in any currency agreed between the Issuer and the relevant Dealer(s) (as defined below).

The Notes may be issued in bearer or registered form (respectively, "Bearer Notes" and "Registered Notes"). The maximum aggregate nominal amount of all Notes from time to time outstanding under the Program will not exceed U.S.$10,000,000,000 (or its equivalent in other currencies calculated as described herein), subject to increase as described herein.

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

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

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

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

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

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

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

Arranger

Citigroup

Dealers

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

The date of this Offering Circular is December 23, 2021.

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

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

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

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

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

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

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

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

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

EEA INFORMATION

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

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

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

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

UK INFORMATION

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

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

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

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

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

U.S. INFORMATION

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

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

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

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

SINGAPORE INFORMATION

Notification under Section 309B(1)(c) of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA") — Unless otherwise stated in the Pricing Supplement in respect of any Notes, the Issuer has determined, and hereby notifies all relevant persons (as defined in Section 309A(1) of the SFA), that the Notes to be issued under the Program shall be prescribed capital markets products (as defined in the Securities and Futures (Capital Markets Products) Regulations 2018 of Singapore) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

AVAILABLE INFORMATION

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

PRESENTATION OF FINANCIAL INFORMATION

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

The audited consolidated financial statements of the Issuer as of and for the years ended December 31, 2020 and 2019 contained in this Offering Circular have been prepared in accordance with the Government Accounting Standards or K-IFRS, as the case may be. The unaudited interim consolidated financial statements of the Issuer as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 contained in this Offering Circular have been prepared in accordance with K-IFRS No. 1034 "Interim Financial Reporting."

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

PRESENTATION OF RESERVES DATA

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

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

The crude oil and natural gas reserve estimates of Harvest Operations presented herein are based on the guidelines contained in the Canadian Oil and Gas Evaluation Handbook (the "COGE Handbook") and the reserve definitions contained in both National Instrument 51-101 — *Standards of Disclosure for Oil and Gas Activities* ("NI 51-101") and the COGE Handbook. The crude oil and natural gas reserves estimates presented herein in respect of Harvest Operations are based on reports prepared by GLJ Petroleum Consultants Ltd. (the "Independent Reserves Evaluators") for the years ended December 31, 2019 and 2020.

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

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

CERTAIN DEFINED TERMS AND CONVENTIONS

All references to "Korea" and the "Republic" contained in this Offering Circular shall mean The Republic of Korea. All references to the "Government" shall mean the government of Korea. All references to the "Issuer", "Company" or "KNOC" shall mean Korea National Oil Corporation, a statutory juridical entity established under the Korea National Oil Corporation Act of 1978, as amended (the "KNOC Act"), or Korea National Oil Corporation and its consolidated subsidiaries collectively, as required or as indicated by context. All references to "U.S." or the "United States" shall mean the United States of America. In this Offering Circular, all references to "Won" or "₩" are to the lawful currency of Korea, all references to "dollars," "$", "U.S.$" or "US$" are to the lawful currency of the United States, all references to "S$" are to the lawful currency of Singapore, all references to "Japanese Yen" are to the lawful currency of Japan, all references to "Chinese Renminbi" are to the lawful currency of the People's Republic of China, all references to "euro" or "€" are to the lawful currency of the European Union, all references to "British Pounds", "£" or "GBP" are to the lawful currency of the UK, all references to "Swiss Franc" or "CHF" are to the lawful currency of Swiss Confederation, all references to "Hong Kong dollars" or "HKD" are to the lawful currency of Hong Kong Special Administrative Region of the People's Republic of China ("Hong Kong"), all references to "Canadian dollars", "C$" or "CAD" are to the lawful currency of Canada and all references to "Norwegian Krone" or "NOK" are to the lawful currency of Norway. For the reader's convenience, certain Won amounts in this Offering Circular have been translated into dollars at the market average exchange rate, announced by Seoul Money Brokerage Services, Ltd. in Seoul, between Won and dollars, rounded to the nearest tenth of one Won (the "Market Average Exchange Rate"). Unless otherwise stated, the translations of Won into dollars have been made at the Market Average Exchange Rate in effect on September 30, 2021, which was Won 1,184.9 to US$1.00. For a discussion of historical information regarding the rate of exchange between the Won and the dollar, see "Exchange Rates." No representation is made that the Won or dollar amounts referred to in this Offering Circular could have been or could be converted into dollars or Won, as the case may be, at any particular rate or at all.

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

SERVICE OF PROCESS AND ENFORCEMENT OF CIVIL LIABILITIES

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

FORWARD-LOOKING STATEMENTS

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

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

DOCUMENTS INCORPORATED BY REFERENCE

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

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

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

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

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

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

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

GENERAL DESCRIPTION OF THE PROGRAM

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

This Offering Circular and any supplement will only be valid for the offering of Notes in an aggregate nominal amount of the Notes which, when added to the aggregate nominal amount then outstanding of all Notes previously or simultaneously issued under the Program, does not exceed U.S.$10,000,000,000 or its equivalent in other currencies. For the purpose of calculating the U.S. dollar equivalent of the aggregate nominal amount of Notes issued under the Program from time to time:

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

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

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

SUMMARY OF THE PROGRAM

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

Issuer	Korea National Oil Corporation
Description	Global Medium Term Note Program
Arranger	Citigroup Global Markets Inc.
Dealers	BNP Paribas, Citigroup Global Markets Inc., Crédit Agricole Corporate and Investment Bank, Credit Suisse International, The Hongkong and Shanghai Banking Corporation Limited, J.P. Morgan Securities plc, The Korea Development Bank, Merrill Lynch International, Mizuho Securities Asia Limited, MUFG Securities EMEA plc, Nomura Singapore Limited, Société Générale, Standard Chartered Bank, UBS AG, Hong Kong Branch and any other Dealers appointed in accordance with the Program Agreement.
Certain Restrictions	Each issue of Notes denominated in a currency in respect of which particular laws, guidelines, regulations, restrictions or reporting requirements apply will only be issued in circumstances which comply with such laws, guidelines, regulations, restrictions or reporting requirements from time to time (see "Subscription and Sale and Transfer and Selling Restrictions") including the following restrictions applicable at the date of this Offering Circular. **Notes with a maturity of less than one year:** Notes having a maturity of less than one year from the date of issue will, if the proceeds of the issue are accepted in the UK, constitute deposits for the purposes of the prohibition on accepting deposits contained in section 19 of the Financial Services and Markets Act 2000 unless they are issued to a limited class of professional investors and have a denomination of at least £100,000 or its equivalent. See "Subscription and Sale and Transfer and Selling Restrictions."
Issuing and Principal Paying Agent	Citibank, N.A., London Branch
Registrar	Citibank, N.A., London Branch
Program Size	Up to U.S.$10,000,000,000 (or its equivalent in other currencies calculated as described under "General Description of the Program") outstanding at any time. The Issuer may increase the amount of the Program in accordance with the terms of the Program Agreement.
Distribution	Notes may be distributed by way of private or public placement and in each case on a syndicated or non-syndicated basis.
Currencies	Subject to any applicable legal or regulatory restrictions, any currency agreed between the Issuer and the relevant Dealer.

Redenomination	The applicable Pricing Supplement may provide that certain Notes may be redenominated in euros. The relevant provisions applicable to any such redenomination are contained in Condition 5.
Maturities	Such maturities as may be agreed between the Issuer and the relevant Dealer, subject to such minimum or maximum maturities as may be allowed or required from time to time by the relevant central bank (or equivalent body) or any laws or regulations applicable to the Issuer or the relevant Specified Currency.
Issue Price	Notes may be issued on a fully paid or a partly paid basis and at an issue price which is at par or at a discount to, or premium over, par.
Form of Notes	The Notes will be issued in registered form or in bearer form as described in "Form of the Notes." Registered Notes will not be exchangeable for Bearer Notes and vice versa.
Fixed Rate Notes	Fixed interest will be payable on such date or dates as may be agreed between the Issuer and the relevant Dealer and on redemption, and will be calculated on the basis of such Day Count Fraction (as defined in "Terms and Conditions of the Notes") as may be agreed between the Issuer and the relevant Dealer.
Floating Rate Notes	Floating Rate Notes will bear interest at a rate determined: (i) on the same basis as the floating rate under a notional interest rate swap transaction in the relevant Specified Currency governed by an agreement incorporating the 2006 ISDA Definitions (as published by the International Swaps and Derivatives Association, Inc., and as amended and updated as at the Issue Date of the first Tranche of Notes of the relevant Series); or (ii) on the basis of a reference rate appearing on the agreed screen page of a commercial quotation service; or (iii) on such other basis as may be agreed between the Issuer and the relevant Dealer, all as indicated in the applicable Pricing Supplement. The margin (if any) relating to such floating rate will be agreed between the Issuer and the relevant Dealer for each Series (as defined under "Terms and Conditions of the Notes") of Floating Rate Notes.
Index Linked Notes	Payments of interest in respect of Index Linked Interest Notes will be calculated by reference to such index and/or formula or to changes in the prices of securities or commodities or to such other factors as the Issuer and the relevant Dealer may agree.
Other provisions in relation to Floating Rate Notes and Index Linked Interest Notes	Floating Rate Notes and Index Linked Interest Notes may also have a maximum interest rate, a minimum interest rate or both. Interest on Floating Rate Notes and Index Linked Interest Notes in respect of each Interest Period, as agreed prior to issue by the Issuer and the relevant Dealer, will be payable on such Interest Payment Dates, and will be calculated on the basis of such Day Count Fraction, as may be agreed between the Issuer and the relevant Dealer.

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

Status of the Notes	The Notes and any related Receipts (as defined in "Terms and Conditions of the Notes") and Coupons (as defined in "Terms and Conditions of the Notes") will constitute direct, unconditional, unsubordinated and, subject to the provisions of Condition 4, unsecured obligations of the Issuer and will rank pari passu among themselves (save for certain obligations preferred by law) and equally with all other unsecured and unsubordinated obligations of the Issuer, from time to time outstanding.
Listing	Approval in-principle has been received from the Singapore Stock Exchange in connection with the Program and application will be made for the listing and quotation of Notes that may be issued pursuant to the Program and which are agreed at or prior to the time of issue thereof to be so listed on the Singapore Stock Exchange. Such permission will be granted when such Notes have been admitted for listing and quotation on the Singapore Stock Exchange. For so long as any Notes are listed on the Singapore Stock Exchange and the rules of the Singapore Stock Exchange so require, such Notes, if traded on the Singapore Stock Exchange, will be traded in a minimum board lot size of S$200,000 (or its equivalent in foreign currencies). The Notes may also be listed on such other or further stock exchange(s) as may be agreed between the Issuer and the relevant Dealer in relation to each Series. Unlisted Notes may also be issued. The applicable Pricing Supplement will state whether or not the relevant Notes are to be listed or admitted to trading and, if so, on which stock exchange(s).
Governing Law	The Notes and any non-contractual obligations arising out of or in connection with the Notes will be governed by, and construed in accordance with, English law.
Selling Restrictions	There are restrictions on the offer, sale and transfer of the Notes in the United States of America, the EEA, the UK, Japan, Hong Kong, Singapore, Korea and Switzerland and such other restrictions as may be required in connection with the offering and sale of a particular Tranche of Notes. See "Subscription and Sale and Transfer and Selling Restrictions."

RISK FACTORS

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

Risks Relating to the Company

The Company has experienced complete equity erosion since 2020 due primarily to significant declines in the prices of crude oil in 2020 and fluctuations in the average value of foreign currencies against the U.S. dollar during the first nine months of 2021.

As of September 30, 2021 and December 31, 2020, the liabilities of the Company exceeded the assets of the Company by Won 1,504 billion and Won 1,141 billion, respectively. While the Company incurred a profit of Won 74 billion in the first nine months of 2021, the Company had foreign currency translation differences for foreign operations of Won (703) billion as of September 30, 2021 and losses on valuation of derivative instruments of Won 350 billion as of September 30, 2021. The foreign currency translation differences for foreign operations as of September 30, 2021 were due primarily to the fluctuations in the average value of the equity of the Company's subsidiaries due to fluctuations in exchange rates between the functional currencies of the Company's foreign subsidiaries against the U.S. dollar, the functional currency of the Company, during the first nine months of 2021. The losses on valuation of derivative instruments as of September 30, 2021 relate to losses on unrealized fair value of derivatives using cash flow hedge accounting entered into to hedge oil price fluctuations. The Company incurred a net loss of Won 2,439 billion in 2020, which was due primarily to significant declines in the prices of crude oil resulting from, among others, the global pandemic of a new strain of coronavirus ("COVID-19"), which materially and adversely affected the global economy and financial markets in 2020, which in turn decreased the global demand for crude oil in 2020. See "— The Company's operations are affected by the volatility of prices for crude oil, natural gas and petroleum products and price differentials between heavy and light oil, and a substantial or extended decline or fluctuations in such prices or differentials would have a material adverse effect on the Company's business, financial condition and results of operations" and "— If future oil and gas prices are forecasted to decline substantially, the Company may be required to write down the book value of its assets, which may have a material adverse effect on the Company's business, financial condition and results of operations." Such volatility has had and will continue to have a significant effect on the Company's business, results of operations and financial condition and the Company expects that it will continue to experience significant losses for at least the near future.

If the Company continues to incur net losses in the future without significant capital contributions and other support from the Government permitted under the KNOC Act, the Company's equity will remain completely eroded. Under the KNOC Act, the Company's authorized capital is Won 13.0 trillion, and as of September 30, 2021, the amount of the Company's share capital was Won 10.6 trillion. Without increasing the Company's authorized capital through an amendment to the KNOC Act, the Government would be capped at Won 2.4 trillion in terms of the amount of additional capital contributions it can make to the Company.

On July 21, 2020, in response to the continued depression of global oil prices as well as investments in the global energy sector, among others due to COVID-19, and the adverse impact of such depression on the financial conditions of the three Government-controlled enterprises in the natural resources sector, including the Company, an independent task force was appointed by MOTIE (the "Task Force"). The Task Force's main tasks included (1) objectively reviewing the main overseas natural development projects and the financial conditions of these Government-controlled enterprises; (2) examining and supplementing the restructuring plans so that such plans may be effectively implemented; and (3) in-depth discussions regarding the natural resources development plan based on cooperation between the public and private sectors. On April 28, 2021, the Task Force announced its recommendations to (1) strengthen strategic asset management; (2) secure sustainability of the Government-controlled enterprises through financial and governance reorganizations; and (3) rejuvenate industry ecosystems including through restoring the roles of the Government-controlled enterprises, encouraging investments from the private sector and increasing cooperation between the public and private sectors. The Company has no control over any recommendations that may be made by the Task Force or measures that may ultimately be adopted by the Government. Depending on the nature of any such measures, they may be subject to approval, among others, by the National Assembly. There is no assurance that any such measures will be adopted on a timely basis (if at all), or that they will be sufficient to address the Company's complete equity erosion and liquidity problems. The failure to address the Company's complete equity erosion and liquidity problems, or to implement an acceptable plan, may have a material adverse effect on the Company's business and financial condition and the Holders.

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

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

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

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

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

The prices of oil and natural gas have fluctuated greatly during the recent period of volatility in the global credit and financial markets. For example, the Company's average sales prices for crude oil decreased from US$58.59 per barrel in 2018 to US$54.86 per barrel in 2019 and US$37.33 per barrel in the 2020, but increased to US$54.10 per barrel in the first nine months of 2021.

Furthermore, the financial condition and results of operations of Harvest Operations Corp. ("Harvest Operations"), the Company's wholly owned subsidiary, are also affected by the price differentials between light oil and heavy oil. For the first nine months of 2021, Harvest Operations' production was approximately 6% light and medium gravity crude oil, 16% heavy oil, 42% bitumen, 11% natural gas liquids and 25% natural gas. Processing and refining heavy oil and bitumen is more expensive than processing and refining light oil and accordingly, producers of heavy oil and bitumen receive lower prices than light oil for their production. The price differential among light oil, heavy oil and bitumen has fluctuated widely during recent years, and has resulted in substantial increase in the volatility of heavy oil and bitumen prices. Increases in the heavy oil and bitumen price differentials, normally caused by seasonal supply and demand, pipeline constraints and heavy oil and bitumen processing capacities of refineries, all of which are beyond the control of Harvest Operations, usually results in Harvest Operations receiving lower prices for its heavy oil and bitumen.

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

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

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

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

The Company recognized impairment losses on its oil and gas properties, net of reversals, of Won 151 billion in 2019, Won 1,422 billion in 2020 and Won 31 billion in the first nine months of 2021 and impairment losses on intangible assets, net of reversals, of Won 301 billion in 2020 and Won 3 billion in the first nine months of 2021 due to decreases in forecasted oil prices and probable reserves and the return of mining rights. The Company recognized a net reversal of impairment losses on intangible assets of Won 35 billion in 2019 due to increases in probable reserves and others. See Notes 7, 8 and 9 to the Company's unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 and Notes 16, 17 and 18 to the Company's financial statements as of and for the years ended December 31, 2020 and 2019 included elsewhere in this Offering Circular. Similarly, the Company recognized valuation losses of financial assets measured at fair value through other comprehensive income of Won 27 billion in 2019 primarily due to valuation losses of EP Energy Corporation ("EP Energy"). In addition, the Company recognized impairment losses of Won 39 billion in 2019 and Won 29 billion in 2020 from Offshore International Group, Inc. ("OIG") and impairment losses of Won 86 billion in 2020 from Korea GS E&P Ptd. Ltd. Such recognition of impairment losses contributed to net losses of Won 155 billion in 2019 and Won 2,439 billion in 2020.

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

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

Pursuant to the June 2016 Government Plan, the Company has developed and is implementing a plan for the sale of its interests in overseas exploration, development and production operations (taking into consideration strategic value and profitability) to third parties with an aim to maximize the returns on such sales. In addition, the Task Force's recommendations of April 2021 included the disposal of all of the Company's projects that are not both profitable as well as strategically important. In furtherance of such plans and recommendations, the Company disposed of its (1) interest in Harvest Operations' Caroline Shallow and Wilson Creek fields in Canada in 2018, (2) interest in Harvest Operations' Blueberry, Consort Viking, Crooked Creek, Killarney and Worsley fields and Loon Oil sands in Canada in 2019, (3) interest in Harvest Operations' Chamber fields in Canada in 2020, (4) interest in OIG in 2021, (5) interest in certain additional assets of Harvest Operations, including West Central, Loon Lake and Royce, in 2021 and (6) interest in the River Bend field in 2021 pursuant to the June 2016 Government Plan. The Company is exploring potential avenues to dispose of certain additional assets, including those of Harvest Operations. However, any potential transaction would be dependent upon a number of factors that may be beyond the Company's control, including, among other factors, market conditions, industry trends, the interest of third-parties and the availability of financing to potential buyers on reasonable terms. Furthermore, any such disposals may require the consent of third parties outside of the Company's control, such as consents of holders of its (or its subsidiaries') bonds, lenders under its (or its subsidiaries') loans or borrowings or general partners. In addition, the global COVID-19 pandemic had a material adverse effect on the global energy markets in 2020, including for oil producing assets, which may adversely affect the Company's ability to consummate such disposals. There can be no assurance that the Company will be able to obtain the necessary consents where needed or consummate any such transaction on acceptable terms or at all. See "— The Company has experienced complete equity erosion in 2020 due primarily to significant declines in the prices of crude oil in 2020 and fluctuations in the average value of foreign currencies against the U.S. dollar during the first nine months of 2021," "— The Company's operations are affected by the volatility of prices for crude oil, natural gas and petroleum products and price differentials between heavy and light oil, and a substantial or extended decline or fluctuations in such prices or differentials would have a material adverse effect on the Company's business, financial condition and results of operations" and "— If future oil and gas prices are forecasted to decline substantially, the Company may be required to write down the book value of its assets, which may have a material adverse effect on the Company's business, financial condition and results of operations."

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

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

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

Under the KNOC Act, the outstanding aggregate principal amount of the bonds issued by the Company (excluding its subsidiaries) cannot exceed twice the sum of the Company's issued capital and reserves. As of September 30, 2021, on a separate basis, the outstanding aggregate principal amount of bonds payable by the Company was Won 11.6 trillion and the Company's share capital was Won 10.6 trillion (the Company did not have any reserves), representing a bond payables to share capital ratio of 1.09:1. The majority of the Company's outstanding indebtedness was incurred through bond issuances. See "Capitalization of the Company." The Company may be restricted in the amount of new bonds it can issue to finance its business and refinance its debt obligations as they become due as a result of the bond to issued capital and reserves ratio.

The Company is subject to guarantee obligations that could have a material adverse effect on the Company's business, financial condition and results of operations.

The Company has unconditionally and irrevocably guaranteed the full and immediate payments of the principal of, and premium (if any) and interest on, certain notes issued by Harvest Operations when and as such amounts become due and payable as provided in the relevant Harvest Notes (the "Harvest Notes"). In addition, the Company has guaranteed a credit facility and certain term loans of Harvest Operations (together, the "Harvest Loans"), which is disclosed as contingencies in the Company's

unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020. See Note 28 to the Company's unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 included elsewhere in this Offering Circular. As of September 30, 2021, the aggregate outstanding amount of the Harvest Notes guaranteed by the Company was US$1,382,500,000 and the Company provided, in aggregate, bank credit payment guarantees of CAD1,300,000,000 for Harvest Operations. Accordingly, if Harvest Operations were to fail to make its payment obligations arising from the Harvest Notes or the Harvest Loans, the Company would be obligated to make payments pursuant to the guarantees when due.

Harvest Operations' equity has been completely eroded since December 31, 2015, and as of September 30, 2021, the liabilities of Harvest Operations exceeded its assets by a significant amount, following large losses in the past several years resulting primarily from significant declines in the prices of crude oil as discussed in "— The Company's operations are affected by the volatility of prices for crude oil, natural gas and petroleum products and price differentials between heavy and light oil, and a substantial or extended decline or fluctuations in such prices or differentials would have a material adverse effect on the Company's business, financial condition and results of operations." As part of the June 2016 Government Plan, the Company has developed and is implementing a plan for the sale of its (and Harvest Operations') interests in overseas exploration, development and productions operations (taking into consideration strategic value and profitability) to third parties. As part of such efforts, the Company disposed of Harvest Operations' (1) interest in the Caroline Shallow and Wilson Creek fields in Canada in 2018, (2) interest in the Blueberry, Consort Viking, Crooked Creek, Killarney and Worsley fields and Loon Oil sands in Canada in 2019, (3) interest in the Chamber fields in Canada in 2020 and (4) interest in certain additional assets, including West Central, Loon Lake and Royce, in 2021. Although the Company is exploring potential avenues to dispose of certain additional assets of Harvest Operations, any potential transaction would be dependent upon a number of factors that may be beyond the Company's control, including, among other factors, market conditions, industry trends, the interest of third-parties and the availability of financing to potential buyers on reasonable terms. Furthermore, any such disposals may require the consent of third parties outside of the Company's control, such as consents of the holders of the Harvest Notes, lenders under the Harvest Loans.

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

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

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

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

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

Exploring, developing and producing crude oil and natural gas fields are capital-intensive activities with high risks. The Company incurred capital expenditures (consisting of cash used for acquisitions of (1) property, plant and equipment, (2) intangible assets other than goodwill and (3) investments in associates and joint ventures) of Won 560 billion for 2019, Won 756 billion for 2020 and Won 410 billion for the first nine months of 2021. The Company's capital expenditure budget for 2021 for its exploration, development and production activities (including amounts expended through September 30, 2021) is approximately Won 698 billion on a consolidated basis, which represents a decrease from its 2020 budget of Won 1,305 billion due to expectations of decreased drilling activities during 2021.

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

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

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

The Company was established under the KNOC Act to, among other policy objectives, secure Korea's supply of crude oil in times of large oil price fluctuations or shortages. From time to time, the Company is required to take action in furtherance of public policy considerations and the Government's broader objectives for the crude oil and natural gas industry, which may not necessarily be in the Company's best commercial interests or the interests of the Noteholders. As of the date of this Offering Circular, the Government holds 100.0% of the Company's issued share capital. Accordingly, the Government is able to elect the Company's board of directors including the president of the board of directors (the "President"), as well as control its management. Although the Company's management runs the day-to-day operations, the Government may determine material policies relating to the direction of the Company's business. For example, public policy considerations relating to the level of the Company's exploration and production activities or stockpiling activities may affect the Company's results of operations. The Government has historically influenced, and is likely to continue to influence, the Company's strategy and operations. For instance, in June 2016, the Ministry of Economy and Finance and the Ministry of Trade, Industry and Energy announced broad-based measures (the "June 2016 Government Plan") to rationalize the overseas natural resource exploration, development and production activities of government-controlled enterprises, including the Company. Pursuant to such improvement measures, the Company has developed and is implementing a plan for the sale of its interests in overseas exploration, development and production operations (taking into consideration strategic value and profitability) to third parties with preference given to institutional investors in Korea if possible and with an aim to maximize the returns on such sales. For example, the Company disposed of its (1) interest in Harvest Operations' Caroline Shallow and Wilson Creek fields in Canada in 2018, (2) interest in Harvest Operations' Blueberry, Consort Viking, Crooked Creek, Killarney and Worsley fields and Loon Oil sands in Canada in 2019, (3) interest in Harvest Operations' Chamber fields in Canada in 2020, (4) interest in OIG in 2021, (5) interest in certain additional assets of Harvest Operations, including West Central, Loon Lake and Royce, in 2021 and (6) interest in the River Bend field in 2021 pursuant to the June 2016 Government Plan. The timing of any such sales will be subject to market conditions and the Company will be limited from entering into any new overseas investments other than any such investments that are in furtherance

of important policy objectives. In addition, pursuant to the June 2016 Government Plan, the responsibility for administrative tasks related to the day-to-day operation of the SAER funds and the administration of SAER loans for oil-related projects, other than the administration of taxes and dues, were transferred from the Company to the Korea Energy Agency in July 2017. See "Business — Relationship with the Government."

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

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

If earthquakes, tsunamis, floods, severe health epidemics or any other natural calamities were to occur in any area where any of the Company's assets, exploration, production or development projects or customers are located, the Company's business, results of operations or financial condition could be adversely affected. As of September 30, 2021, the Company had interests in 31 exploration, production and development projects located across 17 countries, including Canada, Korea, the United Arab Emirates, the UK, the United States, Vietnam and Yemen. Any occurrence of such natural calamities in countries where the Company's exploration, production or development projects are located may lead to reduced production or delays in the production of crude oil or natural gas. In addition, natural calamities in areas where the Company's customers are located, including Canada, Europe and Korea, may cause disruptions in their businesses, which in turn could adversely impact their demand for the Company's crude oil and natural gas, which may also lead to lower prices for such crude oil and natural gas.

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

While the Company believes that COVID-19 has not caused material disruption to its business operations to date, COVID-19 has had a material adverse effect on the overall Korean and global economies and the demand for, and the prices and margins of, the Company's products particularly in 2020. Primarily as a result of such effect, including the decrease in crude oil prices described in "— The Company's operations are affected by the volatility of prices for crude oil, natural gas and petroleum products and price differentials between heavy and light oil, and a substantial or extended decline or fluctuations in such prices or differentials would have a material adverse effect on the Company's business, financial condition and results of operations," the Company's revenues decreased to Won 1,931 billion in 2020 from Won 2,930 billion in 2019, and the Company's loss for the year increased to Won 2,439 billion in 2020 from Won 155 billion in 2019.

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

- disruption in the normal operations of the businesses of the Company's customers, which in turn may decrease demand for the Company's crude oil and natural gas and adversely affect their prices;
- disruption in the normal operations of the Company's business resulting from contraction of COVID-19 by the Company's employees or those of the Company's exploration, production and development projects, which may necessitate such employees to be quarantined and/or the Company's exploration, production and development projects or offices to be temporarily shut down, which in turn may adversely impact the Company's production capacity;
- disruption in the distribution of the Company's crude oil and natural gas to its customers;

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

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

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

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

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

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

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

Success of the Company's business depends largely on acquiring rights to or discovering additional crude oil and natural gas reserves that can be developed for commercially viable production. If the acquisition and exploration activities in which the Company participated or which it conducts are not successful, the Company's total proved reserves and future production will decline. In addition, approximately 48% of the Company's proved reserves were undeveloped as of June 30, 2021. The Company's future success will also depend on its ability to develop these reserves in a timely and cost-effective manner. If the Company is unable to generate profitable production from such reserves, its business, financial condition and results of operations could be adversely affected.

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

- the Company may be unable to negotiate commercially reasonable terms for such acquisition, exploration, development or production activities;
- the Company may be unable to limit development and production costs because of, for example, adverse weather, natural disasters, global health epidemics, environmental considerations, equipment shortages, procurement delays or difficulties arranging transportation for production, all of which may make it uneconomical to proceed with developing such reserves;
- the Company may face difficulties arising from political, environmental and other conditions in the areas where the reserves are located or through which its products are transported or where its products are stored; or
- a partner company on which the Company relies as operator may commit errors or misjudgments, and the Company has limited ability to control day-to-day activities on a project on which it is not the operator.

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

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

In addition, the Company's consortium partners may:

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

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

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

A major element of the Company's business strategy is to achieve growth through exploration activities. The Company produced approximately 145,500 barrels of oil equivalent of crude oil and natural gas per day as of June 30, 2021, and is targeting to maintain its production at approximately 127,000 barrels per day for the remainder of 2021. Both the process of drilling new productive wells and acquisition of other companies are affected by many factors beyond the Company's control, and it may not be able to achieve the desired objectives. Where the Company enters into joint ventures with partners in exploration and production projects, the Company may not act as an operator and will need to depend on its partners for their financial commitment and technical expertise. The Company cannot guarantee that its partners will successfully execute the business plans and strategies formulated for the joint ventures.

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

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

Success of an acquisition or other similar transactions depends, in part, on the Company's ability to realize adequate return on the prices paid for properties, the anticipated synergies, cost savings and growth opportunities from integrating the business of the acquired company or the asset with its business. The prices paid by the Company for acquisitions are based, in part, on engineering and economic assessments made by the Company's engineers. These assessments include a number of material assumptions regarding such factors as recoverability and marketability of crude oil, natural gas and natural gas liquids, future prices of oil, natural gas and natural gas liquids and operating costs, future capital expenditures and royalties and other taxes which will be imposed over the producing life of the reserves. Many of these factors are subject to change and are beyond the Company's control. In particular, the prices of and markets for petroleum and natural gas may change from those anticipated at the time of making acquisitions. In addition, all engineering assessments involve a measure of geological and engineering uncertainty, which could result in lower production and reserves than those attributed to the properties when they were acquired. For example, for the reasons described above: (i) in 2019, the Company recognized impairment losses on oil and gas properties of Dana Petroleum Limited ("Dana Petroleum") of Won 94 billion and Harvest Operations of Won 4 billion; (ii) in 2020, the Company recognized impairment losses on oil and gas properties of Dana Petroleum of Won 739 billion, KNOC Eagle Ford Corporation of Won 377 billion, Harvest Operations of Won 342 billion and ANKOR E&P Holdings Corporation of Won 160 billion; and (iii) in the first nine months of 2021, the Company recognized impairment losses on oil and gas properties of Block 8 in Peru of Won 31 billion.

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

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

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

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

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

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

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

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

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

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

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

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

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

- changes and developments in laws, regulations, policies, technology and markets, including societal and investor sentiment, related to the issue of climate change, such as the Glasgow Climate Pact agreed upon at the 2021 United Nations Climate Change Conference ("COP26") which includes commitments to phase down the use of unabated coal power and inefficient fossil fuel subsidies;
- changes in laws, regulations or government policies, or in the interpretation or enforcement of laws, regulations and government policies, including changes driven by resource nationalism, or uncertainties thereof;
- measures which may be introduced to control inflation;
- changes in the rate or method of taxation;
- imposition of additional restrictions on currency conversion and remittances abroad;
- military hostilities, war, political unrest or acts of terrorism targeted at the Company's fields or facilities;
- reduction in tariff protection and other import restrictions;
- natural disasters and epidemics or outbreaks, such as the COVID-19 pandemic;
- international economic sanctions;
- anti-corruption laws compliance; and
- changes in the usage and costs of state-controlled transportation services.

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

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

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

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

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

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

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

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

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

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

Risks Relating to Korea

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

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

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

- geopolitical uncertainty and risk of further attacks by terrorist groups around the world;
- political uncertainty or increasing strife among or within political parties in Korea;
- hostilities or political or social tensions involving oil producing countries in the Middle East (including a potential escalation of hostilities between the United States and Iran) and Northern Africa and any material disruption in the global supply of oil or sudden increase in the price of oil;
- natural or man-made disasters that have a significant adverse economic or other impact on Korea or its major trading partners; and
- an increase in the level of tensions or an outbreak of hostilities between North Korea and Korea or the United States.

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

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

- North Korea renounced its obligations under the Nuclear Non-Proliferation Treaty in January 2003 and conducted six rounds of nuclear tests since October 2006, including claimed detonations of hydrogen bombs and warheads that can be mounted on ballistic missiles. Over the years, North Korea has continued to conduct a series of missile tests, including ballistic missiles launched from submarines and intercontinental ballistic missiles that it claims can reach the United States mainland. In response, the Government has repeatedly condemned the provocations and flagrant violations of relevant United Nations Security Council resolutions. In February 2016, the Government also closed the inter-Korea Gaesong Industrial Complex in response to North Korea's fourth nuclear test in January 2016. Internationally, the United Nations Security Council has passed a series of resolutions condemning North Korea's actions and significantly expanding the scope of sanctions applicable to North Korea, most recently in December 2017 in response to North Korea's intercontinental ballistic missile test in November 2017. Over the years, the United States and the European Union have also expanded their sanctions applicable to North Korea.
- In March 2010, a Korean naval vessel was destroyed by an underwater explosion, killing many of the crewmen on board. The Government formally accused North Korea of causing the sinking, while North Korea denied responsibility. Moreover, in November 2010, North Korea fired more than one hundred artillery shells that hit Korea's Yeonpyeong Island near the Northern Limit Line, which acts as the de facto maritime boundary between Korea and North Korea on the west coast of the Korean peninsula, causing casualties and significant property damage. The Government condemned North Korea for the attack and vowed stern retaliation should there be further provocation.

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

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

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

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

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

In addition, the Company's consolidated financial statements as of and for the years ended December 31, 2020 and 2019 and its unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 included in this Offering Circular have been prepared in accordance with the Government Accounting Standards or K-IFRS, as the case may be, and the Company expects to prepare its financial statements in accordance with the Government Accounting Standards or K-IFRS, as the case may be, for future periods, which differ in certain respects from accounting principles applicable to companies in certain other countries, including the United States. In addition, the Company is not a listed company but makes public disclosures regarding aspects of its business pursuant to the Act on the Management of Public Institutions and other laws applicable to the Company. These disclosure rules differ in many material respects from those applicable to companies in certain other countries, including the United States. In making an investment decision, investors must rely upon their own examination of the Company, the terms of the offering and the financial information contained in this Offering Circular.

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

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

Risks Relating to the Notes

The Notes are not guaranteed by the Republic of Korea.

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

The Notes are unsecured obligations.

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

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

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

The Notes are subject to transfer restrictions.

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

The Notes may have limited liquidity.

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

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

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

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

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

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 it will no longer require panel banks to submit quotes for LIBOR settings other than overnight and 12-month U.S. dollar LIBOR after December 31, 2021 and for any U.S. dollar LIBOR settings after June 30, 2023. 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 assets, such as loans and derivatives products, and liabilities, such as deposits and bonds, 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 it will no longer require panel banks to submit quotes for LIBOR settings other than overnight and 12-month U.S. dollar LIBOR after December 31, 2021 and for any U.S. dollar LIBOR settings after June 30, 2023. See "— Uncertainties regarding the possible discontinuation of the London Interbank Offered Rate ("LIBOR") or any other interest rate benchmark could have adverse consequences for market participants, including the Company."

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

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

Risks Relating to Forward-Looking Statements

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

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

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

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

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

FORM OF THE NOTES

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

Bearer Notes

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

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

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

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

announcement of such exchange shall be made by the Issuer or on the Issuer's behalf through the Singapore Stock Exchange and such announcement will include all material information with respect to the delivery of the definitive Bearer Notes, including details of the Singapore Paying Agent. In the event of the occurrence of an Exchange Event, Euroclear and/or Clearstream (acting on the instructions of any holder of an interest in such Permanent Bearer Global Note) may give notice to the Principal Paying Agent requesting exchange and, in the event of the occurrence of an Exchange Event as described in (iii) above, the Issuer may also give notice to the Principal Paying Agent requesting exchange. Any such exchange shall occur not later than 45 days after the date of receipt of the first relevant notice by the Principal Paying Agent.

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

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

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

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

Registered Notes

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

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

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

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

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

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

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

Transfer of Interests

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

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

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

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

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

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

Form of Pricing Supplement

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

[MiFID II PRODUCT GOVERNANCE — Solely for the purposes of 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 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 National Oil Corporation

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

under the U.S.$10,000,000,000

Global Medium Term Note Program

This document constitutes the Pricing Supplement relating to the issue of Notes described herein. Terms used herein shall be deemed to be defined as such for the purposes of the Conditions set forth in the Offering Circular dated December 23, 2021 [and the supplemental Offering Circular dated [●]]. This Pricing Supplement contains the final terms of the Notes and must be read in conjunction with such Offering Circular as so supplemented.

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

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

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

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

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

PROVISIONS RELATING TO INTEREST (IF ANY) PAYABLE

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

	(iv) Manner in which the Rate of Interest and Interest Amount is to be determined:	**[Screen Rate Determination/ISDA Determination/ *specify other*]**
	(v) Party responsible for calculating the Rate of Interest and Interest Amount (if not the Principal Paying Agent):	[●]
	(vi) Screen Rate Determination:	
	— Reference Rate:	[●] *(Either LIBOR, EURIBOR or other, although additional information is required if other — including fallback provisions in the Agency Agreement)*
	— Interest Determination Date(s):	[●] *(Second London business day prior to the start of each Interest Period if LIBOR (other than Sterling or euro LIBOR), first day of each Interest Period if Sterling LIBOR and the second day on which the TARGET 2 system is open prior to the start of each Interest Period if EURIBOR or euro LIBOR)*
	— Relevant Screen Page:	[●] *(In the case of EURIBOR, if not Telerate Page 248 ensure it is a page which shows a composite rate or amend the fallback provisions appropriately)*
	(vii) ISDA Determination:	
	— Floating Rate Option:	[●]
	— Designated Maturity:	[●]
	— Reset Date:	[●]
	(viii) Margin(s):	[+/-][●] per cent. per annum
	(ix) Minimum Rate of Interest:	[●] per cent. per annum
	(x) Maximum Rate of Interest:	[●] per cent. per annum
	(xi) Day Count Fraction:	**[Actual/365 Actual/365 (Fixed) Actual/365 (Sterling) Actual/360 30/360 30E/360 Other]** ***(See Condition 6 for alternatives)***
	(xii) Fall back provisions, rounding provisions and any other terms relating to the method of calculating interest on Floating Rate Notes, if different from those set out in the Conditions:	[●]
18.	Zero Coupon Note Provisions:	**[Applicable/Not Applicable]** ***(If not applicable, delete the remaining sub-paragraphs of this paragraph)***
	(i) Accrual Yield:	[●] per cent. per annum
	(ii) Reference Price:	[●]
	(iii) Any other formula/basis of determining amount payable:	[●] *(Consider applicable day count fraction if euro denominated)*
	(iv) Day Count Fraction in relation to Early Redemption Amount and Late Payment on Zero Coupon Notes:	**[Condition 8(e)(iii) and Condition 8(j) apply/*specify other] (Consider applicable day count fraction if not U.S. dollar denominated)***
19.	Index Linked Interest Note Provisions:	**[Applicable/Not Applicable]** ***(If not applicable, delete the remaining sub-paragraphs of this paragraph)***
	(i) Index/Formula:	***[give or annex details]***
	(ii) Calculation Agent responsible for calculating the interest due:	[●]

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

PROVISIONS RELATING TO REDEMPTION

21.	Issuer Call:	**[Applicable/Not Applicable]** ***(If not applicable, delete the remaining sub-paragraphs of this paragraph)***
	(i) Optional Redemption Date(s):	[●]
	(ii) Optional Redemption Amount of each Note and method, if any, of calculation of such amount(s):	[●] per Note of [●] Specified Denomination
	(iii) If redeemable in part:	
	(a) Minimum Redemption Amount:	[●]
	(b) Higher Redemption Amount:	[●]
	(iv) Notice period (if other than as set out in the Conditions):	[●] *(N.B. If setting notice periods which are different to those provided in the Conditions, the Issuer is advised to consider the practicalities of distribution of information through intermediaries, for example, clearing systems and custodians, as well as any other notice requirements which may apply, for example, as between the Issuer and the Principal Paying Agent)*

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

GENERAL PROVISIONS APPLICABLE TO THE NOTES

25.	Form of Notes:	**[Bearer Notes:** **[Temporary Bearer Global Note exchangeable for a Permanent Bearer Global Note which is exchangeable for Definitive Notes [on 60 days' notice given at any time/only upon an Exchange Event]]** **[Temporary Bearer Global Note exchangeable for Definitive Notes on and after the Exchange Date]** **[Permanent Bearer Global Note exchangeable for Definitive Notes [on 60 days' notice given at any time/only upon an Exchange Event]]** **[Registered Notes:** **Regulation S Global Note (U.S.$[●] nominal amount) registered in the name of a nominee for [DTC/a common depositary for Euroclear and Clearstream]/Rule 144A Global Note (U.S.$[●] nominal amount) registered in the name of a nominee for [DTC/a common depositary for Euroclear and Clearstream]/Definitive IAI Registered Notes (specify nominal amounts)]**
26.	Additional Financial Centre(s) or other special provisions relating to Payment Days:	***[Not Applicable/give details] (Note that this item relates to the place of payment and not Interest Period end dates to which items 17(iii) and 19(vi) relate)***
	(i) Additional Financial Centre(s):	[●]
	(ii) Relevant cities for Payment Days:	London, [●]

27.	Talons for future Coupons or Receipts to be attached to Definitive Bearer Notes (and dates on which such Talons mature):	**[Yes/No.** ***If yes, give details***]
28.	Details relating to Partly Paid Notes: amount of each payment comprising the Issue Price and date on which each payment is to be made and consequences of failure to pay, including any right of the Issuer to forfeit the Notes and interest due on late payment:	**[Not Applicable/*give details. NB: new forms of Global Note(s) may be required for Partly Paid issues.*]**
29.	Details relating to Installment Notes: amount of each installment, date on which each payment is to be made:	**[Not Applicable/*give details*]**
30.	Redenomination applicable:	Redenomination **[not]** applicable. [***(If Redenomination is applicable, specify the applicable Day Count Fraction and any provisions necessary to deal with floating rate interest calculation (including alternative reference rates))] [(if Redenomination is applicable, specify the terms of the redenomination in an Annex to the Pricing Supplement)***]
31.	Other terms or special conditions:	**[Not Applicable/give details]**

DISTRIBUTION

32.	(i) If syndicated, names of Managers:	**[Not Applicable/*give names*]**
	(ii) Stabilizing Manager (if any):	**[Not Applicable/*give name*]**
33.	If non-syndicated, name of relevant Dealer:	[●]
34.	U.S. Selling Restrictions:	**[Reg. S Category 1/Reg. S Category 2]** **[TEFRA D/TEFRA C/TEFRA not applicable]**
35.	Prohibition of sales to EEA or UK retail investors:	**[Applicable/Not Applicable]**
36.	Additional selling restrictions:	**[Not Applicable/*give details*]** **(*If Item 34 confirms that either TEFRA C or TEFRA D applies, then specify each of the selling restrictions and representations that should be complied with to ensure that the issuance of Notes is U.S. Treas. Reg. § 1.163-5(c)(2)(i)(C) (i.e., TEFRA C) or U.S. Treas. Reg. § 1.163-5(c)(2)(i)(D) (i.e., TEFRA D) compliant, as applicable*)**

OPERATIONAL INFORMATION

37.	Any clearing system(s) other than Euroclear and Clearstream and the relevant identification number(s):	**[Not Applicable/*give name(s) and number(s)*]**
38.	Delivery:	Delivery [**against/free of**] payment
39.	In the case of Registered Notes, specify the Registrar:	**[Not Applicable/Citibank, N.A., London Branch]**

40.	Specify the Principal Paying Agent:	**[Citibank, N.A., London Branch]**
41.	In the case of Registered Notes, specify the location of the office of the Registrar if other than New York:	**[Not Applicable/give location]**
42.	Additional Paying Agent(s) (if any):	[●]
	ISIN:	[●]
	Common Code:	[●]
	(insert here any other relevant codes such as CUSIP and CINS codes)	

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

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

[LISTING APPLICATION

This Pricing Supplement comprises the final terms required to list the issue of Notes described herein pursuant to the U.S.$10,000,000,000 Global Medium Term Note Program of Korea National Oil Corporation.]

RESPONSIBILITY

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

Signed on behalf of the Issuer:

By:

Duly authorized

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

TERMS AND CONDITIONS OF THE NOTES

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

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

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

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

(b) any Global Note;

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

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

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

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

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

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

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

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

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

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

1. FORM, DENOMINATION AND TITLE

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

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

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

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

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

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

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

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

2. TRANSFERS OF REGISTERED NOTES

(a) Transfers of interests in Registered Global Notes

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

(b) Transfers of Registered Notes in definitive form

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

(c) Registration of transfer upon partial redemption

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

(d) Costs of registration

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

(e) Transfers of interests in Regulation S Global Notes

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

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

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

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

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

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

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

(f) Transfers of interests in Legended Notes

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

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

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

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

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

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

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

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

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

(g) Exchanges and transfers of Registered Notes generally

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

(h) Definitions

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

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

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

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

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

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

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

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

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

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

3. STATUS OF THE NOTES

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

4. CERTAIN COVENANTS

(a) Negative Pledge

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

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

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

(b) Consolidation, Merger and Sale of Assets

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

(c) Certain Definitions

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

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

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

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

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

"*Principal Subsidiary*" means:

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

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

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

provided that:

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

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

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

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

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

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

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

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

5. REDENOMINATION

(a) Redenomination

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

The election will have effect as follows:

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

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

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

(iv) if issued prior to the Redenomination Date, all unmatured Coupons denominated in the Specified Currency (whether or not attached to the Notes) will become void with effect from the date on which the Issuer gives notice (the "Exchange Notice") that replacement euro-denominated Notes, Receipts and Coupons are available for exchange (provided that such securities are so available) and no payments will be made in respect of them. The payment obligations contained in any Notes and Receipts so issued will also become void on that date although those Notes and Receipts will continue to constitute valid exchange obligations of the Issuer. New euro-denominated Notes,

Receipts and Coupons will be issued in exchange for Notes, Receipts and Coupons denominated in the Specified Currency in such manner as the Principal Paying Agent may specify and as shall be notified to the Noteholders in the Exchange Notice. No Exchange Notice may be given less than 15 days prior to any date for payment of principal or interest on the Notes;

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

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

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

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

(b) Definitions

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

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

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

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

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

6. INTEREST

(a) Interest on Fixed Rate Notes

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

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

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

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

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

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

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

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

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

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

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

In this Condition 6(a):

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

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

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

(i) Interest Payment Dates

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

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

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

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

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

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

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

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

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

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

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

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

(ii) Rate of Interest

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

(A) ISDA Determination for Floating Rate Notes

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

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

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

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

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

(B) Screen Rate Determination for Floating Rate Notes

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

(1) the offered quotation; or

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

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

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

(C) Effect of Benchmark Transition Event

(i) Benchmark Replacement

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

(ii) Benchmark Replacement Conforming Changes

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

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

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

(iii) Decisions and Determinations

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

(iv) Notices, etc.

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

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

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

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

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

(v) Survival of Original Reference Rate

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

(vi) Certain Defined Terms

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(v) Notification of Rate of Interest and Interest Amounts

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

(vi) Certificates to be final

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

(c) Interest on Dual Currency Notes

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

(d) Interest on Partly Paid Notes

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

(e) Accrual of interest

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

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

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

7. PAYMENTS

(a) Method of payment

Subject as provided below:

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

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

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

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

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

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

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

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

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

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

(c) Payments in respect of Bearer Global Notes

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

(d) Payments in respect of Registered Notes

Payments of principal (other than installments of principal prior to the final installment) in respect of each Registered Note (whether or not in global form) will be made against presentation and surrender (or, in the case of part payment of any sum due, endorsement) of the Registered Note at the specified office of the Registrar or any of the Paying Agents. Such payments will be made by transfer to the Designated Account (as defined below) of the holder (or the first named of joint holders) of the Registered Note appearing in the register of holders of the Registered Notes maintained by the Registrar (the "Register") at the close of business on the third business day (being for this purpose a day on which banks are open for business in the city where the specified office of the Registrar is located) before the relevant due date. Notwithstanding the previous sentence, if (i) a holder does not have a Designated Account or (ii) the principal amount of the Notes held by a holder is less than U.S.$250,000 (or its approximate equivalent in any other Specified Currency), payment will instead be made by a cheque in the Specified Currency drawn on a Designated Bank (as defined below) and mailed by uninsured mail as soon as reasonably

practicable after the relevant due date to the holder (or the first named of joint holders) of the Registered Note appearing in the Registrar at the close of business on the Record Date (as defined below). For these purposes, "Designated Account" means the account (which, in the case of a payment in Japanese Yen to a non-resident of Japan, shall be a non-resident account) maintained by a holder with a Designated Bank and identified as such in the Register and "Designated Bank" means (in the case of payment in a Specified Currency other than euro) a bank in the principal financial centre of the country of such Specified Currency (which, if the Specified Currency is Australian dollars or New Zealand dollars, shall be Sydney or Auckland, respectively) and (in the case of a payment in euro) any bank which processes payments in euro.

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

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

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

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

(e) General provisions applicable to payments

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

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

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

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

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

(f) Payment Day

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

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

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

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

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

(g) Interpretation of principal and interest

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

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

(ii) the Final Redemption Amount of the Notes;

(iii) the Early Redemption Amount of the Notes;

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

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

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

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

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

8. REDEMPTION AND PURCHASE

(a) Redemption at maturity

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

(b) Redemption for tax reasons

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

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

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

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

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

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

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

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

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

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

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

(i) Change of Control

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

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

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

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

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

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

(e) Early Redemption Amounts

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

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

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

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

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

where:

"RP" means the Reference Price;

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

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

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

(f) Installments

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

(g) Partly Paid Notes

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

(h) Purchases

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

(i) Cancellation

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

(j) Late payment on Zero Coupon Notes

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

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

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

9. TAXATION

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

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

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

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

(a) the due date for payment thereof; or

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

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

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

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

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

10. PRESCRIPTION

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

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

11. EVENTS OF DEFAULT

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

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

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

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

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

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

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

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

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

12. REPLACEMENT OF NOTES, RECEIPTS, COUPONS AND TALONS

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

13. PAYING AGENTS

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

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

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

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

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

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

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

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

14. EXCHANGE OF TALONS

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

15. NOTICES

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

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

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

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

16. MEETINGS OF NOTEHOLDERS, MODIFICATION AND WAIVER

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

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

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

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

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

17. FURTHER ISSUES

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

18. CONTRACTS (RIGHTS OF THIRD PARTIES) ACT 1999

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

19. GOVERNING LAW AND SUBMISSION TO JURISDICTION

(a) Governing law

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

(b) Submission to jurisdiction

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

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

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

(c) Appointment of Process Agent

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

(d) Waiver of immunity

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

(e) Other documents

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

(f) Currency Indemnity

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

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

USE OF PROCEEDS

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

EXCHANGE RATES

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

Period	At End of Period	Average Rate[(1)]	High	Low
		(Won per US$1.00)		
2016	1,208.5	1,160.5	1,240.9	1,093.2
2017	1,071.4	1,130.8	1,208.5	1,071.4
2018	1,118.1	1,100.3	1,142.5	1,057.6
2019	1,157.8	1,165.7	1,218.9	1,111.6
2020	1,088.0	1,180.5	1,280.1	1,082.7
2021 (through December 22)	1,191.5	1,143.2	1,199.1	1,083.1
June	1,130.0	1,121.3	1,135.8	1,107.0
July	1,147.4	1,144.0	1,154.8	1,129.5
August	1,164.4	1,160.3	1,176.7	1,142.3
September	1,184.9	1,169.5	1,184.9	1,156.4
October	1,171.7	1,182.8	1,199.1	1,166.3
November	1,193.4	1,182.9	1,193.4	1,169.6
December (through December 22)	1,191.5	1,182.2	1,191.5	1,173.8

Source: Seoul Money Brokerage Services, Ltd.

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

CAPITALIZATION

The following table sets forth the Company's capitalization (defined as the sum of consolidated long-term debt and total equity) as of September 30, 2021, which is derived from the Company's unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020. This table should be read in conjunction with the Company's unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 included in this Offering Circular.

	As of September 30, 2021[1]	
	(In billions of Won and in millions of dollars)	
Long-term debt:		
Long-term borrowings, net of discounts	₩ 1,022	$ 863
Bonds payable, net of discounts and including premiums	10,534	8,890
Total long-term debt	₩ 11,556	$ 9,753
Owner's equity:		
Share capital	₩ 10,617	$ 8,960
Accumulated deficit	(12,230)	(10,322)
Other components of equity	(544)	(459)
Non-controlling interests	653	551
Total equity	(1,504)	(1,269)
Total capitalization[2]	10,052	8,484

(1) Translated Won and dollar amounts at the Market Average Exchange Rate of Won 1,184.9 to US$1.00 on September 30, 2021.

(2) Except as set forth herein, there has been no material change in the Company's capitalization since September 30, 2021.

SELECTED FINANCIAL AND OTHER DATA

Selected Financial Data

The following tables present selected consolidated financial and other data of the Company. This data should be read in conjunction with the consolidated financial statements of the Company and the notes thereto, "Management's Discussion and Analysis of Financial Condition and Results of Operations" and other historical financial information included elsewhere in, or incorporated by reference into, this Offering Circular. The selected audited consolidated financial data as of and for the years ended December 31, 2020 and 2019 have been derived from the consolidated financial statements of the Company included in this Offering Circular, which have been prepared in accordance with the Government Accounting Standards or K-IFRS, as the case may be. The selected consolidated financial data as of September 30, 2021, and for the nine-month periods ended September 30, 2021 and 2020 have been derived from the unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 of the Company included in this Offering Circular, which have been prepared in accordance with K-IFRS No. 1034, "Interim Financial Reporting." All financial data and other data in this Offering Circular regarding the Company's activities, financial condition and results of operations are presented on a consolidated basis unless stated otherwise.

	As of December 31,		As of September 30,
	2019	2020	2021
	(In billions of Won)		
Consolidated Statement of Financial Position Data:			
Total assets	₩ 18,662	₩ 17,504	₩ 19,045
Total liabilities	18,131	18,645	20,549
Total equity	531	(1,141)	(1,504)
Share capital	10,515	10,554	10,617
Total liabilities and equity	18,662	17,504	19,045

	For the Year Ended December 31,		For the Nine Months Ended September 30,	
	2019	2020	2020	2021
	(In billions of Won)			
Consolidated Statement of Comprehensive Loss Data:				
Continuing Operations				
Revenue	₩ 2,930	₩ 1,931	₩ 1,421	₩ 1,649
Cost of sales	(2,052)	(1,734)	(1,307)	(1,059)
Gross profit	878	198	114	589
Selling and administrative expenses	(306)	(252)	(178)	(202)
Operating profit (loss)	571	(54)	(64)	387
Other income	94	33	33	15
Other expenses	(8)	(14)	(13)	(16)
Other profit (loss), net	(2)	(1,735)	(607)	21
Finance income	402	267	247	364
Finance costs	(731)	(903)	(908)	(509)
Gain (loss) on investments in associates and joint ventures, net	54	(27)	(74)	(37)
Profit (loss) before income tax	379	(2,435)	(1,385)	225
Income tax expense	(534)	(5)	(70)	(151)
Profit (loss) from continuing operations	(155)	(2,439)	(1,455)	74
Discontinued Operations				
Profit (loss) from discontinued operations, net of tax	—	—	—	—
Profit (loss) for the year/period	(155)	(2,439)	(1,455)	74
Profit (loss) for the year/period attributable to:				
Owners of the Company	(173)	(2,347)	(1,435)	18
Non-controlling interests	19	(93)	(20)	56

	For the Year Ended December 31,		For the Nine Months Ended September 30,	
	2019	2020	2020	2021
	(In billions of Won)			
Other comprehensive income (loss) for the year/period, net of tax:				
Items that will never be reclassified subsequently to profit or loss:				
Gains on revaluation, net of tax, of property, plant and equipment	—	490	—	—
Actuarial losses on defined benefit plans, net of tax	(3)	(5)	(1)	(1)
Share of other comprehensive income of associates and joint ventures, net of tax	—	(0)	(0)	—
Net change in fair value of financial assets measured at fair value through other comprehensive income	(27)	7	2	—
Items that are or may be reclassified subsequently to profit or loss:				
Equity adjustments arising from investments in equity-method investees, net of tax	(2)	13	7	(12)
Net change in the unrealized fair value of derivative using cash flow hedge accounting, net of tax	(111)	(15)	(59)	(340)
Foreign currency translation differences for foreign operations	34	84	25	(131)
Other comprehensive income (loss) for the year/period, net of tax	(109)	574	(25)	(484)
Total comprehensive loss for the year/period	₩ (264)	₩ (1,865)	₩ (1,480)	₩ (410)
Total comprehensive income (loss) attributable to:				
Owners of the Company	(299)	(1,735)	(1,465)	(519)
Non-controlling interests	36	(130)	(15)	108
Consolidated Cash Flow Data:				
Net cash provided by (used in) operating activities	1,033	(54)	(83)	272
Net cash used in investing activities	(786)	(820)	(569)	(391)
Net cash provided by (used in) financing activities	(290)	977	781	176

Selected Reserve, Production and Operating Data

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

	As of or for the Year Ended December 31,		As of or for the Six Months Ended June 30, 2021[1]
	2019	2020	
Proved reserves[2]:			
Crude oil (million barrels)[3]	429.9	397.2	353.1
Natural gas (billions of cubic feet)	944.9	939.0	785.4
Total (million barrels of oil equivalent)	590.4	556.4	486.5
Oil and gas production[4]:			
Crude oil (million barrels)	47.5	46.7	20.9
Natural gas (billions of cubic feet)	98.4	79.7	31.3
Total (million barrels of oil equivalent)	64.5	60.4	26.3
Average daily oil and gas production[5]:			
Crude oil (thousands of barrels)	130.2	127.6	115.7
Natural gas (millions of cubic feet)	269.6	218.4	173.1
Total (thousands of barrels of oil equivalent)	176.6	165.0	145.5
Average sales prices[6]:			
Crude oil (US$/barrel)	54.86	37.33	52.18
Natural gas (US$/thousands of cubic feet)	3.52	2.67	2.99
Reserves to production ratio	9.2	9.2	18.5

(1) Latest available data.

(2) The reserve data include reserve data of Harvest Operations as estimated under Canadian oil and gas reporting standards, COGEH and NI 51-101, as evaluated by the Independent Reserves Evaluators. If the reserve data of Harvest Operations as estimated under the Securities Act oil and gas reporting standards were included, the proved crude oil reserves, natural gas reserves and combined reserves as of December 31, 2019 and 2020 and as of June 30, 2021 may differ from the corresponding amounts shown in the table above.

(3) Includes natural gas liquids.

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

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

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

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

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

Overview

The Company is the national oil and gas company of Korea and is wholly owned by the Government. The Company's revenues are derived principally from the sales of crude oil and natural gas produced from 20 production projects located in Korea and abroad. In the first six months of 2021, the Company had a daily crude oil and natural gas production of approximately 145,500 barrels of oil equivalent. In addition, the Company conducts oil and gas exploration activities and had interests in ten exploratory projects across six countries.

As of September 30, 2021, the Company derived its sales from the following four business segments:

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

Petroleum Distribution Segment. Included in this segment are revenues from the wholesale gasoline and gas oil distribution business, and from the operation of discount gas stations located throughout Korea, which totaled 1,255 as of September 30, 2021.

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

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

Complete Equity Erosion

As of September 30, 2021 and December 31, 2020, the liabilities of the Company exceeded the assets of the Company by Won 1,504 billion and Won 1,141 billion, respectively. While the Company incurred a profit of Won 74 billion in the first nine months of 2021, the Company had foreign currency translation differences for foreign operations of Won (703) billion as of September 30, 2021 and losses on valuation of derivative instruments of Won 350 billion as of September 30, 2021. The foreign currency translation differences for foreign operations as of September 30, 2021 were due primarily to the fluctuations in the average value of the equity of the Company's subsidiaries due to fluctuations in exchange rates between the functional currencies of the Company's foreign subsidiaries against the U.S. dollar, the functional currency of the Company, during the first nine months of 2021. The losses on valuation of derivative instruments as of September 30, 2021 relate to losses on unrealized fair value of derivatives using cash flow hedge accounting entered into to hedge oil price fluctuations. The Company incurred a net loss of Won 2,439 billion in 2020, which was due primarily to significant declines in the prices of crude oil resulting from, among others, the global COVID-19 pandemic, which materially and adversely affected the global economy and financial markets in 2020, which in turn decreased the global demand for crude oil in 2020. See "Risk Factors — Risks Relating to the Company — The Company's operations are affected by the volatility of prices for crude oil, natural gas and petroleum products and price differentials between heavy and light oil, and a substantial or extended decline or fluctuations in such prices or differentials would have a material adverse effect on the Company's business, financial condition and results of operations" and "Risk Factors — Risks Relating to the Company — If future oil and gas prices are forecasted to decline substantially, the Company may be required to write down the book value of its assets, which may have a material adverse effect on the Company's business, financial condition and results of operations." Such volatility has had and will continue to have a significant effect on the Company's business, results of operations and financial condition and the Company expects that it will continue to experience significant losses for at least the near future. See "Risk Factors — Risks Relating to the Company — The Company has experienced complete equity erosion since 2020 due primarily to significant declines in the prices of crude oil in 2020 and fluctuations in the average value of foreign currencies against the U.S. dollar during the first nine months of 2021."

Major Factors Affecting the Company's Results of Operations

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

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

Crude Oil and Natural Gas Prices

The prices at which the Company's crude oil is sold fluctuate generally in line with fluctuations in international crude oil prices, and natural gas sales prices generally move in line with crude oil prices. Historically, international crude oil prices have demonstrated significant volatility, driven largely by global and regional supply and demand conditions, and expectations regarding future supply and demand for crude oil, natural gas and petroleum products. The Company's average sales prices for crude oil decreased from US$58.59 per barrel in 2018 to US$54.86 per barrel in 2019 and US$37.33 per barrel in 2020, but increased to US$54.10 per barrel in the first nine months of 2021, and its average sales prices for natural gas decreased from US$4.45 per thousand cubic feet in 2018 to US$3.52 per thousand cubic feet in 2019 and US$2.67 per thousand cubic feet in 2020, but increased to US$3.10 per thousand cubic feet in the first nine months of 2021. The Company believes that international oil and gas prices, which are particularly exposed to political, economic and military developments in oil producing regions in the Middle East and elsewhere, are likely to remain volatile. For example, due to a conflict between OPEC led by Saudi Arabia and Russia relating to crude oil production cuts, as well as the decrease in global demand for crude oil due to COVID-19, the market price of crude oil fell to a historical low in April 2020. The market price of crude oil has recovered since then, as global demand for oil has shown signs of improvement, reflecting the progress in ongoing COVID-19 vaccination efforts, rising mobility, as well as recovering global economic activity. The oil producing nations were also able to reach and have since sustained a consensus on reduced production levels. However, the impact of the COVID-19 pandemic and future prospects for crude oil prices remain highly uncertain and volatile. Such volatility has had and will likely continue to have a significant effect on the Company's business, results of operations and financial condition.

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

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

The Company recognized impairment losses on its oil and gas properties, net of reversals, of Won 151 billion in 2019, Won 1,422 billion in 2020 and Won 31 billion in the first nine months of 2021 and impairment losses on intangible assets, net of reversals, of Won 301 billion in 2020 and Won 3 billion in the first nine months of 2021 due to decreases in forecasted oil prices and probable reserves and the return of mining rights. The Company recognized a net reversal of impairment losses on intangible assets of Won 35 billion in 2019 due to increases in probable reserves and others. See Notes 7, 8 and 9 to the Company's unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 and Notes 16, 17 and 18 to the Company's financial statements as of and for the years ended December 31, 2020 and 2019 included elsewhere in this Offering Circular. Similarly, the Company recognized valuation losses of financial assets measured at fair value through other comprehensive income of Won 27 billion in 2019 primarily due to valuation losses of EP Energy. In addition, the Company recognized impairment losses of Won 39 billion in 2019 and Won 29 billion in 2020 from OIG and impairment losses of Won 86 billion in 2020 from Korea GS E&P Ptd. Ltd. Such recognition of impairment losses contributed to net losses of Won 155 billion in 2019 and Won 2,439 billion in 2020.

Crude Oil and Natural Gas Production Volumes

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

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

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

Plan to Dispose of Assets

In June 2016, the Ministry of Economy and Finance and the Ministry of Trade, Industry and Energy announced the June 2016 Government Plan, which included broad-based measures to rationalize the overseas natural resource exploration, development and production activities of Government-controlled enterprises, including the Company. The Company will be limited from entering into any new overseas investments other than investments that are in furtherance of important policy objectives of the Government. Pursuant to the June 2016 Government Plan, the Company has developed and is implementing a plan for the sale of its interests in overseas exploration, development and production operations (taking into consideration strategic value and profitability) to third parties with preference given to institutional investors in Korea if possible and with an aim to maximize the returns on such sales. For example, the Company disposed of its (1) interest in Harvest Operations' Caroline Shallow and Wilson Creek fields in Canada in 2018, (2) interest in Harvest Operations' Blueberry, Consort Viking, Crooked Creek, Killarney and Worsley fields and Loon Oil sands in Canada in 2019, (3) interest in Harvest Operations' Chamber fields in Canada in 2020, (4) interest in OIG in 2021, (5) interest in certain additional assets of Harvest Operations, including West Central, Loon Lake and Royce, in 2021 and (6) interest in the River Bend field in 2021 pursuant to the June 2016 Government Plan. See "Business Exploration, Development and Production — Overview" for a discussion of the Company's overseas exploration, development and production operations. The timing of any additional discontinuation and divestitures will be subject to market conditions. The global COVID-19 pandemic has had a material adverse effect on the global energy markets, including for oil producing assets, which may adversely affect the Company's ability to consummate such disposals.

Government Support and Regulation

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

While the Government has regularly provided financial support to the Company in the form of capital contributions and is permitted to guarantee Notes issued by the Company pursuant to the KNOC Act, there is no statutory or legal requirement for the Government to do so, and the Government would be prevented from providing additional capital contributions once the Company reaches the amount of its authorized capital unless the Company's authorized capital is increased through an amendment to the KNOC Act, as described in "Risk Factors — Risks Relating to the Company — The Company has experienced complete equity erosion since 2020 due primarily to significant declines in the prices of crude oil in 2020 and fluctuations in the average value of foreign currencies against the U.S. dollar during the first nine months of 2021" and "Risk Factors — Risks Relating to the Company — Although the Government has provided and is expected to continue to provide financial support to the Company, the Government is not legally required to do so." The provision of capital contributions and other forms of Government financial support to the Company is subject to prior authorization by the National Assembly of Korea as part of its budget approval process.

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

Critical Accounting Policies

The preparation of the Company's financial statements requires the Company's management to select and apply significant accounting policies and to make estimates and judgments that affect the Company's reported financial condition and results of operations. See Note 2 to the Company's unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 and Note 2 to the Company's financial statements as of and for the years ended December 31, 2020 and 2019 included elsewhere in this Offering Circular for a summary of the Company's significant accounting policies that are critical to the portrayal of the Company's financial condition and results of operations.

Recent Accounting Changes and Pronouncements

The preparation of the Company's financial statements is affected by accounting changes and pronouncements made by the Korea Accounting Standards Board from time to time. See Note 2 to the Company's unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 and Note 2 to the Company's financial statements as of and for the years ended December 31, 2020 and 2019 included elsewhere in this Offering Circular for a summary of recent accounting changes and pronouncements, as well as a summary of accounting standards issued but not yet effective.

K-IFRS No. 1116 'Leases'

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

The Company has adopted K-IFRS 1116 with a date of initial application of January 1, 2019. For further information regarding the impact of the adoption of K-IFRS No. 1116, see Note 2.4 to the Company's financial statements as of and for the years ended December 31, 2020 and 2019 included elsewhere in this Offering Circular.

K-IFRS No. 1109 'Financial Instruments'

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

The Company has adopted K-IFRS No. 1109 with a date of initial application of January 1, 2019. For further information, see Note 2.4 to the Company's financial statements as of and for the years ended December 31, 2020 and 2019 included elsewhere in this Offering Circular.

Results of Operations — *First Nine Months of 2021 Compared to First Nine Months of 2020*

The following table presents the Company's consolidated statements of comprehensive loss information and changes therein for the first nine months of 2020 and 2021.

	For the Nine-Month Periods Ended September 30,		Changes	
	2020	2021	Amount	%
	(In billions of Won, except percentages)			
Continuing Operations				
Revenue	₩ 1,421	₩ 1,649	₩ 227	16.0%
Cost of sales	(1,307)	(1,059)	248	(19.0)
Gross profit	114	589	475	416.1
Selling and administrative expenses	(178)	(202)	(24)	13.4
Operating profit (loss)	(64)	387	451	N.A.(1)
Other income	33	15	(18)	(55.2)
Other expenses	(13)	(16)	(4)	29.9
Other profit (loss), net	(607)	21	628	N.A.(1)
Finance income	247	364	117	47.2
Finance costs	(908)	(509)	399	(44.0)
Loss on investments in associates and joint ventures, net	(74)	(37)	37	(50.0)
Profit (loss) before income tax	(1,385)	225	1,610	N.A.(1)
Income tax expense	(70)	(151)	(81)	115.3
Profit (loss) from continuing operations	(1,455)	74	1,529	N.A.(1)
Profit (loss) for the period	₩ (1,455)	₩ 74	1,529	N.A.(1)

(1) Not Applicable.

Revenue

The following table presents a breakdown of the Company's revenue and changes therein for the first nine months of 2020 and 2021.

	For the Nine-Month Periods Ended September 30,		Changes	
	2020	2021	Amount	%
	(In billions of Won, except percentages)			
Oil and gas sales	₩ 1,168	₩ 1,512	₩ 344	29.5%
Petroleum distribution	22	39	17	78.9
Oil stockpiling	230	95	(135)	(58.7)
Others	2	2	0	17.1
Revenue	₩ 1,421	₩ 1,649	227	16.0

The Company's total revenue increased by 16.0%, or Won 227 billion, from Won 1,421 billion in the first nine months of 2020 to Won 1,649 billion in the first nine months of 2021 due to increases in revenues from the Oil and Gas Sales Segment, and to a much lesser extent, the Petroleum Distribution Segment, which were offset in small part by a decrease in revenue from the Oil Stockpiling Segment. Specifically:

Oil and Gas Sales. Revenue from the Oil and Gas Sales Segment increased by 29.5%, or Won 344 billion, from Won 1,168 billion in the first nine months of 2020 to Won 1,512 billion in the first nine months of 2021 primarily due to general increases in the Company's oil and gas sales prices in the first nine months of 2021 compared to the first nine months of 2020 reflecting increases in global crude oil and natural gas prices during such time, which were partially offset by a decrease in the volume of oil and gas sold. The Company's average oil sales price per barrel increased by 49.9% from US$36.10 per barrel in the first nine months of 2020 to US$54.10 per barrel in the first nine months of 2021, and the average gas sales price per thousand cubic feet increased by 19.2% from US$2.60 in the first nine months of 2020 to US$3.10 in the first nine months of 2021. The volume of oil and gas sold decreased by 6.1% from 32.7 million barrels of oil equivalent in the first nine months of

2020 to 30.7 million barrels of oil equivalent in the first nine months of 2021 primarily due to decreased production in connection with terminations of certain projects as well as decreases in capital expenditures.

Petroleum Distribution. Revenue from the Petroleum Distribution Segment increased by 78.9%, or Won 17 billion, from Won 22 billion in the first nine months of 2020 to Won 39 billion in the first nine months of 2021 primarily due to an increase in the volume of gasoline and gas oil sold at the Company's discount gas stations.

Oil Stockpiling. Revenue from the Oil Stockpiling Segment decreased by 58.7%, or Won 135 billion, from Won 230 billion in the first nine months of 2020 to Won 95 billion in the first nine months of 2021 primarily due to decreases in income from lending the Company's stockpiled crude oil to other companies as well as decreases in income from lending the Company's stockpiling facilities to other companies.

Others. Revenue from the Others Segment remained relatively constant at Won 2 billion in the first nine months of 2020 and the first nine months of 2021.

Cost of Sales

The following table presents a breakdown of the Company's cost of sales and changes therein for the first nine months of 2020 and 2021.

	For the Nine-Month Periods Ended September 30,		Changes	
	2020	2021	Amount	%
	(In billions of Won, except percentages)			
Changes in inventories — merchandises	₩ (44)	₩ 3	₩ 47	N.A.[1]
Changes in inventories — finished goods	(1)	0	1	N.A.[1]
Changes in inventories — other inventories	0	5	5	1,003.1%
Purchased inventories	53	9	(43)	(82.5)
Salaries	152	129	(23)	(15.2)
Depreciation	572	411	(162)	(28.2)
Amortization other than goodwill	46	37	(10)	(20.6)
Transport	122	59	(62)	(51.2)
Repairs	100	87	(13)	(12.8)
Sales commission	3	38	35	1,130.2
Miscellaneous	303	280	(24)	(7.7)
Cost of sales	₩ 1,307	₩ 1,059	(248)	(19.0)

(1) Not Applicable.

The Company's cost of sales decreased by 19.0%, or Won 248 billion, from Won 1,307 billion in the first nine months of 2020 to Won 1,059 billion in the first nine months of 2021 primarily due to a decrease in depreciation expenses and transport costs, which were offset in part by a recognition of an increase in changes in merchandise inventories in the first nine months of 2020 compared to a decrease in changes in merchandise inventories in the first nine months of 2021. Specifically:

- Depreciation expenses, which relate primarily to depreciation of oil and gas properties and, to a lesser extent, structures and machinery, decreased by 28.2%, or Won 162 billion, from Won 572 billion in the first nine months of 2020 to Won 411 billion in the first nine months of 2021 primarily due to a write-down of oil and gas properties of Dana Petroleum at the end of 2020 following the recognition of impairment losses on such assets.
- Transport costs decreased by 51.2%, or Won 62 billion, from Won 122 billion in the first nine months of 2020 to Won 59 billion in the first nine months of 2021 primarily due to the categorization of certain expenses as sales commission in the first nine months of 2021 that were categorized as transport costs in the first nine months of 2020.
- Cost of sales relating to changes in merchandise inventories, which primarily relate to changes in inventories of crude oil purchased for the Company's oil trading activities and gasoline and gas oil purchased for the Company's discount gas stations (and are calculated by subtracting the inventory amount at the end of the period from the inventory amount at the beginning of the period) changed from a decrease in inventories of Won 44 billion in the first nine months of 2020 to an increase in inventories of Won 3 billion in the first nine months of 2021 primarily due to an increase in purchase of crude oil for trading activities.

Gross Profit (Loss)

The following table presents a breakdown of the Company's gross profit (loss) and changes therein for the first nine months of 2020 and 2021.

	For the Nine-Month Periods Ended September 30,		Changes	
	2020	2021	Amount	%
	(In billions of Won, except percentages)			
Oil and gas sales	₩ 16	₩ 607	₩ 590	3,581.3%
Petroleum distribution	4	16	12	277.5
Oil stockpiling	93	(34)	(127)	N.A. (1)
Others	1	1	0	72.2
Gross profit	₩ 114	₩ 589	475	416.1

(1) Not Applicable.

The Company's gross profit increased by 416.1%, or Won 475 billion, from Won 114 billion in the first nine months of 2020 to Won 589 billion in the first nine months of 2021 primarily due to increases in gross profit of the Oil and Gas Sales Segment and Petroleum Distribution Segment, which were offset in part by the Oil Stockpiling Segment's recognition of gross profit in the first nine months of 2020 compared to gross loss in the first nine months of 2021. The Company's gross profit margin, which represents the ratio of gross profit to revenue, increased from 8.0% in the first nine months of 2020 to 35.7% in the first nine months of 2021. Specifically:

- Gross profit of the Oil and Gas Sales Segment increased significantly by Won 590 billion, from Won 16 billion in the first nine months of 2020 to Won 607 billion in the first nine months of 2021 as the 29.5% increase in revenue of such segment was enhanced by a decrease in segment cost of sales of 21.4%. A substantial portion of the Company's cost of sales, particularly those relating to periodic facility maintenance and labor costs for its oil and gas fields, do not vary significantly based on changes in global oil or gas prices, while revenue is more directly affected by changes in oil and gas prices and the Company's sales volume. The Oil and Gas Sales Segment's gross profit margin increased from 1.4% in the first nine months of 2020 to 40.1% in the first nine months of 2021.
- Gross profit of the Petroleum Distribution Segment increased by 277.5%, or Won 12 billion, from Won 4 billion in the first nine months of 2020 to Won 16 billion in the first nine months of 2021 as the 78.9% increase in revenue of such segment outpaced an increase in segment cost of sales of 30.9%. The Petroleum Distribution Segment's gross profit margin increased from 19.5% in the first nine months of 2020 to 41.1% in the first nine months of 2021.
- The Oil Stockpiling Segment recognized gross profit of Won 93 billion in the first nine months of 2020 compared to gross loss of Won 34 billion in the first nine months of 2021 as the 58.7% decrease in revenue of such segment outpaced the decrease in segment cost of sales of 5.4%. The Oil Stockpiling Segment recorded a gross profit margin of 40.5% in the first nine months of 2020 compared to a gross loss margin of 36.2% in the first nine months of 2021.

Selling and Administrative Expenses

The following table presents a breakdown of the Company's selling and administrative expenses and changes therein for the first nine months of 2020 and 2021.

	For the Nine-Month Periods Ended September 30,		Changes	
	2020	2021	Amount	%
	(In billions of Won, except percentages)			
Salaries	₩ 73	₩ 59	₩ (14)	(19.2)%
Retirement benefits	6	6	1	11.1
Other employee benefits	11	10	(1)	(4.8)
Depreciation	12	11	(1)	(10.1)
Commissions and fees	17	14	(3)	(15.2)
Sales commissions	33	76	43	128.9
Others	26	24	(1)	(4.4)
Selling and administrative expenses	₩ 178	₩ 202	24	13.4

Selling and administrative expenses increased by 13.4%, or Won 24 billion, from Won 178 billion in the first nine months of 2020 to Won 202 billion in the first nine months of 2021 primarily due to an increase in sales commission, which more than offset a decrease in salaries. Sales commissions, which primarily consist of commissions related to sales of oil and gas by the Company, increased by 128.9%, or Won 43 billion, from Won 33 billion in the first nine months of 2020 to Won 76 billion in the first nine months of 2021 primarily due to an increase in export duties from our sales in Kazakhstan which are categorized as sales commissions. Salaries decreased by 19.2%, or Won 14 billion, from Won 73 billion in the first nine months of 2020 to Won 59 billion in the first nine months of 2021 primarily due to the payment of performance based bonuses in June 2020 whereas such bonuses are expected to be paid in December in 2021.

Operating Profit (Loss)

The following table presents a breakdown of the Company's operating profit (loss) and changes therein for the first nine months of 2020 and 2021.

	For the Nine-Month Periods Ended September 30,		Changes	
	2020	2021	Amount	%
	(In billions of Won, except percentages)			
Oil and gas sales	₩ (109)	₩ 450	₩ 559	N.A.[1]
Petroleum distribution	4	16	12	300.8%
Oil stockpiling	93	(34)	(127)	N.A.[1]
Others	1	1	0	72.2
Reconciling items[2]	(53)	(45)	8	(14.7)
Operating profit (loss)	₩ (64)	₩ 387	451	N.A.[1]

(1) Not Applicable.

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

The Company recognized operating loss of Won 64 billion in the first nine months of 2020 compared to operating profit of Won 387 billion in the first nine months of 2021 primarily due to the Oil and Gas Sales Segment's recognition of operating loss in the first nine months of 2020 compared to operating profit in the first nine months of 2021 and an increase in operating profit of the Petroleum Distribution Segment, which were offset in part by the Oil Stockpiling Segment's recognition of operating profit in the first nine months of 2020 compared to operating loss in the first nine months of 2021. The Company recognized an operating loss margin, which represents the ratio of operating loss to revenue, of 4.5% in the first nine months of 2020 compared to an operating profit margin of 23.5% in the first nine months of 2021. Specifically:

- The Oil and Gas Sales Segment recognized operating loss of Won 109 billion in the first nine months of 2020 compared to operating profit of Won 450 billion in the first nine months of 2021 primarily due to the reasons described above. The Oil and Gas Sales Segment recognized an operating loss margin of 9.3% in the first nine months of 2020 compared to an operating profit margin of 29.8% in the first nine months of 2021.
- Operating profit of the Petroleum Distribution Segment increased by Won 12 billion, from Won 4 billion in the first nine months of 2020 to Won 16 billion in the first nine months of 2021 primarily due to the reasons described above. The Petroleum Distribution Segment's operating profit margin increased from 18.0% in the first nine months of 2020 to 40.4% in the first nine months of 2021.
- The Oil Stockpiling Segment recognized operating profit of Won 93 billion in the first nine months of 2020 compared to operating loss of Won 34 billion in the first nine months of 2021 due to the reasons described above. The Oil Stockpiling Segment recognized an operating profit margin of 40.5% in the first nine months of 2020 compared to an operating loss margin of 36.2% in the first nine months of 2021.

Other Income

Other income decreased by 55.2%, or Won 18 billion, from Won 33 billion in the first nine months of 2020 to Won 15 billion in the first nine months of 2021 primarily due to refunds relating to proceedings in connection with OIG and the Yemen 4 oil field in the first nine months of 2020, which is categorized as "others" within other income.

Other Expenses

Other expenses increased by 29.9%, or Won 4 billion, from Won 13 billion in the first nine months of 2020 to Won 16 billion in the first nine months of 2021 primarily due to an increase in transfer to other provisions. The Company's transfer to other provisions increased by Won 3 billion from Won 1 billion in the first nine months of 2020 to Won 4 billion in the first nine months of 2021 primarily due to provisions in connection with a lawsuit relating to ordinary wages.

Other Profit and Loss

The following table presents a breakdown of the Company's other profit and loss for the first nine months of 2020 and 2021.

	For the Nine-Month Periods Ended September 30,		Changes	
	2020	2021	Amount	%
	(In billions of Won, except percentages)			
Reversal of impairment losses on property, plant and equipment	₩ 3	₩ 1	₩ (2)	(69.6)%
Reversal of impairment losses on intangible assets other than goodwill	13	1	(12)	(92.6)
Gains on foreign currency translation	25	3	(22)	(87.7)
Gains on foreign currency transactions	37	59	21	57.4
Other gains[(1)]	2	11	8	343.9
Gains on disposal of non-current non-financial assets	—	49	49	N.A.[(2)]
Impairment losses on property, plant and equipment	(478)	(31)	447	(93.4)
Impairment losses on intangible assets other than goodwill	(128)	(4)	124	(96.9)
Losses on foreign currency translation	(23)	(12)	12	(49.4)
Losses on foreign currency transactions	(44)	(53)	(9)	20.2
Other losses[(3)]	(14)	(2)	12	(86.4)
Other profit (loss), net	₩ (607)	₩ 21	628	(103.5)

(1) Includes gains on disposal of property, plant and equipment, gains on disposal of intangible assets other than goodwill, gains on transactions of derivatives (other than finance income) and other gains.

(2) Not Applicable.

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

The Company recognized net other losses of Won 607 billion in the first nine months of 2020 compared to net other gains of Won 21 billion in the first nine months of 2021 primarily due to decreases in impairment losses on property, plant and equipment and impairment losses on intangible assets. Specifically:

- Impairment losses on property, plant and equipment, which comprise primarily of impairment losses recognized in connection with the estimated cash flow from the recoverable oil and gas from the Company's oil and gas properties, decreased by 93.4%, or Won 447 billion, from Won 478 billion in the first nine months of 2020 to Won 31 billion in the first nine months of 2021 primarily due to significantly lower oil and gas prices during the first nine months of 2020 and the corresponding reduction in the estimated cash flow from the recoverable oil and gas from the Company's properties which fell below the properties' book value, whereas such impairment losses in the first nine months of 2021 decreased significantly in light of the recovering oil and gas price environment.
- Impairment losses on intangible assets other than goodwill, which comprise primarily of impairment losses recognized in connection with unsuccessful oil or gas exploration projects prior to establishment of technical feasibility and commercial viability, decreased by 96.9%, or Won 124 billion, from Won 128 billion in the first nine months of 2020 to Won 4 billion in the first nine months of 2021. In the first nine months of 2020, the Company recognized impairment loss related to the impairment of ANKOR Offshore's mining rights and Dana

Petroleum's oil and gas properties, whereas in the first nine months of 2021, the Company recognized net reversal of impairment loss of Won 0.3 billion originally related to the impairment of its exploration and evaluation assets and net reversal of impairment of mining rights of Won 0.3 billion.

Finance Income and Finance Costs

The following table presents a breakdown of the Company's finance income and costs and changes therein for the nine months ended 2020 and 2021.

	For the Nine-Month Periods Ended September 30,		Changes	
	2020	2021	Amount	%
	(In billions of Won, except percentages)			
Interest income	₩ 12	₩ 8	₩ (3)	(27.5)%
Gains on valuation of financial liabilities measured at fair value through profit or loss	37	—	(37)	(100.0)
Gains on valuation of financial assets measured at fair value through profit or loss	8	97	88	1,076.5
Gains on transactions of derivatives	94	0	(94)	(99.5)
Gains on foreign currency translation	68	182	114	168.0
Gains on foreign currency transactions	29	13	(16)	(55.8)
Other finance income[2]	0	63	63	N.M.[1]
Finance income	₩ 247	₩ 364	117	47.2

	For the Nine-Month Periods Ended September 30,		Changes	
	2020	2021	Amount	%
	(In billions of Won, except percentages)			
Interest expenses	₩ 363	₩ 311	₩ (52)	(14.2)%
Losses on valuation of financial assets measured at fair value through profit or loss	238	12	(226)	(95.1)
Losses on valuation of financial liabilities measured at fair value through profit or loss	15	38	23	159.6
Losses on valuation of derivatives	83	33	(51)	(60.7)
Losses on foreign currency translation	128	43	(85)	(66.2)
Losses on foreign currency transactions	29	10	(20)	(66.4)
Other finance costs[3]	52	62	10	18.5
Finance costs	₩ 908	509	(399)	(44.0)

(1) Not Meaningful.

(2) Includes dividend income and other financial income.

(3) Includes losses on transactions of derivatives and other financial costs.

The Company recognized net loss on valuation of financial assets measured at fair value through profit or loss of Won 229 billion in the first nine months of 2020 compared to net gain on valuation of financial assets measured at fair value through profit or loss of Won 85 billion in the first nine months of 2021 primarily due to gains on valuations relating to the capacity building support agreement in Iraq.

The Company recognized net loss on foreign currency translation of Won 60 billion in the first nine months of 2020 compared to net gain on foreign currency translation of Won 139 billion in the first nine months of 2021, and the Company recognized net loss on foreign currency transactions of Won 0.7 billion in the first nine months of 2020 compared to net gain on foreign currency transactions of Won 3 billion in the first nine months of 2021, due to fluctuations in the average value of the British Pound, Canadian dollar and Kazakhstani Tenge against the U.S. dollar during the first nine months of 2020 compared to the first nine months of 2021 in connection with U.S. dollar-denominated indebtedness of our foreign

subsidiaries. The Company, in preparing its consolidated financial statements, aggregates the foreign currency gains and losses of itself and its subsidiaries, and as such, the Company's consolidated foreign currency gains and losses are affected by changes in the exchange rates of the U.S. dollar, the functional currency of the Company, as well as the functional currencies of its subsidiaries. Against such fluctuations, the Company's net gains on transactions of derivatives decreased by 99.5%, or Won 94 billion, from Won 94 billion in the first nine months of 2020 to Won 0.5 billion in the first nine months of 2021 and the Company's net losses on valuation of derivative financial instruments decreased by 60.7%, or Won 51 billion, from Won 83 billion in the first nine months of 2020 to Won 33 billion in the first nine months of 2021.

The Company's interest income decreased by 27.5%, or Won 3 billion, from Won 12 billion in the first nine months of 2020 to Won 8 billion in the first nine months of 2021 primarily due to the decrease in interest income on loans to OIG due to its sale.

The Company's interest expenses decreased by 14.2%, or Won 52 billion, from Won 363 billion in the first nine months of 2020 to Won 311 billion in the first nine months of 2021 primarily due to decreases in the balance of bond payables as well as interest rates of bond payables.

Loss on Investments in Associates and Joint Ventures, Net

Net loss on investments in associates and joint ventures decreased by 50.0%, or Won 37 billion, from Won 74 billion in the first nine months of 2020 to Won 37 billion in the first nine months of 2021. In the first nine months of 2021, the Company recognized such net loss primarily due to its shares of loss of Won 39 billion from KNOC EF Star LLC. For the year ended December 31, 2020, the Company recognized such net loss primarily due to its shares of loss of Won 63 billion from OIG. See Note 6 to the Company's unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 included in this Offering Circular.

Profit (Loss) Before Income Tax

As a result of the foregoing, the Company recognized loss before income tax of Won 1,385 billion in the first nine months of 2020 compared to profit before income tax of Won 225 billion in the first nine months of 2021.

Income Tax Expense

Income tax expense increased by 115.3%, or Won 81 billion, from Won 70 billion in the first nine months of 2020 to Won 151 billion in the first nine months of 2021 primarily due to the recognition of profit before income tax in the first nine months of 2021 compared to loss before income tax in the first nine months of 2020 and, to a lesser extent, the increase in deferred tax directly charged to equity from Won 23 billion in the first nine months of 2020 to Won 152 billion in the first nine months of 2021. See Note 22 to the Company's unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 included in this Offering Circular.

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

Profit (Loss) for the Period

As a result of the foregoing, the Company recognized loss for the period of Won 1,455 billion in the first nine months of 2020 compared to profit for the period of Won 74 billion in the first nine months of 2021. The Company's net loss margin, which represents the ratio of loss for the period to revenue, was 102.4% in the first nine months of 2020 compared to a net profit margin of 4.5% in the first nine months of 2021.

Results of Operations — *2020 Compared to 2019*

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

	For the Year Ended December 31,		Changes	
	2019	2020	Amount	%
	(In billions of Won, except percentages)			
Continuing Operations				
Revenue	₩ 2,930	₩ 1,931	₩ (999)	(34.1)%
Cost of sales	(2,052)	(1,734)	319	(15.5)
Gross profit	878	198	(680)	(77.5)
Selling and administrative expenses	(306)	(252)	54	(17.8)
Operating profit (loss)	571	(54)	(626)	N.A.(1)
Other income	94	33	(61)	(64.9)
Other expenses	(8)	(14)	(6)	72.7
Other loss, net	(2)	(1,735)	(1,733)	82,700.5
Finance income	402	267	(136)	(33.7)
Finance costs	(731)	(903)	(172)	23.5
Gain (loss) on investments in associates and joint ventures, net	54	(27)	(81)	N.A.(1)
Profit (loss) before income tax	379	(2,435)	(2,814)	N.A.(1)
Income tax expense	(534)	(5)	529	(99.1)
Loss from continuing operations	(155)	(2,439)	(2,284)	1,476.2
Loss for the year	₩ (155)	₩ (2,439)	(2,284)	1,476.2

(1) Not Applicable.

Revenue

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

	For the Year Ended December 31,		Changes	
	2019	2020	Amount	%
	(In billions of Won, except percentages)			
Oil and gas sales	₩ 2,663	₩ 1,645	₩ (1,018)	(38.2)%
Petroleum distribution	61	24	(37)	(60.2)
Oil stockpiling	200	255	56	27.9
Others	7	7	0	6.9
Revenue	₩ 2,930	₩ 1,931	(999)	(34.1)

The Company's total revenue decreased by 34.1%, or Won 999 billion, from Won 2,930 billion in 2019 to Won 1,931 billion in 2020 due to a significant decrease in revenue from the Oil and Gas Sales Segment as well as a decrease in revenue from the Petroleum Distribution Segment, which were offset in small part by increases in revenues from the Oil Stockpiling Segment and the Others Segment. Specifically:

Oil and Gas Sales. Revenue of the Oil and Gas Sales Segment decreased by 38.2%, or Won 1,018 billion, from Won 2,663 billion in 2019 to Won 1,645 billion in 2020 primarily due to general decreases in the Company's oil and gas sales prices in 2020 compared to 2019 reflecting decreases in global crude oil and natural gas prices during such time, which were exacerbated by a decrease in the volume of oil and gas sold. The Company's average oil sales price per barrel decreased by 32.0% from US$54.86 per barrel in 2019 to US$37.33 per barrel in 2020, and the average gas sales price per thousand cubic feet decreased by 24.1% from US$3.52 in 2019 to US$2.67 in 2020. The volume of oil and gas sold decreased by 13.5% from 51.8 million barrels of oil equivalent in 2019 to 44.8 million barrels of oil equivalent in 2020 primarily due to reduced production in light of the low oil and gas price environment in large part caused by the global COVID-19 pandemic in 2020.

Petroleum Distribution. Revenue from the Petroleum Distribution Segment decreased by 60.2%, or Won 37 billion, from Won 61 billion in 2019 to Won 24 billion in 2020 primarily due to a temporary halt in trading from the Company's Pyeongtaek facilities relating to delays in certain license registrations.

Oil Stockpiling. Revenue from the Oil Stockpiling Segment increased by 27.9%, or Won 56 billion, from Won 200 billion in 2019 to Won 255 billion in 2020 primarily due to an increase in income from lending of the Company's stockpile oil to other companies.

Others. Revenue from the Others Segment remained relatively constant at Won 7 billion in 2019 and 2020.

Cost of Sales

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

	For the Year Ended December 31,		Changes	
	2019	2020	Amount	%
	(In billions of Won, except percentages)			
Changes in inventories — merchandises	₩ 5	₩ (4)	₩ (8)	N.A.[1]
Changes in inventories — finished goods	(5)	11	16	N.A.[1]
Changes in inventories — other inventories	2	(5)	(7)	N.A.[1]
Purchased inventories	45	16	(29)	(64.2)%
Salaries	198	110	(89)	(44.7)
Depreciation	947	708	(238)	(25.2)
Amortization	77	59	(18)	(23.6)
Transport	166	67	(99)	(59.6)
Repairs	143	78	(66)	(45.8)
Miscellaneous	474	693	219	46.2
Cost of sales	₩ 2,052	₩ 1,734	(319)	(15.5)

(1) Not Applicable.

The Company's cost of sales decreased by 15.5%, or Won 319 billion, from Won 2,052 billion in 2019 to Won 1,734 billion in 2020 primarily due to a decrease in depreciation expenses and transport costs, which were offset in part by an increase in miscellaneous costs. Specifically:

- Depreciation expenses, which relate primarily to depreciation of oil and gas properties and, to a lesser extent, structures and machinery, decreased by 25.2%, or Won 238 billion, from Won 947 billion in the 2019 to Won 708 billion in 2020 primarily due to decreases in production from Dana Petroleum.
- Transport costs decreased by 59.6%, or Won 99 billion, from Won 166 billion in 2019 to Won 67 billion in 2020 primarily due to a decrease in the Company's sales volume as described above.
- The Company's miscellaneous cost of sales increased by 46.2%, or Won 219 billion, from Won 474 billion in 2019 to Won 693 billion in 2020 primarily due to the classification of differences in inventories relating to shipment volume and sales volume as miscellaneous costs.

Gross Profit (Loss)

The following table presents a breakdown of the Company's gross profit (loss) and changes therein for 2019 and 2020.

	For the Year Ended December 31,		Changes	
	2019	2020	Amount	%
	(In billions of Won, except percentages)			
Oil and gas sales	₩ 861	₩ 117	₩ (744)	(86.4)%
Petroleum distribution	(10)	3	13	N.A.(1)
Oil stockpiling	22	73	51	228.9
Others	4	5	0	9.4
Gross profit	₩ 878	₩ 198	(680)	(77.5)

(1) Not Applicable.

The Company's gross profit decreased by 77.5%, or Won 680 billion, from Won 878 billion in 2019 to Won 198 billion in 2020 primarily due to a decrease in gross profit of the Oil and Gas Sales Segment, which was offset in small part by increases in gross profit of the Oil Stockpiling Segment and the Petroleum Distribution Segment's recognition of gross loss in 2019 compared to gross profit in 2020. The Company's gross profit margin, which represents the ratio of gross profit to revenue, decreased from 30.0% in 2019 to 10.2% in 2020. Specifically:

- Gross profit of the Oil and Gas Sales Segment decreased by 86.4%, or Won 744 billion, from Won 861 billion in 2019 to Won 117 billion in 2020 as the 38.2% decrease in revenue of such segment significantly outpaced a decrease in segment cost of sales of 15.2%. A substantial portion of the Company's cost of sales, particularly those relating to periodic facility maintenance and labor costs for its oil and gas fields, do not vary significantly based on changes in global oil or gas prices, while revenue is more directly affected by changes in oil and gas prices and the Company's sales volume. The Oil and Gas Sales Segment's gross profit margin decreased from 32.3% in 2019 to 7.1% in 2020.
- Gross profit of the Oil Stockpiling Segment increased by 228.9%, or Won 51 billion, from Won 22 billion in 2019 to Won 73 billion in 2020 as the 27.9% increase in revenue of such segment outpaced an increase in segment cost of sales of 2.9%. The Oil Stockpiling Segment's gross profit margin increased from 11.1% in 2019 to 28.5% in 2020.
- The Petroleum Distribution Segment recognized gross loss of Won 10 billion in 2019 compared to gross profit of Won 3 billion in 2020 as the 60.2% decrease in revenue of such segment was outpaced by a decrease in segment cost of sales of 70.0%. The Petroleum Distribution Segment recorded a gross loss margin of 16.4% in 2019 compared to a gross profit margin of 12.2% in 2020.

Selling and Administrative Expenses

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

	For the Year Ended December 31,		Changes	
	2019	2020	Amount	%
	(In billions of Won, except percentages)			
Salaries	₩ 101	₩ 106	₩ 6	5.6%
Post-employment benefits	10	8	(2)	(19.6)
Employee benefits	12	13	0	2.7
Depreciation	18	17	(2)	(8.7)
Commission expense	27	24	(3)	(11.6)
Sales commissions	100	48	(52)	(52.2)
Others	38	36	(2)	(4.3)
Selling and administrative expenses	₩ 306	₩ 252	(54)	(17.8)

Selling and administrative expenses decreased by 17.8%, or Won 54 billion, from Won 306 billion in 2019 to Won 252 billion in 2020 primarily due to a decrease in sales fees. Sales fees, which primarily consist of fees related to sales of oil and gas by the Company, decreased by 52.2%, or Won 52 billion, from Won 100 billion in 2019 to Won 48 billion in 2020 primarily due to the decrease in oil and gas sales as discussed above.

Operating Profit (Loss)

The following table presents a breakdown of the Company's operating profit (loss) and changes therein for 2019 and 2020.

	For the Year Ended December 31,		Changes	
	2019	2020	Amount	%
	(In billions of Won, except percentages)			
Oil and gas sales	₩ 625	₩ (60)	₩ (685)	N.A. (1)
Petroleum distribution	(10)	3	13	N.A. (1)
Oil stockpiling	22	73	51	228.9%
Others	4	5	0	9.4
Reconciling items(2)	(70)	(74)	(5)	6.5
Operating profit (loss)	₩ 571	₩ (54)	(626)	N.A. (1)

(1) Not Applicable.

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

The Company recognized operating profit of Won 571 billion in 2019 compared to operating loss of Won 54 billion in 2020 primarily due to the operating loss of the Oil and Gas Sales Segment in 2020 compared to operating profit in 2019, which were offset in small part by an increase in operating profit of the Oil Stockpiling Segment and the Petroleum Distribution Segment's recognition of operating loss in 2019 compared to operating profit in 2020. The Company's operating profit margin, which represents the ratio of operating profit to revenue, was 19.5% in 2019 compared to an operating loss margin of 2.8% in 2020. Specifically:

- The Oil and Gas Sales Segment recognized operating profit of Won 625 billion in 2019 compared to operating loss of Won 60 billion in 2020 primarily due to the reasons described above. The Oil and Gas Sales Segment recognized an operating profit margin of 23.5% in 2019 compared to an operating loss margin of 3.7% in 2020.
- Operating profit of the Oil Stockpiling Segment increased by 228.9%, or Won 51 billion, from Won 22 billion in 2019 to Won 73 billion in 2020 due to the reasons described above. The Oil Stockpiling Segment's operating profit margin increased from 11.1% in 2019 to 28.5% in 2020.
- The Petroleum Distribution Segment recognized operating loss of Won 10 billion in 2019 compared to operating profit of Won 3 billion in 2020 primarily due to the reasons described above. The Petroleum Distribution Segment recognized an operating loss margin of 17.0% in 2019 compared to an operating profit margin of 10.5% in 2020.

Other Income

Other income decreased by 64.9%, or Won 61 billion, from Won 94 billion in 2019 to Won 33 billion in 2020 primarily due to gains on exemption of debts of Won 76 billion in 2019 compared to no such income in 2020. The Company recognized gains on exemption of debts of Won 76 billion in 2019 related to the termination of the Company's Nigerian operations and the exemption of SAER loans relating to such termination from the Ministry of Trade, Industry and Energy.

Other Expenses

Other expenses increased by 72.7%, or Won 6 billion, from Won 8 billion in 2019 to Won 14 billion in 2020 primarily due to the recognition of settlements of certain lawsuits. The Company's other expenses within other expenses increased by 122.1% from Won 3 billion in 2019 to Won 7 billion in 2020 primarily due to payments of settlement in connection with the Yemen 4 oil field.

Other Profit and Loss

The following table presents a breakdown of the Company's other profit and loss for 2019 and 2020.

	For the Year Ended December 31,		Changes	
	2019	2020	Amount	%
	(In billions of Won, except percentages)			
Gains on disposal of intangible assets other than goodwill	₩ 87	₩ 0	₩ (87)	(100.0)%
Reversal of impairment losses on property, plant and equipment	25	2	(23)	(90.3)
Reversal of impairment losses on intangible assets other than goodwill	53	5	(48)	(91.0)
Gains on foreign currency translation	23	49	26	114.6
Gains on foreign currency transactions	48	188	140	293.7
Other gains[(1)]	42	15	(28)	(65.0)
Impairment losses on property, plant and equipment	(176)	(1,425)	(1,248)	708.2
Impairment losses on intangible assets	(18)	(306)	(288)	1,590.5
Losses on foreign currency translation	(22)	(49)	(27)	126.0
Losses on foreign currency transactions	(43)	(189)	(146)	336.8
Other losses[(2)]	(22)	(26)	(4)	19.1
Other losses, net	₩ (2)	₩ (1,735)	(1,733)	82,700.9

(1) Includes gains on disposal of property, plant and equipment, gains on transactions of derivatives (other than finance income), gains on insurance contracts and other gains.

(2) Includes losses on disposal of property, plant and equipment, losses on disposal of intangible assets other than goodwill, losses on valuation of property, plant and equipment, losses on transactions of derivatives (other than finance cost) and other losses.

Net other loss increased significantly by Won 1,733 billion from Won 2 billion in 2019 to Won 1,735 billion in 2020 primarily due to increases in impairment losses on property, plant and equipment and impairment losses on intangible assets other than goodwill. Specifically:

- Impairment losses on property, plant and equipment, which comprise primarily of impairment losses recognized related to the estimated cash flow from the recoverable oil and gas from the Company's oil and gas properties, increased by 708.2%, or Won 1,248 billion, from Won 176 billion in 2019 to Won 1,425 billion in 2020 primarily due to impairment loss on oil and gas properties, due in turn to significantly lower oil and gas prices during 2020 and the corresponding reduction in the estimated cash flow from the recoverable oil and gas from the Company's properties which fell below the properties' book value.

- Impairment losses on intangible assets other than goodwill, which comprise primarily of impairment losses recognized in connection with unsuccessful oil or gas exploration projects prior to establishment of technical feasibility and commercial viability, increased by 1,590.5%, or Won 288 billion, from Won 18 billion in 2019 to Won 306 billion in 2020. In 2020, the Company recognized impairment loss of Won 160 billion related to the impairment of its exploration and evaluations assets and Won 108 billion related to the impairment of mining rights primarily due to the decrease in oil and gas prices, whereas in 2019, the Company recognized impairment loss of Won 2 billion related to the impairment of its exploration and evaluation assets and net reversal of impairment of mining rights of Won 37 billion.

Finance Income and Finance Costs

The following table presents 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, except percentages)			
Interest income	₩ 23	₩ 15	₩ (8)	(35.1)%
Gains on valuation of financial liabilities measured at fair value through profit or loss	—	37	37	N.A.[1]
Gains on valuation of financial assets measured at fair value through profit or loss	168	8	(159)	(95.0)
Gains on valuation of derivative financial instruments	19	—	(19)	(100.0)
Gains on transactions of derivative financial instruments	11	92	81	714.7
Gains on foreign currency translation	137	72	(65)	(47.2)
Gains on foreign currency transactions	43	42	(1)	(2.8)
Other finance income[2]	2	0	(2)	(99.7)
Finance income	₩ 402	₩ 267	(136)	(33.7)

	For the Year Ended December 31,		Changes	
	2019	2020	Amount	%
	(In billions of Won, except percentages)			
Interest expenses	₩ 475	₩ 468	₩ (7)	(1.5)%
Losses on valuation of financial assets measured at fair value through profit or loss	82	117	35	42.9
Losses on valuation of financial liabilities measured at fair value through profit or loss	16	5	(11)	(68.9)
Losses on valuation of derivative financial instruments	3	19	16	648.7
Losses on foreign currency translation	65	197	132	201.8
Losses on foreign currency transactions	14	30	17	121.1
Other financial costs	77	67	(10)	(13.3)
Finance costs	₩ 731	903	172	23.5

(1) Not Applicable.

(2) Includes dividend income and gains on transactions of financial assets measured at fair value through profit or loss.

The Company recognized net gain on foreign currency translation of Won 71 billion in 2019 compared to net loss on foreign currency translation of Won 125 billion in 2020, and the Company's net gain on foreign currency transactions decreased by 60.3%, or Won 18 billion, from Won 29 billion in 2019 to Won 12 billion in 2020, due to fluctuations in the average value of the British Pound, Canadian dollar and Kazakhstani Tenge against the U.S. dollar during 2019 compared to 2020 in connection with U.S. dollar-denominated indebtedness of our foreign subsidiaries. The Company, in preparing its consolidated financial statements, aggregates the foreign currency gains and losses of itself and its subsidiaries, and as such, the Company's consolidated foreign currency gains and losses are affected by changes in the exchange rates of the U.S. dollar, the functional currency of the Company, as well as the functional currencies of its subsidiaries. Against such fluctuations, the Company's gains on transactions of derivative financial instrument increased by 714.7%, or Won 81 billion, from Won 11 billion in 2019 to Won 92 billion in 2020 and the Company recognized net gain on valuation of derivative financial instruments of Won 16 billion in 2019 compared to net loss on valuation of derivatives of Won 19 billion in 2020.

The Company's interest income decreased by 35.1%, or Won 8 billion, from Won 23 billion in 2019 to Won 15 billion in 2020 primarily due to decreases in interest income related to cash and cash equivalents.

The Company's interest expenses decreased by 1.5%, or Won 7 billion, from Won 475 billion in 2019 to Won 468 billion in 2020 primarily due to decreases in interest expenses related to bond payables.

The Company recognized net gain on valuation of financial assets measured at fair value through profit or loss of Won 86 billion in 2019 compared to net loss on valuation of financial assets measured at fair value through profit or loss of Won 109 billion in 2020 primarily due to loss on valuation of a promissory note relating to certain agreements guaranteeing mining rights.

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

The Company recognized a net profit on investments in associates and joint ventures of Won 54 billion in 2019 compared to a net loss on investments in associates and joint ventures of Won 27 billion in 2020. In 2019, the Company recognized such net profit primarily due to its shares of profit of Won 48 billion from Deep Basin Partnership and Won 9 billion from HKMS Partnership. In 2020, the Company recognized such net loss primarily due to its shares of loss of Won 63 billion from OIG. See Note 15 to the Company's financial statements as of and for the years ended December 31, 2020 and 2019 included in this Offering Circular.

Profit (Loss) Before Income Tax

As a result of the foregoing, the Company recognized profit before income tax of Won 379 billion in 2019 compared to loss before income tax of Won 2,435 billion in 2020.

Income Tax Expense

Income tax expense decreased by 99.1%, or Won 529 billion, from Won 534 billion in 2019 to Won 5 billion in 2020 primarily due to the recognition of profit before income tax in 2019 compared to loss before income tax in 2020 and, to a lesser extent, the differences in tax rates in overseas entities from a current tax expense of Won 289 billion in 2019 to a current tax benefit of Won 74 billion in 2020. See Note 39 to the Company's financial statements as of and for the years ended December 31, 2020 and 2019 included in this Offering Circular.

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

Loss for the Year

As a result of the foregoing, the Company's loss for the year increased by 1,476.2%, or Won 2,284 billion, from Won 155 billion in 2019 to Won 2,439 billion in 2020. Net loss margin, which represents the ratio of loss for the year to revenue, increased from 5.3% in 2019 to 126.3% in 2020.

Financial Condition, Liquidity and Capital Resources

Cash Flows

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

	For the Year Ended December 31,		For the Nine Months Ended September 30,	
	2019	2020	2020	2021
	(In billions of Won)			
Net cash provided by (used in) operating activities	₩ 1,033	₩ (54)	₩ (83)	₩ 272
Net cash used in investing activities	(786)	(820)	(569)	(391)
Net cash provided by (used in) financing activities	(290)	977	781	176

	For the Year Ended December 31,		For the Nine Months Ended September 30,	
	2019	2020	2020	2021
	(In billions of Won)			
Net increase (decrease) in cash and cash equivalents before net effect of foreign exchange differences	(43)	103	129	57
Net effect of foreign exchange differences	(10)	(31)	16	61
Net increase (decrease) in cash and cash equivalents	(53)	72	144	118
Cash and cash equivalents as of January 1 before deduction of government grants	778	725	725	797
Government grants	(0)	(0)	—	—
Cash and cash equivalents at the end of the period	725	797	870	915

Capital Requirements

Historically, uses of cash have consisted principally of purchases of property, plant and equipment (including investing in oil and gas properties and construction and maintenance of stockpile facilities and other structures), provision of loans to related parties, repayments of outstanding debt, investments in associate and joint ventures engaged in exploration, development and production activities and payments of dividends. The Company anticipates that such expenditures will represent the most significant uses of funds for the next several years.

Net cash used in investing activities was Won 786 billion in 2019, Won 820 billion in 2020 and Won 391 billion in the first nine months of 2021. These amounts included cash used for acquisitions of property, plant and equipment of Won 503 billion in 2019, Won 395 billion in 2020 and Won 262 billion in the first nine months of 2021. The Company plans to spend approximately Won 941 billion in capital expenditures in 2021 (including amounts expended through September 30, 2021), which the Company may adjust on an on-going basis subject to market demand for oil and gas, the production outlook of the global oil and gas industry and global economic conditions in general. The Company may delay or not implement some or all of its current capital expenditure plans based on its assessment of such market conditions. Net cash used for investments in associates and joint ventures was Won 9 billion in 2019, Won 329 billion in 2020 and Won 33 billion in the first nine months of 2021. The Company used cash for investments in associates and joint ventures of Won 333 billion in 2020 primarily for the acquisition of its interest in the ADNOC Onshore project from Korea GS E&P. Net cash used for acquisitions of financial assets measured at fair value through profit or loss was Won 225 billion in 2019 and Won 204 billion in 2020 primarily related to specified money trust deposits which were reclassified as financial assets measured at fair value through profit or loss in connection with the application of K-IFRS 1109 from 2019. The Company used cash for acquisition of intangible assets other than goodwill of Won 48 billion in 2019, Won 28 billion in 2020 and Won 100 billion in the first nine months of 2021.

In the Company's financing activities, the Company used cash of Won 1,491 billion in 2019, Won 1,002 billion in 2020 and Won 1,261 billion in the first nine months of 2021 for repayment of bonds (including current portion), cash of Won 189 billion in 2019, Won 1,597 billion in 2020 and Won 217 billion in the first nine months of 2021 for repayments of short-term borrowings, and cash of Won 399 billion in 2019, Won 60 billion in 2020 and Won 136 billion in the first nine months of 2021 for repayments of long-term borrowings (including current portion). The Company also paid dividends of Won 41 billion in 2020. The Company did not pay any dividends in 2019 or the first nine months of 2021.

Payments of contractual obligations and commitments will also require considerable resources. In the Company's ordinary course of business, it routinely enters into commercial commitments for various aspects of its operations, as well as issue guarantees for indebtedness of its related parties and others. For the Company's contingent liabilities, see Note 28 to the Company's unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 included in this Offering Circular.

The following table sets forth contractual maturities of the Company's financial liabilities (excluding financial guarantee liabilities), significant contractual obligations and estimated commitments as of September 30, 2021.

	Payments Due by Period				
Financial Liabilities	**Contractual Cash Flows[1]**	**Less than 1 Year**	**1 to 2 Year**	**2 to 5 Years**	**After 5 Years**
			(In billions of Won)		
Bonds payable	₩ 14,640	₩ 2,932	₩ 2,560	₩ 6,181	₩ 2,966
Borrowings	2,267	1,220	793	45	210
Trade and other payables	941	686	51	75	128
Derivative liabilities	649	490	132	26	—
Total	₩ 18,497	₩ 5,328	₩ 3,536	₩ 6,327	₩ 3,304
Contractual Obligations and Estimated Commitments					
Purchase commitments[2]	₩ 64	₩ 10	₩ 9	₩ 0	₩ 45
Decommissioning and environmental liabilities	2,609	47	115	402	2,046
Others	38	15	7	8	7
Total	₩ 2,711	₩ 72	₩ 131	₩ 410	₩ 2,098

(1) Includes interest payments, but excludes the effect of offsetting contracts.

(2) Includes drilling commitments and others.

Liquidity and Capital Resources

The Company has traditionally met its working capital and other capital requirements principally from cash provided by operations and capital contributions from the Government, while raising the remainder of its requirements primarily through long-term debt and short-term borrowings. The Company plans to fund a portion of its investments in exploration, development and production projects with loans from the SAER. For SAER loans, in the event the exploration project does not result in successful production of oil or gas, the Company may apply to have such loans forgiven after satisfying certain criteria set by the Ministry of Trade, Industry and Energy. The Company expects that these sources will continue to be its principal sources of cash in the future.

The Company recognized net cash provided by operating activities of Won 1,033 billion in 2019. The Company's other payables from operating activities as well as trade and other payables decreased in 2019, which in turn negatively impacted the Company's net cash provided by operating activities. In addition, the Company's other receivables from operating activities increased in 2019.

The Company recognized net cash used in operating activities of Won 54 billion in 2020. The Company's trade and other payables as well as other payables from operating activities decreased in 2020, which in turn negatively impacted the Company's net cash provided by operating activities. On the other hand, the Company's outstanding trade and other receivables decreased in 2020.

The Company recognized net cash provided by operating activities of Won 272 billion in the first nine months of 2021. The Company's other receivables from operating activities decreased, which in turn enhanced the Company's net cash provided by operating activities. On the other hand, the Company's outstanding trade and other receivables increased in the first nine months of 2021, which in turn negatively impacted the Company's net cash provided by operating activities. The Company's other payables from operating activities also decreased in the first nine months of 2021, which in turn negatively impacted the Company's net cash provided by operating activities.

The Company had net repayment of long-term borrowings (including current portion), after adjusting for proceeds from long-term borrowings, of Won 116 billion in 2019, repayment of long-term borrowings of Won 60 billion in 2020 and repayment of long-term borrowings (including current portion) of Won 136 billion in the first nine months of 2021. The Company did not have any proceeds from long-term borrowings in 2020 or in the first nine months of 2021. The Company had net repayment of issuance of bonds, after adjusting for proceeds from bonds, of Won 220 billion in 2019 and net proceeds from issuance of bonds, after adjusting for repayment of current portion of bonds, of Won 936 billion in 2020 and Won

511 billion in the first nine months of 2021. In addition, the Company had net proceeds from short-term borrowings, after adjusting for repayment of short-term borrowings, of Won 44 billion in 2019 and Won 150 billion in 2020, and net repayments of short-term borrowings, after adjusting for proceeds from short-term borrowings, of Won 217 billion in the first nine months of 2021. For borrowings and bond payables, the Company recorded current liabilities of Won 1,542 billion as of December 31, 2019, Won 3,055 billion as of December 31, 2020 and Won 3,893 billion as of September 30, 2021 and total non-current liabilities of Won 12,297 billion as of December 31, 2019, Won 11,222 billion as of December 31, 2020 and Won 11,556 billion as of September 30, 2021.

The Company also had proceeds from increase in share capital of Won 34 billion in 2019, Won 39 billion in 2020 and Won 63 billion in the first nine months of 2021. The Company's share capital is allowed to be invested solely by the Government in accordance with the KNOC Act. The Company's total equity was Won 531 billion as of December 31, 2019, Won (1,141) billion as of December 31, 2020 and Won (1,504) billion as of September 30, 2021. Net borrowings and debt securities-to-total invested capital ratio, which is calculated by (i) deducting cash and cash equivalents from total borrowings and debt securities and (ii) dividing the net amount with the Company's total invested capital (consisting of net borrowings and debt securities plus total equity), was 96.11% as of December 31, 2019, 109.25% as of December 31, 2020 and 111.54% as of September 30, 2021. See Note 25 to the Company's unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 and Note 44 to the Company's financial statements as of and for the years ended December 31, 2020 and 2019 included in this Offering Circular.

The Company currently anticipates that the cash flow that the Company generates from its operation, the incurrence of borrowings and issuance of bonds, and periodic future capital contributions from the Government, together with its existing cash and cash equivalents and credit sources (including its credit facilities), will be sufficient to meet its currently anticipated needs for working capital, capital expenditures and investments in the near future. The Company has established a contingency plan to minimize the impact of changes in global oil and gas prices on the Company's liquidity, and to maintain a stable cash flow. The Company plans to undertake selective exploration activities based on projected cash flows from the project, as part of its efforts to reduce capital expenditures. The Company is also continually evaluating overall lifting costs from each of its producing fields, to achieve an optimal level of production and to reduce its operating expenses. However, the Company may need to raise additional capital sooner than it expects among others in order to respond to changes in Government policies and respond to changes in the global crude oil and natural gas market conditions. The Company's ability to rely on additional financing could be affected by factors such as the liquidity of the Korean and the global financial markets, prevailing interest rates, its credit rating and the Government's policies regarding Won currency and foreign currency borrowings.

The Company had a working capital (current assets minus current liabilities) deficit of Won 896 billion as of December 31, 2019, Won 1,903 billion as of December 31, 2020 and Won 3,005 billion as of September 30, 2021. The Company's holdings of cash and cash equivalents were Won 725 billion as of December 31, 2019, Won 797 billion as of December 31, 2020 and Won 915 billion as of September 30, 2021. The Company's holdings of current financial assets were Won 312 billion as of December 31, 2019, Won 618 billion as of December 31, 2020 and Won 693 billion as of September 30, 2021. The Company had total available credit lines of Won 2,204 billion as of September 30, 2021, Won 238 billion of which was used as of such date.

In addition to such current assets, the Company believes that it has a variety of alternatives available to it to satisfy its liquidity requirements to the extent that they are not met by funds generated by operations, including the incurrence of borrowings and issuance of bonds denominated in Won and various foreign currencies as well as additional capital contributions from the Government.

Market Risks

In the ordinary course of business, the Company is exposed to certain financial and market risks, including primarily risks arising from fluctuations in oil and gas prices and the exchange rate between the dollar and the Won. See Note 25 to the Company's unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 and Note 44 to the Company's financial statements as of and for the years ended December 31, 2020 and 2019.

Commodity Price Risk

The Company is exposed to fluctuations in prices of crude oil and natural gas, which are commodities whose prices are determined by reference to international market prices. International oil and gas prices are volatile and are influenced by global as well as regional supply and demand conditions. This volatility has a significant effect on the Company's sales and profit.

Historically, prices for oil have fluctuated widely for many reasons, including:

- global and regional supply and demand, and expectations regarding future supply and demand for crude oil and petroleum products;
- political, economic and military developments in oil producing regions, particularly the Middle East;
- access to pipelines, railways and other means of transporting crude oil, gas and petroleum products;
- prices and availability of alternative fuels and energy technologies;
- the ability of the members of OPEC and other crude oil producing nations, to set and maintain specified levels of production and prices;
- domestic and foreign governmental regulations and actions, including export restrictions and taxes; and
- global and regional economic conditions, weather, natural disasters, major oil spills and epidemics and pandemics.

International gas prices typically follow changes in international oil prices, although movements in sale prices of natural gas are not always directly proportional to those of crude oil prices. The Company and its subsidiaries use forward commodity contracts to hedge market risks resulting from fluctuations in oil and gas prices for its oil and gas productions, and the effective portion of gains or losses arising from changes in fair value in cashflow on such derivatives are recognized directly in other comprehensive income, as the Company classifies such hedging activities as a cash flow hedge. A 10.0% increase in crude oil prices as of December 31, 2019 and 2020 and September 30, 2021, with all other variables held constant, would have increased the Company's profit before tax by Won 240 billion in 2019, Won 141 billion in 2020 and Won 127 billion in the first nine months of 2021, with a 10.0% decrease in crude oil prices having the opposite effect.

Foreign Currency Risk

The Company's foreign exchange exposure gives rise to market risk associated with exchange rate movements, which primarily relate to the Company's operating activities and its investments in foreign subsidiaries. Foreign exchange gain/loss resulting from sales of crude oil and natural gas is determined by the exchange rates as of the dates on which the sales are recorded during the period. The Company enters into currency forward contracts and cross currency swaps to hedge the risks from changes in foreign currency exchange rates.

The Company and its subsidiaries use various functional currencies depending on their primary economic environment in which the entities operate. As of December 31, 2019 and 2020 and September 30, 2021, the impact of a 5.0% increase or decrease in exchange rates in each functional currency exchange rate on the Company's profit before tax, assuming all other variables held are constant, is as follows:

	For the Year Ended December 31,				For the Nine Months Ended September 30, 2021	
	2019		2020			
	Increase by 5%	Decrease by 5%	Increase by 5%	Decrease by 5%	Increase by 5%	Decrease by 5%
	(In billions of Won, except percentages)					
Korean Won	₩ (46)	₩ 46	₩ (66)	₩ 66	₩ (69)	₩ 69
Hong Kong Dollar	(15)	15	(14)	14	(7)	7
Swiss Franc	(48)	48	(80)	80	(73)	73
Euro	(27)	27	(27)	27	(23)	23
Japanese Yen	(37)	37	(40)	40	(35)	35
Singapore Dollar	(17)	17	(18)	18	(17)	17
Others	(0)	0	0	(0)	(0)	0

Interest Rate Risk

The Company is exposed to interest rate risks arising from its borrowings. Upward fluctuations in interest rates increase the cost of new borrowings and the interest cost of outstanding floating rate borrowings. The Company uses interest rate swaps to hedge against its interest rate exposure. A 100 basis point increase in interest rates as of December 31, 2019 and 2020 and September 30, 2021, with all other variables held constant, would have decreased the Company's profit before tax by Won 20 billion in 2019, Won 22 billion in 2020 and Won 14 billion in the first nine months of 2021, with a 100 basis point decrease in interest rates having the opposite effect.

Inflation

Inflation in Korea was 0.4% in 2019 and 0.5% in 2020. Based on preliminary data, inflation was 2.1% in the first nine months of 2021 and GDP growth in the first nine months of 2021 was 4.0% at chained 2015 year prices, primarily due to an increase in exports of goods and services. The effects of inflation in Korea on the Company's financial condition and results of operations are reflected primarily in salary and selling and administration expenses. Inflation in Korea has not had a significant impact on the Company's results of operations to date.

Overview

The Company is the national oil and gas company of Korea and is wholly owned by the Government. The Company was incorporated in 1979 under the KNOC Act to serve as the executing body for oil-related policies of the Government. The Company engages in a wide range of oil and gas activities, including:

- exploration, development and production of crude oil and natural gas in Korea and abroad;
- stockpiling of oil in furtherance of the Government's energy policies, as well as engaging in wholesale gasoline, gas oil and kerosene distribution and economical gas station businesses and construction of related stockpile facilities; and
- performance of other activities related to its business purpose, such as the collection and publication of oil-related information, and conducting research and development related to oil and natural gas.

The Company carries out the Government's oil policy objectives by engaging in exploration and production activities and managing the nation's oil stockpile pursuant to master plans announced by the Government. The Company receives substantial financial support from the Government in the form of capital contributions and SAER loans to undertake these activities. The Ministry of Trade, Industry and Energy directs and supervises the Company's business activities, as well as appointing its standing directors and the President pursuant to the KNOC Act and other laws applicable to the Company. The Company is audited from time to time by the Board of Audit and Inspection and is required to regularly report its business activities and plans to the Government.

In the first six months of 2021, the Company had a daily crude oil and natural gas production of approximately 145,500 barrels of oil equivalent. As of September 30, 2021, the Company had interests in 20 production projects, one development project and ten exploratory projects, located across 17 countries. The Company is seeking to maintain its production level at approximately 127,000 barrels of oil equivalent per day until the end of 2021, and hopes to increase the Company's production level further in the near future through continued exploration activities and production optimization, which would provide the basis for the Company to compete with larger global oil companies engaged in oil and gas exploration, development and production. For example, the Company acquired a 0.9% interest in the ADNOC Onshore project in February 2020 and an 20% interest in Block UDO in the Republic of Senegal in July 2020.

In June 2016, the Ministry of Economy and Finance and the Ministry of Trade, Industry and Energy announced the June 2016 Government Plan, which included broad-based measures to rationalize the overseas natural resource exploration, development and production activities of government-controlled enterprises, including the Company. Pursuant to the June 2016 Government Plan, the Company has developed and is implementing a plan for the sale of its interests in overseas exploration, development and production operations (taking into consideration strategic value and profitability) to third parties with preference given to institutional investors in Korea if possible and with an aim to maximize the returns on such sales. For example, the Company disposed of its (1) interest in Harvest Operations' Caroline Shallow and Wilson Creek fields in Canada in 2018, (2) interest in Harvest Operations' Blueberry, Consort Viking, Crooked Creek, Killarney and Worsley fields and Loon Oil sands in Canada in 2019, (3) interest in Harvest Operations' Chamber fields in Canada in 2020, (4) interest in OIG in 2021, (5) interest in certain additional assets of Harvest Operations, including West Central, Loon Lake and Royce, in 2021 and (6) interest in the River Bend field in 2021 pursuant to the June 2016 Government Plan. The timing of any such sales will be subject to market conditions and the Company will be limited from entering into any new overseas investments other than any such investments that are in furtherance of important policy objectives.

Since 1980, the Company has also been operating and managing Korea's national oil stockpile facilities and reserves in response to the global oil shocks during the 1970s. Aiming to further strengthen Korea's ability to cope with market disruptions caused by short-term oil shortages, the Government announced the Fourth Stockpiling Master Plan in December 2014, which was amended in November 2018 and November 2021. Pursuant to such Fourth Stockpiling Master Plan, the Company is required to maintain its stockpiling capacity at 146 million barrels until the end of 2025. The Company had reserve levels of approximately 97 million barrels as of September 30, 2021, and the Company is seeking to reach a stockpile reserve level of 100 million barrels by 2025 pursuant to the Fourth Stockpiling Master Plan. The Company also generates income from the stockpiling program by leasing a part of its storage facilities to foreign oil producing companies and domestic refineries, as well as by engaging in lending activities with respect to part of its stockpile reserves. In furtherance of the Government's policy to control increases in gasoline prices, the Company engages in a wholesale gasoline, gas oil and kerosene distribution business, and also operates 1,255 economical gas stations or "Altteul Gas Stations" located throughout Korea with Korea Expressway Corporation and National Agricultural Cooperative Federation, as of September 30, 2021. To support the Company's stockpiling projects, the Company also constructs stockpiling facilities.

To ensure a stable supply of energy and natural resources for the Korean economy and to promote the development of new energy resources, the Government established the SAER in 1995 which combines six energy-related funds that the Government had been operating previously. Pursuant to the SAER Act, the Minister of Trade, Industry and Energy oversees the management and operation of the SAER, and had delegated to the Company the administrative tasks related to the day-to-day operation of SAER and the administration of the SAER loans for oil-related projects. However, pursuant to the June 2016 Government Plan, the responsibilities relating to SAER, other than the administration of taxes and dues, were transferred from the Company to the Korea Energy Agency in July 2017. The Company also borrows a portion of the SAER funds to further expand its exploration and other oil-related activities. The Company also performs various other functions related to its status as Korea's largest oil and gas developer and the Government's policy-executing arm for matters related to oil. The Company collects, compiles and publishes both domestic and international oil-related statistics, in addition to conducting research related to the exploration, development and production of oil and natural gas.

In addition, the Company focuses on establishing and enforcing policies and strategies relating to the environment, social responsibility and corporate governance in order to promote sustainable growth. For example, in July 2019, the Company, in consortium with Korea East-West Power Co., Ltd. and Equinor ASA, agreed to develop a 200MW floating offshore wind farm near its Donghae project, which is currently pending approval from relevant government authorities. The Company also participates in Carbon Capture and Storage ("CCS") projects in furtherance of the Government's Nationally Determined Contribution targets. With support from the Government, the Company is also planning to participate in hydrogen energy projects by establishing global value chains with overseas and domestic companies for the production, transportation and distribution of hydrogen and ammonia and the distribution and storage of low-carbon hydrogen and ammonia.

For the year ended December 31, 2019, the Company had revenue of Won 2,930 billion, operating profit of Won 571 billion and loss for the year of Won 155 billion. The Company had total assets of Won 18,662 billion and total equity of Won 531 billion as of December 31, 2019. For the year ended December 31, 2020, the Company had revenue of Won 1,931 billion, operating loss of Won 54 billion and loss of Won 2,439 billion. The Company had total assets of Won 17,504 billion and total equity of Won (1,141) billion as of December 31, 2020. For the nine months ended September 30, 2021, the Company had revenue of Won 1,649 billion, operating profit of Won 387 billion and profit of Won 74 billion. The Company had total assets of Won 19,045 billion and total equity of Won (1,504) billion as of September 30, 2021.

Relationship with the Government

The Company was established as a statutory juridical entity in 1979 under the KNOC Act to ensure a stable supply of oil and to support the development of the Korean economy by developing oil fields in Korea and abroad, stockpiling petroleum reserves and engaging in other oil-related activities.

The Company is wholly owned by the Government and the Government is required under the KNOC Act to contribute all of the Company's authorized capital of up to Won 13 trillion. The Company may only be privatized through an amendment of Article 4 of the KNOC Act by the National Assembly, which states that the Government shall fund the Company's authorized capital. Pursuant to the KNOC Act, the Government may also guarantee the repayment of the Company's bonds and its other loans, and provide financial subsidies for the Company's business activities, although it is not obligated to do so.

The Government, through the Ministry of Trade, Industry and Energy, directs and supervises the Company's activities relating to the exploration, development and production of oil resources in Korea and abroad, the purchase and stockpiling of oil reserves, the construction and management of stockpile facilities, the collection, processing and publication of oil trading information and the enhancement of oil distribution channels. Pursuant to the KNOC Act and the Act on the Management of Public Institutions, the President of Korea appoints, and has the authority to remove, the Company's President and the standing member of the Audit Committee, while the Minister of Economy and Finance appoints the Company's non-standing directors. Furthermore, the Company is required to publicly disclose certain information relating to its operation and management, including, among other matters, its management objectives, budget and business plan, financial statements, personnel data, articles of incorporation, bond register and the minutes of the board of directors (other than certain confidential information) and the audit reports of its Audit Committee.

The Board of Audit and Inspection, which is an independent Government agency that audits all Governmental agencies and Government-controlled entities, audits the Company from time to time. The audit includes a review of the Company's financial statements and an inspection of the Company's business operations and performance. The Board of Audit and Inspection reports its audit results to the President of Korea. The Company must report any issues identified by the Board of Audit and Inspection during the audit, as well as plans to remedy such issues, to the relevant standing committee of the National Assembly of Korea. The Company must also present mid- to long-term management objectives covering five fiscal years to the Minister of Trade, Industry and Energy and the Minister of Economy and Finance on an annual basis. The Company is further subject to unscheduled inspections and investigations from time to time by the National Assembly under the Act on Inspection and Investigation of Government Administration of 1988, as amended.

Energy Master Plan

Under the Low Carbon Green Growth Act, the Government must establish 20-year master plans, revised every five years, for the development, distribution, research and management of energy resources both domestic and abroad. The First Energy Master Plan, issued in 2008, sought to improve Korea's energy security, use efficiency and the environment. The Third Energy Master Plan was announced in June 2019 and its objectives include the following:

- to transform the energy policy paradigm by innovating its consumption structure;
- to innovate buildings and industries with improved energy efficiency at the systematic and community levels;
- to improve energy efficiency in the transportation sector by promoting eco-friendly transportation and intelligent traffic systems;
- to create new businesses and markets and advance the electricity, gas and heat market systems;
- to develop a sustainable energy mix by increasing the share of renewable energy and through energy transition;
- to strengthen energy security through global cooperation;
- to strengthen safety features of energy facilities by prioritizing public safety;
- to enhance regional energy independence through distributed generation and smart grids; and
- to develop the energy industry as a new growth engine including as a source for quality jobs.

To further develop Korea's energy industry, the Third Energy Master Plan seeks to enhance the competitiveness of the conventional energy industry through innovation. In furtherance of the Third Energy Master Plan, the Company plans to develop processes and new business models using fourth industrial revolution technologies, such as artificial intelligence, the internet of things and blockchain.

The Third Energy Master Plan also recommends the diversification of import routes of crude oil and natural gas in order to prepare for possible geopolitical risks and to help decrease Korea's reliance on specific regions. Specifically, the Third Energy Master Plan suggests an increase in imports from non-Middle Eastern countries while continually securing new suppliers. The Third Energy Master Plan also discusses the laying of a foundation for public and private enterprises to jointly take part in overseas resource development projects.

Resources Development Base Plan

Under the Overseas Resources Development Business Act of 1983, as last amended on April 20, 2021 and effective as of October 21, 2021 (the "Overseas Resources Development Act"), the Government must establish 10-year master plans, revised every five years, for the development of overseas natural resources. Under the Overseas Resources Development Act, if a Korean national plans to develop overseas natural resources, such person must report his or her plans to the Minister of Trade, Industry and Energy.

Pursuant to the Overseas Resources Development Act, the Government is authorized to provide funds to a Korean resident to conduct necessary research and analysis for an overseas resources development business and to acquire the rights to develop such resources. The Government may also provide funds for the installation and operation of facilities required for the development, and funds for leasing or buying the necessary land for the development.

To ensure the proper use of Government funds, the Ministry of Trade, Industry and Energy delegated to the Company the authority to inspect the books, documents and materials of oil-related businesses to which the Government has provided financial support and to evaluate the feasibility of the Government's financial support for the costs being incurred by such businesses.

In May 2020, the Ministry of Trade, Industry and Energy issued the Resources Development Base Plan, which integrated the Sixth Overseas Resources Development Master Plan and the Third Seabed Mineral Development Master Plan, covering the period from 2020 to 2029 pursuant to the Overseas Resources Development Act. Objectives of the Resources Development Base Plan include the following:

- to recover the Company's function and role as a national corporation by focusing its business in high risk regions with market entrance barriers, such as the Middle East and Eurasia;
- to attract participation from domestic companies, including private capital, by creating platforms that provide access to business information and personnel networks, while cooperating with the government;
- to activate multilateral cooperation channels and selectively develop oil and gas businesses in four strategic regions (North America, the Middle East, Eurasia and ASEAN);
- to expand investments in exploration activities in the East Sea continental shelf, specifically, the Company's Block 8 and 6-1, to reduce exploration risks in foreign fields;
- to build a resource security infrastructure by balancing the development of problem solving technology and future strategic technology; and
- to encourage research and development, big data sharing, domestic products and services when promoting resource development businesses.

Stockpiling Master Plan

The Company operates and manages Korea's national oil stockpile facilities and reserves, which began in 1980 in response to the global oil shocks of the 1970s. Pursuant to the Petroleum and Petroleum Substitute Fuel Business Act (the "Petroleum Business Act"), the Ministry of Trade, Industry and Energy sets goals for the national oil stockpile program and announces a master plan to implement these goals. The stockpiling master plan must include matters relating to the oil stockpile target level, the types and amount of oil to be stockpiled and the management of stockpile facilities.

Pursuant to the Petroleum Business Act, the Government announced the Fourth Stockpiling Master Plan in December 2014 which was amended in November 2018 and November 2021. Under the Fourth Stockpiling Master Plan, the Company is required to maintain its stockpiling capacity at 146 million barrels until the end of 2025. The Company had reserve levels of approximately 97 million barrels as of September 30, 2021, and the Company is seeking to reach a stockpile reserve level of 100 million barrels by 2025 pursuant to the Fourth Stockpiling Master Plan. Under the Fourth Stockpiling Master Plan, the estimated budget for achieving the Company's stockpiling capacity target is Won 31 billion and the budget for achieving the Company's reserve level target is Won 225 billion.

Under the Petroleum and Petroleum Substitute Fuel Business Enforcement Regulation, the Ministry of Trade, Industry and Energy has the authority to require the Company to give priority to financing the purchase of a portion of the target stockpile reserves and the construction and expansion of the stockpiling facilities with the revenue generated from the Company's stockpiling activity. To support the Fourth Stockpiling Master Plan, the Company expects to generate income from the stockpiling program by leasing a part of its storage facilities to foreign oil producing companies and domestic refineries, and by engaging in trading activities with respect to part of its stockpile reserves.

Special Accounts for Energy and Resources

In 1995, the Government established the SAER pursuant to the SAER Act, which combines six energy-related funds that were previously operated by the Government. Prior to 1995, to ensure a stable supply of energy and natural resources for the Korean economy and to promote the development of new energy resources, the Government operated six energy and resources related funds, namely the Oil Business Fund, the Coal Industry Support Fund, the Coal Industry Stabilization Fund, the Overseas Mineral Resources Development Fund, the Energy Use Rationalization Fund and the Natural Gas Safety Management Fund. These funds were designed to support a variety of public and private projects, including those relating to the exploration and development of energy resources both domestically and abroad, the stockpiling of energy resources, the restructuring of the coal and other energy-related industries, the safe distribution of natural gas, the development of alternative energy sources and research activities related to the foregoing.

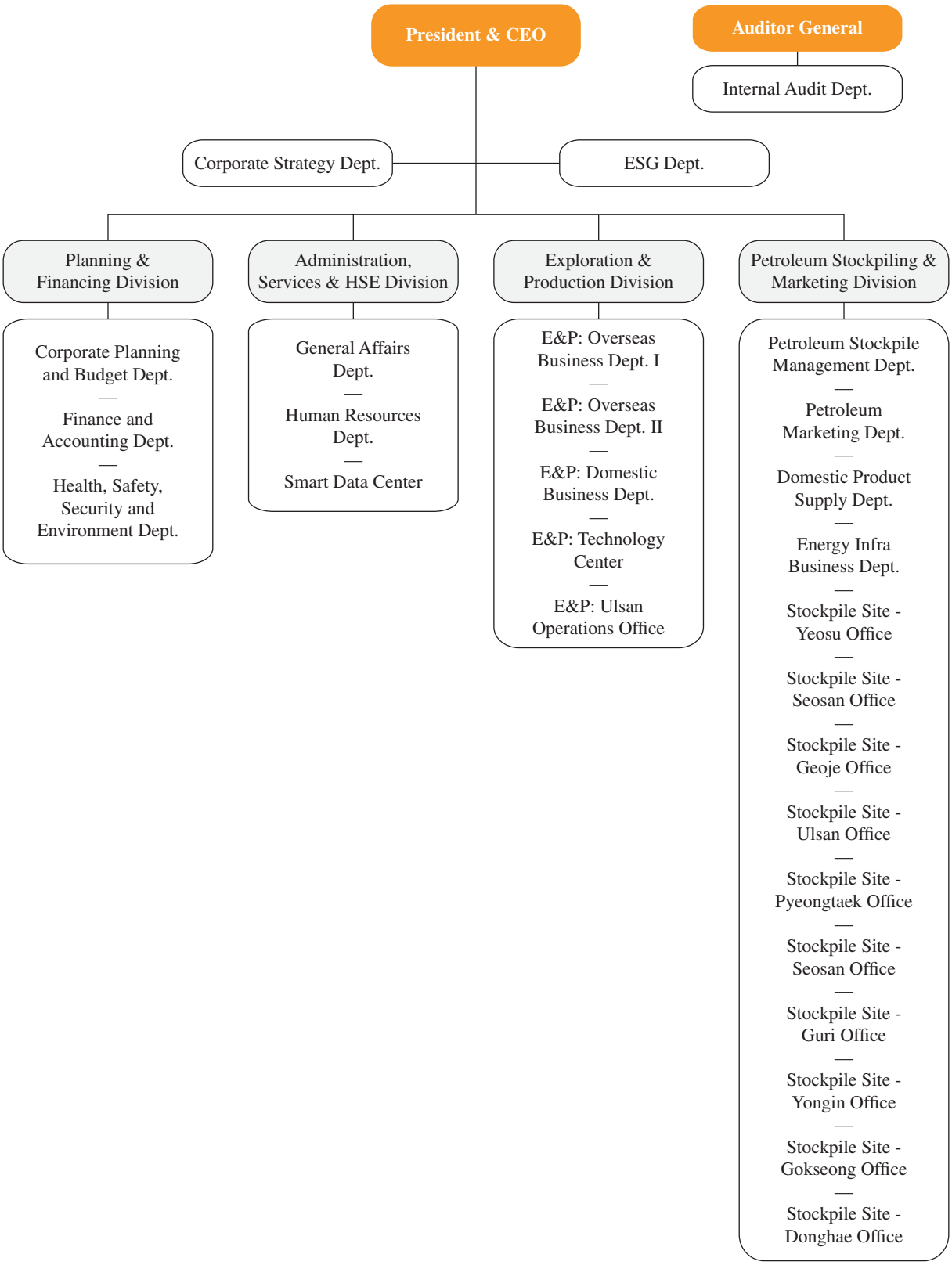
The Government's annual budget for the SAER is prepared with input from Government-controlled and private entities engaged in the energy and natural resources business, the Ministry of Trade, Industry and Energy and the Ministry of Economy and Finance, and approved by the National Assembly. The SAER budget in 2019 and 2020 amounted to Won 6,021 billion and Won 5,537 billion, respectively, and has been set at Won 5,531 billion for 2021.

Pursuant to the SAER Act, the Minister of Trade, Industry and Energy oversees the management and operation of the SAER. A significant portion of the SAER budget consists of loans to be made for various energy- and resource-related projects. There are generally two types of SAER loans for the oil industry: loans for domestic and international oil exploration and production projects and loans to support general oil-related projects, such as the construction of oil pipelines. The loans for the oil industry are available for use by the Company and by certain qualifying third-party borrowers engaging in oil-related businesses.

The SAER loans used by the Company that were outstanding as of September 30, 2021 equaled Won 210 billion (after excluding loans relating to exploration fields which failed to discover commercially viable oil reserves, as payment obligations for such loans will be relieved). Under the SAER Act, loans used to fund exploration projects that do not result in discoveries are exempted from repayment of all or part of the principal amount of the loan and interest if they meet established criteria set by the Ministry of Trade, Industry and Energy.

Organizational Structure

The following diagram illustrates the Company's organizational structure as of the date hereof.



The Company has broadly organized its divisions by function and has an integrated exploration and development structure whereby separate divisions specialize in, and are responsible for, individual stages of exploration, development and production. The Exploration & Production Group oversees all exploration- and production-related activities and includes regional Business Departments and the Technology Department, which focuses on establishing the Company's mid-to-long-term research and development strategy and conducting research and development to enhance the Company's technological competitiveness. The Petroleum Stockpile Group oversees all activities relating to the operations of stockpiling facilities, as well as the Company's oil trading business.

In September 2021, the Company established the ESG Department in order to establish and enforce policies and strategies relating to the environment, social responsibility and corporate governance. The ESG department, which reports directly to the Company's President & CEO, also manages the Company's eco-friendly business projects including CCS and wind energy projects.

Exploration, Development and Production

Overview

The Company engages in crude oil and natural gas exploration, development and production in Korea and abroad. The Company's operations include projects that the Company operates with a 100.0% ownership interest or a shared ownership with joint venture partners.

Contractual arrangements among participants in a joint venture are usually governed by an operating agreement, which usually provides that costs, entitlements to production, and liabilities are to be shared according to each party's percentage interest in the joint venture. Upon completion of the initial exploration phase, and if the Company and its joint venture partners determine that a project has commercially viable development potential, the project will enter the development phase and join the production and development portfolio.

A major element of the Company's past business strategy had been to achieve organic growth through exploration activities and pursue selective acquisitions to optimize its asset portfolio to provide the basis for the Company to compete with larger global oil companies engaged in oil and gas exploration, development and production. In pursuit of this strategy, the Company made substantial acquisitions in the past.

As of September 30, 2021, the Company had interests in 31 projects, and it was the operator in 19 projects.

Reserves Data

The Company's estimated proved reserves of crude oil and natural gas as of June 30, 2021 totaled approximately 290 million barrels of crude oil, approximately 63 million barrels of natural gas liquids and approximately 785 billion cubic feet of natural gas, respectively. As of June 30, 2021, proved developed reserves accounted for approximately 51% and 55% of the Company's total proved crude oil and natural gas reserves, respectively.

The following table sets forth the Company's estimated proved reserves (including proved developed reserves and proved undeveloped reserves) and proved developed reserves of crude oil and natural gas as of December 31, 2019 and 2020 and June 30, 2021. The reserve data presented below and elsewhere in this Offering Circular are based on the Company's valuation of the reserves as of the date hereof, and are therefore subject to changes if further valuations of the reserves are conducted which revises the prior estimates.

	Crude Oil[1]	Natural Gas	Combined
	(Millions of barrels)	(Billions of cubic feet)	(Barrel of oil equivalent, in millions)
Proved developed and undeveloped reserves			
Reserves as of December 31, 2019[2]	429.9	944.9	590.4
Revisions of previous estimates	0.9	6.3	1.9
Extensions and discoveries	8.5	66.7	19.8
Improved recovery	0.0	0	0.0
Acquisitions	6.7	2.0	7.0
Disposals	(2.1)	(1.2)	(2.3)
Production for the year	(46.7)	(79.7)	(60.4)

	Crude Oil[1]	Natural Gas	Combined
	(Millions of barrels)	(Billions of cubic feet)	(Barrel of oil equivalent, in millions)
Reserves as of December 31, 2020[2]	397.2	939.0	556.4
Revisions of previous estimates	(11.8)	(25.9)	(16.1)
Extensions and discoveries	0	0	0
Improved recovery	0	0	0
Acquisitions	0	0	0
Disposals	(11.4)	(96.4)	(27.5)
Production for the year	(20.9)	(31.3)	(26.3)
Reserves as of June 30, 2021[2]	353.1	785.4	486.5
Proved developed reserves[2]			
As of December 31, 2019	245.5	595.9	347.1
As of December 31, 2020	208.3	520.9	296.9
As of June 30, 2021	178.6	431.0	251.9

(1) Includes natural gas liquids.

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

In general, the Company's engineers estimate its proved crude oil and natural gas reserve quantities based on its internal surveys, external reserve reports and data collected from third-party operators of production facilities in which the Company has a working interest.

The following tables set forth the Company's crude oil and natural gas proved reserves (including proved developed and proved undeveloped reserves) and proved developed reserves by country as of December 31, 2019 and 2020 and June 30, 2021.

	As of December 31,					
	2019		2020		As of June 30, 2021	
	Proved Developed and Undeveloped	Proved Developed	Proved Developed and Undeveloped	Proved Developed	Proved Developed and Undeveloped	Proved Developed
	(millions of barrels)					
Crude oil reserves[1]						
Canada[2]	137.5	54.3	137.1	49.2	125.8	39.5
Kazakhstan	41.0	29.4	40.1	30.6	37.5	28.1
Korea	0.2	0.2	0.0	0.0	0.0	0.0
Libya	4.3	4.3	4.2	4.2	3.9	3.9
Peru	7.3	7.3	3.2	3.2	0.0	0.0
United Arab Emirates	59.2	15.6	55.8	18.3	53.7	20.3
United Kingdom[3]	52.9	39.3	40.2	18.9	34.5	13.1
United States of America	120.6	88.2	111.9	79.2	94.0	70.0
Venezuela	2.6	2.6	2.7	2.7	2.6	2.6
Vietnam	4.3	4.4	2.0	2.0	1.1	1.1
	429.9	245.5	397.2	208.3	353.1	178.6

	As of December 31,					
	2019		2020		As of June 30, 2021	
	Proved Developed and Undeveloped	Proved Developed	Proved Developed and Undeveloped	Proved Developed	Proved Developed and Undeveloped	Proved Developed
	(billions of cubic feet)					
Natural gas reserves						
Canada[1]	284.5	150.3	316.3	135.3	217.0	80.1
Kazakhstan	9.6	5.4	12.2	7.7	11.6	7.0
Korea	12.5	12.5	1.7	1.7	0.5	0.5
Peru	8.3	8.3	5.3	5.3	0	0
United Kingdom[3]	158.5	25.9	158.6	4.6	152.7	0.0
United States of America	326.5	248.5	302.2	223.6	265.6	205.4
Venezuela	14.4	14.4	14.5	14.5	14.5	14.5
Vietnam	53.9	53.9	51.5	51.5	46.7	46.7
Yemen	76.7	76.7	76.7	76.7	76.7	76.7
Total	944.9	595.9	939.0	520.9	785.4	431.0

(1) Includes natural gas liquids.

(2) The reserve data of Harvest Operations are as estimated under Canadian oil and gas reporting standards, COGEH and NI 51-101, as evaluated by the Independent Reserves Evaluators. The reserves of Harvest Operations as estimated under the Securities Act oil and gas reporting standards as of December 31, 2019 and 2020 and June 30, 2021 may differ from the amounts shown in the tables above.

(3) Indicates the reserve data of Dana Petroleum, whose headquarters are located in the UK. However, Dana Petroleum's production sites are located throughout Europe and Africa, including the Netherlands, Norway and Egypt.

Estimation and evaluation of reserves naturally involve multiple uncertainties. The accuracy of any reserve evaluation depends on the quality of available information and engineering and geological interpretation. Based on the results of drilling, testing and production after the date of this Offering Circular, reserves may be significantly restated upwards or downwards. Changes in the price of crude oil and natural gas may also affect the Company's reserve estimates as well as estimates of the Company's discounted future net cash flows because those reserves are evaluated, and the discounted future net cash flows are estimated, based on prices and costs as of the date of the evaluation. A relative decrease in the amount of the Company's estimated proved reserves and future discounted net cash flows could, if material, affect the amount of the Company's depreciation and depletion expenses, impairment charges or certain other financial information derived from or relating to such information reported in the Company's financial statements in future periods. Significant changes in these amounts could have a material adverse effect on the Company's financial condition and results of operations and cause future results to differ materially from those reported in this Offering Circular. See "Risk Factors — Risks Relating to the Company — The crude oil and natural gas reserve estimates in this Offering Circular are only estimates, and may require substantial revisions as a result of future drilling, testing and production, and as such, the Company's actual production, revenues and expenditures may also differ materially from estimates."

Production and Development

The Company is the largest producer of oil and gas in Korea, contributing 100.0% of Korea's total oil and natural gas production for the six months ended June 30, 2021. The Company currently has 20 projects in production and one project under development.

In the first six months of 2021, the Company's daily average production was approximately 145,500 barrels of oil equivalent. Oil producing projects owned by Dana Petroleum, oil producing projects owned by Harvest Operations in Canada and oil producing projects located in the Eagle Ford shale oil formation in the United States owned by KNOC Eagle Ford Corporation are the Company's most economically significant operating oil producing projects, accounting for approximately 27%, 15% and 14%, respectively, of the Company's oil production for the six months ended June 30, 2021. Gas producing projects located in the Eagle Ford shale oil formation in the United States owned by KNOC Eagle Ford Corporation, gas producing projects owned by Harvest Operations in Canada and gas producing projects owned by Dana Petroleum are the Company's most economically significant operating gas producing

projects, accounting for approximately 31%, 25% and 19%, respectively, of the Company's natural gas production for the six months ended June 30, 2021. The following is a summary of the Company's current production activities by country and region.

Country	Project Name	Type of Project	KNOC Share	Investment as of September 30, 2021	Operated by	Arrangement Type	Participation Year
				(In thousands)			
Production Projects							
Canada	Harvest	Oil & Gas	100.00%	US$4,079,678[(1)]	KNOC	Lease	2009
Kazakhstan	ADA	Oil	40.00%	US$81,501	KNOC	Concession agreement	2005
	Altius	Oil	95.00%	US$516,826	KNOC	Concession agreement	2011
	KNOC Caspian	Oil & Gas	85.00%	US$424,201	KNOC	Concession agreement	2009
Korea	Donghae-1	Gas	100.00%	US$855,260	KNOC	Concession agreement	1998
	Donghae-2	Gas	70.00%	US$158,991	KNOC	Concession agreement	2016
Libya	Elephant	Oil	2.00%	US$217,577	Third Party	Production sharing agreement ("PSA")	1990
Peru	Block 8	Oil	20.00%	US$1,141,243	Third Party	Concession agreement	1995
United Kingdom (three projects)	Dana Petroleum	Oil & Gas	100.00%	US$4,957,086[(2)]	KNOC	Concession agreement	2010
USA	ANKOR Offshore	Oil	51.00%	US$897,944	KNOC	Lease	2008
	Eagle Ford	Shale Oil	23.70%	US$1,926,932	Third Party	Lease	2011
Venezuela	Onado	Oil	5.64%	US$34,197	Third Party	Available for Sale	1997
Vietnam	11-2	Gas	39.75%	US$773,533	KNOC	PSA	1992
Vietnam	15-1	Oil	14.25%	US$2,237,159	Joint	PSA	1998
Yemen	LNG	Gas	1.06%	US$33,825	Third Party	Gas Development Agreement	1997
UAE	Al Dhafra	Oil	30.00%	US$451,872	Joint	Concession agreement	2012
	ADNOC Onshore	Oil	0.90%	US$244,054	Third Party	Concession agreement	2020

(1) Interests in these projects are held through Harvest Operations. US$4,079,678,000 represents the total amount of investment made by the Company in Harvest Operations, which was acquired by a subsidiary of the Company in December 2009.

(2) Interests in these projects are held through Dana Petroleum. US$4,957,086,000 represents US$3,496,454,000 of investment made by the Company in Dana Petroleum, which was acquired through a hostile tender offer in October 2010, and US$1,460,632,000 of investments made by the Company in Korea Captain Company Limited, which the Company transferred entirely to Dana Petroleum in October 2011, in consideration for additional shares issued by Dana Petroleum to the Company.

Major Production Projects

Canada

Harvest Conventional Projects. The Company's interests in production fields located in Canada are owned through Harvest Operations, a wholly owned subsidiary of the Company acquired in December 2009. Harvest Operations' operations are principally located in the western Canadian sedimentary basin. Harvest Operations has a high degree of operational control as it is the operator on properties that generate the majority of its production. Harvest Operations' core and strategic conventional production areas include Deep Basin Partnership, Hay River and Rocky Mountain House, which are located throughout Alberta and British Columbia. Harvest Operations had interests in 2,557 active wells, consisting of 2,251 producing wells and 306 injection wells, and 2,640 inactive wells, located throughout Alberta and British Columbia as of June 30, 2021, and had a daily crude oil and natural gas production of 24,376 barrels of oil equivalent in the first six months of 2021 (including its equity share of Deep Basin Partnership production).

Oil and gas produced from these fields are sometimes processed at nearby processing facilities and transported to sales points through pipelines or other infrastructures, both of which may be owned by Harvest Operations or other third parties.

Pursuant to the June 2016 Government Plan, the Company disposed of Harvest Operations' interest in (1) Caroline Shallow and Wilson Creek fields in Canada in 2018, (2) Blueberry, Consort Viking, Crooked Creek, Killarney and Worsley fields and Loon Oil sands in Canada in 2019, (3) Chamber fields in Canada in 2020 and (4) certain additional assets, including West Central, Loon Lake and Royce, in 2021. The Company is exploring potential avenues to dispose of certain additional assets of Harvest Operations.

BlackGold Oil Sands Project. The Company acquired a 100.0% interest in an oil sands lease for the BlackGold area in August 2006. The BlackGold area is located 140 kilometers southeast of Fort McMurray within the Athabasca Oil Sands region of northern Alberta. Oil sands contain crude bitumen, which is a heavy and thick form of crude oil that does not flow unless it is heated or diluted with lighter hydrocarbons. In August 2010, the Company transferred its interest in the BlackGold project to Harvest Operations for approximately CAD 374 million, which was funded by Harvest Operations through the issuance of additional capital stock to the Company. To help Harvest Operations fund BlackGold project's initial capital, the Company has also injected approximately CAD 86 million of capital through the subsequent issuance of additional capital stock by Harvest Operations in 2010.

The initial phase of the project commenced production of approximately 8,000 to 9,000 barrels per day in September 2018. The expansion phase of the BlackGold project, which is targeted to expand production to 30,000 barrels per day, was approved by provincial regulators in 2013.

Kazakhstan

ADA Block. The Company acquired a 22.5% interest pursuant to a share purchase agreement with LGI Corporation in the ADA Block in November 2005. The Company purchased an additional 17.5% interest in the ADA Block in June 2009 and currently owns a total 40.0% interest. The ADA Block, covering an area of 31.2 square kilometers, is located in the northeastern part of Kazakhstan. The Company's exploratory drilling in the Bashenkol prospect resulted in the discovery of a well with proved oil reserves of approximately 19 million barrels, test production of which was approved by Kazakhstan authorities in 2009. The contract for commercial production was entered into in April 2013 between ADA Oil LLP, the operator, and the Kazakhstan government. Since the commencement of commercial production, the Company has produced approximately 11.5 million barrels of crude oil from this block. As of June 30, 2021, the Bashenkol field holds estimated reserves of 8.0 million barrels and had daily oil production of 2,649 barrels in the first six months of 2021. Currently, the Company is reviewing the possible sale of its interest in the ADA Block.

Akzhar, Besbolek, Karataikyz and Alimbai Blocks. The Company acquired a 95.0% interest in Altius, a Canadian company listed on the Kazakhstan Stock Exchange, for US$515 million in March 2011. A local partner of the Company acquired the remaining 5.0%. Altius owns the Akzhar, Besbolek, Karataikyz and Alimbai blocks in western Kazakhstan, which hold estimated reserves of 13.4 million barrels, 2.6 million barrels, 0.1 million barrels and 0.3 million barrels of oil, respectively. The four fields Altius owns are in the production stage. The Akzhar, Besbolek, Karataikyz and Alimbai fields had daily oil production of 4,653 barrels, 981 barrels, 167 barrels, and 71 barrels, respectively, from 339 production wells in the first six months of 2021.

Arystan and Kulzhan projects. In December 2009, KNOC Kaz B.V., a wholly owned subsidiary of the Company located in Kazakhstan, acquired an 85.0% ownership interest in KNOC Caspian LLP (formerly known as Sumbe JSC) in Kazakhstan, which owns the Arystan and Kulzhan projects located in western Kazakhstan. The Arystan project had daily production of 7,657 barrels of oil equivalent in the first six months of 2021, and holds estimated reserves of 45.5 million barrels as of June 30, 2021. The Kulzhan project had daily production of 2,045 barrels of oil equivalent in the first six months of 2021 and holds estimated reserves of 2.9 million barrels as of June 30, 2021.

Korea

Donghae-1 Gas Project. In 1998, the Company discovered a commercially viable gas field located under the sea near the southeastern coast of Korea, and named it "Donghae-1." Located about 60 kilometers southeast of Ulsan city, the Donghae-1 gas project is estimated to hold recoverable reserves of about 0.1 billion cubic feet of natural gas with 1,479 barrels of condensate as of June 30, 2021. The Donghae-1 gas project was the first commercially productive gas field within Korean boundaries, and it allowed the Company to advance its knowledge and skill in gas field development and production. The Company owns 100.0% of the Donghae-1 gas project. The Donghae-1 gas project is expected to cease production by the end of 2021 and the Company is planning to convert certain parts of the facilities for projects related to wind energy and CCS.

Donghae-2 Gas Project. In 2005, the Company discovered a commercially viable gas field located about 5.4 kilometers southwest of Donghae-1, and named it "Donghae-2." The Company owns a 70.0% interest in the Donghae-2 gas project and POSCO International Corporation ("POSCO International") owns a 30.0% interest. In March 2014, the Company started to explore the Donghae-2 gas project and drilled one production well named DH 2-1P in December 2015. The Donghae-2 gas project ceased production in August 2021 and the Company is planning to convert certain parts of the facilities for projects related to wind energy and CCS.

Libya

Elephant Project. The Company owns a 2.0% interest in the Elephant project pursuant to an exploration PSA entered into in October 1990, the term of which was extended from 2015 to 2033 in 2008. The Elephant project is located in the Murzuk Basin, 850 kilometers south of Tripoli, and covers an area of approximately 139 square kilometers. Mellitah Oil & Gas B.V. is the operator of the Elephant project. The Elephant project had proved and probable reserves of approximately 5.6 million barrels of crude oil as of June 30, 2021. Production was temporarily halted from January 2020 to September 2020 due to the Second Libyan Civil War. As of June 30, 2021, the Elephant project has produced approximately 1.64 million barrels of oil since resuming production.

Peru

Block 8. The Company acquired a 20.00% interest in Block 8 in 1996 through a competitive bidding process. The three other equity holders in Block 8 are POSCO International, SK Innovation Co., Ltd. and Pluspetrol Norte S.A., which own an 11.67%, 8.33% and 60.00% interest, respectively. Block 8 is located in Maranon Basin in northern Peru, covering an area of approximately 1,800 square kilometers. Block 8 consists of four oil fields, Corrientes, Pavayacu, Yanayacu and Chambira. As of September 30, 2021, Block 8 has produced a cumulative total of 140 million barrels of oil since the Company acquired an equity interest. Block 8 has been shut down since April 2020 due to the country-wide lockdown announced by the President of Peru. In October 2020, the Company notified the Peruvian government of its intentions to withdraw from the project and in April 2021, the Peruvian government and the equity holders of Block 8 entered into an international arbitration relating to the termination of mining rights of Block 8. The arbitration is currently pending at the ICC International Court of Arbitration.

United Arab Emirates

Al Dhafra. The Company acquired a 30.0% interest in Area 1 in Abu Dhabi through a Joint Venture Field Entry Agreement ("JVFEA") entered into with Abu Dhabi National Oil Corporation in March 2012, in consideration of cash payments and a commitment to engage in exploration and appraisal activities. Area 1 is an on-shore field. Al Dhafra Petroleum Operations Company Ltd. ("Al Dhafra"), serving as the co-operator, was established in December 2013. Commercial oil production from the Haliba field in Area 1 commenced in June 2019 and the Haliba field achieved field production of 38,311 barrels of oil per day in the first six months of 2021. As of June 30, 2021, Area 1 had remaining crude oil reserves of 214 million barrels. In addition, the Al Humrah and Bu Tasah fields achieved initial oil production in September 2021 and November 2021, respectively.

ADNOC Onshore. The Company acquired a 0.9% interest in the ADNOC Onshore project from Korea GS E&P in February 2020. ADNOC Onshore, a subsidiary of the Abu Dhabi National Oil Corporation, serves as the operator of the project which consists of twelve oil fields. The ADNOC Onshore project had total crude oil reserves of approximately 23.8 billion barrels as of June 30, 2021 and average daily production of 1.6 million barrels of oil equivalent in the first six months of 2021.

United Kingdom

Dana Petroleum Projects. In January 2011, the Company acquired a 100.0% interest in Dana Petroleum through a hostile tender offer. Dana Petroleum is an oil and gas exploration and production company incorporated in the UK and headquartered in Aberdeen, UK, with a significant portion of its production and exploration assets located in the North Sea and Egypt. In March 2011, Dana Petroleum added six new offshore production fields through acquisition of production assets from Petro-Canada UK Limited. In October 2011, the Company transferred its entire interest in the KCCL to Dana Petroleum in consideration for additional shares issued by Dana Petroleum to the Company. In September 2012, the Company, through Dana Petroleum, acquired a 28.3% additional stake in the Bittern oilfields located in the North Sea from Hess Corp. for approximately US$135 million, raising its total interest in the field to 33.0%, together with the 4.7% interest that Dana Petroleum had already owned. In October 2013, the Company, through Dana Petroleum, sold a 19.0% stake in the Otter oilfield located in the North Sea to Abu Dhabi National Energy Company PJSC for approximately US$4.28 million. Dana Petroleum had

proved and probable oil and gas reserves of approximately 109 million barrels of oil equivalent as of June 30, 2021, and had average daily oil and gas production of 37,251 barrels of oil equivalent in the first six months of 2021. As of September 30, 2021, Dana Petroleum had interests in 43 production fields, which included 18 fields in the UK, four fields in Egypt and 21 fields in the Netherlands. The most significant contributions in terms of production are associated with participation in the fields of Western Isles, Greater Guillemot Area, Bittern and Captain in the UK, North Zeit Bay and South October in Egypt and De Ruyter & Hanze in the Netherlands. As of September 30, 2021, the Company has provided guarantees to creditors for certain obligations of Dana Petroleum. See "Related Party Transactions." The Company is currently exploring potential avenues to dispose of certain assets of Dana Petroleum.

Western Isles Project. Dana Petroleum has a 76.92% interest in the development of the Western Isles region. Dana Petroleum discovered oil fields in the North Sea and these fields are estimated to hold proved and probable reserves of approximately 7.1 million barrels of oil equivalent of crude oil and gas. Production commenced in November 2017 with an average daily production of 7,981 barrels of oil equivalent of crude oil and gas in the first six months of 2021.

Tolmount Project. Dana Petroleum has a 50.0% interest as a non-operator in the development of the Greater Tolmount Area, which is located in the Southern North Sea in Block 42/28d (License P1330), 47 kilometers off the coast of East Yorkshire. The Tolmount gas field was discovered in 2011 and is estimated to hold proved and probable reserves of approximately 42.4 million barrels of oil equivalent. Initial production of gas is anticipated in January 2022 with peak average daily production of 23,000 barrels of oil equivalent during 2022.

In addition, in 2019, following the development of the Tolmount gas field, the Tolmount East gas field was discovered within the Tolmount block and is estimated to hold proved and probable reserves of approximately 9.7 million barrels of oil equivalent. Initial gas production from the Tolmount East gas field is anticipated in 2023. Furthermore, in 2020, Dana Petroleum acquired 50.0% interest as an operator in Blocks 42/27, 47/2b and 47/3g (License P2563) and 50.0% interest as a non-operator in Blocks 42/28e and 42/29b (License P2564).

United States of America

ANKOR Offshore Project. In March 2008, the Company and Samsung C&T Corporation each acquired an 80.0% and a 20.0% interest, respectively, in the ANKOR Offshore Project located on the shelf of the Gulf of Mexico. ANKOR Offshore Project contains several significant producing fields. In February 2012, the Company sold a 29.0% interest in the ANKOR Offshore Project to a consortium of Korean companies for approximately US$308 million, as part of an effort to increase Korean private sector involvement in resource development and to enhance the Company's liquidity. As a result of the sale, the Company's interest in the ANKOR Project was reduced from 80.0% to 51.0%. In January 2018, Samsung C&T Corporation sold its interest in the ANKOR Offshore Project to Sanare Energy Partners LLC. ANKOR E&P Holdings Corporation, a wholly-owned subsidiary of the Company that holds the Company's interests in the ANKOR Offshore Project, formed ANKOR Energy to manage the ANKOR Offshore Project. ANKOR Energy began its operations in March 2008, and currently produces 5,157 barrels of oil equivalent per day. It has estimated oil and gas reserves of approximately 38.8 million barrels of oil equivalent. Currently, the Company is reviewing the sale of its interest in the ANKOR Offshore Project.

Eagle Ford. In March 2011, KNOC Eagle Ford Corporation, a wholly owned subsidiary of the Company, entered into a joint venture agreement with Anadarko. Under the joint venture agreement, the Company, through KNOC Eagle Ford Corporation, acquired a 23.7% interest in Anadarko's Maverick Basin assets, located in southwest Texas, which is mainly comprised of the liquids-rich Eagle Ford shale assets. In exchange, the Company funded approximately US$1.55 billion of Anadarko's 3-year capital costs from 2011 to 2013 in the Maverick Basin, and reimbursed Anadarko for net cash outflows relative to the Company's interests. In addition, as part of the arrangement with Anadarko, the Company acquired a 24.9% working interest in midstream (gathering, processing, treating and transporting) systems and facilities associated with the Maverick Basin assets for approximately US$27 million. In December 2012 and January 2013, KNOC Eagle Ford Corporation sold 4.74% interests in each of the upstream asset and midstream asset to Vogo Eagle Ford LLC, for US$321 million and US$32 million, respectively. In March 2017, Anadarko sold its interest in the Maverick Basin assets to Mesquite Energy Inc. (formerly known as Sanchez Energy Corporation). Mesquite Energy Inc. holds approximately 288,046 net acres with an average working interest of 71.0% in the Maverick Basin, of which the Company is entitled to interests in 80,000 net acres in Eagle Ford shale and approximately 16,000 additional prospective net acres for the deeper dry-gas Pearsall shale, as well as Pearsall opportunities underlying the Eagle Ford shale. Mesquite Energy Inc. produced 105,565 barrels of oil equivalent per day in the first six months of 2021.

Northstar Project. In December 2011, the Company, through ANKOR E&P Holdings Corporation and in consortium with GS E&R Co. Ltd. (formerly known as STX Energy E&P Offshore Management, LLC) and SCL Resources, LLC, jointly acquired a 100.0% interest in an offshore oil field located in the Gulf of Mexico region for approximately US$201 million from Northstar. In December 2018, SCL Resources LLC sold its interest to Sanare Energy Partners LLC. The Company has a 67.0% interest in the field. The field produced 238 barrels of oil equivalent of crude oil and gas per day in the first six months of 2021, and has estimated oil and gas reserves of approximately 1.0 million barrels of oil equivalent. Currently, the Company is reviewing the possible sale of its interest in the Northstar Project.

Parallel Projects. In December 2011, the Company, in consortium with Samsung C&T Corp., jointly acquired a 100.0% interest in Parallel Petroleum Corp. (with the Company's share being 10.0%) from PLLL Holdings, LLC, an affiliate of Apollo Global Management LLC, for approximately US$722 million. Parallel Petroleum Corp. holds eight onshore producing oil fields and two onshore producing gas fields located throughout Texas and New Mexico in the United States. The fields on a combined basis produce 4,016 barrels of oil equivalent of oil and gas per day, and have a combined estimated oil and gas reserves of approximately 12.2 million barrels of oil equivalent. Currently, the Company is reviewing the possible sale of its interest in the Parallel Projects.

River Bend. In November 2011, the Company, in consortium with GS E&R Co., Ltd., acquired a 15.0% interest (with the Company's share being 7.5%) in the River Bend field in Alabama, United States. The operators attempted 13 exploratory drillings from 2013 to 2015 and discovered commercially viable oil and gas from seven wells. The field began active production in December 2013 and produced 156 barrels of oil equivalent of oil and gas per day in the first six months of 2021. In June 2021, the Company sold its interest in the River Bend field to HX2 Energy LLC.

Venezuela

Onado Project. The Company currently owns a 5.64% interest in the Onado Project, after initially acquiring a 12.00% interest in 1997 and undergoing ownership changes in 1998, 2002 and 2006. Other owners are Corporación Venezolana del Petróleo, S.A., Compañía General de Combustibles S.A. and EP Petroecuador, which own 60.0%, 26.0% and 8.36% interest, respectively. The Onado Project is located near Maturin in the center of Venezuela, and covers an area of approximately 160 square kilometers. Petronado Empresa Mixta S.A. is the current operator of the Onado Project. Hydrocarbon in the Onado Project was first discovered in 1971, and the Onado Project produced crude oil and natural gas in an amount of 167 barrels of oil equivalent per day in the first six months of 2021.

Vietnam

Block 11-2. The Company first obtained operatorship of Block 11-2 in May 1992, and discovered the Rong Doi and Rong Doi Tay gas fields in May 1998. The Company entered into a gas sales purchase agreement with PetroVietnam, and commenced development construction, with gas production in the fields beginning in December 2006. The Company is the sole operator and carries out exploration, development and production activities within Block 11-2, which is located 320 kilometers offshore of Vietnam and covers an area of 691 square kilometers. The Company owns a 39.75% interest in Block 11-2 and holds a 35.25% interest on behalf of a Korean consortium, which is comprised of LX International Corp., Daesung Industrial Company, POSCO International, Hyundai Corp. and Seoul City Gas Co., Ltd. PetroVietnam Exploration and Production Company holds the remaining 25.00% participating interest in Block 11-2. Eight production wells in Block 11-2 produced natural gas and condensate at an average of 58 million cubic feet per day and 1,312 barrels per day in the first six months of 2021. Block 11-2 has produced 122 million barrels of oil equivalent since initial production and has estimated proved and probable reserves of 5 million barrels of oil equivalent as of June 30, 2021.

Due to reduced production in Block 11-2, the Company has been unable to satisfy its obligations under certain transportation and sales contracts relating to guaranteed minimum levels of transportation and production volume. As a result, the Company expects to pay for damages related to such unfulfilled obligations. Currently, the Company is reviewing the possible sale of its interest in Block 11-2.

Block 15-1. The Company entered into a PSA for a 14.25% interest in Block 15-1 with PetroVietnam Exploration and Production Company (which owns 50.0%), Perenco (which owns 23.25%), SK Innovation (which owns 9.00%) and Geopetrol (which owns 3.5%) in September 1998. Block 15-1 is located 50 kilometers offshore of Vietnam, and covers an area of 800 square meters. Cuu Long Joint Operating Company is the operating company for Block 15-1. The Company performed a leading role in the exploration stage and discovered a large, high-quality oil field in Su Tu Den field in September 2000, which was selected as "One of the World's Top Discoveries of 2000" by the American Association of Petroleum Geologists. Oil production in Su Tu Den field began in October 2003.

Following the discovery at Su Tu Den field, Cuu Long Joint Operating Company successfully discovered oil in Su Tu Vang field in October 2001, natural gas and condensate in Su Tu Trang field in November 2003, and oil in Su Tu Nau field in September 2005. In Su Tu Den Southwest and Northeast fields, 39 production wells produced oil and gas at an average of 14,403 barrels of oil equivalent per day in the first six months of 2021. In the Su Tu Vang field, 15 production wells produced oil and gas at an average of 3,175 barrels of oil equivalent per day in the first six months of 2021. The Su Tu Trang field also commenced production in 2012 and produced 18,682 barrels of oil equivalent of oil and gas per day in the first six months of 2021. In the Su Tu Nau field, eleven production wells produced 5,255 barrels of oil equivalent of oil and gas per day in the first six months of 2021. The Company is also currently in the process of developing phase 2 production of the Su Tu Trang field, which is targeted to expand production to 44,500 barrels per day, and was approved by provincial regulators in 2019. Initial production of Su Tu Trang phase 2 commenced in June 2021.

Yemen

LNG Project. The Company began participation in the Yemen LNG Project as part of the SK consortium in 1997 and currently owns a 1.06% interest in the project. The project launched an LNG liquefaction plant in 2005, which was completed in 2010. The reserves within the Marib area which are currently dedicated to the project include 7.2 trillion cubic feet of proven gas reserves and an additional 0.7 trillion cubic feet of probable gas reserves. The plant and terminal are located in Balhaf, Yemen. First shipment was in November 2009. The operator of the project ceased production in April 2015 due to security concerns around the region. The Company and other participants of the project are continually monitoring the situation to re-start production as soon as practicable.

Block 4-Production. The Company owns a 50.00% interest in Block 4 pursuant to a PSA entered into with the Yemeni government in 2007, and the subsequent dissolution of the consortium which initially purchased the interest in the block. Block 4 is located in the Sabatayn (Marib — Shabwa) basin, in the southeastern part of Yemen, covering an area of approximately 2,000 square kilometers. In July 2013, the board of directors of the Company approved a withdrawal plan from the field due to the failure to discover viable oil reserves and the political instability in the region and in September 2013, the Company notified the Yemeni government of the withdrawal and the return of the Company's interests. The Company is currently in the process of carrying out the withdrawal plan.

Production Volume and Pricing

The following table sets forth the Company's historical annual crude oil and natural gas production by country and the Company's average sales price for the years ended December 31, 2019 and 2020 and the six months ended June 30, 2021.

	For the Year Ended December 31,		For the Six Months Ended
	2019	2020	June 30, 2021
Crude oil production[1][2][3] (thousands of barrels, except percentages or otherwise indicated)			
Canada	7,850	6,463	3,099
Iraq	463	0	0
Kazakhstan	5,521	5,050	2,585
Korea	119	79	16
Libya	554	135	286
Peru	1,893	1,435	99
United Arab Emirates	836	8,534	4,743
United Kingdom	17,856	14,789	5,741
United States of America	10,148	8,206	3,404
Venezuela	4	3	1
Vietnam	2,286	2,021	975
Total	47,530	46,715	20,949
Average sales price[4] (US$ per barrel)	54.86	37.33	54.10

	For the Year Ended December 31,		For the Six Months Ended June 30, 2021
	2019	2020	
Natural gas production[1][2][3] (millions of cubic feet, except percentages or otherwise indicated)			
Canada	29,033	23,467	7,874
Kazakhstan	1,370	1,254	635
Korea	7,543	5,425	1,243
Peru	3,480	2,915	240
United Kingdom	17,629	14,313	5,809
United States of America	28,478	25,097	10,497
Venezuela	14	7	3
Vietnam	10,849	7,252	5,028
Total	98,396	79,730	31,329
Average sales price[4] (US$ per thousand cubic feet)	3.52	2.67	3.10

(1) Production volumes for regions where the Company does not own 100.0% interest consist of the Company's share of the production from all of the Company's cooperative projects with other companies in that region.

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

(3) Includes natural gas liquids.

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

Major Exploration Projects

The Company undertakes a number of projects to expand its commercially viable production facilities and fields. As exploring for oil and gas is a time-consuming and capital-intensive process, the Company's New Ventures and Exploration Group carefully analyzes each prospective location along with its partners and third party technical experts to determine the proper scope of each project, as well as consult an internal committee composed of heads of other departments and technical experts before making investment decisions. The Company is currently conducting exploratory activities in ten projects. The following is a summary of the Company's major exploration projects as of September 30, 2021.

Exploration Projects	Company Ownership	Arrangement Type	Status	Operated By
Kazakhstan 10	80.0%	Geological Licenses	Progress/preparing for exploration drilling	Third party
Korea (Block VI-1 Central, East)	100.0%	Exploration Right	Progress/preparing for 3D seismic data acquisition	KNOC
Korea (Block VI-1 North/VIII)	50.0%	Exploration Right	Progress/preparing for 3D seismic data acquisition	Joint
Senegal UDO Block	20.0%	PSA	Progress/preparing for 3D seismic data acquisition	Third party
Uzbekistan West Ferghana & Chinabad	65.0%	Exploration Agreement	Geological and geophysical evaluation	KNOC
Yemen Block 70	12.35%	PSA	Exploration suspended due to force majeure	Third party

Kazakhstan

Block 10. In December 2019, the Company acquired 80.0% of AEKK Munai LLP's interest in Block 10 in Kazakhstan. As a result, the Company holds an 80.0% interest in Block 10 and AR Munai holds the remaining 20.0% interest in Block 10. AEKK Munai LLP is the operator for the block. Block 10 is located in western Kazakhstan and covers an area of 770 square kilometers. The Company and its partners acquired approximately 550 line kilometers of 2D seismic data in November 2021 and feasibility evaluations are currently in process.

Korea

Korea is surrounded by extensive continental shelves with an area of approximately 300,000 square kilometers, which contain potential for oil and gas reserves. Between 1972 and 1982, oil and gas exploration in Korea was led by western oil companies. In 1983, the Company began its own exploration projects within Korea, and has conducted significant 2D seismic surveys and drilled many exploratory wells since then.

There are currently three offshore sedimentary basins (Jeju Basin, Ulleung Basin and Yellow Sea Basin (West Sea Basin)) around the Korean peninsula.

Jeju Basin. The Jeju Basin is in the northeastern part of the East China Sea Shelf Basin, which is the largest Mesozoic-Cenozoic basin in the continental margin of China. The Jeju Basin is sub-divided into three sub-basins, the Ieodo sub-basin including Block IV and Block V, the Domi sub-basin including Block VI-2 and the Jeju sub-basin spanning Block V and situated on the western part of the Joint Development Zone (the "JDZ") between Korea and Japan. Exploration at these blocks began in the 1960s by foreign oil companies, and there are 57,133 L-kilometers of 2D seismic data and 563 square kilometers of 3D seismic data as well as 15 exploratory wells in the region. The Company and several Japanese oil companies also conducted joint studies on petroleum potential throughout the JDZ from 2004 to 2009. The exploration and studies in the region have resulted in only a few oil and gas showings and have yet to reveal reserves substantial enough for commercial development. As a result, the Company discontinued its exploration activities in JDZ subzone-1 in June 2017. However, the Company believes there is significant potential for petroleum reserves in the production fields and has acquired concession of the JDZ subzones-2 and 4 for exploration of hydrocarbon. Currently, geophysical and geological evaluation, including 3D seismic reprocessing and prospect evaluation, is in progress in the JDZ subzones-2 and 4 to identify potential reserve areas.

Ulleung Basin. The Ulleung Basin is located in the southwestern part of the East Sea, and contains Block VI-1 and Block VIII, each covering an area of 12,917 square kilometers and 8,481 square kilometers, respectively. Initial exploration efforts in Block VI-1 began in 1970 by the Royal Dutch Shell Oil Company, resulting in 5,193 L-kilometers of 2D seismic survey data and one exploratory well. Although not tested, the exploratory well encountered numerous gas shows. Since 1983, the Company and other oil companies have conducted 23,589 L-kilometers of 2D seismic survey and 6,658 square kilometers of 3D seismic survey and drilled 26 exploratory wells, most of which are focused on the shelf area and found 12 minor gas deposits. These efforts led to the eventual discovery of Donghae-1 gas project in 1998. Additional gas reservoirs around Donghae-1 gas project were confirmed in 2005 and 2006, and were further developed between 2008 and 2009.

Starting in 2003, the Company expanded its exploration efforts to the continental slope and the deep-sea area of the Ulleung Basin. In February 2007, Woodside Energy (Korea) Pte. Ltd. ("Woodside") and the Company agreed to explore 8/6-1N. Pursuant to a Joint Operating Agreement, the Company and Woodside each holds a 50.0% interest in 8/6-1N. Prior to the expiration of the exploration rights in 8/6-1N in December 2016, the Company and Woodside carried out two Marine Seismic Surveys ("MSS"), one 2D MSS of 5,100 L-kilometers in 2008 and one 3D MSS of 504 square kilometers in 2014, and two exploratory drillings in 2015 that resulted in one well tested to produce gas. In April 2019, the Company and Woodside acquired new exploration rights in 8/6-1N and carried out additional 3D MSSs of 2,071 square kilometers in 2021. In September 2011, the Company obtained the right to explore underwater resources at Block VI-1 ("6-1C") pursuant to an agreement entered into with the Korean government. In March 2014, the Company started to explore the Donghae-2 gas project (within 6-1C) located approximately 5.4 kilometers away from the Donghae-1 gas project, and drilled one production well named DH 2-1P in December 2015. In April 2016, the Company and POSCO International conducted a 3D marine seismic survey of 612 square kilometers for further exploration in 6-1C. The Company acquired the right to explore the eastern part of Block VI-1 ("6-1E") from the Korean government in 2013, and conducted a technical review of 6-1E during

2014 as part of the overall evaluation of the Company's projects in Korea. The Company conducted a 3D seismic survey of 224 square kilometers in 2015. The Company's exploration rights to 6-1C and 6-1E had expired in 2018 and 2019, respectively. However, in February 2020, the Company acquired new exploration rights for 6-1C and 6-1E, which were combined. The Company holds 100.0% interest in the combined blocks and is currently evaluating results from the exploration drillings which were carried out in 2021.

Yellow Sea Basin. The Yellow Sea Basin is composed of three exploration blocks containing numerous sub-basins that are relatively less explored than the other sedimentary basins in offshore Korea. The Company and several foreign companies conducted seismic data acquisition and offshore drilling, totaling 35,827 L-kilometers of 2D seismic data, 298 square kilometers of 3D seismic data and six exploratory wells. Although exploration results have not been successful, the Company has been trying to make hydrocarbon discoveries in the region. Based on studies conducted by the Industry-University-Institute Cooperation in 2013, the Company identified several potential areas in the West Sea Basin. The Company and China National Offshore Oil Corporation ("CNOOC") have been conducting joint studies to better understand the geologic information on the South Yellow Sea Basin ("SYSB") since 2002. The Company and CNOOC will also conduct further studies to identify hydrocarbon potential areas in the SYSB.

The Republic of Senegal

UDO Block. In July 2020, the Company acquired 20.0% of Total S.A.'s interest in Block UDO in the Republic of Senegal. As a result, the Company holds an 20.0% interest in Block UDO, Total S.A. holds a 70.0% interest and Petrosen, Senegal's state-owned oil company, holds the remaining 10.0% interest in Block UDO. Total S.A. is the operator for the block. Block UDO is located in Senegal's Atlantic coast, and covers an area of 10,016 square kilometers. Exploration commenced in March 2019 and is expected to continue until 2028. The Company and its partners acquired approximately 5,000 square kilometers of 3D seismic data from November 2020 to January 2021, and data processing and interpretation is currently in process.

Uzbekistan

Dekhkanabad and Tashkurgan. The Company signed an exploration agreement in November 2017 with Uzbekistan's state-owned energy firm Uzbekneftegaz for a 65.0% interest in the Dekhkanabad and Tashkurgan blocks. POSCO holds a 20.0% interest and Samchully holds the remaining 15.0% interest in the project. The Tashkurgan and Dekhkanabad blocks are located in the southern part of Uzbekistan (Amudariya basin) with a combined size of approximately 2,260 square kilometers. This exploration agreement took effect in May 2018 and the Company and its partners completed interpretation of 2D seismic data, and due to lack of viability, the Company is currently reviewing the possible termination of the Dekhkanabad and Tashkurgan blocks.

Yemen

Block 70. The Company entered into a PSA with the Yemeni government for a 61.75% interest in Block 70 as part of a Korean consortium through direct negotiation in April 2005. In July 2008, the Company sold a 30.88% interest in Block 70 to Total E&P Yemen, and again sold a portion of its interest to Total E&P Yemen and OMV Exploration & Production GMBH in February 2010, which reduced the Company's interest in Block 70 to 12.35%. Total E&P Yemen is the operator for the block. Block 70 is located in the Sab'atayn basin in the middle onshore area of Yemen, and covers an area of 1,367 square kilometers. The Company and its partners collected new 2D seismic survey data from February 2007 to April 2007 and finished processing and interpreting the data in August 2007. Total E&P Yemen, the operator of the project, declared force majeure and suspended exploration activity in April 2015 due to internal military conflict within Yemen.

Types of Exploration, Development and Production Agreements Entered into by the Company

The Company participates in the exploration, development and production of crude oil and natural gas ("E&P project") in a number of countries and geographic regions and is therefore subject to a broad range of rules and regulations which cover many aspects of exploration, development and production activities, including lease tenure, production sharing rates, royalties, pricing, environmental protection, export taxes and foreign exchange. The Company enters into a wide range of contractual arrangements governing the Company's E&P projects and its interest in oil and natural gas from those projects. Depending on the type of E&P project, the Company holds its interest in a project or an area through a PSA, concession agreement or service contract, or permits and licenses from a government-controlled entity or a national oil company of the country in which such E&P project is located. After acquiring its interest in an E&P project, the Company also enters into joint operating agreements to designate an operator of the E&P project and to determine the operational details of the exploration, development and production process.

The terms of different contractual arrangements vary substantially among different countries and geographic regions, project types and the time the agreements were entered into. To evaluate geological, geophysical, engineering and transportation issues involved in exploration and production, the Company also may enter into a technical evaluation agreement prior to entering into a PSA, which contains terms similar to a PSA.

Production Sharing Agreements

Most of the Company's exploration, development and production arrangements are governed by PSAs. Under a typical PSA, the government or the national oil company owning rights over the particular block at issue is the licensee and the Company and its partners, if any, assume the role of a contractor engaged in the exploration and development of the specific block, usually on the condition that the host government does not directly participate in the E&P project. The contractor is typically required to provide all the financing and bear all exploration and development costs and the associated risks. To compensate for these investments and the risks, upon the successful development and production of oil or natural gas in the relevant block, the contractor recovers its costs and receives the economic benefit of a portion of the produced oil and natural gas in accordance with a production sharing formula set out in the PSA.

A typical PSA has a term of two to six years for the exploration period, renewable upon the parties' agreement. During the exploration period, the contractor may be required to relinquish a portion of the original contract block to the government or the national oil company, excluding the areas in which oil or natural gas has been discovered. Moreover, the contractor is usually required to complete a minimum amount of survey and drilling during the exploration period.

Concession Agreements, Permits and Licenses

In addition to PSAs, the Company also enters into concession agreements. In a concession agreement, the government grants to the contractor an exclusive right to explore for, develop, produce, transport and dispose of crude oil and natural gas within a specified block. Thus the contractor bears the risk of exploration, development and production activities as well as the related costs, including financing for the operations. In principle, the contractor has the right to all of the production, less any production related fees, royalties or taxes that are payable in cash or in kind. The contractor recovers its investments and associated operating, exploration and development costs from the sale proceeds of the oil or natural gas produced, after such deductions.

A concession agreement usually requires the contractor to undertake a minimum amount of exploratory work as scheduled in the agreement. From the commencement date, the contractor is usually required to pay the host governmental entity an annual fixed sum for its exploration and development rights. Once crude oil and natural gas are produced in commercial quantities, the contractor is required to pay a royalty in lieu of the annual fixed payment. The amount of royalty payment is usually higher than that of the annual fixed payment. In addition, the contractor is required to pay the governmental entity bonuses when the production volume reaches the thresholds specified in the agreement, and production taxes to the host country's government. The contractor may also be obligated to grant to the host country's government a right to purchase certain amounts of crude oil at discounted prices.

The Company and its partners, if any, also enter into arrangements similar to concession agreements called "permits", "licenses", or "exploration and production contracts" granted by the relevant governmental authority to explore and develop specified areas. Under permits, licenses or exploration and production contracts, the contractor bears the risk of exploration, development and production activities and is responsible for the related financing. The contractor has the right to all of the production less any royalties that are payable in kind or cash whereby it can recover all of its investments and associated operating, exploration and development costs from the sale proceeds of the oil or natural gas produced. The Company is generally required to pay production taxes, bonuses or royalties, the amount of which may be in proportion to the actual volume of the produced oil or natural gas. Moreover, similar to the concession arrangements in the Middle East or typical PSAs, the contractor is also obligated to complete a minimum amount of exploration work as specified in the applicable agreement.

Service Contract

A service contract is a particular exploration, development and production arrangement entered into in countries where local laws restrict the ownership by foreign investors over domestic oil and natural gas. A foreign company, as a contractor, enters into a service contract with the host government or the national oil company, which delineates certain exploration, development and production targets that the contractor is obligated to meet within a specified period. Upon completion of the exploration and development stages and the commencement of oil and natural gas production, the ownership of certain facilities, such as exploration and developmental wells along with operational facilities, are transferred to the relevant host government or the national oil company, which then assumes the production activities.

Pursuant to a compensation agreement entered into with the host government or the national oil company together with a service contract, the contractor under the service contract recovers all investments and financing costs associated with the project from the produced crude oil and natural gas. In addition, the contractor receives compensation for its services, typically a predetermined percentage of the proceeds from the sale of the produced oil and natural gas received by the host government or the national oil company for a certain period, either in cash or in kind. Certain countries allow the contractors to purchase the produced oil or natural gas themselves.

Joint Operating Agreements

When the Company participates in exploration, development and production projects together with other companies, it enters into joint operating agreements ("JOAs"). Under a typical JOA, a joint venture is formed and each joint venture partner holds its respective undivided proportionate interest in the underlying contractual arrangement and the rights and obligations under such arrangement. The JOA typically designates an operator who is exclusively in charge of all petroleum-related operations, which usually includes preparing work programs and budgets, procuring equipment and materials relating to operations, establishing insurance programs, and issuing cash call notices to the joint venture partners. The operator is also responsible for determining and executing operation and budget plans and managing all day-to-day operational matters.

The operational activities conducted by the operator are generally funded by monthly cash calls based on the annual work program and budget approved by the operating committee, which is usually composed of representatives from each of the joint venture partners. If the operational costs exceed the approved operational budget, the operator is usually required to obtain an additional approval of the operating committee. The operating committee has the authority to make all material decisions concerning the joint operating project.

Representatives of each joint venture partner review joint venture accounts and records and provide reports before they are sent to the relevant government entities. Liabilities with respect to uninsured operations are generally borne by all joint venture partners in proportion to their respective interests in the project. The JOAs generally specify that the operator will acquire insurance on behalf of the joint venture partners, unless such joint venture partner or partners choose to acquire insurance individually, or self-insure their risks.

The JOAs generally terminate on the earlier of an agreement by the parties to terminate the joint venture or the termination of the underlying contractual arrangements. In addition, the ability of the joint venture partners (including the operator) to transfer or assign their rights under the JOA or otherwise withdraw from the joint venture is generally subject to pre-emptive or first refusal rights in favor of the remaining joint venture partners as set forth in the relevant JOA.

Exploratory and Development Wells

The following table sets forth the number of net exploratory and development wells the Company drilled, or in which the Company participated, and the results thereof, for the periods indicated.

Exploratory and Development Wells

Period		Total
2019	**Net exploratory wells drilled**[1]	1.10
	Crude oil	0.60
	Natural gas	0.50
	Dry[2]	—
	Net development wells drilled[1]	31.53
	Crude oil	30.89
	Natural gas	0.64
	Dry[2]	—
2020	**Net exploratory wells drilled**[1]	0.60
	Crude oil	0.60
	Natural gas	—
	Dry[2]	—
	Net development wells drilled[1]	22.5
	Crude oil	22.5
	Natural gas	—
	Dry[2]	—
First Nine Months of 2021	**Net exploratory wells drilled**[1]	1.00
	Crude oil	—
	Natural gas	1.00
	Dry[2]	—
	Net development wells drilled[1]	18.0
	Crude oil	15.0
	Natural gas	3.0
	Dry[2]	—

(1) "Net" wells refer to the wells after deducting interests of others.

(2) "Dry" wells are wells with insufficient reserves to sustain commercial production.

Sales and Marketing

The Company sells all of its domestically produced natural gas to Korea Gas Corporation. Natural gas produced in other countries, such as Vietnam and Indonesia, is sold directly to customers worldwide, including energy companies and trading companies. Most of the Company's crude oil and natural gas produced outside of Korea is sold to major domestic and international refineries, and energy and resource trading companies.

Sales of Crude Oil

The Company sells various types of crude oil with different gradations of quality and chemical content. The Company generally sells its crude oil and condensate oil to oil refineries, trading companies and petrochemical companies worldwide. The Company estimates the demand for crude oil from potential buyers and uses such estimates to determine the volume of crude oil to supply.

The price of crude oil is directly correlated to the global market price because it is a publicly traded commodity. The contract price of crude oil is determined through negotiations or tenders with buyers based upon the pricing standards adopted by each oil-producing country. For example, the price of oil produced in Indonesia is determined based on the Indonesian Crude Oil Price, which is based on price assessments announced by three private oil-rating companies in Indonesia. Prices of oil produced in other regions are typically determined based on the prevailing international oil price in the region. Spot oil prices are determined by either adding a premium or providing a discount to the public crude oil prices discussed above.

The crude oil and condensates are generally sold under free on board terms directly or through trading companies to oil refineries, power companies and petrochemical companies. Generally, there are two types of oil sales contracts — term contracts and spot contracts. A term contract is typically an annual contract usually lasting from January to December of the same year or from April to March of the following year (each such period, a "term year"). The Company determines the sales volume for the term year based on the estimated production for such term year estimated by the project operator at the end of the year before the beginning of the corresponding term year.

The Company decides when and to whom it sells its products taking market conditions into consideration. The Company also maintains favorable business relationships with major domestic refineries to ensure stable energy supply into Korea. The Company partially conducts its crude oil marketing and sales activities through its Petroleum Marketing Department, usually pursuant to term contracts. The Company hedges a portion of its crude oil sales through swap or option contracts and such hedging decisions are recommended by its Risk Management Department and decided on by the relevant subsidiaries.

Harvest Operations markets its crude oil and natural gas liquids ("NGLs") production to a diverse portfolio of intermediaries and end users with the majority of oil contracts continually renewing on a 30 day basis and the NGL contracts on one year terms with the prices of both commodities derived from the prevailing monthly market prices. Harvest Operations has a small number of condensate purchase contracts, required for blending heavy oil to meet pipeline specifications, that are a combination of one year and monthly spot contracts, both with prices derived from the prevailing monthly market prices.

Sales of Natural Gas

The Company sells and supplies natural gas to Korea Gas Corporation, as well as various customers around the world. The Company's revenues derived from natural gas sales accounted for approximately 14%, 11% and 8% of its total sales for the years ended December 31, 2019 and 2020 and the nine months ended September 30, 2021, respectively. Due to its gaseous state, natural gas must be transported to the market either through pipelines or by a tanker after liquefaction into liquefied natural gas ("LNG"). Petroleum gas or propane and butane are also liquefied for transportation. Such liquefying facilities and pipelines require significant capital investment. In order to recover the high cost of investment, suppliers of LNG or natural gas seek buyers to whom they can sell a steady volume of gas over a long period of time to ensure consistent flow of future revenue. Moreover, upstream natural gas suppliers, such as the Company, have commonly sold gas products jointly with other companies instead of individually. For example, in Vietnam, the Company and other oil and gas companies supply most of their natural gas to Vietnam Oil and Gas Corporation, Vietnam's state-owned oil and gas corporation pursuant to long-term gas supply agreements. Vietnam Oil and Gas Corporation, in turn, sells the natural gas to various purchasers, including power companies, gas companies, petrochemical companies, trading companies and oil refineries within Vietnam and worldwide pursuant to long-term sales contracts and purchase agreements. The Company supplies 100% of the natural gas produced at the domestic Donghae-1 gas project to Korea Gas Corporation pursuant to a long-term supply contract.

The majority of Harvest Operations' natural gas production is currently being sold at the monthly average price of Alberta Energy Company ("AECO"), the benchmark price for natural gas in Western Canada.

Petroleum Stockpiling

Overview and Strategy

Korea was the world's eighth largest consumer of petroleum in 2019 according to the 2020 Statistical Review of World Energy by BP p.l.c. and meets substantially all of its oil needs from imports. To mitigate the risks to the Korean economy posed by disruptions in oil supply or fluctuations in oil prices, the Government has adopted a series of oil stockpiling plans that have been implemented by the Company. The Company currently owns and operates nine stockpiling facilities, with a total storage capacity of 146 million barrels. The Company stockpiles crude oil, refined oil products (including kerosene, gasoline and diesel) and liquefied petroleum gas ("LPG"). The Company's stockpile facilities are located in Donghae, Geoje, Gokseong, Guri, Pyeongtaek, Seosan, Ulsan, Yeosu and Yongin.

Under the Government's Fourth Stockpiling Master Plan, which was announced in December 2014 and amended in November 2018 and November 2021, the Company is required to maintain its stockpiling capacity at 146 million barrels until the end of 2025. Pursuant to the Fourth Stockpiling Master Plan, the Company is seeking to reach a stockpile reserve level of 100 million barrels by 2025. Korea's stockpile reserve level as of September 30, 2021, which includes the reserves held by the Company and companies in private industry, is approximately 200 days of net oil imports based on calculation standards of the

International Energy Agency (the "IEA"). Korea joined the IEA as a member in 2002 and became a party to the Agreement on an International Energy Program, which requires that participating countries maintain oil reserve levels of at least 90 days of net oil imports. The Government contributed a total of approximately Won 5.0 trillion to the Company for execution of the Stockpiling Master Plans as of September 30, 2021, of which approximately Won 2.4 trillion was used to construct stockpile facilities and Won 2.6 trillion was used to purchase additional stockpile oil reserves.

The Company's stockpiling strategy prior to 1999 consisted mainly of purchasing and storing oil supplies and providing oil to domestic refineries when anticipated deliveries of crude oil do not arrive on time or when there is a shortage of crude oil due to other emergencies. The Company also leases excess storage facilities to domestic oil companies. Since 1999, the Company has sought to increase its stockpile level and generate more income from its stockpiling activities by participating in international stockpile arrangements and engaging in oil trading activity.

International Stockpiling. As a means of increasing the Company's stockpile level, the Company enters into contracts with national oil companies of oil-producing countries, major international oil companies and oil trading companies to store their petroleum in the Company's stockpile facilities as part of these companies' distribution network for markets in northeast Asia. The Company receives a fee for allowing these companies to use its stockpile facilities, and as part of the arrangement, these companies are obligated to supply petroleum to the Company at the market price up to the volume of the leased storage space during periods of oil shortage or other emergencies. Participation in international stockpiling arrangements has allowed the Company to increase its oil reserve levels, generate revenue from its stockpile facilities and create opportunities to purchase crude oil for domestic use in emergencies.

Oil Trading. Since 2000, the Company has been engaging in swap trading for a portion of its oil reserves to supplement its revenues and increase its oil reserves, but only at levels that would not compromise its oil reserve maintenance objectives. The Company uses its oil reserves as well as its storage facilities to enter into oil trading transactions with oil and commodities trading companies. The Company fixes its buy or sell price using hedging financial products before entering into the trading transactions to minimize its risks.

Gasoline and Gas Oil Wholesale and Economical Gas Stations. In order to reform the oil product distribution landscape in Korea and to minimize price increase, the Company began engaging in gasoline and gas oil wholesale and operation of economical gas stations with the opening of the first economical gas station in December 2011. The Company purchases gasoline and gas oil at wholesale prices from refineries and overseas sources utilizing its stockpile facilities, and delivers such oil to the economical gas stations. As of September 30, 2021, the Company, along with Korea Expressway Corporation and National Agricultural Cooperative Federation, operated 1,255 such economical gas stations located throughout Korea. The Company believes that the economical gas stations provide reasonably priced petroleum products to Korean consumers and expects the business to stabilize at its current level.

Operation of Stockpile Facilities

The Company's stockpile facilities are located throughout Korea. The following table is a summary of the Company's stockpile facilities as of September 30, 2021:

Stockpile Facility	Location	Surface Area (in square kilometers)	Operation Since	Aboveground/ Underground	Total Storage Capacity
Donghae	Gangwon Province	0.1	2000	Aboveground	1.1 million barrels (refined oil products)
Geoje.	South Gyeongsang Province	2.9	1985	Aboveground and underground	47.5 million barrels (crude oil)
Gokseong.	South Jeolla Province	0.4	1999	Aboveground	2.1 million barrels (refined oil products)
Guri.	Gyeonggi Province	0.6	1981	Underground	3.0 million barrels (refined oil products)
Pyeongtaek. . . .	Gyeonggi Province	0.7	1989	Aboveground and underground	4.4 million barrels (LPG); 1.8 million barrels (refined oil products)

Stockpile Facility	Location	Surface Area (in square kilometers)	Operation Since	Aboveground/ Underground	Total Storage Capacity
Seosan	South Chungcheong Province	0.9	2005	Aboveground	11.0 million barrels (crude oil); 3.6 million barrels (refined oil products)
Ulsan	Ulsan Metropolitan City	0.7	1981	Underground	16.8 million barrels (crude oil)
Yeosu	South Jeolla Province	3.9	1998	Aboveground and underground	52.2 million barrels (crude oil)
Yongin	Gyeonggi Province	0.3	1998	Aboveground	2.5 million barrels (refined oil products)

Engineering and Construction

Overview

In support of the Company's stockpiling and exploration and production business, the Company is also engaged in the construction of crude oil and gas storage facilities throughout Korea, as well as the construction of production facilities. The Company constructed nine stockpile facilities that it currently operates pursuant to the Stockpiling Master Plans, as well as the production facilities used in the Donghae-1 gas project and the Vietnam Block 11-2 gas project. The Company is also working to expand its construction business overseas and assisting domestic construction companies to increase their competitiveness in overseas construction markets by providing technological support.

Construction of Petroleum and LPG Stockpile Facilities

Stockpile facilities consist of aboveground tank facilities or underground cavern facilities. Aboveground facilities are easier to construct, and thus require a shorter construction period, usually from three to five years, are easier to maintain initially, and are not restricted in where they can be built or in the types of product that can be stored there. However, aboveground facilities are also more vulnerable to external threats such as theft, terrorist attacks or fires, more expensive to construct, and have a shorter life cycle, usually lasting from 15 to 20 years. Underground facilities provide higher security and safety, have a semi-permanent life cycle, are more environmentally friendly and require lower construction and maintenance costs. However, they also take longer to build, usually from five to eight years, may be built only on sites that meet specific geological requirements, and are limited in the types of petroleum products that can be stored in them. The Company currently has seven aboveground tank facilities and five underground facilities.

In 2018, the Company commenced construction to update the repair system at its Geoje underground storage facilities to further upgrade and enhance its existing storage capacity and transferred the Ulsan storage facility's offshore loading platform to another location as part of the Government's plan to develop a new seaport in Ulsan. The first phase of such constructions were completed in 2018. The second phase of such constructions, which relate to the Geoje underground storage facilities, are expected to commence in 2022 with an aim for completion in 2027.

In June 2021, the Company completed the construction of new underground storage facilities at its Ulsan site to replace certain aboveground storage facilities, and has also completed building additional aboveground storage facilities at its Yeosu site in October 2017.

Construction of Production Facilities

The Company also supports its exploration and development projects by constructing production facilities used at some of its oil and gas fields. The Company constructed the offshore platform, onshore terminal, subsea production system, and the subsea and onshore pipeline at the Donghae-1 gas project. The Company also constructed the natural gas production facilities at the Vietnam Block 11-2 gas project in Rong Doi, consisting of two offshore platforms, a subsea pipeline and a floating storage and offloading unit. The Company also provides construction support for construction of production platforms or pipelines at several of its production or exploration sites, including Vietnam Block 15-1, Western Isle block, BlackGold Project and Arystan block.

Other Businesses

Petroleum Information and Publication

Due to Korea's heavy dependence on foreign oil, efficient and accurate collection of information related to the global oil market is essential to Korea's ability to promptly respond to international market developments. In furtherance of its position as the execution arm of Korea's oil-related policies and operations, the Company, through its Smart Data Center, also engages in the collection, compilation, analysis and publication of domestic and international oil-related information. The information provided by the Company is used widely not only in the oil industry, but also in the decision-making process for oil policies by the Government. The Company is currently certified by the Government to provide the official domestic oil usage and pricing data.

The Company currently publishes oil-related information through the following media:

Publication Title	Content	Medium	Language
Petronet	Multimedia internet website with comprehensive oil information service network, consisting of an extensive database on all Korean oil-related information. Both paid and free subscriptions are available.	Internet	Korean/ English
Korea Monthly Oil Statistics	Provides historical and up-to-date statistics on Korean oil supply and demand, including export, import, throughput, consumption and inventories, as well as analysis of Korean oil statistics.	Internet (Email)	Korean/ English
Daily Petroleum Status	Provides key international oil prices and indices, major news related to the domestic and international oil market, and prices of domestic oil (crude and refined) products.	Internet	Korean
Weekly International Oil Price Status	Provides weekly price status of international crude oil, oil products, as well as an update on the status of the Singapore oil market.	Internet	Korean
Weekly Domestic Oil Price Status	Provides weekly price status of domestic oil products, classified by gas stations, refineries and distributors.	Internet	Korean
Annual Oil Supply Statistics	Compilation of annual statistics relating to domestic oil imports, refineries and distributors.	Printed	Korean
Opinet	Publishes real-time product prices for domestic gas stations, as well as oil sale prices for all domestic oil distributors and refineries, both through www.opinet.co.kr(1) and other devices such as Global Positioning System navigators and mobile phones.	Internet	Korean

(1) Website addresses in this Offering Circular are included for reference only, and the contents of such websites are not incorporated by reference into this Offering Circular and should not be considered a part of this Offering Circular.

Affiliates

Certain information with regard to affiliates of the Company that are accounted for using the equity method as of such date are set forth in the table below.

	As of or for the year ended December 31, 2019					
Entity	**Country of Incorporation**	**Equity Interest**	**Total Assets**	**Total Liabilities**	**Revenue**	**Net Income (Loss)**
		(In billions of Won, except for percentages)				
Kernhem B. V.	Netherlands	37%	179	260	32	9
Oilhub Korea Yeosu Co., Ltd.	Korea	29%	531	329	75	23
Parallel Petroleum LLC	United States	10%	313	334	67	(13)
ADA OIL LLP[(1)]	Kazakhstan	13%	74	163	43	14
KNOC EF Star LLC	United States	100%	485	0.005	14	(16)
Offshore International Group Inc.	United States	50%	737	398	189	(14)
KADOC Ltd.	Malaysia	75%	757	861	61	(34)
Korea Energy Terminal Ltd.	Korea	95%	13	14	—	(0.5)
Deep Basin Partnership.	Canada	83%	249	233	35	48
HKMS Partnership	Canada	68%	91	83	23	4
KNOC-VOGO Eagle Ford LLC.	United States	50%	1,007	600	—	30

(1) As ADA OIL LLP is an affiliate of Kernhem B.V., equity method for ADA OIL LLP was applied considering the indirect ownership interest held by Kernhem B.V.

	As of or for the year ended December 31, 2020					
Entity	**Country of Incorporation**	**Equity Interest**	**Total Assets**	**Total Liabilities**	**Revenue**	**Net Income (Loss)**
		(In billions of Won, except for percentages)				
Kernhem B. V.	Netherlands	37%	164	251	16	(17)
Oilhub Korea Yeosu Co., Ltd.	Korea	29%	499	282	80	27
Parallel Petroleum LLC	United States	10%	156	316	41	(46)
ADA OIL LLP[(1)]	Kazakhstan	13%	61	156	22	(22)
KNOC EF Star LLC	United States	100%	484	0	14	(44)
KOREA GS E&P Pte. Ltd.	Singapore	30%	1,571	587	863	30
Korea Energy Terminal Ltd.	Korea	51%	235	154	—	(5)
Deep Basin Partnership.	Canada	84%	196	214	22	(37)
HKMS Partnership	Canada	69%	87	66	23	7
KNOC-VOGO Eagle Ford LLC.	United States	50%	837	565	—	(166)
Al Dhafra Petroleum	United Arab Emirates	30%	0	—	—	—

(1) As ADA OIL LLP is an affiliate of Kernhem B.V., equity method for ADA OIL LLP was applied considering the indirect ownership interest held by Kernhem B.V.

Entity	Country of Incorporation	Equity Interest	Total Assets	Total Liabilities	Revenue	Net Income (Loss)
		As of or for the nine months ended September 30, 2021				
			(In billions of Won, except for percentages)			
Kernhem B. V.	Netherlands	37 %	131	148	2	(1)
Oilhub Korea Yeosu Co., Ltd.	Korea	29 %	466	254	45	5
Parallel Petroleum LLC	United States	10 %	192	350	49	16
ADA OIL LLP[(1)]	Kazakhstan	13 %	64	169	26	4
KNOC EF Star LLC	United States	100 %	486	0	11	(28)
KOREA GS E&P Pte. Ltd.	Singapore	30 %	1,832	771	1,033	39
Korea Energy Terminal Ltd.	Korea	52 %	318	159	—	(3)
Deep Basin Partnership	Canada	84 %	184	222	22	(19)
HKMS Partnership	Canada	69 %	96	69	18	5
KNOC-VOGO Eagle Ford LLC	United States	50 %	903	615	—	(5)
Al Dhafra Petroleum	United Arab Emirates	30 %	0	—	—	—

(1) As ADA OIL LLP is an affiliate of Kernhem B.V., equity method for ADA OIL LLP was applied considering the indirect ownership interest held by Kernhem B.V.

Employees and Labor Relations

As of September 30, 2021, the Company had 1,268 employees on a separate basis. The following table describes the total number of employees by department as of the period indicated.

Department	As of September 30, 2021
Strategy & Planning	114
Administration (inclusive of HSE Dept.)	207
E&P Business	328
Petroleum Stockpile & Business	119
Stockpile Offices	338
Legal & Secretariat	13
E&P Support (inclusive of Technology Dept.)	87
Auditing	24
Others (Task force, Training, Labor union, etc.)	38
Total	1,268

Most of the Company's eligible employees are members of a labor union. The Company has not experienced any strikes, work stoppages, labor disputes or actions which affected the operation of any of the Company's businesses, and the Company considers its relations with its workforce to be generally good. The Company re-negotiated its collective bargaining agreement with the labor union in February 2021, which is scheduled to expire in February 2023. The negotiation for a new collective bargaining agreement will begin upon expiration of the current agreement. The collective bargaining agreement provides for, among other things, various employment benefits, the scope of union activities and negotiation procedures.

The Company, like most Korean companies, grants its employees annual increases in basic wages and pays periodic bonuses. Employees and directors with more than one year of service are entitled to receive a lump-sum payment upon termination of their service with the Company, based on their length of service and rate of pay at the time of termination.

Safety and Environmental Matters

Safety

Safety standards and regulations in the domestic oil industry are issued, and compliance is monitored, by the Ministry of Trade, Industry and Energy and the Korea Occupational Safety and Health Agency, a Government body under the control of the Ministry of Employment and Labor.

Because a number of the Company's stockpile facilities are located in industrial areas, the Company has established a series of preventative measures to improve the safety of its employees and surrounding communities and minimize disruptions or other adverse effects on its business, such as providing each individual member of the communities in areas surrounding its stockpile facilities with printed materials to explain and illustrate safety and protection knowledge and skills.

The Company has also undertaken various measures including improving its automatic control systems, increasing safety and maintenance training for employees and improving the Company's monitoring equipment (used to detect crude oil and petroleum product leaks, fire and other defects in pipes and stockpile facilities). The Company believes that its safety standards are at least comparable to domestic and international safety standards relating to the oil industry. In addition, the Company has been operating its safety system in compliance with international safety standards such as Process Safety Management since 1996 and Korea Occupational Safety and Health Agency 18001 since 2000.

The Government from time to time conducts spot-checks of the Company's facilities to ensure that they are in compliance with occupational health and safety regulations. These spot-checks have never identified any major violations or resulted in monetary fines or other penalties.

To further enhance its management of such safety and other operational risks, which may increase as the Company follows its expansion plans, the Company implemented a comprehensive enterprise risk management ("ERM") system in November 2010. The ERM system allows the Company to centralize the detection, analysis and management of various safety, financial and other operational risks related to its business.

Environmental Matters

The Company is subject to numerous international, national, regional and local environmental laws and regulations concerning its oil and gas exploration and production operations, stockpiling operation and other activities. In particular, these laws and regulations:

- require an environmental impact assessment report to be submitted and approved prior to the commencement of exploration, development and production activities;
- restrict the type, quantities and concentration of various substances that can be released into the environment in connection with oil and gas exploration and production activities;
- limit or prohibit drilling activities on certain lands lying within protected areas and certain other areas; and
- impose penalties for pollution resulting from oil, natural gas and petrochemical operations, including criminal and civil liabilities for serious pollution.

These laws and regulations may also restrict air emissions and discharge to surface and subsurface water resulting from the operation of oil and natural gas processing plants, pipeline transportation systems and other facilities that the Company and its joint venture partners own or operate. In addition, the Company's operations may be subject to laws and regulations relating to the generation, handling, storage, transportation, disposal and treatment of waste materials. Moreover, since exploration and production activities may take place on sites that are ecologically sensitive (tropical forest, marine environment, etc.), each site may require a specific approach to minimize the impact on the related ecosystem, biodiversity and human health.

The Company anticipates that the environmental laws and regulations to which it is subject will become increasingly more strict and therefore likely to have an increasing impact on its operations. For example, the Glasgow Climate Pact which was agreed to at COP26 includes commitments to phase down the use of unabated coal power and inefficient fossil fuel subsidies. The Government also announced its commitment to reduce greenhouse gas emissions by 40% by 2030 at COP26. It is impossible, however, to predict accurately the effect of future developments in such laws and regulations on the Company's future earnings and operations. Some risk of environmental costs and liabilities is inherent in certain of the Company's operations and products, as it is with other companies engaged in similar businesses, and there can be no assurance that material costs and liabilities will not be incurred. The Company does not currently expect any material adverse effect on its financial conditions or results of operations as a result of compliance with such laws and regulations. In addition to complying with laws, regulations and standards to which the Company is subject, it is the Company's policy to exercise maximum due care with respect to environmental matters in the course of its operations, and to maintain adequate insurance coverage. See "Risk Factors — Risks Relating to the Company — The Company's business operations may be adversely affected by present or future environmental or safety regulations."

In addition, the Company's ESG department focuses on establishing and enforcing policies and strategies relating to the environment, social responsibility and corporate governance in order to promote sustainable growth. The Company also has been conducting regular environmental audits on its operations and facilities by a third-party auditors, pursuant to the ISO 14001:2015 since 1998, to identify any potential areas of problem and to assess ways of improving its compliance with environmental laws.

Insurance

The Company's operations are subject to hazards and risks inherent in the drilling, production and storage of petroleum products. As protection against these operations risks, the Company maintains insurance coverage against some, but not all, potential losses, including the loss of wells, as well as liabilities related to costs of pollution control and environmental compliance. In some cases, the agreement under which the Company operates its fields and sells the petroleum products require it to carry insurance, while in other cases, the Company's management exercises its discretion and determines the fields for which to purchase insurance coverage, taking into account the costs of such insurance and related risks. The Company's insurance coverage includes property damage insurance for certain of its oil and gas fields and its stockpile facilities and business interruption insurance for its production activities. The Company also has insurance against damage from terrorism for all of its stockpile and offshore facilities. The Company is not delinquent on any of its insurance payments. The Company believes that its insurance coverage is comparable to that of other companies engaged in similar businesses.

Legal Matters

From time to time the Company is involved in litigations or proceedings that have arisen in the ordinary course of its business, including disputes with respect to its exploration, development and production rights.

As of the date of this Offering Circular, it is the Company's view that there are no other current or expected litigation or governmental proceedings involving the Company or any of its affiliates the outcome of which may have a material adverse effect on the results of operations or financial condition of the Company. See "Risk Factors — Risks Relating to the Company — The Company's business may be materially and adversely affected by legal claims and regulatory actions against it."

Intellectual Property and Research & Development

The Company's general policy is to seek intellectual property protection for those inventions and improvements likely to be utilized by its activities or to give it a competitive advantage compared to other fuel sources. The Company relies on a variety of patents, copyrights, trade secrets, trademarks and proprietary information to maintain and enhance its competitive position. The Company's principal brand names are registered trademarks in Korea.

The Company held 15 patents and 23 trademarks as of September 30, 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.

As of September 30, 2021, the Company employed 69 researchers (including 9 with doctorate degrees and 24 with master's degrees). The Company incurred research and development costs of approximately Won 6 billion in the first nine months of 2021.

Properties

The Company's headquarters and principal offices are located in Ulsan, at 305, Jongga-ro, Jung-gu, Ulsan, 44538, Korea. The Company had disposed of its headquarters building in January 2017 and had entered into a lease contract for the same premises. The Company is planning to re-acquire its headquarters building in January 2027. The Company has title over nine stockpile branch offices and the stockpile facilities at Ulsan, Yeosu, Pyeongtaek, Geoje, Seosan, Guri, Yongin, Gokseong and Donghae, as well as the production office for the Donghae-1 gas project in Ulsan.

The Company's Articles of Incorporation provide that the board of directors shall be made up of no more than seven standing directors (including the President, who also serves as the Chief Executive Officer of the Company) and eight non-standing directors. The Articles of Incorporation also requires the Company to establish an Audit Committee as a committee of the board of directors. All non-standing directors are independent. The directors have terms of two years (with the exception of the President, whose term is for three years). The activities within the discretion of the board of directors are subject to the Act on the Management of Public Institutions, the KNOC Act, the Company's Articles of Incorporation and its internal regulations, and include establishing the budget, issuing debentures and amending the Company's Articles of Incorporation when necessary.

Under the KNOC Act, the Act on the Management of Public Institutions and the Articles of Incorporation of the Company, the President, who serves as the Company's chief executive, is nominated by the Company's Officer and Executive Recommending Committee. The Officer and Executive Recommendation Committee recommends a pool of candidates, which is then deliberated by the Committee for Management of Public Institutions established pursuant to the Act on Management of Public Institutions. After such deliberations, the President is appointed by the President of Korea upon the recommendation of the Minister of Trade, Industry and Energy.

The President is deemed to have the capacity of a representative director where the Korean Commercial Code applies and thus administers most of the day-to-day business that is not specifically designated as a responsibility of the board of directors. The President must enter into a management contract with the Ministry of Trade, Industry and Energy pursuant to which the President must meet a certain minimum level of performance each year. Under the current management contract with the President and the Articles of Incorporation of the Company, if the board of directors of the Company determines that the President's ability to perform its duties has been seriously impaired (due to reasons such as the President's violation of applicable laws or the Company's Articles of Incorporation, or the President's failure to diligently perform its duties), the board of directors may pass a resolution to propose dismissal of the President to the Minister of Trade, Industry and Energy.

Standing directors other than the President and the standing member of the Audit Committee are appointed by the President. The standing directors assist the President and act on his or her behalf when the President is unable to act.

The non-standing directors are appointed by the Minister of Economy and Finance, after being selected by the Committee for Management of Public Institutions from a pool of candidates recommended by the Officer and Executive Recommendation Committee.

Pursuant to the Articles of Incorporation of the Company or, if applicable, as mandated by applicable laws, the board of directors may establish by resolution committees to facilitate its efficient operation in carrying out various management functions. The Audit Committee and the Officer and Executive Recommendation Committee have been established pursuant to applicable laws.

The Audit Committee is comprised of three members, of whom two members are non-standing directors. The Audit Committee has at least one member who is an accounting or financial expert, and its chairperson is a non-standing director. The principal function of the Audit Committee is to conduct internal review of the Company's operations and accounting, and to present its opinion to the board of directors, thereby ensuring the independence and professionalism of the Company.

The Officer and Executive Recommendation Committee is comprised of non-standing directors and private citizens appointed by the board of directors, and is chaired by one of the non-standing directors elected by the members of the Committee to serve as chairperson. The Officer and Executive Recommendation Committee is responsible for the selection and recommendation of candidates to serve as President, standing member of the Audit Committee or non-standing directors.

In addition to the Audit Committee and the Officer and Executive Recommendation Committee, the Risk Management Committee and the Evaluation Committee, as well as various other committees, have been established to advise the president or the board of directors.

The Risk Management Committee is comprised of seven members, including three internal and three external experts as well as the standing director in charge of risk management. The Risk Management Committee reviews and makes recommendations to the board of directors with respect to the Company's new projects, acquisitions or disposals of equity interests and other investment activities of the Company, including issues relating to risks associated with the liquidity of the Company, but excluding issues reviewed by the Evaluation Committee and other committees.

The Evaluation Committee is comprised of seven members, including two internal experts, four external experts and the head of the investment deliberation division. The Evaluation Committee deliberates, among others, on the Company's change of business, financial soundness and the economic effects resulting from changes in assets.

The Company's address is 305, Jongga-ro, Jung-gu, Ulsan, 44538, Korea. Summary biographical information regarding the Company's directors is set out below.

Standing Directors

The Company's standing directors are as follows:

Name	Age	Position	Director Since	Date Term Ends
Dong Sub Kim	64	President and Chief Executive Officer	June 2021	June 2024
Hyung Joo Choi	58	Auditor General/Standing Member of the Audit Committee	March 2021	March 2023
Moon Gyu Choi	58	Senior Executive Vice President of the Planning and Financing Division	January 2021	January 2023
Keon Mug Lim.	57	Senior Executive Vice President of the Exploration and Production Division	December 2021	December 2023

Dong Sub Kim has served as a standing director, president and chief executive officer of the Company since June 8, 2021. Mr. Kim previously served as the chief technology officer of SK Innovation and the dean of the College of Info-Bio Convergence Engineering at the Ulsan National Institute of Science and Technology. He holds a bachelor's degree and a master's degree in naval architecture and ocean engineering from Seoul National University and a doctorate in engineering from Ohio State University.

Hyung Joo Choi has served as the auditor general and standing member of the Audit Committee of the Company since March 17, 2021. Prior to joining the Company, Mr. Choi held various positions at the Board of Audit and Inspection of Korea, including as a division head of the Management Support and Financial Management Team. He holds a bachelor's degree in business administration from Korea University and a master's degree in public administration from Missouri State University.

Moon Gyu Choi has served as a standing director since January 4, 2021 and was appointed as a senior executive vice president of the Planning & Financing Division on August 23, 2021. Mr. Choi previously served as the Company's senior executive vice president of the Administration, Services & HSE Division and head of the Public Relations & Corporate Culture Department. He holds a bachelor's degree in philosophy from Korea University.

Keon Mug Lim has served as a standing director since December 14, 2021 and was appointed as a senior executive vice president of the Exploration and Production Division on December 14, 2021. Mr. Lim previously served as the Company's head of the E&P Overseas Business Department II and the Production Management Department. He holds a bachelor's degree and a master's degree in resource engineering from Seoul National University.

Non-Standing Directors

The Company's non-standing directors are as follows:

Name	Age	Position	Director Since	Date Term Ends
Taek Hwan Kim	53	Auditor, Neostory Inc.	July 2018	July 2022
Ho Sung Chung	46	Managing Director, Law, Sein LLP	July 2018	July 2022
Young Gwa Kim.	65	—	May 2020	May 2022
Byoung Su Kim	51	Lawyer, Samsung Law	September 2020	August 2022
Dong Joo Min	50	Professor, Seoul National University	November 2020	November 2022

Taek Hwan Kim has served as a non-standing director since July 16, 2018. Mr. Kim currently serves as an auditor of Neostory Inc. He holds a bachelor's degree in Russian from Hankuk University of Foreign Studies.

Ho Sung Chung has served as a non-standing director since July 16, 2018. Mr. Chung is currently a managing attorney at Sein LLP. He holds a bachelor's degree in law from Korea University.

Young Gwa Kim has served as a non-standing director since May 7, 2020. Mr. Kim holds a bachelor's degree in economics from Seoul National University and a doctorate in economics from the University of Hawaii.

Byoung Su Kim has served as a non-standing director since September 1, 2020. Mr. Kim is currently a lawyer at Samsung Law. He holds a bachelor's degree in law from Pusan National University.

Dong Joo Min has served as a non-standing director since November 9, 2020. Ms. Min is currently a professor in the energy resources engineering department at Seoul National University. She holds a bachelor's degree in earth science education, a master's degree in science education and a doctorate in science education from Seoul National University.

RELATED PARTY TRANSACTIONS

The Company engages in a variety of transactions with related parties in its ordinary course of business, including providing long-term loans to its affiliates from time to time. The following table sets forth the amount of long-term loans outstanding with respect to loans made to affiliates as of December 31, 2019 and 2020 and September 30, 2021. See Note 26 to the Company's unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 and Note 46 to the Company's financial statements as of and for the years ended December 31, 2020 and 2019 included elsewhere in this Offering Circular for further information about the Company's related party transactions.

Related Parties	As of December 31,[1]		As of September 30, 2021[2]
	2019	2020	
	(In millions of Won)		
KNOC Nigerian West Oil Company Ltd.	₩ 118	₩ —	₩ 30,053
KNOC Nigerian East Oil Company Ltd	107	—	28,524
Offshore International Group, Inc.	32,708	30,736	—
KADOC Ltd.	514,707	—	—
Parallel Petroleum LLC.	—	—	—
Korea Energy Terminal Co., Ltd.	2,587	—	—

(1) Reflects allowance for bad debt.

(2) Allowance for bad debt was recognized for 100% of the related loans.

The Company also provides payment and performance guarantees for Harvest Operations, Dana Petroleum and ANKOR E&P Holdings Corporation. For Harvest Operations, the Company provided, as of September 30, 2021, guarantees of US$285 million for bonds issued in September 2017, US$200 million for bonds issued in November 2017, CAD 300 million for a term loan entered into in May 2018, USD397.5 million for bonds issued in May 2018, CAD 500 million for a credit facility renewed in July 2019, CAD 500 million for a term loan issued in February 2021 and USD500 million for bonds issued in April 2021. For Dana Petroleum, the Company provided, as of September 30, 2021, performance guarantees of GBP 167 million for expenses in restoring, decommissioning, dismantling and removing facilities and structures in the field. For ANKOR E&P Holdings Corporation, the Company provided, as of September 30, 2021, a payment guarantee of US$50 million for loans and a performance guarantee of US$121 million for restoration of oil and gas sites held by the affiliate. See Note 28 to the Company's unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020.

REGULATION

The Company was established as a juridical entity under the KNOC Act and is subject to the rules and regulations of the KNOC Act. The Company is also subject to all general rules and regulations applicable to corporations under the Act on the Management of Public Institutions, unless otherwise provided for in the KNOC Act.

The KNOC Act

Under the KNOC Act, the Company is established as a statutory juridical entity for the purpose of efficient performance of businesses relating to development of oil resources, oil stockpile and enhancement of oil distribution channels. In order to achieve these objectives, the KNOC Act allows the Company to undertake, among others, the following activities:

- Exploration and development of oil resources;
- Export and import, stockpiling, transportation, lease and sales of crude oil and oil products;
- Construction, maintenance, management and lease of oil stockpile facilities;
- Enhancement of oil distribution channels;
- Investment, financing, guarantee of debt and materials lease for corporations engaged in businesses relating to energy and resources; and
- Technology support, research and development and provision of information for businesses set forth above.

The Company's authorized capital is Won 13 trillion which is to be funded solely by the Government. Under the KNOC Act, the Ministry of Trade, Industry and Energy is granted the power to direct and supervise the Company's activities relating to its business of exploration, development and production of oil resources inside and outside of Korea, purchase and operation of the oil stockpile, construction and management of oil stockpile facilities, collection, processing and production of oil trading information, and enhancement of oil distribution channels.

In addition, the Company may issue bonds for its business to the extent not exceeding 200% of the sum of the Company's capital and reserve, by a resolution of its board of directors in accordance with the KNOC Act. The Company may also incur indebtedness (such as loans) for its operations. The Government may guarantee the repayment of the Company's bonds and the principal and interest amount of its loans, and provide subsidies in respect of the Company's business activities. However, the Notes are not guaranteed by the Government.

Petroleum and Petroleum Substitute Fuel Business Act

Under the Petroleum Business Act, the Ministry of Trade, Industry and Energy is required to set goals for oil stockpiling to stabilize the supply and demand of oil as well as its prices, and develop a master plan each year to implement these goals. The stockpiling master plan must include matters relating to the oil stockpile target level, categories of oil to be stockpiled and stockpiling facilities. Under the Government's Fourth Stockpiling Master Plan, the Company is required to implement the Government's goal of maintaining the stockpile capacity at 146 million barrels and achieve stockpile oil reserves of 100 million barrels.

Persons who intend to operate an oil export-import business are required to have their business registered with the Minister of Trade, Industry and Energy. However, this requirement does not apply to exports and imports of oil undertaken by the Company to implement the oil stockpile plan under the KNOC Act.

Overseas Resources Development Business Act

Under the Overseas Resource Development Business Act, the development of overseas resources may be conducted in one of the following manners:

- a Korean national developing overseas resources individually or jointly with foreigners (including development through local companies established overseas);
- a Korean national providing technical services to foreigners that are developing overseas resources; or
- a Korean national providing funding to foreigners that are developing overseas resources and importing all or part of the overseas resources they develop.

The Government must establish and execute a master plan for the development of overseas resources. If a Korean national desires to operate an overseas resources development business, such person must report the plan for overseas resources development to the Minister of Trade, Industry and Energy.

The Government may provide funds to an overseas resource developer to conduct the necessary research and analysis for starting an overseas resources development business and to acquire the right to develop such resources. The Government may also provide funds for the installation and operation of facilities required for an overseas resources development business, and funds for leasing or buying land necessary to conduct an overseas resources development business.

If the stability and normal functioning of the national economy are harmed or feared to be harmed when a serious disruption to the supply and demand of resources occurs due to an imbalance of supply and demand of resources in Korea and abroad, or there are concerns over such occurrence, the Minister of Trade, Industry and Energy may order overseas resources developers to bring to Korea the whole or part of the overseas resources developed by such developer under proper and reasonable conditions, to stabilize the supply and demand of resources, and the overseas resources developers subject to such an order must comply with the order in the absence of special circumstances.

The Company has been delegated by the Ministry of Trade, Industry and Energy to inspect or investigate matters necessary for the operation of overseas oil development businesses.

Submarine Mineral Resources Development Act

The Submarine Mineral Resources Development Act aims to contribute to the growth of the Korean industry by developing, in a reasonable manner, submarine resources in (i) the Korean peninsula, (ii) the ocean adjacent to the coastlines of islands belonging to Korea, and (iii) the continental shelf under Korea's control to the greatest extent possible. Submarine mining rights are the rights authorized by the Ministry of Trade, Industry and Energy to explore, gather and acquire submarine resources from submarine resource areas owned by Korea, and such rights are categorized into exploration rights and production rights. The exploration rights cannot be granted for a period greater than 10 years from the date of the issuance unless there are special circumstances. The production rights cannot be granted for a period exceeding 30 years from the date of the issuance. A holder of a submarine mining right must pay a mining fee to the Ministry of Trade, Industry and Energy in accordance with the standard stipulated in the Presidential Decree when producing submarine resources in the submarine resource areas. If the submarine resource produced by the holder of production rights is natural gas, the natural gas may be sold to gas wholesalers pursuant to the Urban Gas Business Act or to installers of gas supply facilities other than urban gas businesses. In such cases, there is no need to obtain a permit under the Urban Gas Business Act relating to the gas wholesale business.

Legislation Relating to the Operation and Management of the Company

Act on the Management of Public Institutions

The KNOC Act prescribes that the affairs regarding the Company's structure and management must be governed by the Act on the Management of Public Institutions. Under the Act on the Management of Public Institutions, the Company is required to make public many aspects of its affairs including, among others, the objectives of management, its budget and business plan, its financial statements and supplementary documents, status of personnel including directors and officers, its articles of incorporation, its bond register and the minutes of the board of directors (but confidential information on the management provided for in the minutes of board of directors need not be disclosed to the public) and the audit report of its Audit Committee. Full-time officers and employees may not be engaged in activities having purposes of commercial advantage. The Company's fiscal year must be the same as the Korean government's fiscal year. The Company must present mid- to long-term management objectives covering five fiscal years to the Minister of Trade, Industry and Energy and the Minister of Economy and Finance on an annual basis. The Company may be audited by the Board of Audit and Inspection of Korea based on its business activities and accounting.

Act on the Special Accounts for Energy and Resources

The SAER Act has been enacted to implement certain special accounts for energy and resources-related projects so as to supply energy, stabilize prices and efficiently promote resources-related projects. The SAER Act is managed and supervised by the Ministry of Trade, Industry and Energy. Those accounts may be categorized into investment accounts and loan accounts.

Revenue from the investment account is primarily composed of surcharges and additional charges arising out of the Petroleum Business Act, the Urban Gas Business Act and the Mining Industry Act. Expenditure from the investment account is primarily composed of operating expenses needed for energy and resources related businesses and contributions or subsidies for such businesses as well as contributions or investments to institutions or groups engaged in the energy and resources-related businesses.

Revenue from the loan account is primarily composed of income from the principal and interest amount arising out of the loan amount. Expenditure is primarily composed of loans to the subject institutions to support energy and resources- related businesses.

If there are insufficient funds to meet the expenditure, long term loans may be arranged within the limits set by the resolution of the National Assembly. Temporary loans may also be arranged if there is a temporary shortage of funds, provided that repayment on the principal amount of the temporary loan must be made within the relevant accounting year. Any expenditure not made within the relevant accounting year may be carried over to the following accounting year notwithstanding any provisions in the State Finance Act.

The Ministry of Trade, Industry and Energy may commission the Company to manage finances such as the receipt of revenue, payment and settlement of the budget relating to this account (excluding management of coal stockpiling facilities and coal reserves) and to manage the reserve funds.

Regulations on Contractual Business of Public Enterprises and Semi-Government Institutions

Contracts entered into by the Company must conform to Regulations on Contractual Business of Public Enterprises and Semi-Governmental Institutions ("Regulations on Contractual Business") determined by the Ministry of Economy and Finance in accordance with the Act on the Management of Public Institutions. According to the Regulations on Contractual Business, if it is deemed necessary for the business characteristics of public enterprises and semi-government entities or for fairness and transparency, or if there are any other inevitable reasons, a standard or procedure different from those set forth in the Regulations on Contractual Business may be newly established. For those matters not specified in the Regulations on Contractual Business, the Act on Contracts to which the Government Is a Party will be applied. In principle, contracts must be made through open bids, but if it is deemed necessary, nominated competitive bids or private contracts may also be made.

Environmental Legislation

Air Environment Preservation Act

The purpose of the Air Environment Preservation Act is to protect public health and prevent environmental damage arising from air pollution. The Air Environment Preservation Act provides for the Ministry of Environment to determine standards for the sulphur content of fuel. The Ministry of Environment can determine the supply area and range of facilities to use the respective fuels and may in some circumstances prohibit or restrict the production, sale or use of certain fuels. According to the Air Environment Preservation Act, the Minister of Environment or mayor or provincial governor may prohibit the use of fuels other than gaseous fuel such as LNG and LPG which release relatively smaller amounts of pollutants in an area or facility designated by the Enforcement Decree of the Air Environment Preservation Act as a place where these permitted fuels should be used, regardless of the restriction measures on the use of fuel under the Air Environment Preservation Act.

Marine Environment Management Act

The purpose of the Marine Environment Management Act is to prevent dangers arising from marine life damage or marine pollution, and create a clean and safe marine environment. Under the Marine Environment Management Act, no one may discharge pollutants from a ship, marine facility or marine space to the ocean or discharge waste generated from land unless otherwise permitted pursuant to the Marine Environment Management Act. Any person who owns a marine facility must prepare and keep a log of noxious liquid substances in the facility, including the volume of use and matters relating to the carrying in and out of such noxious liquid substances. The owner of a marine facility must equip the marine facility with the materials and chemicals used for the prevention and control of pollutants.

Soil Environment Conservation Act

The purpose of the Soil Environment Conservation Act is to prevent potential danger or injury to public health and the environment due to soil contamination and to conserve the soil ecosystem by properly maintaining and preserving soil, including by restoring contaminated soil.

The level of soil contamination is determined by the ordinance of the Ministry of Environment. A person who causes soil contamination must, where any damages occur due to such soil contamination, compensate for the damages caused and restore the contaminated soil. Where there exist two or more persons who cause soil contamination, and it is impossible to determine which one has caused the damages, each of them must jointly and severally compensate for such damages and restore the contaminated soil.

If anyone who produces, transports, stores, handles, processes or treats soil contaminants discharges or leaks them in the process, such person must report such fact without delay to the competent administrative agency. The competent administrative agency that receives such a report may survey the cause and the level of soil contamination. If the competent administrative agency determines that the soil has been contaminated, then the person who causes such soil contamination may be ordered to restore the contaminated soil and, if such order is not complied with, such person will become subject to criminal liabilities.

Environmental Impact Assessment Act

The purpose of the Environmental Impact Assessment Act is to promote the environmentally friendly and sustainable development of business by assessing in advance the impact on the environment of the business which is subject to the environmental impact assessment when the business plan is established and implemented and, thus, promoting the comfortable and secure lives of citizens. Anyone who desires to operate a business that is subject to the environmental impact assessment must prepare such assessment which will be reviewed by the Minister of Environment. The Minister of Environment may supplement or adjust the business plan according to its review.

To avoid damage to the environment from of the operation of a business, its impact on the environment must be investigated according to the assessment items agreed in advance and the result must be notified to the approval institution or the Minister of Environment ("Post Investigation of Impact on the Environment"). An energy development business is one of the businesses that are subject to the environmental impact assessment and the Post Investigation of Impact on the Environment. Among other things, the following businesses are subject to the environmental impact assessment and the Post Investigation of Impact on the Environment:

- Businesses in the development of underwater mining under the Submarine Mineral Resources Development Act which have the objective of energy development;
- Businesses in the mining industry under the Mining Industry Act having the objective of energy development (limited to those equal to or exceeding 300,000 square meters of mining area); and
- Oil business operator's installation of (i) oil storage facilities under the Petroleum Business Act and (ii) oil stockpile facilities under the KNOC Act (limited to those equal to or exceeding 100,000 kilo liters of storage volume).

TAXATION

Certain U.S. Federal Income Tax Considerations

The following is a summary of certain U.S. federal income tax considerations that may be relevant to a beneficial owner of a Note that is a citizen or resident of the United States or a domestic corporation or that otherwise is subject to U.S. federal income taxation on a net income basis in respect of the Note (a "United States holder"). A "non-United States holder" is a beneficial owner of a Note that is an individual, corporation, foreign estate, or foreign trust, that is not a United States holder. This summary is based on laws, regulations, rulings and decisions now in effect, all of which are subject to change (possibly with retroactive effect). This summary deals only with United States holders that will hold Notes as capital assets, and does not address tax considerations applicable to investors that may be subject to special tax rules, such as financial institutions, real estate investment trusts, tax-exempt entities, entities taxed as partnerships and partners therein, insurance companies, regulated investment companies, dealers in securities or currencies, traders in securities electing to mark to market, persons liable for alternative minimum tax, United States expatriates, nonresident alien individuals present in the United States for more than 182 days in a taxable year, persons that will hold Notes as a position in a "straddle" or conversion transaction, or as part of a "synthetic security" or other integrated financial transaction or persons that have a "functional currency" other than the U.S. dollar. Except as specifically set forth below, any special U.S. federal income tax considerations relevant to a particular issue of Notes, including any Floating Rate Notes, Index Linked Notes, Dual Currency Notes, Zero Coupon Notes, Notes that may not be properly characterized as indebtedness for U.S. federal income tax purposes or Notes having a term to maturity of more than 30 years will be provided in the applicable Pricing Supplement.

This summary does not discuss tax considerations relevant to the ownership and disposal of Notes in bearer form. In addition, this summary does not address the tax consequences of a redenomination. If the Issuer effects a redenomination, investors should consult their own advisors regarding the tax consequences to them, including the possibility that an investor will recognize foreign currency gain or loss as a result of the redenomination.

Further, this summary addresses only U.S. federal income tax consequences, and does not address the effects of the Medicare contribution tax on net investment income, the alternative minimum tax or foreign, state, local or other tax considerations that may be relevant to United States holders in light of their particular circumstances. Investors should consult their own tax advisors in determining the tax consequences to them of holding Notes, including the application to their particular situation of the U.S. federal income tax considerations discussed below, as well as the application of state, local, foreign or other tax laws.

United States holders that use an accrual method of accounting for tax purposes ("Accrual Method Holders") generally are required to include certain amounts in income no later than the time such amounts are reflected on certain financial statements (the "Book/Tax Conformity Rule"). The application of the Book/Tax Conformity Rule thus may require the accrual of income earlier than would be the case under the general tax rules described below. It is not entirely clear to what types of income the Book/Tax Conformity Rule applies, or, in some cases, how the rule is to be applied if it is applicable. However, proposed regulations generally would exclude, among other items, original issue discount and market discount (in either case, whether or not *de minimis*) from the applicability of the book/tax conformity rule. Although the proposed regulations generally will not be effective until taxable years beginning after the date on which they are issued in final form, taxpayers generally are permitted to elect to rely on their provisions currently. Accrual method holders should consult with their tax advisors regarding the potential applicability of the book/tax conformity rule to their particular situation. Accrual Method Holders should consult with their own tax advisors regarding the potential applicability of the Book/Tax Conformity Rule to their particular situation.

Payments or Accruals of Interest

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

If such payments of interest are made with respect to a Note denominated in a single currency other than the U.S. dollar (a "Foreign Currency Note"), the amount of interest income realized by a United States holder that uses the cash method of tax accounting will be the U.S. dollar value of the Specified

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

Additional Amounts

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

Purchase, Sale and Retirement of Notes

A United States holder's adjusted tax basis in a Note generally will equal the cost of such Note to such holder, increased by any amounts includible in income by the holder as original issue discount and market discount and reduced by any amortized premium (each as described below) and any payments other than payments of qualified stated interest made on such Note. In the case of a Foreign Currency Note, the cost of such Note to a United States holder generally will be the U.S. dollar value of the foreign currency purchase price calculated at the exchange rate in effect on the date of purchase. However, in the case of a Foreign Currency Note that is traded on an established securities market, a cash basis United States holder (and, if it so elects, an accrual basis United States holder) will determine the U.S. dollar value of the cost of such Note by translating the amount paid at the spot rate of exchange on the settlement date of the purchase. The amount of any subsequent adjustments to a United States holder's adjusted tax basis in a Note in respect of original issue discount, market discount and premium denominated in a Specified Currency will be determined in the manner described under "— Original Issue Discount" and "— Premium and Market Discount" below. The conversion of U.S. dollars to the Specified Currency and the immediate use of the Specified Currency to purchase a Foreign Currency Note generally will not result in taxable gain or loss for a United States holder.

Upon the sale, exchange or retirement of a Note, a United States holder generally will recognize gain or loss equal to the difference between the amount realized on the sale, exchange or retirement (less any accrued qualified stated interest, which will be taxable as such) and the United States holder's adjusted tax basis in such Note. If a United States holder receives a currency other than the U.S. dollar in respect of the sale, exchange or retirement of a Note, the amount realized generally will be the U.S. dollar value of the Specified Currency received calculated at the exchange rate in effect on the date the instrument is disposed of or retired. However, in the case of a Foreign Currency Note that is traded on an established securities market, a cash basis United States holder, and if it so elects, an accrual basis United States

holder will determine the U.S. dollar value of the amount realized by translating such amount at the spot rate on the settlement date of the sale, exchange or retirement. Furthermore, regardless of which of the foregoing methods applies, if Korean tax is withheld on the sale, exchange or retirement of a Note, the amount realized by a United States holder will include the gross amount of the proceeds of that sale, exchange or retirement before deduction of the Korean tax. The election available to accrual basis United States holders in respect of the purchase and sale of Foreign Currency Notes traded on an established securities market, discussed above, must be applied consistently to all debt instruments from year to year and cannot be changed without the consent of the IRS.

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

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

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

Original Issue Discount

If the Issuer issues Notes at a discount from their stated redemption price at maturity (as defined below), and the discount is equal to or more than the product of one-fourth of one percent (0.25%) of the stated redemption price at maturity of the Notes multiplied by the number of full years to their maturity (the "*de minimis* threshold"), the Notes will be "Original Issue Discount Notes." The difference between the issue price and the stated redemption price at maturity of the Notes will be the "original issue discount" ("OID"). The "issue price" of the Notes will be the first price at which a substantial amount of the notes are sold to the public (i.e., excluding sales of Notes to underwriters, placement agents, wholesalers, or similar persons). The "stated redemption price at maturity" will include all payments under the Notes other than payments of "qualified stated interest" (as determined below).

United States holders of Original Issue Discount Notes generally will be subject to the special tax accounting rules for obligations issued with OID provided by the Internal Revenue Code of 1986, as amended, and certain regulations promulgated thereunder (the "OID Regulations"). United States holders of such Notes should be aware that, as described in greater detail below, they generally must include OID in ordinary gross income for U.S. federal income tax purposes as it accrues, in advance of the receipt of cash attributable to that income.

In general, each United States holder of an Original Issue Discount Note, whether such holder uses the cash or the accrual method of tax accounting, will be required to include in ordinary gross income the sum of the "daily portions" of OID on the Note for all days during the taxable year that the United States holder owns the Note. The daily portions of OID on an Original Issue Discount Note are determined by allocating to each day in any accrual period a ratable portion of the OID allocable to that accrual period. Accrual periods may be of any length and may vary in length over the term of an Original Issue Discount Note, provided that no accrual period is longer than one year and each scheduled payment of principal or interest occurs on either the final day or the first day of an accrual period. In the case of an initial holder, the amount of OID on an Original Issue Discount Note allocable to each accrual period is determined by

(a) multiplying the "adjusted issue price" (as defined below) of the Original Issue Discount Note at the beginning of the accrual period by the yield to maturity of such Original Issue Discount Note (appropriately adjusted to reflect the length of the accrual period) and (b) subtracting from that product the amount (if any) of qualified stated interest (as defined below) allocable to that accrual period. The "yield to maturity" of a Note is the discount rate that causes the present value of all payments on the Note as of its original issue date to equal the issue price of such Note. The "adjusted issue price" of an Original Issue Discount Note at the beginning of any accrual period will generally be the sum of its issue price (generally including accrued interest, if any) and the amount of OID allocable to all prior accrual periods, reduced by the amount of all payments other than payments of qualified stated interest (if any) made with respect to such Note in all prior accrual periods. The term "qualified stated interest" generally means stated interest that is unconditionally payable in cash or property (other than debt instruments of the issuer) at least annually during the entire term of an Original Issue Discount Note at a single fixed rate of interest or, subject to certain conditions, based on one or more interest indices. In the case of an Original Issue Discount Note that is a Floating Rate Note, both the "yield to maturity" and "qualified stated interest" will generally be determined for these purposes as though the Original Issue Discount Note will bear interest in all periods at a fixed rate generally equal to the rate that would be applicable to the interest payments on the Note on its date of issue or, in the case of certain Floating Rate Notes, the rate that reflects the yield that is reasonably expected for the Note. (Additional rules may apply if interest on a Floating Rate Note is based on more than one interest index.) As a result of this "constant yield" method of including OID in income, the amounts includible in income by a United States holder in respect of an Original Issue Discount Note denominated in U.S. dollars generally are lesser in the early years, and greater in the later years, than the amounts that would be includible on a straight-line basis.

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

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

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

Floating Rate Notes generally will be treated as "variable rate debt instruments" under the OID Regulations. Accordingly, the stated interest on a Floating Rate Note generally will be treated as "qualified stated interest" and such a Note will not have OID solely as a result of the fact that it provides for interest at a variable rate. If a Floating Rate Note qualifying as a "variable rate debt instrument" is an Original Issue Discount Note, for purposes of determining the amount of OID allocable to each accrual period under the rules above, the Note's "yield to maturity" and "qualified stated interest" will generally be determined as though the Note bore interest in all periods at a fixed rate determined at the time of issuance of the Note. Additional rules may apply if interest on a Floating Rate Note is based on more than one interest index. If a Floating Rate Note does not qualify as a "variable rate debt instrument," such Note will be subject to special rules (the "Contingent Payment Regulations") that govern the tax treatment of debt obligations that provide for contingent payments ("Contingent Debt Obligations"). A detailed description of the tax considerations relevant to United States holders of any such Notes will be provided in the applicable Pricing Supplement.

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

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

Premium and Market Discount

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

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

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

Short-Term Notes

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

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

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

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

Index Linked Notes and Other Notes Providing for Contingent Payments

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

Estate and Gift Taxation

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

Information Reporting and Backup Withholding

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

Information with Respect to Foreign Financial Assets

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

Reportable Transactions

A U.S. taxpayer that participates in a "reportable transaction" will be required to disclose its participation to the IRS. The scope and application of these rules is not entirely clear. A United States holder may be required to treat a foreign currency exchange loss from the Foreign Currency Notes as a reportable transaction if the loss exceeds US$50,000 in a single taxable year if the United States holder is an individual or trust, or higher amounts for other United States holders. In the event the acquisition, ownership or disposition of the Foreign Currency Notes constitutes participation in a "reportable transaction" for purposes of these rules, a United States holder will be required to disclose its investment to the IRS, currently on IRS Form 8886. A penalty in the amount of US$10,000 in the case of a natural person and US$50,000 in all other cases is generally imposed on any taxpayer that fails to timely file an information return with the IRS with respect to a transaction resulting in a loss that is treated as a reportable transaction. Prospective investors should consult their own tax advisors regarding the application of these rules to the acquisition, ownership or disposition of the Foreign Currency Notes.

Korean Taxation

The information provided below does not purport to be a complete summary of Korean tax law and practice currently applicable. Prospective investors who are in any doubt as to their tax position should consult with their own professional advisors.

The taxation of non-resident individuals and non-Korean corporations ("Non-Residents") depends on whether they have a "permanent establishment" (as defined under Korean law and applicable tax treaty) in Korea to which the relevant Korean source income is attributable or with which such income is effectively connected. Non-Residents without a permanent establishment in Korea are taxed in the manner described below. Non-Residents with permanent establishments in Korea are taxed in accordance with different rules.

Tax on Interest

Interest on the Notes paid to Non-Residents (except for their permanent establishments in Korea), being foreign currency denominated bonds issued outside Korea, is exempt from income tax and corporation tax (whether payable by withholding or otherwise) pursuant to the Special Tax Treatment Control Law (the "STTCL"). The term "foreign currency denominated bonds" in this context is not defined under the STTCL. In this regard, the Korean tax authority issued a ruling on September 1, 1990 to the effect that "a notes issuance facility, commercial paper issued in U.S. dollars or euros or a banker's acceptance" are not treated as "foreign currency denominated bonds."

If the tax exemption under the STTCL referred to above were to cease to be in effect, the rate of income tax or corporation tax applicable to interest on the Notes for a Non-Resident without a permanent establishment in Korea, would be 14% of income. In addition, a tax surcharge called a local income tax would be imposed at the rate of 10% of the income tax or corporation tax (raising the total tax rate to 15.4%).

The tax rates may be reduced by an applicable tax treaty, convention or agreement between Korea and the country of the recipient of the income. The relevant tax treaties are discussed below.

Index Linked Notes

A detailed description of the tax considerations relevant to Index Linked Notes will be provided in the applicable Pricing Supplement.

Tax on Capital Gains

Korean tax laws currently exclude from Korean taxation gains made by a Non-Resident without a permanent establishment in Korea from the sale of the Notes to other Non-Residents (other than to their permanent establishments in Korea). In addition, capital gains earned by Non-Residents with or without permanent establishments in Korea from the transfer taking place outside Korea of the Notes are currently exempt from taxation by virtue of the STTCL, provided that the issuance of the Notes is deemed to be an overseas issuance denominated in foreign currency under the STTCL.

If the exclusion or exemption from Korean taxation referred to above were to cease to be in effect, in the absence of an applicable tax treaty reducing or eliminating tax on capital gains, the applicable rate of tax would be the lower of 11% (including local income tax) of the gross realization proceeds or (subject to the production of satisfactory evidence of the acquisition cost and certain direct transaction costs of the relevant Note 22% (including local income tax) of the realized gain (i.e., the excess of the gross realization proceeds over the acquisition cost and certain direct transaction costs) made. If such evidence shows that no gain (or a loss) was made on the sale, no Korean tax is payable. There is no provision under relevant Korean law to allow offsetting of gains and losses or otherwise aggregating transactions for the purpose of computing the net gain attributable to sales of the Notes issued by Korean companies. The purchaser or any other designated withholding agent of the Notes is obliged under Korean law to withhold the applicable amount of Korean tax and make payment thereof to the relevant Korean tax authority. Unless the seller can claim the benefit of an exemption from tax under an applicable tax treaty or on the failure of the seller to produce satisfactory evidence of his acquisition cost and certain direct transaction costs in relation to the instruments being sold, the purchaser or such withholding agent must withhold an amount equal to 11% of the gross realization proceeds. Any amounts withheld by the purchaser or such withholding agent must be paid to the competent Korean tax office. The purchaser or withholding agent must pay any withholding tax no later than the tenth day of the month following the month in which the payment for the purchase of the relevant instruments occurred. Failure to transmit the withheld tax to the Korean tax authorities in time subjects the purchaser or such withholding agent to penalties under Korean tax laws. The Korean tax authorities may attempt to collect such tax from a Non-Resident who is liable for payment of any Korean tax on gains, as a purchaser or withholding agent who is obliged to withhold such tax, through proceedings against payments due to the Non-Resident from its Korean investments and the assets or revenues of any of the Non-Resident's branch or representative offices in Korea.

Inheritance Tax and Gift Tax

Korean inheritance tax is imposed upon (a) all assets (wherever located) of the deceased if at the time of his death he was domiciled in Korea or had resided in Korea for at least 183 days immediately prior to his death and (b) all property located in Korea that passes on death (irrespective of the domicile or residence of the deceased). Gift tax is imposed in similar circumstances to the above. The taxes are imposed if the value of the relevant property is above a certain limit and the rate varies from 10% to 50%. At present, Korea has not entered into any tax treaties regarding its inheritance or gift taxes.

Under Korean inheritance and gift tax laws, bonds issued by Korean corporations are deemed located in Korea irrespective of where they are physically located or by whom they are owned, and, consequently, the Korean inheritance and gift taxes may be imposed on transfers of the Notes by inheritance or gift. Prospective purchasers should consult their personal tax advisors regarding the consequences of the imposition of the Korean inheritance or gift tax.

Stamp Duty and Securities Transaction Tax

No stamp, issue or registration duties will be payable in Korea by the holders of the Notes in connection with the issue of the Notes except for a nominal amount of stamp duty on certain documents executed in Korea which will be paid by the Issuer. No securities transaction tax will be imposed upon the transfer of the Notes.

Tax Treaties

At the date of this Offering Circular, Korea has tax treaties with, inter alia, Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Luxembourg, The Netherlands, New Zealand, Norway, Singapore, Sweden, Switzerland, the UK and the United States of America, under which the rate of withholding tax on interest is reduced, generally to between 5 and 16.5% (including local income tax), and the tax on capital gains is often eliminated.

Each holder of the Notes should inquire whether he is entitled to the benefit of a tax treaty with respect to any transaction involving the Notes. It is the responsibility of the party claiming the benefits of a tax treaty in respect of interest payments to file with the payer or the Issuer a certificate as to his residence. In the absence of sufficient proof, the payer or the Issuer must withhold taxes in accordance with the above discussion.

In order to claim the benefit of a tax rate reduction or tax exemption available under the applicable tax treaties, a non-resident holder should submit to the payer of such Korean source income an application (for a reduced withholding tax rate, the "application for entitlement to reduced tax rate," and for an exemption from withholding tax, the "application for exemption" under a tax treaty along with a certificate of the non-resident holder's tax residence issued by a competent authority of the non-resident holder's residence country) as the beneficial owner of such Korean source income ("BO Application"). Such application should be submitted to the withholding agent prior to the payment date of the relevant income. Subject to certain exceptions, where the relevant income is paid to an overseas investment vehicle (which is not the beneficial owner of such income) ("OIV"), a beneficial owner claiming the benefit of an applicable tax treaty with respect to such income must submit its BO Application to such OIV, which must submit an OIV report and a schedule of beneficial owners to the withholding agent prior to the payment date of such income. In the case of a tax exemption application, the withholding agent is required to submit such application (together with the applicable OIV report in the case of income paid to an OIV) to the relevant district tax office by the ninth day of the month following the date of the payment of such income.

Withholding and Gross Up

As mentioned above, interest paid on the Notes is exempt from any withholding or deduction on account of income tax or corporation tax pursuant to the STTCL. However, in the event that the payer or the Issuer is required by law to make any withholding or deduction for or on account of any Korean taxes (as more fully described in "Terms and Conditions of the Notes — Taxation") the Issuer has agreed to pay (subject to the customary exceptions as set out in "Terms and Conditions of the Notes — Taxation") such additional amounts as may be necessary in order that the net amounts received by the Holder of any Note after such withholding or deduction shall equal the respective amounts which would have been received by such holder in the absence of such withholding or deduction.

The Proposed Financial Transaction Tax

The European Commission has published a proposal (the "Commission's Proposal") for a Directive for a common financial transaction tax ("FTT") in Austria, Belgium, Estonia, France, Germany, Greece, Italy, Portugal, Slovakia, Slovenia and Spain (the "participating Member States"). However, Estonia has since stated that it will not participate.

The Commission's Proposal has very broad scope and could, if introduced in its current form, apply to certain dealings in the Notes in certain circumstances.

Under the Commission's Proposal, the FTT could apply in certain circumstances to persons both within and outside of the participating Member States. Generally, it would apply to certain dealings in the Notes where at least one party is a financial institution, and at least one party is established in a participating Member State. A financial institution may be, or be deemed to be, "established" in a participating Member State in a broad range of circumstances, including (a) by transacting with a person established in a participating Member State or (b) where the financial instrument which is subject to the dealings is issued in a participating Member State.

The FTT remains subject to negotiation between participating Member States and the legality of the proposal is uncertain. It may therefore be altered prior to any implementation, the timing of which remains unclear. Additional EU Member States may decide to participate and/or certain of the participating Member States may decide to withdraw.

Prospective holders of the Notes are advised to seek their own professional advice in relation to the FTT.

INDEPENDENT AUDITORS

The consolidated financial statements of the Issuer as of and for the years ended December 31, 2020 and 2019, included in this Offering Circular, have been audited by Ernst & Young Han Young, independent auditors, as stated in their reports appearing herein.

With respect to the unaudited interim consolidated financial statements as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 included in this Offering Circular, Ernst & Young Han Young have reported that they applied limited procedures in accordance with professional standards for a review of such information. However, their separate report appearing herein states that they did not audit and they do not express an opinion on such interim financial information. Accordingly, the degree of reliance on their separate report on such information should be restricted in light of the limited nature of the review procedures applied.

SUBSCRIPTION AND SALE AND TRANSFER AND SELLING RESTRICTIONS

The Dealers have, in an amended and restated program agreement dated September 21, 2015 as further amended and/or supplemented from time to time (the "Program Agreement"), agreed with the Issuer a basis upon which they or any of them may from time to time agree to purchase Notes. Any such agreement will extend to those matters stated under "Form of the Notes" and "Terms and Conditions of the Notes." In the Program Agreement, the Issuer has agreed to reimburse the Dealers for certain of their expenses reasonably and properly incurred in protecting or enforcing any of their rights under the Program Agreement and to indemnify the Dealers against certain liabilities incurred by them.

In order to facilitate the offering of any Tranche of the Notes, certain persons participating in the offering of the Tranche may to the extent permitted by applicable laws and regulations engage in transactions that stabilize, maintain or otherwise affect the market price of the relevant Notes for a limited period after the issue date. Specifically such persons may overallot or create a short position in the Notes for their own account by selling more Notes than have been sold to them by the Issuer. Such persons may also elect to cover any such short position by purchasing Notes in the open market. In addition, such persons may stabilize or maintain the price of the Notes by bidding for or purchasing Notes in the open market and may impose penalty bids, under which selling concessions allowed to syndicate members or other broker-dealers participating in the offering of the Notes are reclaimed if Notes previously distributed in the offering are repurchased in connection with stabilization transactions or otherwise. The effect of these transactions may be to stabilize or maintain the market price of the Notes at a level above that which might otherwise prevail in the open market. The imposition of a penalty bid may also affect the price of the Notes to the extent that it discourages resales thereof. No representation is made as to the magnitude or effect of any such stabilizing or other transactions. Such transactions, if commenced, may be discontinued at any time and must be brought to an end after a limited period.

If a jurisdiction requires that any offering of Notes under the Program be made by a licensed broker or dealer and the Dealers or any affiliate of the Dealers is a licensed broker or dealer in that jurisdiction, the offering shall be deemed to be made by that Dealer or its affiliate on behalf of the Issuer in such jurisdiction.

Certain Relationships

The Dealers and certain of their respective affiliates may have performed certain investment banking, commercial banking and advisory services for the Issuer and its affiliates from time to time for which they have received customary fees and expenses and may, from time to time, engage in transactions with and perform services for the Issuer and its affiliates in the ordinary course of their business. The Dealers or certain of their respective affiliates may purchase the Notes and be allocated the Notes for asset management and/or proprietary purposes but not with a view to distribution.

The Dealers or their respective affiliates may purchase the Notes for their own account and enter into transactions, including credit derivatives, such as asset swaps, repackaging and credit default swaps relating to the Notes and/or other securities of the Issuer or its subsidiaries or associates, at the same time as the offer and sale of the Notes or in secondary market transactions. Such transactions would be carried out as bilateral trades with selected counterparties and separately from any existing sale or resale of the Notes to which this Offering Circular relates (notwithstanding that such selected counterparties may also be purchasers of the Notes).

In addition, in the ordinary course of their business activities, the Dealers and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of the Issuer or its affiliates. The Dealers and their respective affiliates may also make investment recommendations and/or publish or express independent research views with respect to such securities or financial instruments and may hold, or recommend to clients that they acquire long and/or short positions in such securities and instruments.

Transfer Restrictions

As a result of the following restrictions, purchasers of Notes in the United States are advised to consult legal counsel prior to making any purchase, offer, sale, resale or other transfer of such Notes.

Each purchaser of Registered Notes (other than a person purchasing an interest in a Registered Global Note with a view to holding it in the form of an interest in the same Global Note) or person wishing to transfer an interest from one Registered Global Note to another or from global to definitive form or vice versa, will be required to acknowledge, represent and agree as follows (terms used in this paragraph that are defined in Rule 144A or in Regulation S are used herein as defined therein):

(a) that either: (i) it is a QIB, purchasing (or holding) the Notes for its own account or for the account of one or more QIBs and it is aware that any sale to it is being made in reliance on Rule 144A or (ii) it is an Institutional Accredited Investor which has delivered an IAI Investment Letter or (iii) it is outside the United States and is not a U.S. person;

(b) that the Notes are being offered and sold in a transaction not involving a public offering in the United States within the meaning of the Securities Act, and that the Notes have not been and will not be registered under the Securities Act or any other applicable U.S. state securities laws and may not be offered or sold within the United States or to, or for the account or benefit of, U.S. persons except as set forth below;

(c) that, unless it holds an interest in a Regulation S Global Note and either is a person located outside the United States or is not a U.S. person, if in the future it decides to resell, pledge or otherwise transfer the Notes or any beneficial interests in the Notes, it will do so, prior to the date which is one year after the later of the last Issue Date for the Series and the last date on which the Issuer or an affiliate of the Issuer was the owner of such Notes, only (i) to the Issuer or any affiliate thereof, (ii) inside the United States to a person whom the seller reasonably believes is a QIB purchasing for its own account or for the account of a QIB in a transaction meeting the requirements of Rule 144A, (iii) outside the United States in compliance with Rule 903 or Rule 904 under the Securities Act, (iv) pursuant to the exemption from registration provided by Rule 144 under the Securities Act (if available) or (v) pursuant to an effective registration statement under the Securities Act, in each case in accordance with all applicable U.S. state securities laws;

(d) it will, and will require each subsequent holder to, notify any purchaser of the Notes from it of the resale restrictions referred to in paragraph (c) above, if then applicable;

(e) that Notes initially offered in the United States to QIBs will be represented by one or more Rule 144A Global Notes, that Notes offered to Institutional Accredited Investors will be in the form of Definitive IAI Registered Notes and that Notes offered outside the United States in reliance on Regulation S will be represented by one or more Regulation S Global Notes;

(f) that the Notes, other than the Regulation S Global Notes, will bear a legend to the following effect unless otherwise agreed to by the Issuer:

"THIS SECURITY HAS NOT BEEN REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR ANY OTHER APPLICABLE U.S. STATE SECURITIES LAWS AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD WITHIN THE UNITED STATES OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, U.S. PERSONS EXCEPT AS SET FORTH IN THE FOLLOWING SENTENCE. BY ITS ACQUISITION HEREOF, THE HOLDER (A) REPRESENTS THAT (I) IT IS A "QUALIFIED INSTITUTIONAL BUYER" (AS DEFINED IN RULE 144A UNDER THE SECURITIES ACT) PURCHASING THE SECURITIES FOR ITS OWN ACCOUNT OR FOR THE ACCOUNT OF ONE OR MORE QUALIFIED INSTITUTIONAL BUYERS OR (II) IT IS AN INSTITUTIONAL "ACCREDITED INVESTOR" (AS DEFINED IN RULE 501(A)(1), (2), (3) OR (7) UNDER THE SECURITIES ACT) (AN "INSTITUTIONAL ACCREDITED INVESTOR"); (B) AGREES THAT IT WILL NOT RESELL OR OTHERWISE TRANSFER THE SECURITIES EXCEPT IN ACCORDANCE WITH THE AGENCY AGREEMENT AND, PRIOR TO THE DATE WHICH IS ONE YEAR AFTER THE LATER OF THE LAST ISSUE DATE FOR THE SERIES AND THE LAST DATE ON WHICH THE ISSUER OR AN AFFILIATE OF THE ISSUER WAS THE OWNER OF SUCH SECURITIES OTHER THAN (I) TO THE ISSUER OR ANY AFFILIATE THEREOF, (II) INSIDE THE UNITED STATES TO A PERSON WHOM THE SELLER REASONABLY BELIEVES IS A QUALIFIED INSTITUTIONAL BUYER WITHIN THE MEANING OF RULE 144A UNDER THE SECURITIES ACT PURCHASING FOR ITS OWN ACCOUNT OR FOR THE ACCOUNT OF A QUALIFIED INSTITUTIONAL BUYER IN A TRANSACTION MEETING THE REQUIREMENTS OF RULE 144A, (III) OUTSIDE THE UNITED STATES IN COMPLIANCE WITH RULE 903 OR RULE 904 UNDER THE SECURITIES ACT, (IV)

PURSUANT TO THE EXEMPTION FROM REGISTRATION PROVIDED BY RULE 144 UNDER THE SECURITIES ACT (IF AVAILABLE) OR (V) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT, IN EACH CASE IN ACCORDANCE WITH ALL APPLICABLE SECURITIES LAWS OF THE STATES OF THE UNITED STATES AND ANY OTHER JURISDICTION; AND (C) IT AGREES THAT IT WILL DELIVER TO EACH PERSON TO WHOM THIS SECURITY IS TRANSFERRED A NOTICE SUBSTANTIALLY TO THE EFFECT OF THIS LEGEND.

THIS SECURITY AND RELATED DOCUMENTATION (INCLUDING, WITHOUT LIMITATION, THE AGENCY AGREEMENT REFERRED TO HEREIN) MAY BE AMENDED OR SUPPLEMENTED FROM TIME TO TIME, WITHOUT THE CONSENT OF, BUT UPON NOTICE TO, THE HOLDERS OF SUCH SECURITIES SENT TO THEIR REGISTERED ADDRESSES, TO MODIFY THE RESTRICTIONS ON AND PROCEDURES FOR RESALES AND OTHER TRANSFERS OF THIS SECURITY TO REFLECT ANY CHANGE IN APPLICABLE LAW OR REGULATION (OR THE INTERPRETATION THEREOF) OR IN PRACTICES RELATING TO RESALES OR OTHER TRANSFERS OF RESTRICTED SECURITIES GENERALLY. THE HOLDER OF THIS SECURITY SHALL BE DEEMED, BY ITS ACCEPTANCE OR PURCHASE HEREOF, TO HAVE AGREED TO ANY SUCH AMENDMENT OR SUPPLEMENT (EACH OF WHICH SHALL BE CONCLUSIVE AND BINDING ON THE HOLDER HEREOF AND ALL FUTURE HOLDERS OF THIS SECURITY AND ANY SECURITIES ISSUED IN EXCHANGE OR SUBSTITUTION THEREFOR, WHETHER OR NOT ANY NOTATION THEREOF IS MADE HEREON).";

(g) if it is outside the United States and is not a U.S. person, that if it should resell or otherwise transfer the Notes prior to the expiration of the distribution compliance period (defined as 40 days after the later of the commencement of the offering and the closing date with respect to the original issuance of the Notes), it will do so only (i)(A) outside the United States in compliance with Rule 903 or 904 under the Securities Act or (B) to a QIB in compliance with Rule 144A and (ii) in accordance with all applicable U.S. state securities laws; and it acknowledges that the Regulation S Global Notes will bear a legend to the following effect unless otherwise agreed to by the Issuer:

"THIS SECURITY HAS NOT BEEN AND WILL NOT BE REGISTERED UNDER THE U.S. SECURITIES ACT OF 1933, AS AMENDED (THE "SECURITIES ACT"), OR ANY OTHER APPLICABLE U.S. STATE SECURITIES LAWS AND, ACCORDINGLY, MAY NOT BE OFFERED OR SOLD WITHIN THE UNITED STATES OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, U.S. PERSONS EXCEPT IN ACCORDANCE WITH THE AGENCY AGREEMENT AND PURSUANT TO AN EXEMPTION FROM REGISTRATION UNDER THE SECURITIES ACT OR PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT. THIS LEGEND SHALL CEASE TO APPLY UPON THE EXPIRY OF THE PERIOD OF 40 DAYS AFTER THE COMPLETION OF THE DISTRIBUTION OF ALL THE NOTES OF THE TRANCHE OF WHICH THIS NOTE FORMS PART."; and

(h) that the Issuer and others will rely upon the truth and accuracy of the foregoing acknowledgements, representations and agreements and agrees that if any of such acknowledgements, representations or agreements made by it are no longer accurate, it shall promptly notify the Issuer; and if it is acquiring any Notes as a fiduciary or agent for one or more accounts it represents that it has sole investment discretion with respect to each such account and that it has full power to make the foregoing acknowledgements, representations and agreements on behalf of each such account.

Institutional Accredited Investors who purchase Registered Notes in definitive form offered and sold in the United States in reliance upon the exemption from registration provided by Regulation D of the Securities Act are required to execute and deliver to the Registrar an IAI Investment Letter. Upon execution and delivery of an IAI Investment Letter by an Institutional Accredited Investor, Notes will be issued in definitive registered form, see "Form of the Notes."

The IAI Investment Letter will state, among other things, the following:

(a) that the Institutional Accredited Investor has received a copy of the Offering Circular and such other information as it deems necessary in order to make its investment decision;

(b) that the Institutional Accredited Investor understands that any subsequent transfer of the Notes is subject to certain restrictions and conditions set forth in the Offering Circular and the Notes (including those set out above) and that it agrees to be bound by, and not to resell, pledge or otherwise transfer the Notes except in compliance with, such restrictions and conditions and the Securities Act;

(c) that, in the normal course of its business, the Institutional Accredited Investor invests in or purchases securities similar to the Notes;

(d) that the Institutional Accredited Investor is an Institutional Accredited Investor within the meaning of Rule 501(a)(1), (2), (3) or (7) of Regulation D under the Securities Act and has such knowledge and experience in financial and business matters as to be capable of evaluating the merits and risks of its investment in the Notes, and it and any accounts for which it is acting are each able to bear the economic risk of its or any such accounts' investment for an indefinite period of time;

(e) that the Institutional Accredited Investor is acquiring the Notes purchased by it for its own account or for one or more accounts (each of which is an Institutional Accredited Investor) as to each of which it exercises sole investment discretion and not with a view to any distribution of the Notes, subject, nevertheless, to the understanding that the disposition of its property shall at all times be and remain within its control; and

(f) that, in the event that the Institutional Accredited Investor purchases Notes, it will acquire Notes having a minimum purchase price of at least U.S.$250,000 (or the approximate equivalent in another Specified Currency).

No sale of Legended Notes in the United States to any one purchaser will be for less than U.S.$100,000 (or its foreign currency equivalent) principal amount or, in the case of sales to Institutional Accredited Investors, U.S.$250,000 (or its foreign currency equivalent) principal amount and no Legended Note will be issued in connection with such a sale in a smaller principal amount. If the purchaser is a non-bank fiduciary acting on behalf of others, each person for whom it is acting must purchase at least U.S.$100,000 (or its foreign currency equivalent) or, in the case of sales to Institutional Accredited Investors, U.S.$250,000 (or its foreign currency equivalent) principal amount of Registered Notes.

Selling Restrictions

United States of America

The Notes have not been and will not be registered under the Securities Act and may not be offered or sold within the United States or to, or for the account or benefit of, U.S. persons except in certain transactions exempt from the registration requirements of the Securities Act.

The Notes in bearer form are subject to U.S. tax law requirements and may not be offered, sold or delivered within the United States or its possessions or to a United States person, except in certain transactions permitted by U.S. tax regulations. Terms used in this paragraph have the meanings given to them by the U.S. Internal Revenue Code of 1986 and regulations thereunder.

In connection with any Notes which are offered or sold outside the United States in reliance on an exemption from the registration requirements of the Securities Act provided under Regulation S ("Regulation S Notes"), each Dealer has represented, warranted and agreed, and each further Dealer appointed under the Program will be required to represent, warrant and agree, that it will not offer, sell or deliver such Notes (i) as part of their distribution at any time or (ii) otherwise until 40 days after the completion of the distribution, as determined and certified by the relevant Dealer or, in the case of an issue of Notes on a syndicated basis, the relevant lead manager, of all Notes of the Tranche of which such Regulation S Notes are a part, within the United States or to, or for the account or benefit of, U.S. persons. Each Dealer has further agreed, and each further Dealer appointed under the Program will be required to agree, that it will send to each dealer to which it sells any Regulation S Notes during the distribution compliance period a confirmation or other notice setting forth the restrictions on offers and sales of the Regulation S Notes within the United States or to, or for the account or benefit of, U.S. persons.

Until 40 days after the commencement of the offering of any Series of Notes, an offer or sale of such Notes within the United States by any dealer (whether or not participating in the offering) may violate the registration requirements of the Securities Act if such offer or sale is made otherwise than in accordance with an available exemption from registration under the Securities Act.

Dealers may arrange for the resale of Notes to QIBs pursuant to Rule 144A and each such purchaser of Notes is hereby notified that the Dealers may be relying on the exemption from the registration requirements of the Securities Act provided by Rule 144A. The minimum aggregate principal amount of Notes that may be purchased by a QIB pursuant to Rule 144A is U.S.$100,000 (or the approximate equivalent thereof in any other currency). To the extent that the Issuer is not subject to or does not comply with the reporting requirements of Section 13 or 15(d) of the Exchange Act or the information furnishing requirements of Rule 12g3-2(b) thereunder, the Issuer has agreed to furnish to holders of Notes and to prospective purchasers designated by such holders, upon request, such information as may be required by Rule 144A(d)(4).

Each issuance of Index Linked Notes or Dual Currency Notes shall be subject to such additional U.S. selling restrictions as the Issuer and the relevant Dealer may agree as a term of the issuance and purchase of such Notes, which additional selling restrictions shall be set out in the applicable Pricing Supplement.

European Economic Area

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

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

Unless the final terms (or Pricing Supplement, as the case may be) in respect of any Series of Notes specifies "Prohibition of Sales to EEA Retail Investors" as "Not Applicable", each Dealer has represented and agreed, and each further Dealer appointed under the Program will be required to represent and agree, that it has not offered, sold or otherwise made available and will not offer, sell or otherwise make available any Notes which are the subject of the offering contemplated by this Offering Circular as completed by the final terms (or Pricing Supplement, as the case may be) in relation thereto to any retail investor in the EEA. For the purposes of this provision: (a) the expression "retail investor" means a person who is one (or more) of the following: (i) a retail client as defined in point (11) of Article 4(1) of MiFID II; (ii) a customer within the meaning of Directive (EU) 2016/97 (the "Insurance Distribution Directive"), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (iii) not a qualified investor as defined in the Prospectus Regulation; and (b) the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes.

If the final terms (or Pricing Supplement, as the case may be) in respect of any Notes specifies the "Prohibition of sales to EEA retail investors" as "Not Applicable", in relation to each Member State of the EEA, each Dealer has represented and agreed, and each further Dealer appointed under the Program will be required to represent and agree, that it has not made and will not make an offer of Notes which are the subject of the offering contemplated by this Offering Circular, as completed by the final terms in relation thereto, to the public in that Member State except that it may make an offer of such Notes to the public in that Member State:

(a) if the final terms in relation to the Notes specify that an offer of those Notes may be made other than pursuant to Article 1(4) of the Prospectus Regulation in that Member State (a "Non-exempt Offer"), following the date of publication of a prospectus in relation to such Notes which has been approved by the competent authority in that Member State or, where appropriate, approved in another Member State and notified to the competent authority in that Member State, provided that any such prospectus has subsequently been completed by the final terms contemplating such Non-exempt Offer, in accordance with the Prospectus Regulation in the period beginning and ending on the dates specified in such prospectus or final terms, as applicable, and the Issuer has consented in writing to its use for the purpose of that Non-exempt Offer;

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

(c) subject to any other restriction and obtaining the prior consent of the relevant Dealer or Dealers nominated by the Issuer for any such offer, at any time to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Regulation); or

(d) at any time in any other circumstances falling within Article 1(4) of the Prospectus Regulation;

provided that no such offer of Notes referred to in (b) to (d) above shall require the Issuer or any Dealer to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation.

For the purposes of this provision, the expression an "offer of Notes to the public" in relation to any Notes in any Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes, and the expression "Prospectus Regulation" means Regulation (EU) 2017/1129.

The EEA selling restrictions described above are in addition to any other applicable selling restriction set out below.

United Kingdom

The final terms (or Pricing Supplement, as the case may be) in respect of any Series of Notes may include 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 Pricing Supplement, as the case may be) in respect of any Series of Notes specifies "Prohibition of Sales to UK Retail Investors" as "Not Applicable", each Dealer has represented and agreed, and each further Dealer appointed under the Program will be required to represent and agree, that it has not offered, sold or otherwise made available and will not offer, sell or otherwise make available any Notes which are the subject of the offering contemplated by this Offering Circular as completed by the final terms (or Pricing Supplement, as the case may be) in relation thereto to any retail investor in the UK. For the purposes of this provision: (a) the expression "retail investor" means a person who is one (or more) of the following: (i) a retail client as defined in point (8) of Article 2 of Regulation (EU) No 2017/565 as it forms part of domestic law by virtue of the EUWA; (ii) a customer within the meaning of the FSMA and any rules or regulations made under the FSMA to implement the Insurance Distribution Directive, where that customer would not qualify as a professional client as defined in point (8) of Article 2(1) of Regulation (EU) No 600/2014 as it forms part of domestic law by virtue of the EUWA; or (iii) not a qualified investor as defined in Article 2 of the UK Prospectus Regulation; and (b) the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes.

If the final terms (or Pricing Supplement, as the case may be) in respect of any Notes specifies the "Prohibition of sales to UK retail investors" as "Not Applicable", in relation to the UK, each Dealer has represented and agreed, and each further Dealer appointed under the Program will be required to represent and agree, that it has not made and will not make an offer of Notes which are the subject of the offering contemplated by this Offering Circular, as completed by the final terms in relation thereto, to the public in the UK except that it may make an offer of such Notes to the public in the UK:

(a) if the final terms in relation to the Notes specify that an offer of those Notes may be made other than pursuant to section 86 of the FSMA (a "Public Offer"), following the date of publication of a prospectus in relation to such Notes which either (i) has been approved by the Financial Conduct Authority, or (ii) is to be treated as if it had been approved by the Financial Conduct Authority in accordance with the transitional provision in Regulation 74 of the Prospectus (Amendment etc.) (EU Exit) Regulations 2019, provided that any such prospectus has subsequently been completed by the final terms contemplating such Public Offer, in the period beginning and ending on the dates specified in such prospectus or final terms, as applicable, and the Issuer has consented in writing to its use for the purpose of that Public Offer;

(b) at any time to any legal entity which is a qualified investor as defined in Article 2 of the UK Prospectus Regulation;

(c) at any time to fewer than 150 natural or legal persons (other than qualified investors as defined in Article 2 of the UK Prospectus Regulation) in the UK subject to obtaining the prior consent of the relevant Dealer or Dealers nominated by the Issuer for any such offer; or

(d) at any time in any other circumstances falling within section 86 of the FSMA;

provided that no such offer of Notes referred to in (b) to (d) above shall require the Issuer or any Dealer to publish a prospectus pursuant to section 85 of the FSMA or supplement a prospectus pursuant to Article 23 of the UK Prospectus Regulation.

For the purposes of this provision, the expression an "offer of Notes to the public" in relation to any Notes means the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes, and the expression "UK Prospectus Regulation" means Regulation (EU) 2017/1129 as it forms part of domestic law by virtue of the EUWA.

Each Dealer has represented, warranted and agreed, and each further Dealer appointed under the Program will be required to represent, warrant and agree that:

(a) in relation to any Notes having a maturity of less than one year, (i) it is a person whose ordinary activities involve it in acquiring, holding, managing or disposing of investments (as principal or agent) for the purposes of its business and (ii) it has not offered or sold and will not offer or sell any Notes other than to persons whose ordinary activities involve them in acquiring, holding, managing or disposing of investments (as principal or as agent) for the purposes of their businesses or who it is reasonable to expect will acquire, hold, manage or dispose of investments (as principal or agent) for the purposes of their businesses where the issue of the Notes would otherwise constitute a contravention of Section 19 of the FSMA by the Issuer; and

(b) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the FSMA) received by it in connection with the issue or sale of any Notes in circumstances in which Section 21(1) of the FSMA would not, if the Issuer was not an authorised person, apply to the Issuer; and

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

The UK selling restrictions described above are in addition to any other applicable selling restriction set out below.

Japan

The Notes have not been and will not be registered under the Financial Instruments and Exchange Act of Japan (Act No. 25 of 1948, as amended, the "Financial Instruments and Exchange Act"). Accordingly, each Initial Purchaser has represented and agreed that it has not, directly or indirectly, offered or sold and will not, directly or indirectly, offer or sell any Notes in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan) or to others for re-offering or re-sale, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Act and other relevant laws and regulations of Japan.

Hong Kong

Each Dealer has represented, warranted and agreed and each further Dealer appointed under the Program will be required to represent, warrant and agree that:

(a) it has not offered or sold and will not offer or sell in Hong Kong, by means of any document, any Notes other than (i) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong (the "SFO") and any rules made under the SFO; or (ii) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong (the "C(WUMP)O"); and

(b) it has not issued or had in its possession for the purposes of issue, and will not issue or have in its possession for the purposes of issue, whether in Hong Kong or elsewhere, any advertisement, invitation or document relating to the Notes, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to the Notes which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the SFO and any rules made under the SFO.

Singapore

Each Dealer has acknowledged, and each further Dealer appointed under the Program will be required to acknowledge, that this Offering Circular has not been and will not be registered as a prospectus with the Monetary Authority of Singapore under the Securities and Futures Act, Chapter 289 of Singapore (the "SFA"). Accordingly, each Dealer has represented and agreed that it has not offered or sold any Notes or caused the Notes to be made the subject of an invitation for subscription or purchase and will not offer

or sell any Notes or cause the Notes to be made the subject of an invitation for subscription or purchase, and has not circulated or distributed, nor will it circulate or distribute, this Offering Circular or any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the Notes, whether directly or indirectly, to any person in Singapore other than (i) to an institutional investor under Section 274 of the SFA; (ii) to a relevant person pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA and (where applicable) Regulation 3 of the Securities and Futures (Classes of Investors) Regulations 2018 of Singapore; or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the Notes are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

(a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(b) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities or securities-based derivatives contracts (each term as defined in the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the Notes pursuant to an offer made under Section 275 of the SFA except:

(i) to an institutional investor or to a relevant person defined in Section 275(2) of the SFA or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

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

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

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

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

Korea

The Notes have not been and will not be registered with the Financial Services Commission under the Financial Investment Services and Capital Markets Act of Korea. Accordingly, each Dealer has represented, warranted and agreed, and each further Dealer appointed under the Program will be required to represent, warrant and agree, that Notes have not been offered, sold or delivered, and will not be offered, sold or delivered, directly or indirectly, to, or for the account or benefit of, any resident of Korea (as defined under the Foreign Exchange Transactions Law of Korea and the regulations thereunder), or to others for re-offering or resale directly or indirectly in Korea, to, or for the account or benefit of, any resident of Korea, except as otherwise permitted under applicable Korean laws and regulations.

Switzerland

This Offering Circular is not intended to constitute an offer or solicitation to purchase or invest in the Notes described herein. The Notes may not be publicly offered, sold or advertised, directly or indirectly, in, into or from Switzerland, and will not be listed on SIX Swiss Exchange ("SIX") or on any other exchange or regulated trading facility in Switzerland. Neither this Offering Circular nor any other offering or marketing material relating to the Notes constitutes a prospectus as such term is understood pursuant to article 652a or article 1156 of the Swiss Code of Obligations or a listing prospectus within the meaning of the listing rules of the SIX or any other regulated trading facility in Switzerland or a simplified prospectus or a prospectus as such term is defined in the Swiss Collective Investment Scheme Act, and neither this offering circular nor any other offering or marketing material relating to the Notes may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this offering circular nor any other offering or marketing material relating to the offering, nor the Company or the Notes have been or will be filed with or approved by any Swiss regulatory authority. The Notes are not subject to the supervision by any Swiss regulatory authority, e.g., the Swiss Financial Markets Supervisory Authority ("FINMA"), and investors in the Notes will not benefit from protection or supervision by such authority.

General

Each Dealer has agreed and each further Dealer appointed under the Program will be required to agree that it will (to the best of its knowledge and belief) comply with all applicable securities laws and regulations in force in any jurisdiction in which it purchases, offers, sells or delivers Notes or possesses or distributes the Offering Circular and will obtain any consent, approval or permission required by it for the purchase, offer, sale or delivery by it of Notes under the laws and regulations in force in any jurisdiction to which it is subject or in which it makes such purchases, offers, sales or deliveries and neither the Issuer nor any other Dealer shall have any responsibility therefor.

Neither the Issuer nor any of the Dealers represents that Notes may at any time lawfully be sold in compliance with any applicable registration or other requirements in any jurisdiction, or pursuant to any exemption available thereunder, or assumes any responsibility for facilitating any such sale.

With regard to each Tranche, the relevant Dealer will be required to comply with such other additional restrictions as the Issuer and the relevant Dealer shall agree and as shall be set out in the applicable Pricing Supplement.

BOOK-ENTRY CLEARANCE SYSTEMS

The information set out below is subject to any change in or reinterpretation of the rules, regulations and procedures of DTC, Euroclear or Clearstream (together, the "Clearing Systems") currently in effect. The information in this section concerning the Clearing Systems has been obtained from sources that the Issuer believes to be reliable, but none of the Issuer nor any Dealer takes any responsibility for the accuracy thereof. Investors wishing to use the facilities of any of the Clearing Systems are advised to confirm the continued applicability of the rules, regulations and procedures of the relevant Clearing System. None of the Issuer nor any other party to the Agency Agreement will have any responsibility or liability for any aspect of the records relating to, or payments made on account of, beneficial ownership interests in the Notes held through the facilities of any Clearing System or for maintaining, supervising or reviewing any records relating to such beneficial ownership interests.

Book-entry Systems

DTC

DTC has advised the Issuer that it is a limited purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a "clearing corporation" within the meaning of the New York Uniform Commercial Code and a "clearing agency" registered pursuant to Section 17A of the Exchange Act. DTC holds securities that its participants ("Participants") deposit with DTC. DTC also facilitates the settlement among Participants of securities transactions, such as transfers and pledges, in deposited securities through electronic computerized book-entry changes in Participants' accounts, thereby eliminating the need for physical movement of securities certificates. Direct Participants include securities brokers and dealers, banks, trust companies, clearing corporations and certain other organizations. Access to the DTC System is also available to others such as securities brokers and dealers, banks and trust companies that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly ("Indirect Participants").

Under the rules, regulations and procedures creating and affecting DTC and its operations (the "Rules"), DTC makes book-entry transfers of Registered Notes among Direct Participants on whose behalf it acts with respect to Notes accepted into DTC's book-entry settlement system ("DTC Notes") as described below and receives and transmits distributions of principal and interest on DTC Notes. The Rules are on file with the Securities and Exchange Commission. Direct Participants and Indirect Participants with which beneficial owners of DTC Notes ("Owners") have accounts with respect to the DTC Notes similarly are required to make book-entry transfers and receive and transmit such payments on behalf of their respective Owners. Accordingly, although Owners who hold DTC Notes through Direct Participants or Indirect Participants will not possess Registered Notes, the Rules, by virtue of the requirements described above, provide a mechanism by which Direct Participants will receive payments and will be able to transfer their interest in respect of the DTC Notes.

Purchases of DTC Notes under the DTC system must be made by or through Direct Participants, which will receive a credit for the DTC Notes on DTC's records. The ownership interest of each actual purchaser of each DTC Note ("Beneficial Owner") is in turn to be recorded on the Direct and Indirect Participant's records. Beneficial Owners will not receive written confirmation from DTC of their purchase, but Beneficial Owners are expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owner entered into the transaction. Transfers of ownership interests in the DTC Notes are to be accomplished by entries made on the books of Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in DTC Notes, except in the event that use of the book-entry system for the DTC Notes is discontinued.

To facilitate subsequent transfers, all DTC Notes deposited by Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co. The deposit of DTC Notes with DTC and their registration in the name of Cede & Co. effect no change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the DTC Notes; DTC's records reflect only the identity of the Direct Participants to whose accounts such DTC Notes are credited, which may or may not be the Beneficial Owners. The Participants will remain responsible for keeping account of their holdings on behalf of their customers.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time.

Redemption notices shall be sent to Cede & Co. If less than all of the DTC Notes within an issue are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such issue to be redeemed.

Neither DTC nor Cede & Co. will consent or vote with respect to DTC Notes. Under its usual procedures, DTC mails an Omnibus Proxy to the Issuer as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the DTC Notes are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal and interest payments on the DTC Notes will be made to DTC. DTC's practice is to credit Direct Participants' accounts on the due date for payment in accordance with their respective holdings shown on DTC's records unless DTC has reason to believe that it will not receive payment on the due date. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participant and not of DTC or the Issuer, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of principal and interest to DTC is the responsibility of the Issuer, disbursement of such payments to Direct Participants is the responsibility of DTC, and disbursement of such payments to the Beneficial Owners is the responsibility of Direct and Indirect Participants.

Under certain circumstances, including if there is an Event of Default under the Notes, DTC will exchange the DTC Notes for definitive Registered Notes, which it will distribute to its Participants in accordance with their proportionate entitlements and which, if representing interests in a Rule 144A Global Note, will be legended as set forth under "Subscription and Sale and Transfer and Selling Restrictions."

Since DTC may only act on behalf of Direct Participants, who in turn act on behalf of Indirect Participants, any Owner desiring to pledge DTC Notes to persons or entities that do not participate in DTC, or otherwise take actions with respect to such DTC Notes, will be required to withdraw its Registered Notes from DTC as described below.

Euroclear and Clearstream

Euroclear and Clearstream each holds securities for its customers and facilitates the clearance and settlement of securities transactions by electronic book-entry transfer between their respective account holders. Euroclear and Clearstream provide various services including safekeeping, administration, clearance and settlement of internationally traded securities and securities lending and borrowing. Euroclear and Clearstream also deal with domestic securities markets in several countries through established depository and custodial relationships. Euroclear and Clearstream have established an electronic bridge between their two systems across which their respective participants may settle trades with each other. Euroclear and Clearstream customers are worldwide financial institutions, including underwriters, securities brokers and dealers, banks, trust companies and clearing corporations. Indirect access to Euroclear and Clearstream is available to other institutions that clear through or maintain a custodial relationship with an account holder of either system.

Book-entry Ownership of and Payments in respect of DTC Notes

The Issuer may apply to DTC in order to have any Tranche of Notes represented by a Registered Global Note accepted in its book-entry settlement system. Upon the issue of any such Registered Global Note, DTC or its custodian will credit, on its internal book-entry system, the respective nominal amounts of the individual beneficial interests represented by such Registered Global Note to the accounts of persons who have accounts with DTC. Such accounts initially will be designated by or on behalf of the relevant Dealer. Ownership of beneficial interests in such a Registered Global Note will be limited to Direct Participants or Indirect Participants, including, in the case of any Regulation S Global Note, the respective depositaries of Euroclear and Clearstream. Ownership of beneficial interests in a Registered Global Note accepted by DTC will be shown on, and the transfer of such ownership will be effected only through, records maintained by DTC or its nominee (with respect to the interests of Direct Participants) and the records of Direct Participants (with respect to interests of Indirect Participants).

Payments in U.S. dollars of principal and interest in respect of a Registered Global Note accepted by DTC will be made to the order of DTC or its nominee as the registered holder of such Note. In the case of any payment in a currency other than U.S. dollars, payment will be made to the Exchange Agent on behalf of DTC or its nominee and the Exchange Agent will (in accordance with instructions received by it) remit all or a portion of such payment for credit directly to the beneficial holders of interests in the Registered Global Note in the currency in which such payment was made and/or cause all or a portion of such payment to be converted into U.S. dollars and credited to the applicable Participants' account.

The Issuer expects DTC to credit accounts of Direct Participants on the applicable payment date in accordance with their respective holdings as shown in the records of DTC unless DTC has reason to believe that it will not receive payment on such payment date. The Issuer also expects that payments by Participants to beneficial owners of Notes will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers, and will be the responsibility of such Participant and not the responsibility of DTC, the Principal Paying Agent, the Registrar or the Issuer. Payment of principal, premium, if any, and interest, if any, on Notes to DTC are the responsibility of the Issuer.

Transfers of Notes Represented by Registered Global Notes

Transfers of any interests in Notes represented by a Registered Global Note within DTC, Euroclear and Clearstream will be effected in accordance with the customary rules and operating procedures of the relevant clearing system. The laws in some States within the United States require that certain persons take physical delivery of securities in definitive form. Consequently, the ability to transfer Notes represented by a Registered Global Note to such persons may depend upon the ability to exchange such Notes for Notes in definitive form. Similarly, because DTC can only act on behalf of Direct Participants in the DTC system who in turn act on behalf of Indirect Participants, the ability of a person having an interest in Notes represented by a Registered Global Note accepted by DTC to pledge such Notes to persons or entities that do not participate in the DTC system or otherwise to take action in respect of such Notes may depend upon the ability to exchange such Notes for Notes in definitive form. The ability of any holder of Notes represented by a Registered Global Note accepted by DTC to resell, pledge or otherwise transfer such Notes may be impaired if the proposed transferee of such Notes is not eligible to hold such Notes through a direct or indirect participant in the DTC system.

Subject to compliance with the transfer restrictions applicable to the Registered Notes described under "Subscription and Sale and Transfer and Selling Restrictions," cross-market transfers between DTC, on the one hand, and directly or indirectly through Clearstream or Euroclear accountholders, on the other, will be effected by the relevant clearing system in accordance with its rules and through action taken by the Registrar, the Principal Paying Agent and any custodian ("Custodian") with whom the relevant Registered Global Notes have been deposited.

On or after the Issue Date for any Series, transfers of Notes of such Series between accountholders in Clearstream and Euroclear and transfers of Notes of such Series between participants in DTC will generally have a settlement date three business days after the trade date (T+3). The customary arrangements for delivery versus payment will apply to such transfers.

Cross-market transfers between accountholders in Clearstream or Euroclear and DTC participants will need to have an agreed settlement date between the parties to such transfer. Because there is no direct link between DTC, on the one hand, and Clearstream and Euroclear, on the other, transfers of interests in the relevant Registered Global Notes will be effected through the Registrar, the Principal Paying Agent and the Custodian receiving instructions (and, where appropriate, certification) from the transferor and arranging for delivery of the interests being transferred to the credit of the designated account for the transferee. In the case of cross-market transfers, settlement between Euroclear or Clearstream accountholders and DTC participants cannot be made on a delivery versus payment basis. The securities will be delivered on a free delivery basis and arrangements for payment must be made separately.

DTC, Clearstream and Euroclear have each published rules and operating procedures designed to facilitate transfers of beneficial interests in Registered Global Notes among participants and accountholders of DTC, Clearstream and Euroclear. However, they are under no obligation to perform or continue to perform such procedures, and such procedures may be discontinued or changed at any time. None of the Issuer, the Agents or any Dealer will be responsible for any performance by DTC, Clearstream or Euroclear or their respective direct or indirect participants or accountholders of their respective obligations under the rules and procedures governing their operations and none of them will have any liability for any aspect of the records relating to or payments made on account of beneficial interests in the Notes represented by Registered Global Notes or for maintaining, supervising or reviewing any records relating to such beneficial interests.

GENERAL INFORMATION

Authorization and Regulatory Issues

The establishment of the Program and the issue of the Notes hereunder has been duly authorized by a resolution of the Board of Directors of the Issuer dated August 26, 2010. Each issue of Notes under the Program will be authorized by the Board of Directors of the Issuer at the time of issuance.

Documents Available

So long as Notes are capable of being issued under the Program, copies of the following documents will, when published, be available free of charge from the registered office of the Issuer and from the principal office of the Principal Paying Agent for the time being in London.

(i) the constitutional documents (with an English translation thereof) of the Issuer;

(ii) the consolidated audited financial statements of the Issuer in respect of the years ended December 31, 2020 and 2019 (in English);

(iii) the unaudited interim consolidated financial statements of the Issuer as of September 30, 2021 and for the nine-month periods ended September 30, 2021 and 2020 (in English);

(iv) the most recently published audited annual consolidated financial statements of the Issuer and the most recently published unaudited interim consolidated financial statements of the Issuer;

(v) the Program Agreement, the Agency Agreement, the Deed Poll, the Deed of Covenant and the forms of the Global Notes, the Notes in definitive form, the Receipts, the Coupons and the Talons;

(vi) a copy of this Offering Circular; and

(vii) any future offering circulars, prospectuses, information memoranda and supplements including Pricing Supplements (save that a Pricing Supplement relating to an unlisted Note will only be available for inspection by a holder of such Note and such holder must produce evidence satisfactory to the Paying Agent as to its holding of Notes and identity) to this Offering Circular and any other documents incorporated herein or therein by reference.

Clearing Systems

The Notes have been accepted for clearance through Euroclear and Clearstream. The appropriate Common Code and ISIN for each Tranche of Notes allocated by Euroclear and Clearstream will be specified in the applicable Pricing Supplement. If the Notes are to clear through an additional or alternative clearing system the appropriate information will be specified in the applicable Pricing Supplement.

Significant or Material Change

Save as disclosed in the Offering Circular, there has been no significant change in the financial or trading position of the Issuer and its subsidiaries taken as a whole since September 30, 2021 and there has been no material adverse change in the financial position or prospects of the Issuer and its subsidiaries taken as a whole since September 30, 2021.

Litigation

Save as disclosed in the Offering Circular, the Issuer is not involved in any legal, arbitration, administrative or other proceedings (including any proceedings which are pending or threatened of which the Issuer is aware) which may have or have had in the 12 months preceding the date of this document a significant effect on the financial position of the Issuer and its subsidiaries taken as a whole.

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EY 한영
Building a better working world

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Report on review of interim consolidated financial statements

The Shareholder and Board of Directors
Korea National Oil Corporation

We have reviewed the accompanying interim consolidated financial statements of Korea National Oil Corporation (the "Company") and its subsidiaries (collectively referred to as the "Group"), which comprise the interim consolidated statement of financial position as of September 30, 2021, and the related interim consolidated statements of comprehensive loss for the three-month and nine-month periods ended September 30, 2021 and 2020, interim consolidated statements of changes in equity and interim consolidated statements of cash flows for the nine-month periods then ended, and a summary of significant accounting policies and other explanatory information.

Management's responsibility for the interim consolidated financial statements
Management is responsible for the preparation and fair presentation of these interim consolidated financial statements in accordance with Korean International Financial Reporting Standards ("KIFRS") 1034 *Interim Financial Reporting,* and for such internal control as management determines is necessary to enable the preparation of the interim 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 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, it does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

Conclusion
Based on our review, nothing has come to our attention that causes us to believe that the accompanying interim consolidated financial statements are not prepared, in all material respects, in accordance with KIFRS 1034 *Interim Financial Reporting*.

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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 loss, consolidated statement of changes in equity and consolidated statement of cash flows for the year then ended (not presented herein) in accordance with KGAAS, and our report dated February 26, 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

November 26, 2021

This review report is effective as of November 26, 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 consolidated financial statements and may result in modifications to this review report.

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Korea National Oil Corporation and its subsidiaries

Interim Consolidated Statements of Financial Position

As of September 30, 2021 and December 31, 2020

(In thousands of Korean won)	Notes		September 30,2021 (Unaudited)		December 31,2020 (Audited)
Assets					
Current assets					
Cash and cash equivalents	24,25	₩	915,276,087	₩	796,778,899
Current financial assets	24,25,26		693,194,171		617,848,650
Trade and other receivables, net	24,25		549,216,509		433,709,955
Inventories, net			91,768,134		92,710,196
Current tax assets			36,957,175		17,302,154
Current non-financial assets	4		85,737,360		74,454,261
Assets held for sale			-		2,565,849
			2,372,149,436		2,035,369,964
Non-current assets					
Non-current financial assets, net	24,25,26		1,015,421,172		920,401,331
Long-term trade and other receivables, net	24,25		46,865,006		44,061,507
Property, plant and equipment, net	7,12		8,337,161,025		8,017,014,312
Goodwill	8		233,978,973		221,020,029
Intangible assets other than goodwill, net	9		1,460,910,837		1,314,513,699
Investments in associates and joint ventures	6		507,643,277		479,841,132
Deferred tax assets			998,835,494		780,322,777
Non-current non-financial assets	4		4,072,053,774		3,691,491,325
			16,672,869,558		15,468,666,112
Total assets		₩	19,045,018,994	₩	17,504,036,076
Liabilities					
Current liabilities					
Trade and other payables	10,24,25	₩	700,742,719	₩	619,687,531
Current financial liabilities	11,24,25,26		4,429,825,851		3,084,650,984
Current tax liabilities			22,694,683		73,154,084
Current non-financial liabilities			135,501,134		85,561,526
Current provisions	13		88,327,875		75,542,124
			5,377,092,262		3,938,596,249
Non-current liabilities					
Long-term trade and other payables	10,24,25		462,403,011		528,379,159
Non-current financial liabilities	11,24,25		11,768,493,391		11,304,246,790
Non-current non-financial liabilities			54,540,531		51,752,217
Defined benefit liabilities			22,289,994		12,934,671
Deferred tax liabilities			444,163,218		374,960,458
Non-current provisions	13		2,420,103,254		2,434,077,158
			15,171,993,399		14,706,350,453
Total liabilities			20,549,085,661		18,644,946,702
Equity					
Equity attributable to the owner of the Company					
Share capital	1,14		10,617,332,530		10,554,372,780
Accumulated deficit	15		(12,230,049,372)		(12,259,384,485)
Other components of equity	16		(544,407,474)		(8,789,630)
			(2,157,124,316)		(1,713,801,335)
Non-controlling interests			653,057,649		572,890,709
Total equity			(1,504,066,667)		(1,140,910,626)
Total liabilities and equity		₩	19,045,018,994	₩	17,504,036,076

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

Korea National Oil Corporation and its subsidiaries

Interim Consolidated Statements of Comprehensive Loss

For the three-month and nine-month periods ended September 30, 2021 and 2020

(In thousands of Korean won)	Notes	2021 (Unaudited)		2020 (Unaudited)	
		Three months	Nine months	Three months	Nine months
Continuing operations					
Revenue	3,17	₩ 537,040,212	1,648,505,632	₩ 393,150,613	1,421,281,389
Cost of sales	3,23	(354,554,398)	(1,059,242,776)	(374,646,738)	(1,307,104,928)
Gross profit	3	182,485,814	589,262,856	18,503,875	114,176,461
Selling and administrative expenses	3,23	(63,248,075)	(201,849,939)	(64,264,991)	(178,035,391)
Operating profit (loss)	3	119,237,739	387,412,917	(45,761,116)	(63,858,930)
Other income	3,18,26	4,697,048	14,924,180	8,537,957	33,326,031
Other expenses	3,18,26	(1,100,239)	(16,475,754)	2,727,764	(12,679,973)
Other profit (loss), net	3,19	(5,208,307)	21,043,410	(73,929,413)	(606,713,072)
Finance income	3,20,26	157,597,691	363,839,856	11,470,094	247,119,832
Finance costs	3,20,26	(193,256,208)	(508,910,680)	(152,821,105)	(908,279,367)
Loss on investments in associates and joint ventures, net	3,6,21	(20,282,192)	(36,858,734)	(25,221,637)	(73,698,116)
Profit (loss) before income tax	3	61,685,532	224,975,195	(274,997,456)	(1,384,783,595)
Income tax benefit (expense)	22	(79,504,119)	(151,030,572)	2,899,248	(70,150,091)
Profit (loss) for the period from continuing operations		(17,818,587)	73,944,623	(272,098,208)	(1,454,933,686)
Profit (loss) for the period		₩ (17,818,587)	73,944,623	₩ (272,098,208)	(1,454,933,686)
Other comprehensive income (loss)					
Items that will not be reclassified subsequently to profit or loss					
Actuarial losses on defined benefit plans, net of tax		(286,065)	(1,108,699)	(217,152)	(878,067)
Share of other comprehensive loss of joint ventures and associates		-	-	(13,989)	(13,989)
Net change in fair value of financial assets at FVOCI		-	-	1,782,062	2,125,625
Items that may be reclassified subsequently to profit or loss					
Equity adjustments arising from investments in equity-method investees, net of tax		(6,591,600)	(11,885,329)	8,879,826	7,091,939
Net change in the unrealized fair value of derivatives using cash flow hedge accounting, net of tax		(178,942,175)	(339,908,112)	29,944,775	(59,071,053)
Gain (loss) on translation of foreign operations		(52,166,414)	(131,361,709)	23,212,445	25,376,509
Other comprehensive income (loss) for the period, net of tax		(237,986,254)	(484,263,849)	63,587,967	(25,369,036)
Total comprehensive loss for the period		₩ (255,804,841)	(410,319,226)	₩ (208,510,241)	(1,480,302,722)
Profit (loss) for the period attributable to:					
Owners of the Company		(53,406,278)	18,159,526	(270,438,953)	(1,435,279,630)
Non-controlling interests		35,587,691	55,785,097	(1,659,255)	(19,654,056)
Profit (loss) for the period		₩ (17,818,587)	73,944,623	₩ (272,098,208)	(1,454,933,686)
Total comprehensive loss attributable to:					
Owners of the Company		(321,374,441)	(518,567,017)	(191,581,947)	(1,465,407,039)
Non-controlling interests		65,569,600	108,247,791	(16,928,294)	(14,895,683)
Total comprehensive loss for the period		₩ (255,804,841)	(410,319,226)	₩ (208,510,241)	(1,480,302,722)

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

Korea National Oil Corporation and its subsidiaries
Interim Consolidated Statements of Changes in Equity
For the three-month and nine-month periods ended September 30, 2021 and 2020

(In thousands of Korean won)

	Attributable to owners of the Company					
	Share capital	Accumulated deficit	Other components of equity	Subtotal	Non-controlling interests	Total equity
Balance at January 1, 2020	₩ 10,515,105,780	₩ (9,377,447,616)	₩ (1,155,757,806)	₩ (18,099,642)	₩ 548,946,037	₩ 530,846,395
Total comprehensive loss for the period						
Loss for the period	-	(1,435,279,630)	-	(1,435,279,630)	(19,654,056)	(1,454,933,686)
Other comprehensive income (loss)						
Items that will not be reclassified subsequently to profit or loss						
Actuarial losses on defined benefit plans, net of tax	-	(878,067)	-	(878,067)	-	(878,067)
Net change in fair value of financial assets at FVOCI	-	-	2,125,625	2,125,625	-	2,125,625
Share of other comprehensive loss of joint ventures and associates	-	(13,989)	-	(13,989)	-	(13,989)
Items that may be reclassified subsequently to profit or loss						
Equity adjustments arising from investments in equity-method investees, net of tax	-	-	7,091,939	7,091,939	-	7,091,939
Net change in the unrealized fair value of derivative using cash flow hedge accounting, net of tax	-	-	(59,071,053)	(59,071,053)	-	(59,071,053)
Gain on translation of foreign operations	-	-	20,618,136	20,618,136	4,758,373	25,376,509
Total other comprehensive loss for the period	-	(1,436,171,686)	(29,235,353)	(1,465,407,039)	(14,895,683)	(1,480,302,722)
Transactions with owners of the Company, recognized directly in equity						
Issuance of share capital	35,342,000	-	-	35,342,000	170,151,117	205,493,117
Payment of dividends	-	-	-	-	(42,084,553)	(42,084,553)
Increase (decrease) through changes in ownership interests in subsidiaries that do not result in loss of control	-	37,626	-	37,626	(2,401,498)	(2,363,872)
Change in the scope of consolidation	-	-	-	-	31,386,796	31,386,796
Total transactions with owners of the Company	35,342,000	37,626	-	35,379,626	157,051,862	192,431,488
Balance at September 30, 2020 (Unaudited)	₩ 10,550,447,780	₩ (10,813,581,676)	₩ (1,184,993,159)	₩ (1,448,127,055)	₩ 691,102,216	₩ (757,024,839)
Balance at January 1, 2021	₩ 10,554,372,780	₩ (12,259,384,485)	₩ (8,789,630)	₩ (1,713,801,335)	₩ 572,890,708	₩ (1,140,910,627)
Total comprehensive income (loss) for the period						
Profit for the period	-	18,159,526	-	18,159,526	55,785,097	73,944,623
Other comprehensive income (loss)						
Items that will not be reclassified subsequently to profit or loss						
Actuarial losses on defined benefit plans, net of tax	-	(1,108,699)	-	(1,108,699)	-	(1,108,699)
Items that may be reclassified subsequently to profit or loss						
Equity adjustments arising from investments in equity-method investees, net of tax	-	-	(11,885,329)	(11,885,329)	-	(11,885,329)
Net change in the unrealized fair value of derivative using cash flow hedge accounting, net of tax	-	-	(339,908,112)	(339,908,112)	-	(339,908,112)
Gain (loss) on translation of foreign operations	-	-	(183,824,403)	(183,824,403)	52,462,694	(131,361,709)
Total other comprehensive loss for the period	-	17,050,827	(535,617,844)	(518,567,017)	108,247,791	(410,319,226)
Transactions with owners of the Company, recognized directly in equity						
Issuance of share capital (Note 14)	62,959,750	-	-	62,959,750	-	62,959,750
Distributions of non-cash assets to owners of the Company	-	12,284,286	-	12,284,286	(28,080,850)	(15,796,564)
Total transactions with owners of the Company	62,959,750	12,284,286	-	75,244,036	(28,080,850)	47,163,186
Balance at September 30, 2021 (Unaudited)	₩ 10,617,332,530	₩ (12,230,049,372)	₩ (544,407,474)	₩ (2,157,124,316)	₩ 653,057,649	₩ (1,504,066,667)

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

Korea National Oil Corporation and its subsidiaries
Interim Consolidated Statements of Cash Flows
For the three-month and nine-month periods ended September 30, 2021 and 2020

(In thousands of Korean won)	2021 (Unaudited)	2020 (Unaudited)
Cash flows from operating activities		
Profit (loss) for the period	₩ 73,944,623	₩ (1,454,933,686)
Adjustment for:		
Retirement benefits	7,892,659	7,624,144
Salaries	(6,854,099)	15,411,821
Depreciation of property, plant and equipment	422,634,009	585,617,083
Amortization of intangible assets other than goodwill	38,789,431	48,906,073
Other bad debt expense	4,262,394	4,357,652
Reversal of other bad debt allowances	-	(122,572)
Gains on disposal of property, plant and equipment	(2,049,490)	(506,740)
(Reversal of) losses on valuation of inventories	(1,204,236)	2,048,438
Other income	(6,928,634)	(546,829)
Other expense	194,228	573,365
Accretion expense of other provisions	3,770,787	560,853
Gains on disposal of intangible assets other than goodwill	-	(12,878)
Reversal of impairment losses on property, plant and equipment	(785,470)	(2,582,410)
Gains on foreign currency translation (other than finance income)	(3,123,197)	(25,479,620)
Losses on disposal of property, plant and equipment	974,102	5,226,509
Losses on disposal of intangible assets other than goodwill	2	4,177
Impairment of property, plant and equipment	31,322,523	478,122,868
Impairment of intangible assets	3,999,238	127,762,157
Reversal of impairment losses on intangible assets other than goodwill	(933,131)	(12,609,012)
Gains on foreign currency translation (other than finance cost)	11,830,367	23,380,384
Income tax expense	151,030,572	70,150,091
Interest income	(8,391,144)	(11,574,936)
Dividend income	(20,119)	(5,943)
Gains on transactions of derivatives (finance income)	(477,799)	(93,995,577)
Gains on transactions of derivatives (other than finance income)	(273,687)	(229,404)
Losses on transactions of derivatives (finance cost)	10,194	-
Gains on foreign currency translation (finance income)	(182,319,343)	(68,040,112)
Gains on foreign currency transaction (finance income)	-	(11,699,262)
Loss on waiver of debt	-	777,689
Interest expense	311,478,526	363,158,375
Losses on valuation of derivatives (finance cost)	32,766,962	83,304,919
Losses on valuation of financial assets measured at fair value through profit or loss	11,611,519	237,690,942
Gains on valuation of financial asset measured at fair value through profit or loss	(96,593,867)	(8,209,785)
Losses on valuation of financial liabilities measured at fair value through profit or loss	38,014,320	14,646,161
Gains on valuation of financial liabilities measured at fair value through profit or loss	-	(36,542,434)
Losses on foreign currency translation (finance cost)	43,095,453	127,674,998
Other finance income	(63,343,070)	-
Other finance cost	62,035,585	52,329,619
Sales commission	(180,188)	(22,140,859)
Reversal of other provision	(1,139,207)	(2,861,347)
Gains on valuation of investments in associates and joint ventures	(28,357,620)	(9,817,867)
Gains on disposal of investments in associates and joint ventures	(1,438,142)	(138,427,664)
Losses on valuation of investments in associates and joint ventures	66,654,496	100,898,751
Impairment losses on investments in associates and joint ventures	-	121,044,896
Gains on disposal of non-current non-financial assets	(48,949,391)	-
	₩ 789,005,533	₩ 2,025,866,714
Changes in working capital:		
Inventories	8,880,658	(46,234,870)
Trade and other receivables	(83,862,952)	(41,498,460)
Other receivables from operating activities	13,162,376	27,055,898
Trade and other payables	1,570,515	(103,467,487)
Other payables from operating activities	(49,646,751)	(40,240,803)
Current other provisions	(9,994,350)	(16,847,169)
Non-current other provisions	-	(1,760,203)
Long-term provisions of decommissioning, restoration, and clean-up costs	(25,439,587)	(17,570,771)
	(145,330,091)	(240,563,865)
Cash generated from operating activities	717,620,065	330,369,163

(Continued)

Korea National Oil Corporation and its subsidiaries

Interim Consolidated Statements of Cash Flows

For the three-month and nine-month periods ended September 30, 2021 and 2020 (Cont'd)

(In thousands of Korean won)		2021 (Unaudited)		2020 (Unaudited)
Dividend received	₩	13,997,981	₩	13,987,251
Interest paid		(289,074,613)		(347,009,478)
Interest received		6,070,326		8,442,486
Income tax paid		(176,821,799)		(89,088,169)
Net cash provided by (used in) operating activities	₩	271,791,960	₩	(83,298,747)
Cash flows from investing activities				
Acquisition of investments in associates and joint ventures	₩	(47,786,670)	₩	(337,031,737)
Proceeds from disposal of investments in associates and joint ventures		15,268,635		3,958,974
Proceeds from disposal of property, plant and equipment		2,782,847		1,623,901
Acquisition of property, plant and equipment		(262,223,076)		(300,539,414)
Proceeds from disposal of intangible assets other than goodwill		-		97,827
Acquisition of intangible assets other than goodwill		(99,849,871)		(41,875,693)
Acquisition of non-currnet non-financial assets		(66,729,350)		(33,213,037)
Proceeds from disposal of non-current non-financial assets		66,713,756		-
Increase in long-term deposits provided		(1,494,255)		(301,763)
Decrease in long-term deposits provided		1,821,162		5,587
Increase in long-term and short-term financial assets		(146,723)		(103,629)
Increase in long-term loans		(49,503,052)		(14,564,985)
Decrease of long-term loans		49,996,765		16,747,722
Decrease in leasehold deposits received		-		(19,284)
Proceeds from disposal of financial assets measured at fair value through profit or loss		1,650,709		-
Acquisition of financial assets measured at fair value through profit or loss		(792,001)		(4,851,890)
Net cash flows from changes in scope of consolidation		-		141,014,060
Proceeds from disposal of assets held for sale		2,667,280		-
Cash inflow (outflow) from futures contracts, forward contracts, option contracts and swap contracts		(3,546,476)		234,572
Net cash used in investing activities	₩	(391,170,320)	₩	(568,818,789)
Cash flows from financing activities				
Proceeds from increase in share capital		62,959,750		35,342,000
Proceeds from short-term borrowings		42,413		1,918,968,628
Repayments of short-term borrowings		(217,072,487)		(1,157,537,107)
Repayments of current portion of long-term borrowings		(8,580,272)		(1,001,561,323)
Proceeds from issuance of bonds payables		1,772,492,696		1,138,252,124
Repayments of current portion of bonds payables		(1,261,068,004)		-
Repayments of long-term borrowings		(127,704,014)		(73,988,259)
Repayments of lease liabilities		(29,087,379)		(36,582,284)
Net cash outflow due to other distribution to non-controlling interests		(15,584,501)		(42,143,204)
Net cash provided by financing activities	₩	176,398,202	₩	780,750,575
Net increase in cash and cash equivalents before net effect of foreign exchange differences		57,019,842		128,633,039
Net effect of foreign exchange differences		61,477,346		15,834,925
Net increase in cash and cash equivalents		118,497,188		144,467,964
Cash and cash equivalents at the beginning of the period		796,778,899		725,056,411
Cash and cash equivalents at the end of the period	₩	915,276,087	₩	869,524,375

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

1. Reporting Entity

Korea National Oil Corporation (the "Company" or the "Parent Company") was incorporated on March 3, 1979 to engage in the development of oil fields, distribution of crude oil, maintenance of petroleum reserve stock and improvement of the petroleum distribution infrastructure under the Korea National Oil Corporation Act. The Company's head office is located at 305, Jongga-Ro, Jung-Gu, Ulsan in Korea. The Company also has 9 petroleum stockpile sites, 1 domestic gas field management office and many other overseas subsidiaries and affiliates.

As of September 30, 2021, the Company's share capital is ₩10,617,333 million, which is wholly owned by the government of the Republic of Korea.

The list of subsidiaries as of September 30, 2021 and December 31, 2020 are disclosed in Note 5.

2. Basis of Preparation and Changes in Accounting Policies

2.1 Basis of Preparation in Accounting Policies

(a) Statement of compliance

The interim consolidated financial statements of the Korea National Oil Corporation and its subsidiaries (collectively referred to as the "Group") have been prepared in accordance with Korean International Financial Reporting Standards ("K-IFRS") No. 1034, 'Interim Financial Reporting'. The interim consolidated financial statements do not include all the information and disclosures required in the annual financial statements and should be read in conjunction with the Group's annual consolidated financial statements as of December 31, 2020.

The Group's interim consolidated financial statements are consolidated financial statements in accordance with K-IFRS No. 1110, 'Consolidated Financial Statements', where investors with joint control or significant influence on the investor of the parent, associates or joint ventures presents financial statements as an accounting treatment based on the investee's reported performance and net assets. Dividends from subsidiaries, associates and joint ventures are accounted for by removing the dividend income recognized by the parent as internal transactions when the right to receive dividends is established.

The accompanying interim consolidated financial statements have been translated into English from the Korean language financial statements. In the event of any differences in interpreting the financial statements or the independent auditor's review report thereon, the Korean version, which is used for regulatory reporting purposes, shall prevail.

(b) Basis of measurement

The interim consolidated financial statements have been prepared on the historical cost basis, except for derivatives measured at fair value, financial instruments measured at fair value through profit or loss, financial instruments measured at fair value through other comprehensive income, plan assets and land that is property, plant and equipment

(c) Functional and presentation currency

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates (the 'functional currency'). The accompanying interim consolidated financial statements are prepared in the Group's functional currency, the United States dollar, and presented in Korean won, the Group's presentation currency, for financial reporting purposes.

2. Basis of Preparation and Changes in Accounting Policies (cont'd)

2.1 Basis of Preparation in Accounting Policies (cont'd)

(d) Use of estimates and judgments

The preparation of the interim consolidated financial statements in conformity with K-IFRS requires management to make judgments, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

With the spread of COVID-19 around the world, governments are implementing measures such as factory closure, self-isolation, access restrictions, and travel bans. The ultimate impact of the COVID-19 pandemic on the Group's operations is still unknown and is expected to be dependent on future developments. The duration and severity of COVID-19 is highly uncertain and unpredictable, and protective measures by the government or the Group may result in significant business disruption and reduction in operating scale. Although we are unable to reasonably estimate the financial impact of this, management expects that most of the regions and operating segments in which the Group operates will be affected to some extent. As the extent and duration of the impact of COVID-19 on the Group's operations is still unknown, the impact of these uncertainties is not reflected in the consolidated interim financial statements.

2.2 Changes in Accounting Policies

(a) Accounting policies

The accounting policies adopted in the preparation of the interim consolidated financial statements are consistent with those followed in the preparation of the Group's annual consolidated financial statements for the year ended December 31, 2020, except for the adoption of new standards effective as of January 1, 2021.

(i) K-IFRS No.1039 "Financial Instruments: Recognition and Measurement", K-IFRS No.1104 "Insurance Contracts", K-IFRS No.1107 "Financial Instruments: Disclosures", K-IFRS No.1109 "Financial Instruments" and K-IFRS No.1116 "Lease" (Amendment) – Interest Rate Benchmark Reform – (Phase 2)

The amendments provide a temporary exemption to address the impact of cross-bank loan interest rates (IBORs) on financial reporting when they are replaced by alternative risk-free indicators (RFRs)

The amendments include the following practical expedients:
- Contractual changes, or changes in cash flows directly affected by the reform, are treated as if they are changed to floating interest rates, such as changes in market interest rates.
- Changes required by interest rate benchmark reform allow hedge designation and hedge documentation without interruption to hedge accounting.
- A temporary exemption from financial instruments referring to alternative risk-free indicators (RFRs) that are deemed to meet the requirement to be separately identifiable if designated as hedging components.

The amendment does not have a significant impact on the Group's consolidated financial statements. The Group will apply the practical expedient when it becomes applicable in the future.

3. Segment and Other Information

(a) For management purposes, the Group is organized into business units based on their goods and services. The Group's operating segments are as follows:

Segments	Goods and services	Location of business
Oil and gas	Exploration, development and production of domestic and overseas resources and sales of crude oil	Domestic and overseas
Petroleum distribution	Distribution business of gasoline and gas oil and oil trading	Domestic and overseas
Oil stockpiling	Purchase and lending of oil stockpiles, management, operation and lending of oil stockpiling facilities	Domestic
Others	Oil information services, other research services, etc.	Domestic and overseas

(b) Segment results for the period

(i) For the nine-month period ended September 30, 2021:

In millions of Korean won

		Oil and gas	Petroleum distribution	Oil stockpiling	Others	Reportable segment total	Reconciling items (*1)	Group total
Revenue	₩	1,512,158	39,162	94,904	2,282	1,648,506	-	1,648,506
Cost of sales		905,520	23,085	129,217	1,421	1,059,243	-	1,059,243
Gross profit (loss)		606,638	16,077	(34,313)	861	589,263	-	589,263
Selling and administrative expenses		156,756	259	-	-	157,015	44,835	201,850
Reportable segment operating profit (loss)(*2)		449,882	15,818	(34,313)	861	432,248	(44,835)	387,413
Other income		-	-	-	-	14,924	-	14,924
Other expenses		-	-	-	-	16,476	-	16,476
Other gains (losses), net		-	-	-	-	21,043	-	21,043
Finance income		-	-	-	-	363,840	-	363,840
Finance costs		-	-	-	-	508,911	-	508,911
Loss on investments in associates and joint ventures		-	-	-	-	(36,859)	-	(36,859)
Profit (loss) before income tax	₩	-	-	-	-	269,809	(44,835)	224,974
Depreciation and amortization other than goodwill	₩	389,271	261	67,348	-	456,880	3,922	460,802
Impairment of property, plant, and equipment		31,323	-	-	-	31,323	-	31,323
Reversal of impairment losses on property, plant, and equipment		785	-	-	-	785	-	785
Impairment of intangible assets - Impairment of intantible assets other than goodwill		368	-	-	-	368	-	368
- Impairment of goodwill		3,631	-	-	-	3,631	-	3,631
Reversal of impairment losses on intangible assets other than goodwill		933	-	-	-	933	-	933

(*1) Primarily consists of operating profit (loss) including depreciation and amortization that are not allocated to the segments.

(*2) The segment's profit or loss reported to the Group's CEO is operating profit (loss).

3. Segment and Other Information (cont'd)

(b) Segment results for the period (cont'd)

(ii) For the nine-month period ended September 30, 2020:

In millions of Korean won

		Oil and gas	Petroleum distribution	Oil stockpiling	Others	Reportable segment total	Reconciling items (*1)	Group total
Revenue	₩	1,167,874	21,893	229,565	1,949	1,421,281	-	1,421,281
Cost of sales		1,151,395	17,634	136,627	1,449	1,307,105	-	1,307,105
Gross profit (loss)		16,479	4,259	92,938	500	114,176	-	114,176
Selling and administrative expenses		125,177	312	-	-	125,489	52,546	178,035
Reportable segment operating profit (loss)(*2)		(108,698)	3,947	92,938	500	(11,313)	(52,546)	(63,859)
Other income		-	-	-	-	33,326	-	33,326
Other expenses		-	-	-	-	12,680	-	12,680
Other gains (losses), net		-	-	-	-	(606,713)	-	(606,713)
Finance income		-	-	-	-	247,120	-	247,120
Finance costs		-	-	-	-	908,280	-	908,280
Loss on investments in associates and joint ventures		-	-	-	-	(73,698)	-	(73,698)
Profit (loss) before income tax	₩	-	-	-	-	(1,332,238)	(52,546)	(1,384,784)
Depreciation and amortization other than goodwill	₩	558,276	357	70,770	-	629,403	4,392	633,795
Impairment of property, plant, and equipment		478,123	-	-	-	478,123	-	478,123
Reversal of impairment losses on property, plant, and equipment		2,582	-	-	-	2,582	-	2,582
Impairment of intantible assets other than goodwill		127,762	-	-	-	127,762	-	127,762
Reversal of impairment losses on intangible assets other than goodwill		12,609	-	-	-	12,609	-	12,609

(*1) Primarily consists of operating profit (loss) including depreciation and amortization that are not allocated to the segments.
(*2) The segment's profit or loss reported to the Group's CEO is operating profit (loss).

4. Non-financial assets

Details of non-financial assets as of Septmber 30, 2021 and December 31, 2020 are as follows:

In millions of Korean won		September 30, 2021		December 31, 2020	
		Current	Non-current	Current	Non-current
Advanced payments	₩	52,631	-	54,345	-
Prepaid expenses		33,106	565	20,109	541
Oil stockpiles		-	4,067,425	-	3,686,509
Others		-	4,064	-	4,441
Total	₩	85,737	4,072,054	74,454	3,691,491

5. Subsidiaries

(a) The lists of subsidiaries as of September 30, 2021 and December 31, 2020 are as follows:

Subsidiary name (*1)	Principal activity	Country of incorporation	Ownership (%)	
			September 30, 2021	December 31, 2020
ANKOR E&P Holdings Corp.	Exploration and production (E&P)	United States	100.00	100.00
Dana Petroleum Limited	E&P	United Kingdom	100.00	100.00
KNOC Eagle Ford Corporation	E&P	United States	100.00	100.00
Harvest Operations Corp.	E&P	Canada	100.00	100.00
KNOC Kaz B.V.	E&P	Netherlands	100.00	100.00
KNOC Sumatra Ltd. (*3)	E&P	Indonesia	100.00	100.00
KNOC Yemen Ltd. (*3)	E&P	Yemen	60.00	60.00
KNOC Trading Singapore Pte. Ltd	Trading and Marketing	Singapore	100.00	100.00
KNOC Service Ltd.	Facility Management	Republic of Korea	100.00	100.00
KADOC Ltd. (*2)	E&P	Malaysia	75.00	75.00

(*1) The entity includes subsidiaries and their subsidiaries.
(*2) The Group acquired control and reclassified KADOC Ltd. from investments in joint venture to investments in subsidiaries in the previous year.
(*3) The carrying amount of the entity as of September 30, 2021 is less than ₩ 1 million, and the entity is in the progress of liquidation as of September 30, 2021.

5. Subsidiaries (cont'd)

(b) Financial information of subsidiaries

(i) Financial information of subsidiaries as of and for the nine-month period ended September 30, 2021 is as follows:

In millions of Korean won

Company		Assets	Liabilities	Revenue	Net profit (loss)
ANKOR E&P Holdings Corp.	₩	241,960	176,893	48,645	(40,183)
Dana Petroleum Limited (*1)		2,729,644	2,185,381	505,503	101,951
KNOC Eagle Ford Corporation		2,217,585	626,975	204,035	321
Harvest Operations Corp.		2,124,770	3,304,285	220,764	(52,553)
KNOC Kaz B.V. (*1)		841,187	640,802	168,939	20,341
KNOC Sumatra Ltd. (*2)		1,769	-	-	1
KNOC Yemen Ltd. (*2)(*3)		14	-	-	-
KNOC Trading Singapore Pte. Ltd		873	112	494	234
KNOC Service Ltd.		1,127	454	3,729	201
KADOC Ltd. (*1)		1,023,513	227,701	252,969	71,535

(*1) The amounts presented are after reflecting the difference between the fair value and the book value that arose during the business combination.
(*2) Entity is in the process of liquidation as of September 30, 2021.
(*3) Net income in the first half of the year is less than 1 million won.

(ii) Financial information of subsidiaries as of and for the year ended December 31, 2020 is as follows:

In millions of Korean won

Company		Assets	Liabilities	Revenue	Net profit (loss)
ANKOR E&P Holdings Corp.	₩	243,584	145,184	49,052	(153,699)
Dana Petroleum Limited (*1)		2,265,069	1,592,133	734,490	(541,020)
KNOC Eagle Ford Corporation		2,119,722	574,983	210,977	(480,361)
Harvest Operations Corp.		2,182,024	3,219,878	184,925	(572,523)
KNOC Kaz B.V. (*1)		2,288,798	559,644	157,153	(32,269)
KNOC Sumatra Ltd. (*2)		1,624	-	-	1,063
KNOC Yemen Ltd. (*2)		13	-	-	-
KNOC Trading Singapore Pte. Ltd		686	195	492	75
KNOC Service Ltd.		1,592	1,120	4,403	6
KADOC Ltd. (*1)		939,902	218,018	102,053	(8,597)

(*1) The amounts presented are after reflecting the difference between the fair value and the book value that arose during the business combination.
(*2) Entity is in the process of liquidation as of December 31, 2020.

6. Investments in Associates and Joint Ventures

(a) Details of investments in associates and joint ventures

(i) As of September 30, 2021

In millions of Korean won

Entity	Principal activity	Country	Equity interest (%)	Acquisition cost	Book value
<Investments in associates>					
Kernhem B.V.	Exploration and Production("E&P")	Netherlands	36.67%	₩ 12,107	₩ -
Oilhub Korea Yeosue Co. Ltd	Storing of oil	Korea	29.00%	40,058	61,474
ADA Oil LLP (*1)	E&P	Kazakhstan	12.50%	20,795	-
Parallel Petroleum LLC (*2)(*5)	E&P	United States	10.00%	64,400	-
KNOC EF Star LLC(*3)	E&P	United States	100%	30,807	30,043
KOREA GS E&P Pte. Ltd.	E&P	Singapore	30.00%	384,277	298,410
				552,444	389,927
<Investments in joint ventures>					
KNOC Inam Ltd.	Exploration	Malaysia	40.00%	-	-
KNOC Kamchatka Petroleum Ltd. (*4)(*9)	Exploration	Cyprus	55.00%	-	-
KNOC Bazian Ltd. (*4)(*10)	Exploration	Malaysia	66.72%	-	-
KNOC Nigerian East Oil Company Ltd. (*4)	Exploration	Nigeria	75.00%	71	-
KNOC Nigerian West Oil Company Ltd. (*4)	Exploration	Nigeria	75.00%	71	-
K. K. Korea kamchatka Co.Ltd	Exploration	Cyprus	50.00%	8,053	-
KC kazakh B.V.	Exploration	Netherlands	35.00%	268	-
KNOC Ferghana Ltd.	Exploration	Malaysia	50.00%	1	-
KNOC Ferghana2 Ltd. (*4)	Exploration	Malaysia	65.00%	-	-
Korea Energy Terminal Co., Ltd. (*4)(*11)	Storing of oil	Korea	52.42%	93,501	84,570
Deep Basin Partnership(*4)(*6)	Production	Canada	83.58%	269,480	-
HKMS Partnership (*4)(*6)	Gas processing plant operation	Canada	69.22%	65,790	31,645
KNOC-VOGO Eagle Ford LLC(*7)	E&P	United States	50.00%	2,212	1,027
Al Dhafra Petroleum(*8)	E&P	UAE	30.00%	474	474
				439,921	117,716
				₩ 992,365	₩ 507,643

6. Investments in Associates and Joint Ventures (cont'd)

(a) Details of investments in associates and joint ventures (cont'd)

(ii) As of December 31, 2020

In millions of Korean won

Entity	Principal activity	Country	Equity interest (%)	Acquisition cost	Book value
<Investments in associates>					
Kernhem B.V.	Exploration and Production ("E&P")	Netherlands	36.67%	₩ 11,117	₩ -
Oilhub Korea Yeosu Co., Ltd.	Storing of oil	Korea	29.00%	36,782	63,129
ADA Oil LLP (*1)	E&P	Kazakhstan	12.50%	19,095	-
Parallel Petroleum LLC (*2)(*5)	E&P	United States	10.00%	59,133	-
KNOC EF Star LLC(*3)	E&P	United States	100%	28,288	64,951
Korea GS E&P Pte. Ltd	E&P	Singapore	30.00%	367,539	276,843
				521,954	404,923
<Investments in joint ventures>					
KNOC Inam Ltd.	Exploration	Malaysia	40.00%	-	-
KNOC Kamchatka Petroleum Ltd. (*4)(*9)	Exploration	Cyprus	55.00%	1	-
KNOC Bazian Ltd. (*4)(*10)	Exploration	Malaysia	66.72%	-	-
KNOC Nigerian East Oil Company Ltd. (*4)	Exploration	Nigeria	75.00%	65	-
KNOC Nigerian West Oil Company Ltd. (*4)	Exploration	Nigeria	75.00%	65	-
K. K. Korea kamchatka Co., Ltd.	Exploration	Cyprus	50.00%	7,394	-
KC kazakh B.V.	Exploration	Netherlands	35.00%	246	-
KNOC Ferghana Ltd.	Exploration	Malaysia	50.00%	1	-
KNOC Ferghana2 Ltd. (*4)	Exploration	Malaysia	65.00%	-	-
Korea Energy Terminal Co., Ltd. (*4)(*11)	Storing of oil	Korea	51.47%	43,307	42,613
Deep Basin Partnership(*4)(*6)	Production	Canada	83.47%	244,870	-
HKMS Partnership (*4)(*6)	Gas processing plant operation	Canada	68.19%	59,633	31,870
KNOC-VOGO Eagle Ford LLC(*7)	E&P	United States	50.00%	-	-
Al Dhafra Petroleum(*8)	E&P	UAE	30.00%	435	435
				356,017	74,918
				₩ 877,971	₩ 479,841

(*1) Classified as an investment in associate as the Group's associate, Kernhem B.V. holds 75% of the equity interest and by effective equity interest, the Group has the ability to exercise significant influence over the entity.
(*2) Classified as an investment in associate as the Group can designate one director in its board of directors. Despite the percentage of ownership is below 20%, the Group has the ability to exercise significant influence over the entity.
(*3) Despite the percentage of ownership of the Group is 100%, it is excluded from the scope of consolidation due to reassessment of control.
(*4) Despite the percentage of ownership is over 50%, the investment is classified as an investment in joint ventures as the Group is unable to exercise control over investees solely.
(*5) Parallel Petroleum LLC is an associate owned by ANKOR E&P Holdings Corp.
(*6) Deep Basin Partnership and HKMS Partnership are Joint ventures owned by Harvest Operations Corp.
(*7) It is a joint venture company 50% owned by KNOC Eagle Ford Corp, which belongs to the Group.
(*8) It is a joint venture company, which is 40% owned by KADOC Ltd and belongs to the Group. The effective equity interest is 30% (40% * 75%).
(*9) The entity is liquidated as of September 30, 2021.
(*10) The entity is in the process of liquidation as of September 30, 2021.
(*11) The Company acquired Korea Energy Terminal Co., Ltd.'s equity interests, which were owned by MOL Chemical Tanker, a participating entity.

6. Investments in Associates and Joint Ventures (cont'd)

(b) Changes in carrying value

(i) For the nine-month period ended September 30, 2021

In millions of Korean won

Entity (*5)	Beginning balance	Acqui-sitions	Disposals	Dividends received	Share of profit or loss in equity method	Changes in equity adjustments in equity method	Other changes (*3)	Ending balance
<Investment in associates>								
Kernhem B.V. (*1)	₩ -	-	-	-	(345)	345	-	-
Oilhub Korea Yeosu Co. Ltd.	63,129	-	-	(3,039)	1,405	(5,312)	5,291	61,474
ADA Oil LLP (*1)	-	-	-	-	(567)	567	-	-
Parallel Petroleum LLC (*1)	-	-	-	-	-	-	-	-
KNOC EF Star LLC	64,951	-	-	-	(38,842)	-	3,934	30,043
KOREA GS E&P Pte. Ltd. (*2)	276,843	-	(15,269)	-	12,319	-	24,517	298,410
	404,923	-	(15,269)	(3,039)	(26,030)	(4,400)	33,742	389,927
<Investment in joint ventures>								
Korea Energy Terminal Co., Ltd.	42,613	44,230	-	-	(319)	(7,485)	5,531	84,570
Deep Basin Partnership	-	2,674	-	-	(18,903)	-	16,229	-
HKMS Partnership	31,870	809	-	(10,904)	7,485	-	2,385	31,645
KNOC-VOGO Eagle Ford LLC (*4)	-	74	-	-	908	-	45	1,027
Al Dhafra Petroleum	435	-	-	-	-	-	39	474
	74,918	47,787	-	(10,904)	(10,829)	(7,485)	24,229	117,716
	₩ 479,841	47,787	(15,269)	(13,943)	(36,859)	(11,885)	57,971	507,643

(*1) The Group ceased to apply the equity method as the book value of the investment in associates and joint ventures is less than zero due to the cumulative equity method loss. Unrecognized equity method gains or losses due to the discoutinuance of the equity method are as follows.

In millions of Korean won

CGU	Holding company	Unrecognized gains and losses (current)	Unrecognized gains and losses (cumulative)
ADA Oil LLP	Parent Company	₩ 458	₩ (13,835)
Kernhem B.V.	Parent Company	1,024	(33,507)
Parallel Petroleum LLC	Ankor E&P Holdings Corp.	3,917	(33,786)

(*2) As the entity reduced capital proportionately for the nine-month period ended September 30, 2021, the book value of its interests held has decreased.
(*3) Other changes include the effect of changes in exchange rates and impairment losses that were not recognized as the book value of Deep Basin Partners, an investment in joint ventures, until the previous year was less than zero.
(*4) KNOC-VOGO Eagle Ford LLC is SPC with 50% of the shares in KNOC Eagle Ford Corp. KNOC Eagle Ford Corp. invested in EF Energy LLC through KNOC-VOGO Eagle Ford LLC. EF Energy LLC is 40% of shares owned by KNOC-VOGO Eagle Ford LLC and 60% owned by KNOC Eagle Ford Corp. Since KNOC Eagle Ford Corp. recognizes EF Energy LLC as the Group, its investment in KNOC-VOGO Eagle Ford LLC is recognized as '0' because it is offset by the consolidation adjustment process.
(*5) The entities with closed businesses, among the joint ventures, are excluded from the table.

6. Investments in Associates and Joint Ventures (cont'd)

(b) Changes in carrying value (cont'd)

(ii) For the year ended December 31, 2020

In millions of Korean won

Entity		Beginning balance	Acqui-sitions	Dividends received	Share of profit or loss in equity method	Retained earnings in equity method	Changes in equity adjustments in equity method	Other changes (*5)	Ending balance
<Investment in associates>									
Kernhem B.V. (*1)	₩	-	-	-	(1,869)	-	1,869	-	-
Oilhub Korea Yeosu Co. Ltd.		58,480	-	(3,039)	7,689	-	4,216	(4,217)	63,129
ADA Oil LLP (*1)		-	-	-	(1,093)	-	1,093	-	-
Parallel Petroleum LLC (*1)		-	-	-	-	-	-	-	-
KNOC EF Star LLC		40,195	-	-	29,519	-	-	(4,763)	64,951
KOREA GS E&P Pte. Ltd. (*2)(*3)		-	398,635	(17,701)	5,812	-	-	(109,903)	276,843
		98,675	398,635	(20,740)	40,058	-	7,178	(118,883)	404,923
<Investment in joint ventures>									
Offshore International Group, Inc. (*2)(*4)		91,189	-	-	(63,440)	-	1,878	(29,627)	-
Korea Energy Terminal Co., Ltd.		-	44,555	-	(2,457)	(14)	3,918	(3,389)	42,613
Deep Basin Partnership		17,322	1,736	-	(36,699)	-	-	17,641	-
HKMS Partnership		32,734	595	(14,424)	14,203	-	-	(1,238)	31,870
KNOC-VOGO Eagle Ford LLC (*1)(*6)		-	72	-	(72)	-	-	-	-
Al Dhafra Petroleum(*7)		-	472	-	-	-	-	(37)	435
		141,245	47,430	(14,424)	(88,465)	(14)	5,796	(16,650)	74,918
	₩	239,920	446,065	(35,164)	(48,407)	(14)	12,974	(135,533)	479,841

(*1) The Group ceased to apply the equity method as the book value of the investment in associates and joint ventures is less than zero due to the cumulative equity method loss. Unrecognized equity method gains or losses due to the discoutinuance of the equity method are as follows

In millions of Korean won

CGU	Holding company	Unrecognized gains and losses (current)	Unrecognized gains and losses (cumulative)
ADA Oil LLP	Parent Company	₩ (2,708)	₩ (14,293)
Kernhem B.V.	Parent Company	(6,218)	(34,531)
Parallel Petroleum LLC	Ankor E&P Holdings Corp.	(7,504)	(37,703)
KNOC-VOGO Eagle Ford LLC	KNOC Eagleford Corp.	(69,130)	(1,049,503)

(*2) Main assumption used in the impairment test and details of impairment losses for the year ended December 31, 2020 are as follows:

(In millions of Korean won)

`CGU	Recoverable amounts	Valuation of recoverable method	Discount rate	Primary assumption	Impairment loss	Reason for impairment
KOREA GS E&P Pte. Ltd.	₩ 276,843	Net fair value	7.66%	Estimated production quantities based on reserve reports and long-term oil price forecasts by major forecasting Institutions	₩ 86,481	Decrease in forecasted oil prices, changes in reserves and others
Offshore International Group	₩ 2,720	Net selling value	-	Amount to be sold	₩ 28,596	Held for sale

6. Investments in Associates and Joint Ventures (cont'd)

(*3) On April 2, 2020, by exercising the stock option, 30% of stocks were acquired and the difference of W 92,371 million between the strike price and the fair value of the equity valuation was recognized as gains on transaction of derivative financial instruments. Meanwhile, as of the end of the reporting period, arbitration related to business participation costs is in progress and the acquisition price may change depending on the results of the arbitration.
(*4) Offshore International Group Inc. was classified as non-current assets held for sale at the end of the previous year.
(*5) Other changes include the effect of changes in exchange rates and impairment losses that were not recognized as the book value of Deep Basin Partners, an investment in joint ventures, until the previous year was less than zero.
(*6) KNOC-VOGO Eagle Ford LLC is SPC with 50% of the shares in KNOC Eagle Ford Corp. KNOC Eagle Ford Corp. invested in EF Energy LLC through KNOC-VOGO Eagle Ford LLC. EF Energy LLC is 40% of shares owned by KNOC-VOGO Eagle Ford LLC and 60% owned by KNOC Eagle Ford Corp. Since KNOC Eagle Ford Corp. recognizes EF Energy LLC as the Group, its investment in KNOC-VOGO Eagle Ford LLC is recognized as '0' because it is offset by the consolidation adjustment process.
(*7) It is a joint company owned by KADOC Ltd, which was reclassified as a subsidiary for the year ended December 31, 2020.

(c) The summaries of financial information of major associates and joint ventures as of September 30, 2021 or the nine-month period then ended and as of December 31, 2020 or for the year then ended are as follows:

(i) September 30, 2021

In millions of Korean won		Total assets	Total liabilities	Revenue	Net profit (loss)
<Investment in associates>					
Kernhem B.V.	₩	130,872	148,020	2,037	(1,248)
Oilhub Korea Yeosu Co., Ltd.		466,004	254,023	44,533	4,844
Parallel Petroleum LLC		192,302	349,551	49,093	16,175
ADA Oil LLP		63,927	168,683	25,847	4,345
KNOC EF Star LLC		486,362	12	10,580	(27,998)
KOREA GS E&P Pte. Ltd.		1,832,404	771,200	1,032,512	39,212
<Investment in joint ventures>					
Korea Energy Terminal Co., Ltd.		317,926	158,558	-	(3,384)
Deep Basin Partnership		184,140	221,577	22,304	(18,903)
HKMS Partnership		95,690	68,555	17,849	4,930
KNOC-VOGO Eagle Ford LLC		903,352	615,023	-	(4,699)
Al Dhafra Petroleum		474	-	-	-

6. Investments in Associates and Joint Ventures (cont'd)

(ii) December 31, 2020

In millions of Korean won		Total assets	Total liabilities	Revenue	Net profit (loss)
<Investment in associates>					
Kernhem B.V.	₩	163,806	250,626	16,498	(16,957)
Oilhub Korea Yeosu Co., Ltd.		499,372	281,686	79,822	26,517
Parallel Petroleum LLC		156,035	315,823	41,167	(46,359)
ADA Oil LLP		60,658	155,801	21,998	(21,660)
KNOC EF Star LLC		483,866	14	14,472	(43,880)
KOREA GS E&P Pte. Ltd.		1,571,065	586,585	862,986	30,092
<Investment in joint ventures>					
Korea Energy Terminal Co., Ltd.		235,109	153,947	-	(4,668)
Deep Basin Partnership		195,715	214,779	22,012	(36,698)
HKMS Partnership		86,611	66,031	22,955	7,226
KNOC-VOGO Eagle Ford LLC		837,106	564,590	-	(166,269)
Al Dhafra Petroleum		435	-	-	-

7. Property, Plant and Equipment

(a) Changes in property, plant and equipment for the nine-month period ended September 30, 2021 and for the year ended December 31, 2020 are as follows:

(i) For the nine-month period ended September 30, 2021

In millions of Korean won

		Beginning balance	Acquisitions	Disposals	Depreciation	Impairment losses (*1)	Transfers(*2)	Others (*3)	Ending balance
Land	₩	1,047,517	765	-	-	-	18,971	94,235	1,161,488
Buildings		49,670	1,882	(28)	(1,600)	-	37	4,438	54,399
Structures		1,072,370	1,054	-	(37,868)	-	174,305	101,206	1,311,067
(Contributions to construction)		(104)	-	-	3	-	-	(9)	(110)
Machinery		263,752	1,717	(201)	(22,349)	-	74,808	25,466	343,193
(Contributions to construction)		(2,612)	-	-	237	-	-	(221)	(2,596)
Vehicles(*4)		1,457	538	-	(319)	-	24	109	1,809
Tools & fixtures		5,024	426	(2)	(1,392)	-	291	412	4,759
Construction-in-progress		252,089	31,782	-	-	-	(272,163)	10,255	21,963
Right-of-use assets(*4)		352,641	446	-	(18,052)	-	-	30,279	365,314
Others		5,011	546	(4)	(1,495)	-	83	228	4,369
Oil & gas properties		4,972,120	223,513	(182,182)	(340,354)	(30,537)	30,069	400,387	5,073,016
(Government grants)		(1,921)	-	-	555	-	-	(144)	(1,510)
	₩	8,017,014	262,669	(182,417)	(442,634)	(30,537)	26,425	666,641	8,337,161

(*1) As of September 30, 2021, the Group determined that the reproduction of the Peru Block 8 project in the development business sector is uncertain and the recoverability of the receivables are low even when the business is ongoing since the mine right's expiration is approaching. Thus, the Group recognized ₩ 30,503 million of impairment loss. Residual impairment loss amounts are net of reversal of impairment loss amounts.

(*2) Construction-in-progress has been transferred to property, plant and equipment by ₩ 271,046 million, to intangible assets other than goodwill by ₩ 1,117 million during the current period.

(*3) Include the effect of changes in exchange rates and others.

(*4) During the nine-month period ended September 30,2021, the vehicles and right-of-use assets were disposed at less than ₩ 1 million won.

7. Property, Plant and Equipment (cont'd)

(a) Changes in property, plant and equipment (cont'd)

(ii) For the year ended December 31, 2020

In millions of Korean won

	Beginning balance	Acqui-sitions	Disposals	Depre-ciation	Impair-ment losses (*1)	Transfers	Others (*2)	Ending balance
Land(*3) ₩	480,855	2,867	(719)	-	-	-	564,514	1,047,517
Buildings	47,288	1,529	(3,642)	(2,216)	-	9,996	(3,285)	49,670
Structures	1,191,647	797	(1,832)	(51,459)	-	1,045	(67,828)	1,072,370
(Contributions to construction)	(114)	-	-	4	-	-	6	(104)
Machinery	303,606	5,257	(1,895)	(31,634)	-	4,898	(16,480)	263,752
(Contributions to construction)	(3,104)	-	-	330	-	-	162	(2,612)
Vehicles	1,941	411	(2)	(984)	-	222	(131)	1,457
Tools & fixtures	6,306	950	(23)	(2,594)	-	665	(280)	5,024
Construction-in-progress	228,623	62,108	-	-	-	(21,581)	(17,061)	252,089
Right-of-use assets	395,677	7,771	(1,924)	(24,064)	-	-	(24,819)	352,641
Others	8,497	949	(45)	(3,213)	-	17	(1,194)	5,011
Oil & gas properties	6,059,070	320,152	(4,433)	(611,190)	(1,422,059)	2,769	627,811	4,972,120
(Government grants)	(2,573)	-	-	539	-	-	113	(1,921)
₩	8,717,719	402,791	(14,515)	(726,481)	(1,422,059)	(1,969)	1,061,528	8,017,014

(*1) Impairment loss is based on the net amount considering the reversal amount.
(*2) Include revaluation profit, the effect of changes in exchange rates and others.
(*3) The Company recognized pretax valuation gains of ₩ 646,112 million and valuation loss of ₩ 2,213 million through revaluation, during the previous period.

8. Goodwill

(a) Changes in goodwill for the nine-month period ended September 30, 2021 and for the year ended December 31, 2020 are as follows:

In millions of Korean won		2021	2020
Beginning balance	₩	221,020	152,976
Acqusition		-	104,298
Impairment		(3,631)	(32,553)
Others(*1)		16,590	(3,701)
Ending balance	₩	233,979	221,020

(*1) Include the effect of changes in exchange rate and others.

(b) Details of goodwill allocated to CGUs and groups of CGUs as of September 30, 2021 and December 31, 2020 are as follows:

In millions of Korean won		September 30, 2021	December 31, 2020
Dana Petroleum Limited	₩	135,346	126,101
Altius Holdings Inc. (Subsidiry of KNOC Kaz B.V.)		21,536	20,635
KADOC Ltd. (*)		77,097	74,284
	₩	233,979	221,020

(*) Impairment test on goodwill has been performed on an annual basis. During the current period, there was no indication of impairment, and no impairment test has been performed. However, impairment was recognized for goodwill relating to KADOC Ltd. as the deferred tax liabilities have decreased, which is an indication of the goodwill.

9. Intangible Assets Other Than Goodwill

Changes in intangible assets other than goodwill for the nine-month period ended September 30, 2021 and for the year ended December 31, 2020 are as follows:

(a) For the nine-month period ended September 30, 2021

In millions of Korean won

		Beginning balance	Acqui-sitions	Disposals	Amortization	Impairment losses(Reversal) (*1)	Re-classification (*2)	Others (*3)	Ending balance
Exploration and evaluation assets	₩	377,510	98,169	-	-	273	(27,542)	30,755	479,615
Software		4,917	1,065	-	(1,188)	-	181	438	5,413
Mining rights		952,469	465	(965)	(36,927)	292	-	80,392	969,326
Development cost		4,588	177	-	(1,269)	-	936	401	4,833
Land use rights		140	-	-	(4)	-	-	12	1,428
Others		1,889	4	-	(31)	-	-	164	2,026
	₩	1,314,513	99,850	(965)	(38,789)	565	(26,425)	112,162	1,460,911

(*1) Impairment loss amount considered the reversal amount. Reversal amount was recognized followed by the impairment related to mining withdrawal and changes in mining license fee settlement and restoration cost.
(*2) For the nine-month period ended September 30, 2021, computer software and development costs were transferred from assets under construction, and portion of exploration and evaluation assets were transferred to property, plant and equipment.
(*3) Include the effect of changes in exchange rates and others.

(b) For the year ended December 31, 2020

In millions of Korean won

		Beginning balance	Acqui-sitions	Disposals	Amortization	Impairment losses(Reversal) (*1)	Re-classification	Others (*2)	Ending balance
Exploration and evaluation assets	₩	393,308	17,568	(168)	-	(160,291)	168	126,925	377,510
Software		2,535	531	(1)	(1,351)	-	442	2,761	4,917
Mining rights		1,003,749	9,280	(1,130)	(58,757)	(108,463)	-	80,790	925,469
Development cost		4,929	682	-	(2,089)	-	1,360	(294)	4,588
Land use rights		155	-	-	(6)	-	-	(9)	140
Others		2,150	9	(88)	(52)	-	-	(130)	1,889
	₩	1,406,826	28,070	(1,387)	(62,255)	(268,754)	1,970	210,043	1,314,513

(*1) Impairment loss is based on the net amount considering the reversal amount.
(*2) Include the effect of changes in exchange rates and others.

10. Trade and Other Payables

Details of trade and other payables as of September 30, 2021 and December 31, 2020 are as follows:

In millions of Korean won		September 30, 2021		December 31, 2020	
		Current	Non-current	Current	Non-current
Trade accounts payable	₩	99,865	6,625	76,799	6,176
Other accounts payable		389,531	8,028	356,518	14,830
Accrued expenses		124,193	95,705	107,159	143,239
Deposit received		-	5,151	-	4,730
Other deposits received		-	14	-	13
Lease liabilities		33,106	343,114	31,370	359,391
Other payables		54,048	3,766	47,841	-
	₩	700,743	462,403	619,688	528,379

11. Borrowings and Bond Payables

Details of borrowings and bond payables as of September 30, 2021 and December 31, 2020 are as follows:

In millions of Korean won		September 30,2021	December 31, 2020
Current liabilities			
Short-term borrowings	₩	59,245	259,156
Current portion of long-term borrowings		1,152,079	1,151,261
Less: current portion of discount on long-term borrowings		(47)	(124)
Current portion of bond payables		2,682,923	1,645,556
Less: current portion of discount on bond payables		(719)	(578)
		3,893,481	3,055,271
Non-current liabilities			
Long-term borrowings		1,022,186	1,011,214
Less: present discounted value		(29)	(82)
Bonds payable		10,558,339	10,231,002
Less: discount on bond payables		(28,570)	(23,975)
Add: premium on bond payables		3,844	4,281
		11,555,770	11,222,440
	₩	15,449,251	14,277,711

12. Lease

(a) The Group as a lessee

The Group classified lease contracts with a lease term of 12 months or less as a short-term lease and recognized an expense of ₩970 million. The Group also classified lease contracts with underlying assets as a low value contracts and recognized an expense of ₩20 million.

(b) Right-of-use assets as of September 30, 2021 and December 31, 2020 are as follows:

In millions of Korean won	September 30, 2021		
	Acquisition cost	Accumulated depreciation	Book value
Land	₩ 4,645	(931)	3,714
Buildings	279,483	(46,477)	233,006
Vessels	12,039	(6,286)	5,753
Vehicles	7,170	(5,224)	1,946
Others	137,749	(16,854)	120,895
	₩ 441,086	(75,772)	365,314

In millions of Korean won	December 31, 2020		
	Acquisition cost	Accumulated depreciation	Book value
Land	₩ 4,156	(228)	3,928
Buildings	263,493	(34,210)	229,283
Machinery	273	(182)	91
Vessels	10,671	(4,121)	6,550
Vehicles	4,641	(3,256)	1,385
Others	122,462	(11,058)	111,404
	₩ 405,696	(53,055)	352,641

Details of lease liabilities as of September 30, 2021 and December 31,2020 are as follows:

In millions of Korean won	September 30, 2021	December 31, 2020
Current	₩ 33,106	31,370
Non-current	343,114	359,391
	₩ 376,220	390,761

13. Provisions

(a) Changes in provisions for the nine-month period ended September 30, 2021 and for the year ended December 31, 2020 are as follows:

(i) For the nine-month period ended September 30, 2021

In millions of Korean won

		Beginning balance	Provision	Accretion expenses	Payment	Reversal of provision	Others (*1)	Ending balance
Decommissioning cost(*4)	₩	2,406,235	184	31,794	(28,763)	(1,139)	(5,415)	2,402,896
Provision for constructions		1,195	-	-	(1,181)	-	50	64
Allowance for salaries		15,226	-	-	-	(11,360)	814	4,680
Provision for litigations (*2)		-	3,771	-	-	-	179	3,950
Onerous contract (*3)		55,383	-	627	(8,933)	(180)	3,206	50,103
Others(*5)		31,580	-	-	-	-	15,158	46,738
	₩	2,509,619	3,955	32,421	(38,877)	(12,679)	13,992	2,508,431

(*1) Includes changes in estimates due to changes in discount rate and cashflows and the effect of changes in exchange rates.
(*2) The Group recognized the provision for the claim and interests related to the third ordinary wage lawsuit (accused on October 19, 2021).
(*3) The reversal of provision of ₩ 180 million is reflected in the sales commission.
(*4) Includes the decrease in provision of ₩ 179,501 million related to the disposal of assets for the nine-month period ended September 30, 2021.
(*5) The Group recognized the provision related to the loss on equity method accounting incurred by its joint venture, Deep Basic Partnership.

(ii) For the year ended December 31, 2020

In millions of Korean won

		Beginning balance	Acquisition in business combination(*2)	Accretion expenses(*1)	Payment	Reversal of provision	Others (*3)	Ending balance
Decommissioning cost	₩	2,155,849	18,159	56,703	(27,176)	(1,325)	204,025	2,406,235
Provision for constructions		10,254	-	-	(9,155)	-	96	1,195
Allowance for salaries		4,381	-	12,049	-	-	(1,204)	15,226
Provision for litigations (*4)		10,165	-	-	(8,818)	(5,010)	3,663	-
Onerous contract (*5)		99,449	-	1,273	(14,604)	(28,329)	(2,406)	55,383
Others		16,597	-	117	-	-	14,866	31,580
	₩	2,296,695	18,159	70,142	(59,753)	(34,664)	219,040	2,509,619

(*1) Includes the provisions
(*2) It is provisions recognized in relation to KADOC Ltd. that was reclassified as a subsidiary from a joint venture in the first half of 2020.
(*3) Includes decrease in provisions of ₩ 2,843 million, changes in estimates due to changes in discount rate and the effect of changes in exchange rates regarding disposal of assets.
(*4) Payment includes ₩ 3,339 million which is substituted provisions to unpaid amount, as the company losses of ordinary wage lawsuit.
(*5) The reversal of provision of ₩ 28,329 million is reflected in the sales commission.

14. Share Capital

The Company's total share capital is invested solely by the Korean government in accordance with the Korea National Oil Corporation Act and the authorized share capital is ₩13 trillion as of September 30, 2021. The changes in share capital during the nine-month period ended September 30, 2021 are as follows:

In millions of Korean won	**Description**		**Amount**
Beginning balance		₩	10,554,373
April 21, 2021	Contribution for oil stockpiling business		6,870
April 21, 2021	Contribution for development of oil field business		18,945
May 20, 2021	Contribution for oil stockpiling business		10,000
May 26, 2021	Contribution for development of oil field business		10,000
June 10, 2021	Contribution for development of oil field business		6,000
June 28, 2021	Contribution for oil stockpiling business		2,500
August 17, 2021	Contribution for development of oil field business		5,363
August 25, 2021	Contribution for oil stockpiling business		3,282
Ending balance		₩	10,617,333

15. Accumulated Deficit (The separate financial statements)

Details of accumulated deficit as of September 30, 2021 and December 31, 2020 are as follows:

In millions of Korean won		**September 30, 2021**	**December 31, 2020**
Undisposed accumulated deficit	₩	(13,179,891)	(13,100,234)

16. Other Components of Equity

(a) Details of other components of equity as of September 30, 2021 and December 31, 2020 are as follows:

In millions of Korean won		September 30, 2021	December 31, 2020
Other capital surpluses	₩	24,934	24,934
Accumulated other comprehensive loss		(569,341)	(33,724)
	₩	(544,407)	(8,790)

(b) Details of accumulated other comprehensive income or loss as of September 30, 2021 and December 31, 2020 are as follows:

In millions of Korean won		September 30, 2021	December 31, 2020
Revaluation surplus	₩	489,753	489,753
Loss on valuation of financial assets measured at fair value through other comprehensive income		(32,247)	(32,247)
Equity adjustments arising from investments in equity method investees		25,484	37,369
Foreign currency translation differences for foreign operations		(702,739)	(518,915)
Gains (losses) on valuation of derivative instruments		(349,592)	(9,684)
	₩	(569,341)	(33,724)

17. Revenue

(a) Details of revenue for the three-month and nine-month periods ended September 30, 2021 and 2020 are as follows:

(i) For the three-month and nine-month periods ended September 30, 2021

In millions of Korean won		2021			
		Three months		Nine months	
		Domestic	Overseas	Domestic	Overseas
Revenue from sale of goods					
Development					
Revenue from sale of products(Oil&Gas)	₩	2,776	489,396	11,680	1,488,995
Petroleum					
Revenue from sale of merchandise(Oil&Petroleum)		8,500	-	38,822	-
	₩	11,276	489,396	50,502	1,488,995
Revenue from rendering of services	₩				
Petroleum		-	84	-	340
Stockpile		9,856	22,030	29,160	65,744
	₩	9,856	22,114	29,160	66,084
Government grants	₩	552	-	913	-
Other income					
Development		-	3,236	-	11,483
Others		486	124	805	564
	₩	1,038	3,360	1,718	12,047
Total	₩	22,170	514,870	81,380	1,567,126

17. Revenue (cont'd)

(ii) For the three-month and nine-month periods ended September 30, 2020

In millions of Korean won		2020			
		Three months		Nine months	
		Domestic	Overseas	Domestic	Overseas
Revenue from sale of goods					
Development					
Revenue from sale of products(Oil&Gas)	₩	5,092	342,459	46,331	1,090,919
Petroleum					
Revenue from sale of Merchandise(Oil&Petroleum)		421	-	18,504	-
	₩	5,513	342,459	64,835	1,090,919
Revenue from rendering of services	₩				
Petroleum		-	5,267	-	3,390
Stockpile		7,621	24,575	38,090	191,475
	₩	7,621	29,842	38,090	194,865
Government grants	₩	144	-	818	-
Other income					
Development		-	7,395	-	30,623
Others		154	22	902	228
	₩	298	7,417	1,720	30,851
Total	₩	13,432	379,718	104,645	1,316,635

18. Other Income and Expense

(a) Details of other income for the three-month and nine-month periods ended September 30, 2021 and 2020 are as follows:

In millions of Korean won		2021		2020	
		Three months	Nine months	Three months	Nine months
Reversal of other provisions	₩	1,139	1,139	792	2,861
Reversal of provision for bad debt		-	-	123	123
Gains on reimbursement or compensation		-	8	1	7
Rental income		165	551	155	542
Others		3,393	13,226	7,467	29,793
	₩	4,697	14,924	8,538	33,326

(b) Details of other expense for the three-month and nine-month periods ended September 30, 2021 and 2020 are as follows:

In millions of Korean won		2021		2020	
		Three months	Nine months	Three months	Nine months
Transfer of other provisions	₩	44	3,771	(3)	561
Other bad debt expenses		570	4,262	(3,087)	4,358
Donations		117	804	145	1,505
othres		369	7,639	217	6,256
	₩	1,100	16,476	(2,728)	12,680

19. Other Profit and Loss

Details of other profit and loss for the three-month and nine-month periods ended September 30, 2021 and 2020 are as follows:

In millions of Korean won	2021		2020	
	Three months	**Nine months**	**Three months**	**Nine months**
Gains on disposal of property, plant and equipment	₩ 70	2,049	384	507
Gains on disposal of intangible assets other than goodwill	-	-	-	13
Gains on transaction of derivatives	2	274	-	229
Reversal of impairment losses on property, plant and equipment	9	785	(14)	2,582
Reversal of impairment losses on intangible assets other than goodwill	(60)	933	(67)	12,609
Gains on foreign currency translation	(19,918)	3,123	2,467	25,480
Gains on foreign currency transactions	30,479	58,583	10,710	37,224
Other gains	5,371	8,445	453	1,677
Gains on disposal of non-current non-financial assets	575	48,949	-	-
Losses on disposal of property, plant and equipment	(71)	(974)	539	(5,227)
Impairment losses on property, plant and equipment	(366)	(31,323)	(1,505)	(478,123)
Losses on disposal of intangible assests other than goodwill(*)	-	-	(4)	(4)
Impairment losses on intangible assets	(1,026)	(3,999)	(80,115)	(127,762)
Losses on foreign currency translation	10,346	(11,830)	5,883	(23,380)
Losses on foreign currency transactions	(30,425)	(53,098)	(11,904)	(44,160)
Other losses	(194)	(874)	(756)	(8,378)
	₩ (5,208)	21,043	(73,929)	(606,713)

(*) The amount for the nine-month period ended September 30, 2021 is less than ₩ 1 million.

20. Finance Income and Costs

(a) Details of finance income for the three-month and nine-month periods ended September 30, 2021 and 2020 are as follows:

In millions of Korean won		2021		2020	
		Three months	Nine months	Three months	Nine months
Interest income	₩	2,599	8,391	2,749	11,575
Dividend income		-	20	-	6
Gains on valuation of financial assets measured at fair values through profit or loss		15,330	96,594	292	8,210
Gains on valuation of financial liabilities measured at fair values through profit or loss		-	-	(194)	36,542
Gains on transactions of derivatives		7	478	(1,208)	93,996
Gains on foreign currency translation		75,534	182,319	2,767	68,040
Gains on foreign currency transactions		785	12,695	7,064	28,751
Other finance income(*)		63,343	63,343	-	-
	₩	157,598	363,840	11,470	247,120

(*) The Group recognized the amount by changing the estimated amount of special energy borrowings related to the gas hydrate project in consideration of government approval of the transition plan to the research stage and accumulation of experience related to commercial productivity.

(b) Details of finance costs for the three-month and nine-month periods ended September 30, 2021 and 2020 are as follows:

In millions of Korean won		2021		2020	
		Three months	Nine months	Three months	Nine months
Interest expense	₩	104,936	311,479	118,393	363,158
Losses on valuation of financial assets measured at fair values through profit or loss		11,251	11,612	(18,305)	237,691
Losses on valuation of financial liabilities measured at fair values through profit or loss		1,160	38,014	1,799	14,646
Losses on valuation of derivatives		32,767	32,767	(441)	83,305
Losses on transactions of derivatives		-	10	-	-
Losses on foreign currency translation		32,520	43,095	15,866	127,675
Losses on foreign currency transactions		1,693	9,898	18,624	29,474
Other finance costs		8,929	62,036	16,885	52,330
	₩	193,256	508,911	152,821	908,279

21. Gain (loss) on investments in associates and joint ventures

Details of gain and loss related to associates and joint ventures for the three-month and nine-month periods ended September 30, 2021 and 2020 are as follows:

In millions of Korean won	2021		2020	
	Three months	Nine months	Three months	Nine months
Gains on valuation of investments in associates and joint ventures	₩ 18,109	28,358	3,533	9,818
Gains on disposal of investments in associates and joint ventures	16	1,438	1,663	138,428
Losses on valuation of investments in associates and joint ventures	(38,407)	(66,655)	(6,953)	(100,899)
Impairment losses on investments in associates and joint ventures	-	-	(23,465)	(121,045)
	₩ (20,282)	(36,859)	(25,222)	(73,698)

22. Income Tax Expense (Benefit) from Continuing Operations

Income tax expense (benefit) is calculated by the estimated average effective tax rate applied to the expected annual income.

The components of income tax expense (benefit) for the nine-month periods ended September 30, 2021 and 2020 are as follows:

In millions of Korean won	2021		2020	
	Three months	Nine months	Three months	Nine months
Current income tax	₩ 69,144	202,283	31,934	63,637
Deferred tax directly charged to equity	96,892	152,462	(2,707)	22,620
Changes in deferred taxes arising from temporary differences	(36,724)	(108,059)	(38,448)	(50,846)
Adjustment for prior periods (*)	(49,808)	(95,655)	6,322	34,739
Income tax expense (benefit)	₩ 79,504	151,031	(2,899)	70,150

(*) The Company had a tax audit from the Busan Regional Tax Office for the corporate taxes reported and paid during 2015-2017. As a result, the Company was notified additional tax amount on July 23, 2020 and reflected the amount in the prior period's corporate tax expense. The tax notice was cancelled through the result of the review system of the legality before taxation. Thus, the Company reversed the related tax expense during the current period.

23. Expenses Classified by Nature

(a) Expenses classified by nature for the three-month and nine-month periods ended September 30, 2021 are as follows:

In millions of Korean won	Selling and administrative expenses		Cost of sales		Total	
	Three months	Nine months	Three months	Nine months	Three months	Nine months
Changes in inventories						
Merchandises	₩ -	-	1,886	3,272	1,886	3,272
Finished goods	-	-	3,578	214	3,578	214
Other inventories	-	-	6,332	5,295	6,332	5,295
Purchased inventories	-	-	2,047	9,236	2,047	9,236
Raw materials used	-	-	179	545	179	545
Salaries	20,629	59,269	43,921	128,657	64,550	187,926
Retirement benefits	1,848	6,276	1,229	4,327	3,077	10,603
Other employee benefits	2,522	10,425	1,569	6,570	4,091	16,995
Insurance	510	1,638	3,579	12,763	4,089	14,401
Depreciation	3,897	11,161	133,113	410,852	137,010	422,013
Amortization other than goodwill	644	1,906	10,645	36,883	11,289	38,789
Commissions and fees	3,735	14,365	20,713	44,614	24,448	58,979
Advertising	109	357	(155)	46	(46)	403
Education and training	82	663	489	1,654	571	2,317
Vehicle maintenance	144	493	282	685	426	1,178
Books and printing	41	154	(4)	11	37	165
Business development	22	64	439	451	461	515
Rent	413	961	9,860	25,086	10,273	26,047
Communications	132	390	145	449	277	839
Transport	-	-	(4,034)	59,325	(4,034)	59,325
Taxes and dues	87	658	5,342	19,177	5,429	19,835
Supplies	407	1,296	(3,411)	2,387	(3,004)	3,683
Utilities	199	813	11,538	39,708	11,737	40,521
Repairs	972	2,774	30,660	87,331	31,632	90,105
Research and development	426	4,218	1,760	1,760	2,186	5,978
Travel	128	405	52	203	180	608
Clothing expenses	1	5	(11)	51	(10)	56
Investigation and analysis	-	-	23	75	23	75
Association fee	68	168	-	13	68	181
Sales commissions	24,109	75,894	34,221	38,209	58,330	114,103
Others	2,123	7,497	38,567	119,394	40,690	126,891
	₩ 63,248	201,850	354,554	1,059,243	417,802	1,261,093

23. Expenses Classified by Nature (cont'd)

(b) Expenses classified by nature for the three-month and nine-month period ended September 30, 2020 are as follows:

In millions of Korean won	Selling and administrative expenses		Cost of sales		Total	
	Three months	Nine months	Three months	Nine months	Three months	Nine months
Changes in inventories						
Merchandises	₩ -	-	33,242	(43,904)	33,242	(43,904)
Finished goods	-	-	619	(1,226)	619	(1,226)
Other inventories	-	-	(4,091)	480	(4,091)	480
Purchased inventories	-	-	(30,315)	52,719	(30,315)	52,719
Raw materials used	-	-	708	2,542	708	2,542
Salaries	24,115	73,336	48,403	151,757	72,518	225,093
Retirement benefits	1,960	5,647	1,207	3,389	3,167	9,036
Other employee benefits	4,861	10,955	2,987	7,197	7,848	18,152
Insurance	565	1,545	4,877	15,245	5,442	16,790
Depreciation	4,136	12,419	163,309	572,470	167,445	584,889
Amortization other than goodwill	876	2,444	16,890	46,462	17,766	48,906
Commissions and fees	3,884	16,934	10,568	31,315	14,452	48,249
Advertising	142	415	7	66	149	481
Education and training	133	600	83	366	216	966
Vehicle maintenance	243	749	169	528	412	1,277
Books and printing	42	178	3	12	45	190
Business development	16	62	239	254	255	316
Rent	95	559	4,732	18,063	4,827	18,622
Communications	151	430	175	470	326	900
Transport	-	-	41,232	121,638	41,232	121,638
Taxes and dues	495	1,938	10,175	21,688	10,670	23,626
Supplies	555	1,095	1,388	4,446	1,943	5,541
Utilities	340	838	11,617	41,330	11,957	42,168
Repairs	799	2,920	38,137	100,132	38,936	103,052
Research and development	156	2,939	-	-	156	2,939
Travel	168	453	81	251	249	704
Clothing expenses	3	3	19	84	22	87
Investigation and analysis	-	-	2	31	2	31
Association fee	24	92	(1)	14	23	106
Promotion fee	-	-	(25)	141	(25)	141
Sales commissions	17,089	33,160	3,106	3,106	20,195	36,266
Others	3,417	8,324	15,104	156,039	18,521	164,363
	₩ 64,265	178,035	374,647	1,307,105	438,912	1,485,140

24. Categories of Financial Instruments

(a) Details of current financial assets by category as of September 30, 2021 and December 31, 2020 are as follows:

(i) As of September 30, 2021

In millions of Korean won		Fair value through profit or loss	Amortized costs(*)	Fair value - Hedging Instruments	Total
Cash and cash equivalents	₩	-	915,276	-	915,276
Current financial assets at fair value through profit or loss		690,849	-	-	690,849
Current derivative assets		-	-	1,540	1,540
Others current financial assets		-	806	-	806
Trade and other receivables		-	549,217	-	549,217
	₩	690,849	1,465,299	1,540	2,157,688

(*) The fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

(ii) As of December 31, 2020

In millions of Korean won		Fair value through profit or loss	Amortized costs(*)	Fair value - Hedging Instruments	Total
Cash and cash equivalents	₩	-	796,779	-	796,779
Current financial assets at fair value through profit or loss		536,900	-	-	536,900
Short loans		-	30,736	-	30,736
Current derivative assets		446	-	49,027	49,473
Others current financial assets		-	740	-	740
Trade and other receivables		-	433,710	-	433,710
	₩	537,346	1,261,965	49,027	1,848,338

(*) The fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

24. Categories of Financial Instruments (cont'd)

(b) Details of non-current financial assets by category as of September 30, 2021 and December 31, 2020 are as follows:

(i) As of September 30, 2021

In millions of Korean won		Fair value through profit or loss	Fair value through other comprehensive income	Amortized costs(*1)	Fair value - Hedging Instruments	Total
Non-current financial assets at fair value through profit or loss (*2)	₩	847,755	-	-	-	847,755
Non-current financial assets at fair value through other comprehensive income		-	13,282	-	-	13,282
Long-term loans		-	-	105,435	-	105,435
Long-term financial insturments		-	-	5,925	-	5,925
Non-current derivative assets		-	-	-	43,024	43,024
Long-term trade and other receivables		-	-	46,865	-	46,865
	₩	847,755	13,282	158,225	43,024	1,062,286

(*1) The fair values of the financial assets measured at amortized costs do not significantly differ from their book values.
(*2) Loans and accrued income from related parties are included.

(ii) As of December 31, 2020

In millions of Korean won		Fair value through profit or loss	Fair value through other comprehensive income	Amortized costs(*1)	Fair value - Hedging Instruments	Total
Non-current financial assets at fair value through profit or loss (*2)	₩	674,664	-	-	-	674,664
Non-current financial assets at fair value through other comprehensive income		-	12,196	-	-	12,196
Long-term loans		-	-	105,424	-	105,424
Long-term financial insturments		-	-	5,601	-	5,601
Non-current derivative assets		-	-	-	122,516	122,516
Long-term trade and other receivables		-	-	44,062	-	44,062
	₩	674,664	12,196	155,087	122,516	964,463

(*1) The fair values of the financial assets measured at amortized costs do not significantly differ from their book values.
(*2) Loans and accrued income from related parties are included.

24. Categories of Financial Instruments (cont'd)

(c) Details of current financial liabilities by category as of September 30, 2021 and December 31, 2020 are as follows:

(i) As of September 30, 2021

In millions of Korean won		Fair value through profit or loss	Amortized costs(*)	Fair value - Hedging Instruments	Total
Current financial liability at fair value through profit or loss	₩	8,656	-	-	8,656
Short-term borrowings		-	59,245	-	59,245
Current portion of long-term borrowings		-	1,152,032	-	1,152,032
Current portion of bonds		-	2,682,204	-	2,682,204
Current portion of derivative liabilities		-	-	490,172	490,172
Other current financial liabilities		-	37,516	-	37,516
Trade and other payables		-	700,743	-	700,743
	₩	8,656	4,631,740	490,172	5,130,568

(*) The fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

(ii) As of December 31, 2020

In millions of Korean won		Fair value through profit or loss	Amortized costs(*)	Fair value - Hedging Instruments	Total
Current financial liability at fair value through profit or loss	₩	2,585	-	-	2,585
Short-term borrowings		-	259,156	-	259,156
Current portion of long-term borrowings		-	1,151,137	-	1,151,137
Current portion of bonds		-	1,644,978	-	1,644,978
Current portion of derivative liabilities		-	-	18,219	18,219
Other current financial liabilities		-	8,576	-	8,576
Trade and other payables		-	619,688	-	619,688
	₩	2,585	3,683,535	18,219	3,704,339

(*) The fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

24. Categories of Financial Instruments (cont'd)

(d) Details of non-current financial liabilities by category as of September 30, 2021 and December 31, 2020 are as follows:

(i) As of September 30, 2021

In millions of Korean won		Fair value through profit or loss	Amortized costs(*)	Fair value - Hedging Instruments	Total
Non-current financial liabilities at fair value through profit or loss	₩	54,195	-	-	54,195
Long-term borrowings		-	1,022,157	-	1,022,157
Bond payables		-	10,533,613	-	10,533,613
Derivative liabilities		-	-	158,528	158,528
Long-term trade and other payables		-	462,403	-	462,403
	₩	54,195	12,018,173	158,528	12,230,896

(*) The fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

(ii) As of December 31, 2020

In millions of Korean won		Fair value through profit or loss	Amortized costs(*)	Fair value - Hedging Instruments	Total
Non-current financial liabilities at fair value through profit or loss	₩	29,540	-	-	29,540
Long-term borrowings		-	1,011,132	-	1,011,132
Bond payables		-	10,211,308	-	10,211,308
Derivative liabilities		-	-	52,267	52,267
Long-term trade and other payables		-	528,379	-	528,379
	₩	29,540	11,750,819	52,267	11,832,626

(*) The fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

25. Risk Management

(a) Capital management

The primary objective of the Group's capital management is to ensure that it maintains a strong credit rating and capital ratios in order to support its business and maximize the owners' value. The Group's management reviews its capital structure, and to maintain the sound capital structure, the Group's management may issue new shares and raise funds from bond offerings, etc. The Group's capital structure consists of equity and net liabilities which cash and cash equivalents has been deducted from borrowngs. No changes were made in the objectives, policies or processes for managing capital for the nine-month period ended September 30, 2021.

The Group's debt-to-equity ratio as of September 30, 2021 and December 31, 2020 are as follows:

In millions of Korean won		September 30, 2021	December 31, 2020
Total borrowings and debt securities (A)	₩	15,449,251	14,277,711
Cash and cash equivalents (B)		915,276	796,779
Net borrowings and debt securities (A – B = C)		14,533,975	13,480,932
Total equity (D)		(1,504,067)	(1,140,911)
Total invested capital (C + D = E)	₩	13,029,908	12,340,021
Net borrowings and debt securities-to-total invested capital ratio (C/E)		111.54%	109.25%

(b) Financial risk management

The Group is exposed to various risks related to its financial instruments such as credit risk, market risk (currency risk, interest rate risk and price risk) and liquidity risk.

(i) Risk management structure

The board of directors is responsible for implementing and monitoring the Group's risk management structure, and management regularly updates the policies for each risk and confirms the validity of the policies. The purpose of the risk management policies is to identify the risks that could potentially affect the Group's financial results and reduce, to an acceptable level, avoid or eliminate those risks. The policies are reviewed regularly to reflect the current market conditions and the Group's activities. The Group makes constant efforts to improve the policies by monitoring on real time basis and with support from the outside experts. The Audit Committee oversees the Group management's compliance of the risk management policies and procedures and reviews the effectiveness of the structure.

(ii) Credit risk

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations. The degree of exposure to credit risk arises mainly from sales activities and also arises from debt securities, derivatives and financial guarantee contracts. For financial transactons, the Group manages its exposure to this credit risk by only entering into transactions with banks that have high international credit ratings. For general customers' transactions, credit is evaluated in consideration of the customer's financial position, past experience, and other factors.

25. Risk Management (cont'd)

(b) Financial risk management (cont'd)

(ii) Credit risk (cont'd)

Book values of the financial assets and guarantee amounts by the contract represent the maximum amounts exposed to the credit risk. Details of the Group's level of maximum exposure to credit risk as of September 30, 2021 and December 31, 2020 are as follows:

In millions of Korean won		September 30, 2021	December 31, 2020
Cash and cash equivalents	₩	915,276	796,779
Derivative assets		44,564	171,990
Financial assets at amortized cost		708,248	620,273
Financial assets at fair value through profit or loss		1,538,604	1,211,564
Equity investment at fair value through other comprehensive income		13,282	12,196
Financial guarantee contracts (*)		84,056	72,286

(*) It represents to the maximum amount of financial guarantee provided by the Group.

Details of maturities for financial assets measured at amortized cost and their impaired amounts as of September 30, 2021 and December 31, 2020 are as follows:

In millions of Korean won		September 30, 2021		December 31, 2020	
		Balance	Impairment	Balance	Impairment
Not past due	₩	988,078	(639,910)	1,087,670	(565,772)
0 ~ 30 days		290,461	(404)	23,783	(414)
31 ~ 60 days		-	-	2,801	-
More than 61 days		79,829	(9,806)	101,646	(29,441)
	₩	1,358,368	(650,120)	1,215,900	(595,627)

Details of changes in allowance for impairment of financial assets measured at amortized cost for the nine-month period ended September 30, 2021 and for the year ended December 31, 2020 are as follows:

In millions of Korean won		2021	2020
Beginning balance	₩	595,627	632,125
Impairment loss		4,262	4,541
Write-off		-	(2,558)
Others (*)		50,231	(38,481)
Ending balance	₩	650,120	595,627

(*) Include the effect of changes in exchange rates and others.

25. Risk Management (cont'd)

(b) Financial risk management (cont'd)

(ii) Credit risk (cont'd)

Aging of past due but not impaired financial assets as of September 30, 2021 and December 31, 2020 are as follows:

1) As of September 30, 2021

In millions of Korean won		Book value	Less than 6 months	6~12 months	1~2 years	2~5 years	More than 5 years
Financial assets measured at amortized cost	₩	360,080	300,911	33,152	22,629	-	3,388

2) As of December 31, 2020

In millions of Korean won		Book value	Less than 6 months	6~12 months	1~2 years	2~5 years	More than 5 years
Financial assets measured at amortized cost	₩	98,375	31,922	36,764	26,568	-	3,121

(iii) Market risk

1) Crude oil price risk

Crude oil price risk is the risk that the profit or cash flows will fluctuate due to changes in the international market prices of crude oil. The Group entered into derivative contracts according to the expected fluctuations of changes in the international market prices of crude oil to avoid the crude oil price risk and secure the product margin. With all other variables held constant, the changes in Company's profit before tax for the nine-month periods ended September 30, 2021 and 2020, from crude oil price fluctuations are as follows:

In millions of Korean won		2021		2020	
		Increase by 10%	Decrease by 10%	Increase by 10%	Decrease by 10%
Increase (decrease) of profit before tax	₩	127,349	(127,349)	106,595	(106,595)

2) Interest rate risk

The Group is exposed to interest rate risk due to its borrowings with floating interest rates. Assuming a 100 basis point increase or decrease in interest rate for the current period, the Group's total equity and its profit or loss will also increase or decrease. The Group mitigates risks from fluctuation in interest rate through interest rate swap contracts.

Except for the effect of derivative transactions, this analysis considers the Group's total exposed risks associated with the fluctuation in interest rate. Assuming that other variables such as exchange rates do not change, the specific amount of change in equity and profit or loss is as follows.

25. Risk Management (cont'd)

(b) Financial risk management (cont'd)

(iii) Market risk (cont'd)

In millions of Korean won

	2021		2020	
	Increase by 1%	Decrease by 1%	Increase by 1%	Decrease by 1%
Increase (decrease) of profit before tax	₩ (13,551)	13,551	(23,339)	23,339

3) Foreign currency risk

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates. The Group is exposed to currency risk from the sales, purchases and borrowings not in United States dollar. The Group reduces currency risk from fluctuations in foreign exchange rates by carrying out and interest rate swap and currency swaps.

Without considering the above effect of the derivatives, the Group's exposures to foreign currency risk as of September 30, 2021 and December 31, 2020 are as follows:

In thousands of foreign currencies and millions of Korean won

		September 30, 2021		December 31, 2020	
	Currency	Foreign currencies	Equivalent to Korean won	Foreign currencies	Equivalent to Korean won
Financial assets					
Denominated in foreign currencies	KRW	189,849	₩ 189,849	222,396	₩ 222,396
	VND	67,565,545	3,523	80,696,621	3,470
	EGP	-	-	287,700	18,298
			₩ 193,372		₩ 244,164
Financial liabilities					
Denominated in foreign currencies	KRW	1,633,051	₩ 1,633,051	1,434,104	1,434,104
	EUR	352,586	484,582	375,732	462,150
	SGD	397,896	346,198	402,173	330,667
	HKD	961,849	146,337	1,892,815	265,660
	CHF	1,201,444	1,523,242	1,202,453	1,484,231
	VND	138,156,989	7,203	33,936,930	1,459
	JPY	69,714,303	737,741	69,841,045	736,315
			₩ 4,878,354		₩ 4,714,586

25. Risk Management (cont'd)

(b) Financial risk management (cont'd)

(iii) Market risk (cont'd)

3) Foreign currency risk (cont'd)

The exchange rates applied for the nine-month periods ended September 30, 2021 and 2020, and as of September 30, 2021 and December 31, 2020 are as follows:

In US dollar per one foreign currency and Korean won

	Average rates		Reporting date spot rate	
Currency	**2021**	**2020**	**September 30, 2021**	**December 31, 2020**
KRW	0.0009	0.0008	0.0008	0.0009
EUR	1.1965	1.125	1.1599	1.23
SGD	0.7468	0.7193	0.7343	0.7557
HKD	0.1288	0.1289	0.1284	0.129
CHF	1.0971	1.053	1.07	1.1345
VND(100)	0.0043	0.0043	0.0044	0.0043
JPY(100)	0.9215	0.9301	0.8931	0.969
EGP	-	0.0631	-	0.0636

A sensitivity analysis below indicates the effect on the Group's profit before tax from the fluctuations in each function currency exchange rate. As of September 30, 2021 and December 31,2020, the effect of a 5% increase or decrease in each functional currency exchange rate on profit before tax assuming all other variables held constant is as follows:

In millions of Korean won

		2021		2020	
	Currency	**Increase by 5%**	**Decrease by 5%**	**Increase by 5%**	**Decrease by 5%**
Increase (decrease) of profit before tax	KRW	₩ (68,878)	68,878	(65,711)	65,711
	EUR	(23,127)	23,127	(27,268)	27,268
	SGD	(16,523)	16,523	(17,932)	17,932
	HKD	(6,984)	6,984	(14,407)	14,407
	CHF	(72,698)	72,698	(80,490)	80,490
	VND	(176)	176	118	(118)
	JPY	(35,209)	35,209	(39,930)	39,930
	EGP	-	-	1,080	(1,080)

25. Risk Management (cont'd)

(b) Financial risk management (cont'd)

(iv) Liquidity risk

Details of contractual maturities of financial liabilities as of September 30, 2021 are as follows:

In millions of Korean won		Book Value	Contractual cash flows (*1)	Less than 1 year	1 ~ 2 years	2 ~ 5 years	More than 5 years (*2)
Short-term borrowings	₩	59,245	59,697	59,697	-	-	-
Bonds payable		13,215,817	14,640,019	2,932,249	2,560,462	6,180,875	2,966,433
Long-term borrowings (*2)		2,174,189	2,207,527	1,160,064	792,644	44,990	209,829
Lease liabilities		376,220	689,400	33,833	23,898	66,943	564,726
Trade and other payables (*2)		786,926	940,848	686,376	51,468	74,954	128,050
Derivatives liabilities		648,700	648,700	490,172	132,454	26,074	-
Financial liabilities measured at fair value through profit or loss		62,851	80,976	8,656	2,010	61,788	8,522
Financial guarantee liabilities (*3)		37,516	83,372	83,372	-	-	-
	₩	17,361,464	19,350,539	5,454,419	3,562,936	6,455,624	3,877,560

(*1) Contractual cash flows include the estimated interest payments but exclude the effects of offsetting contracts.

(*2) Loans from Special Accounting for Energy and Resources (″SAER″) included in borrowings and trade and other payables have no specific maturity as entities were borrowed under the condition that the Group is not obligated to make repayment of the principal and interest until the exploration is proven to be successful.

(*3) Financial guarantee is allocated at the earliest period when the maximum amount could be requested.

The Group had a working capital (current assets minus current liabilities) deficit of ₩ 3,004,943 million as of September 30, 2021. The Group's management currently anticipates that expected future capital contributions from the Government and the cash flows that the Group generates from its operations, together with its existing cash and cash equivalents and credit sources, will be sufficient to meet its currently anticipated needs for working capital, capital expenditures and business expansion throughout the foreseeable future

(iv) Other price risk

Other price risk is the risk that the fair value or cash flows of financial instruments will fluctuate because of changes in market prices other than interest rate risk and foreign currency risk. The Group's marketable equity securities among financial assets measured at fair value through profit or loss are exposed to market price risk. However, the Group's management believes that the effect of the fluctuation in the price of the securities on other comprehensive income is not significant as of September 30, 2021

25. Risk Management (cont'd)

(c) Fair value measurement

(i) Fair value and book value of financial assets and liabilities as of September 30, 2021 and December 31, 2020 are as follows:

In millions of Korean won		September 30, 2021		December 31, 2020	
		Book Value	Fair Value	Book Value	Fair Value
Assets recognized at fair value					
Financial assets measured at fair value through other comprehensive income	₩	13,282	13,282	12,196	12,196
Financial assets measured at fair value through profit or loss		1,538,604	1,538,604	1,211,564	1,211,564
Currency forward		1,540	1,540	48,036	48,036
Currency swap		43,024	43,024	123,030	123,030
Other derivative		-	-	924	924
	₩	1,596,450	1,596,450	1,395,750	1,395,750
Assets recognized at amortized costs					
Cash and cash equivalent	₩	915,276	915,276	796,779	796,779
Loans		105,435	105,435	136,160	136,160
Long-term financial instruments		5,925	5,925	5,601	5,601
Other financial assets		806	806	740	740
Trade receivables and other receivables		596,082	596,082	477,771	477,771
	₩	1,623,524	1,623,524	1,417,051	1,417,051
Liabilities recognized at fair value					
Currency forward	₩	2,537	2,537	-	-
Currency swap		81,751	81,751	26,465	26,465
Interest swap		31,443	31,443	44,021	44,021
Financial liabilities measured at fair value through profit or loss		62,851	62,851	32,125	32,125
Other derivative		532,969	532,969	-	-
	₩	711,551	711,551	102,611	102,611
Liabilities recognized at amortized costs					
Bond payables	₩	13,215,817	13,215,817	11,856,286	11,856,286
Bank borrowings		2,233,434	2,233,434	2,421,425	2,421,425
Trade and payables		1,163,146	1,163,146	1,148,067	1,148,067
Other current financial liabilities		37,516	37,516	8,576	8,576
	₩	16,649,913	16,649,913	15,434,354	15,434,354

The book value of financial assets and liabilities recognised as amortised costs does not differ significantly from fair value.

25. Risk Management (cont'd)

(c) Fair value measurement (cont'd)

(ii) Fair value hierarchy

The following table provides an analysis of financial instruments that are measured subsequent to initial recognition at fair value, classified as Level 1, 2, or 3, based on the degree to which the fair value is observable.

Level 1: Unadjusted quoted prices in active markets for identical assets or liabilities;
Level 2: Inputs other than quoted prices that are observable for the asset or liability either directly or indirectly; and
Level 3: Inputs for the asset or liabilitiy that are not based on observable market data.

Fair values of financial instruments by hierarchy level as of September 30, 2021 and December 31, 2020 are as follows:

1) As of September 30, 2021

In millions of Korean won		September 30, 2021(*)			
		Level 1	**Level 2**	**Level 3**	**Total**
Financial assets at fair value					
Financial assets measured at fair value through other comprehensive income	₩	-	-	13,282	13,282
Financial assets measured at fair value through profit or loss		-	574,413	964,191	1,538,604
Derivative assets		-	44,564	-	44,564
	₩	-	618,977	977,473	1,596,450
Financial liabilities at fair value					
Derivative liabilities	₩	-	648,700	-	648,700
financial liability at fair value through profit or loss		-	-	62,851	62,851
	₩	-	648,700	62,851	711,551

(*) There was no transactions between levels of financial instruments in current period

2) As of December 31, 2020

In millions of Korean won		December 31, 2020(*)			
		Level 1	**Level 2**	**Level 3**	**Total**
Financial assets at fair value					
Financial assets measured at fair value through other comprehensive income	₩	-	-	12,196	12,196
Financial assets measured at fair value through profit or loss		-	536,900	674,664	1,211,564
Derivative assets		-	171,990	-	171,990
	₩	-	708,890	686,860	1,395,750
Financial liabilities at fair value					
Derivative liabilities	₩	-	70,486	-	70,486
financial liability at fair value through profit or loss		-	-	32,125	32,125
	₩	-	70,486	32,125	102,611

(*) There was no transactions between levels of financial instruments in previous period

26. Related Parties

(a) The Group's related parties as of September 30, 2021 are as follows:

Type	Related parties
Associates	Oilhub Korea Yeosu Co., Ltd.
	Kernhem B.V.
	ADA Oil LLP
	Korea GS E&P Pte. Ltd.
	Parallel Petroleum LLC
	KNOC EF Star LLC and its subsidiaries(*1)
Joint ventures	KNOC Inam Ltd.
	KNOC Bazian Ltd. (*2)
	KNOC Nigerian West Oil Company Ltd.
	KNOC Nigerian East Oil Company Ltd.
	K.K. Korea kamchatka Co. Ltd.
	KC kazakh B.V.
	KNOC Ferghana Ltd.
	KNOC Ferghana2 Ltd.
	Korea Energy Terminal Co., Ltd.
	Deep Basin Partnership
	HKMS Partnership
	KNOC-VOGO Eagle Ford LLC
	Al Dhafra Petroleum

26. Related Parties (cont'd)

(b) Transactions between the Company and its subsidiaries have been removed at the time of consolidation and are not disclosed in the notes. Significant transactions with related parties for the nine-month periods ended September 30, 2021 and 2020 are as follows:

(i) For the nine-month period ended September 30, 2021

In millions of Korean won

	Transaction		Sales and others	Purchases and others
Oilhub Korea Yeosu Co., Ltd.	Rental service income	₩	1,151	-
	Interest expense on lease liabilities		-	19
Kernhem B.V.	Interest income on loans		973	-
	Other bad debt expenses		-	973
ADA Oil LLP	Interest income on loans		198	-
	Other incomes		936	-
	Other bad debt expenses		-	198
KNOC Nigerian West Oil Company Ltd.	Losses on valuation of financial assets measured at fair value through profit or loss		-	187
KNOC Nigerian East Oil Company Ltd.	Losses on valuation of financial assets measured at fair value through profit or loss		-	127
Offshore International Group, Inc.(*1)	Interest income on loans		-	-
KNOC Ferghana2 Ltd.	Losses on valuation of financial assets measured at fair value through profit or loss		-	478
KADOC Ltd.(*2)	Gains on valuation of financial asset measured at fair value through profit or loss		-	-
Korea Energy Terminal Co., Ltd.	Other incomes		1,063	-
Parallel Petroleum LLC	Accrual for financial guarantee liabilities		-	26,895
Deep Basin Partnership	Other expenses		-	229
	Other incomes		362	-
HKMS Partnership	Other incomes		123	-
KNOC EF STAR LLC	Interest expense		-	10,580
		₩	4,806	39,686

26. Related Parties (cont'd)

(ii) For the nine-month period ended September 30, 2020

In millions of Korean won

	Transaction		Sales and others	Purchases and others
Oilhub Korea Yeosu Co., Ltd.	Rental service income	₩	1,216	-
	Interest expense on lease liabilities		-	323
Kernhem B.V.	Interest income on loans		1,476	-
	Other bad debt expenses		-	1,476
ADA Oil LLP	Interest income on loans		231	-
	Other incomes		1,050	-
	Other bad debt expenses		-	231
	Revesal of other bad debt expenses		123	-
KNOC Nigerian West Oil Company Ltd.	Losses on valuation of financial assets measured at fair value through profit or loss		-	266
KNOC Nigerian East Oil Company Ltd.	Losses on valuation of financial assets measured at fair value through profit or loss		-	219
Offshore International Group, Inc.(*1)	Interest income on loans		1,359	-
KNOC Ferghana2 Ltd.	Losses on valuation of financial assets measured at fair value through profit or loss		-	277
KADOC Ltd.(*2)	Gains on valuation of financial assets measured at fair value through profit or loss		7,381	-
Korea Energy Terminal Co., Ltd.	Interest income on loans		280	-
	Other incomes		3,152	-
Deep Basin Partnership	Other expenses		-	170
	Other incomes		419	-
HKMS Partnership	Other incomes		117	-
KNOC EF STAR LLC	Interest expense		-	10,609
		₩	16,804	13,571

(*1) The Offshore International Group Inc, which was classified as non-current assets held for sale at the end of the previous year, has been excluded from the related parties as the sale was completed in January 2021.

(*2) It has been reclassified from a joint venture to a subsidiary during the previous year. The Company has entered into an oil purchase contract with KADOC Ltd. during the previous year and recognized only the difference amount between sales and purchase amounts as profit by selling the purchased crude oil to third parties without risk. The purchase amount before reclassification of subsidiary was ₩ 64 billion.

26. Related Parties (cont'd)

(c) The receivables and payables, arising from the transactions with related parties as of September 30, 2021 and December 31, 2020 are as follows:

In millions of Korean won

	Transaction	Receivables		Payables	
		September 30, 2021	December 31, 2020	September 30, 2021	December 31, 2020
Oilhub Korea Yeosu Co., Ltd.	Other accounts receivables	₩ -	1	-	-
	Other accounts payable	-	-	-	1,256
	Lease liabilities	-	-	-	3,406
Offshore International Group, Inc.(*1)	Accured income	-	186	-	-
KNOC Nigerian West Oil Company Ltd.	Accured income(*2)	26,990	24,783	-	-
	Other accounts payable	-	-	142	-
KNOC Nigerian East Oil Company Ltd.	Accured income(*2)	30,755	28,240	-	-
	Other accounts payable	-	-	59	-
Parallel Petroleum LLC	Financial guarantee liabilities	-	-	28,177	-
KADOC Ltd.(*3)	Other accounts receivables	-	2,039	-	-
ADA Oil LLP	Other liability	-	-	131	134
Al Dhafra Petroleum	Other accounts receivables	514	1,612	-	-
	Other accounts payable	-	-	30,782	38,050
KNOC EF STAR LLC	Accured expense	-	-	1,390	1,420
		₩ 58,259	56,861	60,681	44,266

(*1) It was a joint venture at the end of the previous year, but it was sold during the current period
(*2) As of September 30, 2021, allowance for bad debts was recognized for 100% of the related receivables.
(*3) It was reclassified from a joint venture to a subsidiary during the previous year.

The balance of receivables and payables above excluded balances of loans to and borrowings from related parties.

(d) The loans to related parties as of September 30, 2021 and December 31, 2020 are as follows:

In millions of Korean won

			September 30, 2021	December 31, 2020
Associates	Kernhem B.V.(*1)	₩	51,831	47,592
	ADA OIL LLP(*1)		11,763	10,802
Joint Ventures	KNOC INAM Ltd.(*1)	₩	28,022	25,730
	KNOC Bazian Ltd.(*1)		104,105	95,592
	KNOC Nigerian East Oil Company Ltd.(*1)		28,524	26,069
	KNOC Nigerian West Oil Company Ltd.(*1)		30,053	27,415
	K.K. Korea Kamchatka Co. Ltd. (*1)		136,784	125,598
	KC kazakh B.V.(*1)		204,082	187,392
	Offshore International Group(*2)		-	30,736
	KNOC Ferghana Ltd.(*1)		30,979	28,445
	KNOC Ferghana2 Ltd.(*1)		21,539	19,318
		₩	647,682	624,689

(*1) As of September 30, 2021, allowance for bad debt was recognized for 100% of the related loans.
(*2) As the sale of the entity, which was a joint venture during the prior period, was completed in January 2021, the entity was excluded from the related parties for the nine-month period ended September 30, 2021.

26. Related Parties (cont'd)

The above loan is the amount before the allowance for bad debt is reflected.

During the nine-month period ended September 30, 2021, the Group lent ₩792 million to its associates and joint ventures and recognized ₩ 792 million as an bad debt expense. Meanwhile, the entire loan amount of Offshore International Group, Inc., which was a joint venture in the previous year , was reclassified to general long-term loans, and the increase due to the exchange rate fluctuation effect was ₩ 1,215 million.

(e) The borrowings from the related parties as of September 30, 2021 and December 31, 2020 are as follow.

In millions of Korean won

			September 30, 2021	December 31, 2020
Associates	KNOC EF Star LLC	₩	452,602	452,602

(f) There is no lease agreement with the related parties as of September 30, 2021.

(g) As of September 30, 2021, the details of the payment guarantee provided by the Group to the related parties are as follows:

In thousandss of foreign currecny

Company Provided	Company Received	Detail of Contract	Limit Amount	Maturity
KNOC	Parallel Petroleum LLC (*1)	Bank credit payment guarantee	USD 15,580	Until loans fully repaid
	Korea GS E&P Pte. Ltd. (*2)	Bank credit payment guarantee	USD 19,800	July 6, 2021 ~ July 6, 2022
			USD 9,000	July 2, 2021 ~ July 1, 2022
			USD 9,900	July 23, 2021 ~ July 22, 2022

(*1) This is a payment guarantee provided indirectly by Samsung C&T Co., Ltd and other companies (See note 28(c)).

(*2) This is the payment guarantee provided indirectly through GS Energy (See note 28(c)).

(h) As of September 30, 2021, the Group is not provided with any guarantees from the related parties.

(i) There is no loan agreement with the related parties as of September 30, 2021.

(j) As of September 30, 2021, other transactions with related parties are as follows:

KNOC EF Star LLC, an associate of KNOC EagleFord Corp., has entered into a contract to acquire redeemable preferred stocks(RPS) with JB Patriot Private Equity Fund, and the Group has entered into a funding agreement with KNOC EagleFord Corp. and associates up to USD 385 million

(k) The compensations to the Parent Company's key management personnel for the nine-month periods ended September 30, 2021 and 2020, are as follows:

In millions of Korean won		2021	2020
Short-term employee benefits	₩	378	464
Retirement benefits		30	33
	₩	408	497

27. Additional Cash Flow Statement Information

Non-Cash Transactions

Significant non-cash investing and financing transactions excluded from the statements of cash flows for the nine-month periods ended September 30, 2021 and 2020 are as follows:

in millions of Korean won		**2021**	**2020**
Bond payables transferred to current portion	₩	2,117,462	1,328,557
Long-term loans transferred to current portion		384,380	33,921
Long-term borrowings transferred to financial assets measured at fair value through profit or loss(*1)		31,951	-
Construction in progress transferred to tangible&intangible assets		272,163	17,575
Provisions transferred to current portion		42,905	11,135
Financial assets measured at fair value through profit or loss transferred to investments in associates and joint ventures (*2)		-	2,574
Derivative assets transferred to investments in associates and joint ventures (*3)		-	17,809

(*1) The classification of loans to Savia Peru was changed during the nine-month period ended September 30, 2021.
(*2) The loan to Korea Energy Terminal Co. Ltd. has been swapped to equity.
(*3) The Group acquired 30% stake of Korea GS E&P Pte. Ltd, by exercising the stock option.

28. Contingencies and Commitments

(a) Details of the Group's significant pending litigations as of September 30, 2021 are as follows :

In millions of Korean won, thousands of USD

Court	Plaintiff	Defendant	Description (*1)	Amount	Process
Seoul Central District Court	SK Engineering & Construction Co., Ltd. and POSCO Engineering & Construction Co., Ltd.	The Parent Company	Claiming adjustment of contracted amount due to design change and extension of construction period and additional construction charge thereto. (1st claim)	₩ 6,413	In first trial
Seoul Central District Court	SK Engineering & Construction Co., Ltd. And POSCO Engineering & Construction Co., Ltd.	The Parent Company	Claiming adjustment of contracted amount due to design change and extension of construction period and additional construction charge thereto. (2nd claim)	₩ 12,578	In first trial
Seoul Central District Court	SK Engineering & Construction Co., Ltd.	The Parent Company	Claiming construction costs, overhead and stone pipe construction cost which is equivalent to late compensation imposed by the Company	₩ 2,948	In first trial
State Court of Lagos, Nigeria (*2)	AAA Conpany and Dr. Owolabi	The Parent Company	Claims for damages equivalent to brokerage fees, claims for contribution to acquisition of a mining site	USD 100,000	In first trial

(*1) As of September 30, 2021, in addition to the above lawsuits, 3 lawsuits have been filed against the Group, with the total litigation value of ₩ 35 million, and 12 cases were filed by the Group, with the total litigation value of ₩ 12,960 million.

(*2) Dr. Owolabi and others are engaged in a lawsuit demanding that the Company pay for the cooperation to acquire Nigerian mining rights. The Group currently believes that it has no obligations as of September 30, 2021, and it has not recognized any provisions for these litigations.

(b) For the Peru Block 8 project, an international arbitration is in progress (from Apr 2021) to determine whether or not to automatically terminate the mining right after the operator notified the liquidation due to the Peruvian government's excessive demand for environmental restoration and fines. Although the obligation of decommissioning and fine to be borne by the Group has yet to be determined, under the Joint Operation Agreement (JOA), the Company fulfills its obligation to pay as much as the participating interest of the Company for the responsibilities and expenses incurred by the joint operation until the end of the project.

28. Contingencies and Commitments (cont'd)

(c) The Group has provided loan guarantees to non-related parties as of September 30, 2021 and December 31, 2020 are as follows:

In thousands of US dollar

Description of guarantee	Guaranteed party	Guarantee period	September 30, 2021	December 31, 2020
Payment guarantee for Parallel business	Samsung C&T Corporation and others	Until loans fully repaid	$ 8,459 15,580	8,459 23,780
Payment guarantee for Korea GS E&P Pte. Ltd.	GS Energy	2021.07.06 ~ 2022.07.06 2021.07.02 ~ 2022.07.02 2021.07.23 ~ 2022.07.22	19,800 9,000 9,900	23,400 10,800 -

(d) As of September 30, 2021, the Company's significant commitments with the financial institutions are as follows:

Detail of contract (*1)	Financial institutions		Limit amount	Executed amount	Unit
Trade finance	BNP Paribas (*2)	$	200,000	-	Thousands of USD
	Development Bank of Singapore (*2)		240,000	-	Thousands of USD
	Bank of America (*2)		190,000	-	Thousands of USD
	ING Bank (*2)		100,000	-	Thousands of USD
	Standard Chartered Bank (*2)		150,000	-	Thousands of USD
	Credit Agricole (*2)		100,000	-	Thousands of USD
		$	980,000	-	Thousands of USD
Credit line	BNP Paribas	$	200,000	-	Thousands of USD
	BNP Paribas (*2)		200,000	-	Thousands of USD
	Development Bank of Singapore (*2)		240,000	-	Thousands of USD
	Mizuho Bank		100,000	-	Thousands of USD
	Bank of America (*2)		190,000	-	Thousands of USD
	ING Bank (*2)		100,000	-	Thousands of USD
	Credit Agricole (*2)		100,000	-	Thousands of USD
	Standard Chartered Bank (*2)		150,000	-	Thousands of USD
		$	1,280,000	-	Thousands of USD
Bank overdraft	Woori Bank	₩	10,000	-	Millions of KRW

(*1) The above arrangement does not include an arrangement on the basis that the Group successfully completes oil exploration.
(*2) A portion of or all of lines of credit for trade finance and financial loans have been integrated.

28. Contingencies and Commitments (cont'd)

(e) As of September 30, 2021, the details of the guarantees the Group received from others are as follows:

In thousands of Foreign currencies and millions of Korea won

Provider	Beneficiary	Detail of Contract	Guaranteed amount	Description
Seoul Guarantee Insurance Company	The Parent Company	Lease deposit return obligation	KRW 240	Payment guarantee for three lease deposit return obligations
BP Corp. N.A.	Harvest Operations Corp.	Foreign Currency payment guarantee	USD 20,000	Crude oil/Gas sales payment guarantee
ConocoPhillips	Harvest Operations Corp.	Foreign Currency payment guarantee	USD 5,000	Crude oil/NGL sales payment guarantee
Gibsons Energy	Harvest Operations Corp.	Foreign Currency payment guarantee	CAD 15,000	Crude oil/Gas/NGL sales payment guarantee
Husky Energy	Harvest Operations Corp.	Foreign Currency payment guarantee	USD 20,000	Crude oil/Gas/NGL sales payment guarantee
Macquarie Bank	Harvest Operations Corp.	Foreign Currency payment guarantee	USD 5,000	Crude oil/Gas/NGL sales payment guarantee
Keyera Partnership	Harvest Operations Corp.	Foreign Currency payment guarantee	USD 7,000	Crude oil/Gas/NGL sales payment guarantee
CNOOC(Nexen)	Harvest Operations Corp.	Foreign Currency payment guarantee	USD 10,000	Crude oil/Gas/NGL sales payment guarantee
Phillips 66	Harvest Operations Corp.	Foreign Currency payment guarantee	USD 40,000	Crude oil/NGL sales payment guarantee
Plains All American Pipeline	Harvest Operations Corp.	Foreign Currency payment guarantee	CAD 50,000	Crude oil/NGL sales payment guarantee
Suncor Energy	Harvest Operations Corp.	Foreign Currency payment guarantee	USD 40,000	Crude oil/Gas/NGL sales payment guarantee
Tidal Energy Marketing	Harvest Operations Corp.	Foreign Currency payment guarantee	CAD 14,000	Crude oil/Gas/NGL sales payment guarantee
Trafigura Beheer	Harvest Operations Corp.	Foreign Currency payment guarantee	CAD 10,000	Crude oil/Gas/NGL sales payment guarantee
ST. Paul Park Refinery co.	Harvest Operations Corp.	Foreign Currency payment guarantee	CAD 5,000	Crude oil/Gas/NGL sales payment guarantee
Trafigura	Harvest Operations Corp.	Contract performance guarantee	CAD 11,600	Crude oil/Gas/NGL sales payment guarantee
Canlin Energy	Harvest Operations Corp.	Contract performance guarantee	CAD 800	Crude oil/Gas/NGL sales payment guarantee
Netherlands DSA Security	Dana Petroleum Limited	Contract performance guarantee	EUR 104,220	Recovery Implementation Guarantee
GKA DSA Security	Dana Petroleum Limited	Contract performance guarantee	GBP 7,700	Recovery Implementation Guarantee
Western Isles Gas Security	Dana Petroleum Limited	Contract performance guarantee	GBP 260	Gas purchase fulfillment guarantee
Brent	Dana Petroleum Limited	Contract performance guarantee	GBP 682	Recovery Implementation Guarantee
SVT security	Dana Petroleum Limited	Contract performance guarantee	GBP 930	Recovery Implementation Guarantee

(f) Regarding the investment agreement for Korea Energy Terminal Co., Ltd., on November 13, 2019, the Company signed a Joint Venture Agreement with SK Gas Co., Ltd. and MOL Chemical Tanker to promote the Ulsan North Port project. According to this agreement, the total investment cost is expected to be ₩ 616,005 million, and for the amounts that are not financed through external borrowings, each participant promised to invest in the amounts equivalent to the participant's share. The Company has acquired the entire interests of Korea Energy Terminal Co., Ltd. owned by MOL Chemical Tanker during the current period.

28. Contingencies and Commitments (cont'd)

(g) As of September 30, 2021, other significant commitments and contingencies of the Company's subsidiaries are as follows:

(i) Dana Petroleum Limited ("Dana") and its subsidiaries

The Company provided a performance guarantee of GBP 167 million to Nexen and others for the expenses that will incur for restoration of the sites, decommissioning, dismantling and removal of the facilities and structures.

In connection with the acquisition of Dana Petroleum Limited, the Company guaranteed compensation to the Norwegian government for possible environmental and human damage during the exploration and production activities of its subsidiary Dana Petroleum Norway AS.

(ii) Harvest Operations Corp. and its subsidiaries

In thousands of Foreign currencies

Provider	Beneficiary	Detail of Contract	Limit amount	Maturity
The Parent Company	Harvest Operations Corp.	Bank credit payment guarantee	CAD 500,000	2023.03.24
The Parent Company	Harvest Operations Corp.	Bank credit payment guarantee	CAD 500,000	2022.07.29(*1)
The Parent Company	Harvest Operations Corp.	Guarantees for issuing of bonds	USD 285,000	2022.09.21
The Parent Company	Harvest Operations Corp.	Guarantees for issuing of bonds	USD 200,000	2022.09.21
The Parent Company	Harvest Operations Corp.	Bank credit payment guarantee	CAD 300,000	2023.05.11
The Parent Company	Harvest Operations Corp.	Guarantees for issuing of bonds	USD 397,500	2023.06.01
The Parent Company	Harvest Operations Corp.	Guarantees for issuing of bonds	USD 500,000	2024.04.25

(*1) For bank loans, Harvest Operations Corp. provided its total assets as collateral.

The Harvest Operations Corp.'s performance guarantee L/C opened is CAD 17 million, and transportation contractual arrangements are CAD 30 million as of September 30, 2021.

(iii) ANKOR E&P Holdings Corp. ("ANKOR") and its subsidiaries

The Company provided a payment guarantee of USD 50 million for loans signed with the Export-Import Bank of Korea by its subsidiary, ANKOR E&P Holdings Corp.

The Company provided a guarantee of USD 121 million to Chubb Limited and others for the future restoration of oil and gas sites held by ANKOR E&P Holdings Corp.

28. Contingencies and Commitments (cont'd)

(g) As of September 30, 2021, other significant commitments and contingencies of the Company's subsidiaries are as follows: (cont'd)

(iv) KNOC Yemen Ltd.

The Parent Company has discussed the business acquisition with local acquirer, YICOM, regarding the withdrawal of business of its subsidiary, KNOC Yemen Ltd. However, it has been discontinued due to the civil war in Yemen. Depending on the settlement of the acquisition which will be resumed in the future, there may be settlements to be paid or received between the Parent Company and YICOM. However, the related amounts could not be reasonably estimated at the moment.

(v) KNOC Eagle Ford Corporation and its subsidiaries

KNOC EF Star LLC, an associate of KNOC Eagle Ford Corporation, has entered into a contract to acquire redeemable preferred stocks with JB Patriot Private Equity Fund, and the Company has entered into a funding agreement with KNOC Eagle Ford Corporation. In case of breach of the contract between the Company and JB Patriot Private Equity Fund, the latter may exercise a drag along right to require the KNOC Eagle Ford Corporation to sell the entire common shares held by KNOC Eagle Ford Corporation together with the preferred shares.

The Vogo Fund, a preferred shareholder of KNOC-Vogo Eagle Ford LLC, a joint venture of KNOC Eagle Ford Corporation, may exercise its right of convert within 12 years, until December 28, 2024 (contract announcement date) after supplemental investment obligation completion date, October 1, 2018. If the right to convert is exercised, all of the preferred shares are converted to ordinary shares of Eagle Ford Energy/MS LLC or to rights to assets. In addition, on the 10th anniversary of KNOC-Vogo Eagle Ford LLC's contract announcement date, the preferred shareholder Vogo Fund has the right to preserve principal losses. The ordinary shareholder, KNOC Eagle Ford Corporation has the right to receive 20% of excess revenue of IRR 14% from the preferred shareholders in return for preserving principal losses.

Details of agreements with financial facilities of KNOC Eagle Ford and its subsidiaries are as follows:

In thousands of US dollar

Agreement	Financial Institution		Limit amount	Executed amount
Credit line	Bank of America	$	25,000	-
	Sumitomo Mitsui Banking Corporation		70,000	-
		$	95,000	-

(vi) KNOC Caspian LLP

KNOC Caspian LLP's Mining rights (production) contract stipulates annual mandatory investment.

In addition, under Kazakhstan's Underground Resources Act, 1% of production costs must be invested in the R&D funds, and 1% of the annual investment must be invested in the training funds. In addition, there are many other arrangements to be implemented within Kazakhstan, such as the liquidation fund, etc. If the agreement is not performed, there is a possibility that the Company will have to pay a levy to the Kazakhstan government, and the Company expects KZT 24,947 million as a mandatory investment to be exercised in 2021.

(vii) Altuis Holding Inc.

Altius Holding Inc.'s Mining rights (production) contract stipulates annual mandatory investment.

In addition, under Kazakhstan's Underground Resources Act, 1% of production costs must be invested in the R&D funds, and 1% of the annual investment must be invested in the training funds. In addition, there are many other arrangements to be implemented within Kazakhstan, such as the liquidation fund, etc. If the agreement is not performed, there is a possibility that the Company will have to pay a levy to the Kazakhstan government, and the Company expects KZT 26,513 million as a mandatory investment to be exercised in 2021.

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Independent auditor's report

The Shareholder and Board of Directors

Korea National Oil Corporation

Opinion

We have audited the accompanying consolidated financial statements of Korea National Oil Corporation and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statements of financial position as of December 31, 2020 and 2019, and the consolidated statements of comprehensive loss, consolidated statements of changes in equity and consolidated statements of cash flows for the years then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the consolidated financial statements present fairly, in all material respects, the 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 the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions in the Republic of Korea.

Emphasis of matters

Without qualifying our opinion, we draw attention to Note 2 to the consolidated financial statements which states that the Group applies Korean International Financial Reporting Standards ("KIFRS") where specific accounting treatments are not prescribed by the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions in the Republic of Korea. No material matter has been applied differently from 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.

Responsibilities of management and those charged with governance for the consolidated financial statements

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Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions in the Republic of Korea, and for such internal control as management determines is necessary to enable the preparation of the consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's responsibilities for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with KGAAS will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with KGAAS, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or

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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.

Ernst & Young Han Young

February 28, 2021

This audit report is effective as of February 28, 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.

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Korea National Oil Corporation and its subsidiaries
Consolidated statements of financial position
as of December 31, 2020 and 2019

(in Korean won)	Notes	2020	2019
Assets			
Current assets			
Cash and cash equivalents	5,6,26,42,44	₩ 796,778,898,842	₩ 725,056,410,891
Current financial assets	7,10,12,42,43,44	617,848,649,667	312,477,148,056
Trade and other receivables, net	8,23,42,44	433,709,955,321	484,674,617,029
Inventories, net	13	92,710,196,125	98,001,120,211
Current tax assets		17,302,153,779	5,467,561,503
Current non-financial assets	14	74,454,260,789	87,677,366,722
Assets held for sale	40	2,565,848,624	-
		2,035,369,963,147	1,713,354,224,412
Non-current assets			
Non-current financial assets, net	6,7,9,10,11,42,43,44	920,401,331,480	1,684,920,064,133
Long-term trade and other receivables, net	8,23,42,44	44,061,506,620	44,162,826,491
Property, plant and equipment, net	16,23,26,27,46,51	8,017,014,312,194	8,717,719,481,763
Goodwill	17	221,020,028,546	152,975,919,835
Intangible assets other than goodwill, net	18,26	1,314,513,699,324	1,406,826,475,801
Investments in associates and joint ventures	15	479,841,131,972	239,920,503,348
Deferred tax assets	39	780,322,777,378	784,338,423,816
Non-current non-financial assets	14	3,691,491,324,932	3,917,584,915,080
		15,468,666,112,446	16,948,448,610,267
Total assets		₩ 17,504,036,075,593	₩ 18,661,802,834,679
Liabilities			
Current liabilities			
Trade and other payables	20,23,42,44,47	₩ 619,687,530,974	₩ 771,657,311,606
Current financial liabilities	7,19,21,22,42,43,44,47	3,084,650,983,541	1,575,772,270,504
Current tax liabilities		73,154,083,577	50,950,396,225
Current non-financial liabilities	28	85,561,526,809	150,381,118,367
Current provisions	25	75,542,124,147	60,382,894,748
		3,938,596,249,048	2,609,143,991,450
Non-current liabilities			
Long-term trade and other payables	20,23,42,44,47	528,379,159,028	549,409,820,867
Non-current financial liabilities	7,19,21,41,43,44,47	11,304,246,790,091	12,443,241,329,623
Non-current non-financial liabilities	28	51,752,217,306	57,746,729,186
Defined benefit liabilities	24	12,934,670,657	13,453,938,615
Deferred tax liabilities	39,51	374,960,458,330	221,647,766,711
Non-current provisions	25	2,434,077,157,879	2,236,312,862,677
		14,706,350,453,291	15,521,812,447,679
Total liabilities		18,644,946,702,339	18,130,956,439,129
Equity			
Equity attributable to the owner of the Company			
Share capital	1,29	10,554,372,780,075	10,515,105,780,075
Accumulated deficit	30,31	(12,259,384,485,091)	(9,377,447,616,190)
Other components of equity	32	(8,789,630,188)	(1,155,757,805,551)
		(1,713,801,335,204)	(18,099,641,666)
Non-controlling interests		572,890,708,458	548,946,037,216
Total equity		(1,140,910,626,746)	530,846,395,550
Total liabilities and equity		₩ 17,504,036,075,593	₩ 18,661,802,834,679

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

Korea National Oil Corporation and its subsidiaries
Consolidated statements of comprehensive loss
for the years ended December 31, 2020 and 2019

(in Korean won)	Notes	2020	2019
Revenue	4,26,33,45,46	₩ 1,931,222,484,176	₩ 2,929,992,959,600
Cost of sales	4,41	(1,733,602,632,581)	(2,052,413,071,153)
Gross profit	4	197,619,851,595	877,579,888,447
Selling and administrative expenses	4,25,34,41	(251,727,861,919)	(306,110,440,934)
Operating profit (loss)	4	(54,108,010,324)	571,469,447,513
Other income	4,8,35,42,45,46	32,837,024,509	93,597,344,082
Other expenses	4,8,35,42	(14,267,357,272)	(8,259,254,071)
Other profit (losses), net	4,7,16,17,18,36,42	(1,734,680,692,336)	(2,095,013,255)
Finance income	4,7,9,19,37,42,46	266,530,707,585	402,068,273,215
Finance costs	4,7,19,38,42,46	(903,418,086,717)	(731,432,586,748)
Gain (loss) on investments in associates and joint ventures, net	4,15	(27,441,704,887)	53,712,409,399
Profit (loss) before income tax	4	(2,434,548,119,442)	379,060,620,135
Income tax expense	39	(4,625,231,016)	(533,812,592,404)
Loss from continuing operations		(2,439,173,350,458)	(154,751,972,269)
Loss for the year	30,31	(2,439,173,350,458)	(154,751,972,269)
Other comprehensive income (loss)			
Items that will never be reclassified subsequently to profit or loss			
Gains on revaluation, net of tax, of property, plant and equipment	16	489,752,621,439	-
Actuarial losses on defined benefit plans, net of tax	24,30	(5,039,346,163)	(3,200,429,622)
Share of other comprehensive income of associates and joint ventures, net of tax		(13,747,583)	-
Net change in fair value of financial assets measured at fair value through other comprehensive income	9,42	6,682,228,990	(27,087,490,099)
Items that are or may be reclassified subsequently to profit or loss			
Equity adjustments arising from investments in equity-method investees, net of tax	15	12,973,731,671	(2,256,031,648)
Net change in the unrealized fair value of derivative using cash flow hedge accounting, net of tax	7,42	(14,673,039,073)	(110,655,301,372)
Foreign currency translation differences for foreign operations		84,130,123,045	34,276,424,310
Other comprehensive income (loss) for the year, net of tax		573,812,572,326	(108,922,828,431)
Total comprehensive loss for the year		₩ (1,865,360,778,132)	₩ (263,674,800,700)
Income (loss) attributable to:			
Owner of the Company		₩ (2,346,500,826,488)	₩ (173,257,481,130)
Non-controlling interests		(92,672,523,970)	18,505,508,861
Loss for the year		₩ (2,439,173,350,458)	₩ (154,751,972,269)
Total comprehensive income (loss) attributable to:			
Owner of the Company		₩ (1,734,968,693,538)	₩ (299,451,459,878)
Non-controlling interests		(130,392,084,594)	35,776,659,178
Total comprehensive loss for the year		₩ (1,865,360,778,132)	₩ (263,674,800,700)

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

Korea National Oil Corporation and its subsidiaries
Consolidated statements of changes in equity
for the years ended December 31, 2020 and 2019

(in Korean won)	Attributable to owner of the Company				Non-controlling interests	Total equity
	Share capital	Accumulated deficit	Other components of equity	Sub total		
Balance at January 1, 2019	₩ 10,481,533,780,075	₩ (9,201,495,688,459)	₩ (1,032,764,256,425)	₩ 247,273,835,191	₩ 516,791,143,509	₩ 764,064,978,700
Total comprehensive income (loss) for the year						
Profit (loss) for the year	-	(173,257,481,130)	-	(173,257,481,130)	18,505,508,861	(154,751,972,269)
Other comprehensive income						
Items that will not be reclassified subsequently to profit or loss						
Actuarial losses on defined benefit plans, net of tax	-	(3,200,429,622)	-	(3,200,429,622)	-	(3,200,429,622)
Net change in fair value of financial assets measured at fair value through other comprehensive income	-	-	(27,087,490,099)	(27,087,490,099)	-	(27,087,490,099)
Items that may be reclassified subsequently to profit or loss						
Equity adjustments arising from investments in equity-method investees, net of tax	-	-	(2,256,031,648)	(2,256,031,648)	-	(2,256,031,648)
Net change in the unrealized fair value of derivative using cash flow hedge accounting, net of tax	-	-	(110,655,301,372)	(110,655,301,372)	-	(110,655,301,372)
Foreign currency translation differences for foreign operations	-	-	17,005,273,993	17,005,273,993	17,271,150,317	34,276,424,310
Total comprehensive loss for the year	-	(176,457,910,752)	(122,993,549,126)	(299,451,459,878)	35,776,659,178	(263,674,800,700)
Transactions with owner of the Company, recognized directly in equity						
Issuance of share capital	33,572,000,000	-	-	33,572,000,000	-	33,572,000,000
Distribution to non-controlling interests	-	505,983,021	-	505,983,021	(3,621,765,471)	(3,115,782,450)
Total transactions with owner of the Company	33,572,000,000	505,983,021	-	34,077,983,021	(3,621,765,471)	30,456,217,550
Balance at December 31, 2019	₩ 10,515,105,780,075	₩ (9,377,447,616,190)	₩ (1,155,757,805,551)	₩ (18,099,641,666)	₩ 548,946,037,216	₩ 530,846,395,550
Balance at January 1, 2020	₩ 10,515,105,780,075	₩ (9,377,447,616,190)	₩ (1,155,757,805,551)	₩ (18,099,641,666)	₩ 548,946,037,216	₩ 530,846,395,550
Total comprehensive income (loss) for the year						
Profit (loss) for the year	-	(2,346,500,826,488)	-	(2,346,500,826,488)	(92,672,523,970)	(2,439,173,350,458)
Other comprehensive income						
Items that will not be reclassified subsequently to profit or loss						
Gains on revaluation, net of tax	-	-	489,752,621,439	489,752,621,439	-	489,752,621,439
Actuarial losses on defined benefit plans, net of tax	-	(5,039,346,163)	-	(5,039,346,163)	-	(5,039,346,163)
Net change in fair value of financial assets measured at fair value through other comprehensive income	-	-	6,682,228,990	6,682,228,990	-	6,682,228,990
Reclassification adjustments in fair value of financial assets measured at fair value through other comprehensive income	-	(530,382,948,667)	530,382,948,667	-	-	-
Share of other comprehensive income of associates and joint ventures, net of tax	-	(13,747,583)	-	(13,747,583)	-	(13,747,583)
Items that may be reclassified subsequently to profit or loss						
Equity adjustments arising from investments in equity-method investees, net of tax	-	-	12,973,731,671	12,973,731,671	-	12,973,731,671
Net change in the unrealized fair value of derivative using cash flow hedge accounting, net of tax	-	-	(14,673,039,073)	(14,673,039,073)	-	(14,673,039,073)
Foreign currency translation differences for foreign operations	-	-	121,849,683,669	121,849,683,669	(37,719,560,624)	84,130,123,045
Total comprehensive loss for the year	-	(2,881,936,868,901)	1,146,968,175,363	(1,734,968,693,538)	(130,392,084,594)	(1,865,360,778,132)
Transactions with owner of the Company, recognized directly in equity						
Issuance of share capital	39,267,000,000	-	-	39,267,000,000	167,219,236,601	206,486,236,601
Dividends paid	-	-	-	-	(41,374,024,522)	(41,374,024,522)
Distribution to non-controlling interests	-	-	-	-	(2,360,117,701)	(2,360,117,701)
Change in the scope of consolidation	-	-	-	-	30,851,661,458	30,851,661,458
Total transactions with owner of the Company	39,267,000,000	-	-	39,267,000,000	154,336,755,836	193,603,755,836
Balance at December 31, 2020	₩ 10,554,372,780,075	₩ (12,259,384,485,091)	₩ (8,789,630,188)	₩ (1,713,801,335,204)	₩ 572,890,708,458	₩ (1,140,910,626,746)

The accompanying notes are an integrated part of the consolidated financial statements.

Korea National Oil Corporation and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2020 and 2019

(in Korean won)	2020	2019
Cash flows from operating activities		
Loss for the year	₩ (2,439,173,350,458)	₩ (154,751,972,269)
Adjustment for:		
Severance and retirement benefits	10,165,523,024	12,723,526,195
Wages and salaries	15,315,336,747	4,359,067,934
Depreciation	726,480,602,836	965,218,918,919
Amortization of intangible assets	62,255,220,240	81,194,519,000
Other bad debt expenses	4,661,295,775	3,186,538,955
Gains on exemption of debts	-	(76,223,080,929)
Reversal of other bad debt allowances	(120,459,504)	(3,495,036,527)
Non-operating income from overseas oil fields	(3,102,995,887)	(365,395,128)
Non-operating loss from overseas oil fields	837,252,449	-
Gains on disposal of property, plant and equipment	(325,296,642)	(12,234,503,767)
Losses on valuation of inventories	19,873,458,473	404,191,177
Losses on revaluation of property, plant and equipment	2,213,358,552	-
Loss on cancellation of debt exemption	2,599,318,556	1,065,761,174
Other income	(135,204,229)	(4,944,867,160)
Other expenses	2,465,908,003	2,369,477,299
Transfer to other provision	371,732,967	938,611,291
Gains on disposal of intangible assets	(12,656,237)	(87,120,730,552)
Reversal of impairment losses on property, plant and equipment	(2,442,068,314)	(25,224,458,258)
Gains on foreign currency translation (other than finance income)	(49,243,856,929)	(22,942,425,015)
Losses on disposal of property, plant and equipment	6,679,846,717	17,491,127,469
Losses on disposal of intangible assets	173,442,262	-
Impairment losses on property, plant and equipment	1,424,500,981,351	176,250,820,929
Impairment losses on intangible assets	306,090,695,726	18,106,642,179
Reversal of impairment losses on intangible assets	(4,784,241,479)	(53,230,301,443)
Losses on foreign currency translation (other than finance cost)	48,630,115,580	21,518,126,092
Income tax expense	4,625,231,016	533,812,592,404
Interest income	(14,608,760,475)	(22,512,597,370)
Dividends income	(5,840,386)	(10,232,181)
Gains on transaction of derivative (finance income)	(92,375,935,424)	(11,338,703,001)
Gains on valuation of derivative (finance income)	-	(18,630,088,549)
Gains on transaction of derivative (other than finance income)	-	(42,418,004)
Losses on transaction of derivative (other than finance cost)	-	117,357,642
Gains on foreign currency translation (finance income)	(72,133,591,704)	(136,666,853,054)
Interest expense	467,531,643,267	474,593,305,053
Losses on valuation of derivative (finance cost)	18,860,237,629	2,518,652,850
Losses on valuation of financial asset measured at fair value through profit or loss	117,456,567,243	82,191,492,544
Gains on valuation of financial asset measured at fair value through profit or loss	(8,311,881,332)	(167,773,467,775)
Gains on transaction of financial asset measured at fair value through profit or loss	-	(2,072,434,884)
Losses on valuation of financial liabilities measured at fair value through profit or loss	4,862,291,130	15,615,393,575
Gains on valuation of financial liabilities measured at fair value through profit or loss	(37,229,917,380)	-
Losses on foreign currency translation (finance cost)	197,395,882,448	65,411,763,076
Other finance costs (interest expense)	67,133,153,206	77,451,325,484
Transfer to other provisions (sales commissions)	(28,328,412,466)	(24,786,154,683)
Reversal of other provisions	(6,334,527,540)	(2,454,517,994)
Share of gain in associates and joint ventures	(43,024,976,626)	(116,300,551,234)
Gains on disposal of investments in associates and joint ventures	(136,042,411,338)	(37,011,521)
Share of loss in associates and joint ventures	91,432,069,316	23,372,718,406
Impairment losses on investments in associates and joint ventures	115,077,023,535	39,252,434,950
	3,219,125,154,156	1,830,758,535,568
Changes in:		
Inventories	(184,548,763)	2,530,434,890
Trade and other receivables	42,137,169,182	(43,642,565,894)
Other receivables from operating activities	(17,870,718,419)	(13,525,738,194)
Trade and other payables	(220,665,298,806)	(21,999,177,514)
Other payables from operating activities	(63,012,661,744)	(52,016,981,114)
Defined benefit liabilities	-	(180,995,466)
Payments from plan assets	(19,058,831,111)	(11,524,029,215)
Current other provisions	(23,395,220,521)	(17,671,811,111)
Non-current other provisions	(1,722,275,741)	-
Provisions for decommissioning cost	(31,805,242,505)	(39,829,872,292)
	(335,577,628,428)	(197,860,735,910)
Cash generated from operating activities	444,374,175,270	1,478,145,827,389
Dividend received	35,156,461,685	17,257,116,448
Interest paid	(422,978,403,629)	(455,870,627,770)
Interest received	11,695,832,043	76,762,229,700
Income tax paid	(122,285,638,975)	(83,599,099,347)
Net cash provided by (used in) operating activities	₩ (54,037,573,606)	₩ 1,032,695,446,420

(continued)

Korea National Oil Corporation and its subsidiaries

Consolidated statements of cash flows (cont'd)
for the years ended December 31, 2020 and 2019

(in Korean won)	2020	2019
Cash flows from investing activities		
Acquisition of investments in associates and joint ventures	₩ (333,189,568,924)	₩ (9,056,586,845)
Proceeds from disposal of investments in associates and joint ventures	3,890,757,016	267,540,221
Proceeds from disposal of property, plant and equipment	4,994,459,397	18,739,499,698
Acquisition of property, plant and equipment	(395,017,470,581)	(503,201,535,631)
Proceeds from disposal of intangible assets other than goodwill	96,141,034	234,864,044
Acquisition of intangible assets other than goodwill	(28,069,213,421)	(48,046,370,391)
Acquisition of non-current non-financial assets	-	(25,154,394,323)
Increase in long-term deposits received	(2,894,888,866)	(427,206,447)
Decrease in long-term deposits received	34,979,384	366,209,999
Increase in long-term and short-term financial assets	(334,946,100)	(35,213,926,547)
Decrease in long-term and short-term financial assets	-	34,924,277,443
Increase in long-term loans	(14,594,622,390)	(160,303,832,591)
Decrease in long-term loans	16,169,498,239	169,712,525,315
Increase in leasehold deposits provided	-	452,263,177
Decrease in leasehold deposits provided	(18,951,603)	(5,490,841)
Proceeds from disposal of financial assets measured at fair value through other comprehensive income	37,316,450	-
Proceeds from disposal of financial assets measured at fair value through profit or loss	-	286,522,167,729
Acquisition of financial assets measured at fair value through profit or loss	(203,788,588,424)	(511,219,410,502)
Cash inflows (outflows) from futures contracts, forward contracts, options contracts and swap contracts	4,725,881,941	(4,525,663,331)
Acquisition of a subsidiary, net of cash acquired	127,773,954,157	-
Net cash used in investing activities	(820,185,262,691)	(785,935,069,823)
Cash flows from financing activities		
Proceeds from increase in share capital	39,267,000,000	33,572,000,000
Proceeds from short-term borrowings	1,746,709,986,281	233,130,000,000
Repayments of short-term borrowings	(1,597,185,789,536)	(188,835,300,000)
Repayments of current portion of long-term borrowings	-	(234,684,729,761)
Proceeds from issuance of bond payables	1,938,016,446,081	1,270,571,087,901
Repayments of bond payables	-	(1,490,846,568,698)
Repayments of current portion of bond payables	(1,001,762,974,145)	-
Proceeds from long-term borrowings	-	283,159,024,767
Repayments of long-term borrowings	(60,232,119,971)	(164,291,102,004)
Repayments of lease liabilities	(46,144,450,613)	(28,660,897,898)
Dividends paid	(41,374,024,522)	-
Net cash outflow due to other distribution to non-controlling interests	-	(3,115,782,450)
Net cash provided by (used in) financing activities	977,294,073,575	(290,002,268,143)
Net increase (decrease) in cash and cash equivalents before net effect of foreign exchange differences	103,071,237,278	(43,241,891,546)
Net effect of foreign exchange differences	(31,294,715,220)	(9,888,455,565)
Net increase (decrease) in cash and cash equivalents	71,776,522,058	(53,130,347,111)
Cash and cash equivalents as of January 1 before deduction of government grants	725,067,511,808	778,197,858,919
Cash and cash equivalents as of December 31 before deduction of government grants	796,844,033,866	725,067,511,808
Government grants	(65,135,024)	(11,100,917)
Cash and cash equivalents as of December 31 after deduction of gorvernment grants	₩ 796,778,898,842	₩ 725,056,410,891

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

1. Reporting Entity

1.1 Description of the Controlling Company

Korea National Oil Corporation (the "Parent Company" or the "Company") was incorporated on March 3, 1979 to engage in the development of oil fields, distribution of crude oil, maintenance of petroleum reserve stock and improvement of the petroleum distribution infrastructure under the Korea National Oil Corporation Act. The Parent Company's head office is located at 305, Jongga-Ro, Jung-Gu, Ulsan in Republic of Korea. The Parent Company also has 9 petroleum stockpile sites, 1 domestic gas field management office, and overseas subsidiaries and affiliates (Dana Petroleum Limited etc.) in other countries.

As of December 31, 2020, the Parent Company's share capital is ₩ 10,554,373 million, which is wholly owned by the government of the Republic of Korea.

1.2 Consolidated subsidiaries

Details of the consolidated subsidiaries as of December 31, 2020 and 2019, are as follows:

			Ownership (%)	
Subsidiary name[1]	Principal activity	Country of incorporation	2020	2019
ANKOR E&P Holdings Corp.	Exploration and production ("E&P")	United States	100.00	100.00
Dana Petroleum Limited	E&P	United Kingdom	100.00	100.00
KNOC Eagleford Corporation	E&P	United States	100.00	100.00
Harvest Operations Corp.	E&P	Canada	100.00	100.00
KNOC Kaz B.V.	E&P	Netherlands	100.00	100.00
KADOC Ltd	E&P	Malaysia	75.00	-
KNOC Sumatra Ltd.	E&P	Indonesia	100.00	100.00
KNOC Yemen Ltd.	E&P	Yemen	60.00	60.00
KNOC Trading Singapore Pte. Ltd.	Trading and Marketing	Singapore	100.00	100.00
KNOC Service	Facility maintenance	Republic of Korea	100.00	100.00

[1] including intermediate parent companies and their subsidiaries

1.2 Consolidated subsidiaries (cont'd)

Financial information for subsidiaries as of and for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020			
Subsidiary name	**Assets**	**Liabilities**	**Revenue**	**Profit (loss) for the year**
ANKOR E&P Holdings Corp.	₩ 243,584,279,452	₩ 145,184,285,066	₩ 49,052,284,509	₩ (153,699,376,775)
Dana Petroleum Limited[1]	2,265,068,899,245	1,592,133,489,660	734,489,825,806	(541,020,381,227)
KNOC Eagleford Corp.	2,119,722,452,272	574,982,872,444	210,976,821,827	(480,361,290,066)
Harvest Operations Corp.	2,182,023,719,855	3,219,878,220,541	184,924,607,122	(572,522,733,171)
KNOC Kaz B.V. [1]	2,288,797,603,007	559,644,494,354	157,153,404,802	(32,268,562,456)
KADOC Ltd [1]	939,902,229,105	218,018,000,211	102,053,137,757	(8,596,615,760)
KNOC Sumatra Ltd. [2]	1,624,016,256	-	-	1,063,430,379
KNOC Yemen Ltd. [2]	13,186,712	-	-	-
KNOC Trading Singapore Pte. Ltd.	686,414,184	195,424,166	491,878,837	74,930,945
KNOC Service	1,591,712,328	1,119,990,595	4,402,603,691	5,836,976

[1] The amounts presented are after reflecting the difference between the fair value and the book value that arose during the business combination.

[2] The entity is in the process of liquidation as of December 31, 2020.

1.2 Consolidated subsidiaries (cont'd)

(in Korean won)

Subsidiary name	2019 Assets	Liabilities	Revenue	Profit (loss) for the year
ANKOR E&P Holdings Corp.	₩ 458,117,682,331	₩ 202,504,287,239	₩ 106,456,792,295	₩ 13,813,665,004
Dana Petroleum Limited[1]	2,908,747,825,043	1,683,849,806,839	1,277,072,045,730	150,443,248,159
KNOC Eagle Ford Corporation	2,713,454,703,094	585,691,411,095	359,524,834,189	74,762,599,776
Harvest Operations Corp.	2,681,161,729,641	3,175,755,374,775	310,288,485,225	2,388,119,656
KNOC Kaz B.V.[1]	787,546,928,913	573,650,640,634	279,684,849,272	86,474,382,872
KNOC Sumatra Ltd.[2]	684,824,806	-	-	60,194
KNOC Yemen Ltd.[2]	14,032,698	-	-	-
KNOC Trading Singapore Pte. Ltd.	483,723,398	46,222,595	411,183,003	54,405,175
KNOC Service[3]	476,754,496	10,869,739	-	(34,115,230)

[1] The amounts presented are after reflecting the difference between the fair value and the book value that arose during the business combination.

[2] The entity is in the process of liquidation as of December 31, 2019.

[3] The entity was newly established for the year ended December 31, 2019, and its main business is the maintenance of the headquarter building.

The changes in the scope of consolidation during 2020 are as follows:

	Changes	Reason
KADOC Ltd	Included in the consolidation	Business combination

2. Basis of Preparation and Changes in Accounting Policies

2.1 Statement of compliance

The consolidated financial statements of the Korea National Oil Corporation (the "Parent Company") and its subsidiaries (collectively referred to as the "Group") have been prepared in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions in the Republic of Korea. Pursuant to its Article 2-5, the Group applies Korean International Financial Reporting Standards ("KIFRS"), a standard adopted in accordance with International Financial Reporting Standards by the Korean Accounting Standards Board, for specific accounting treatments that are not prescribed by the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions in the Republic of Korea. There are no accounts of which accounting treatment is materially different compared to KIFRS in order for the Group to be in full compliance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions in the Republic of Korea.

The accompanying consolidated financial statements have been translated into English from Korean consolidated financial statements. In the event of any differences in interpreting the consolidated financial statements or the independent auditor's report thereon, Korean version, which is used for regulatory reporting purposes, shall prevail.

(a) Basis of measurement

The consolidated financial statements have been prepared on the historical cost basis, except for the following material items in the statement of financial position:

- ✓ derivative financial instruments measured at fair value
- ✓ financial assets measured at fair value through profit or loss
- ✓ financial assets measured at fair value through other comprehensive income
- ✓ financial liabilities measured at fair value through profit or loss
- ✓ Investments in associates and joint ventures measured at fair value
- ✓ liabilities for defined benefit plans recognized at the net of the total present value of defined benefit obligations less the fair value of plan assets
- ✓ land classified as property, plant and equipment measured at fair value according to the revaluation model.

(b) Functional and presentation currency

Items included in the consolidated financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates (the 'functional currency'). The accompanying consolidated financial statements are prepared in the Group's functional currency, the United States dollar, and presented in Korean won, the Group's presentation currency, for the financial reporting purposes in accordance with KIFRS 1021 *The Effects of Changes in Foreign Exchange Rates*. The Group is required to present its financial statements in Korean won in accordance with regulations in the Republic of Korea.

Assets and liabilities for each statement of financial position presented (i.e. including comparatives) were translated at the closing rate at the date of that statement of financial position, income and expenses for

2.1 Statement of compliance (cont'd)

each statement presenting profit or loss and other comprehensive income (i.e. including comparatives) were translated at the average exchange rates of the period and all resulting exchange differences were recognized in other comprehensive income.

(c) Estimation and judgement

To prevent the spread of COVID-19 around the world, a variety of prevention and control measures such as factory closure, self-isolation, entry restrictions, and travel restrictions are being implemented worldwide The ultimate impact of COVID-19 pandemic on the Group's operations is currently unknown and is expected to vary depending on future developments. The duration and severity of COVID-19 are uncertain and unpredictable, and the protective measures of the government or the Group may result in substantial business disruption and decrease in business size. The financial impact therefrom is not reasonably estimable, but management expects that most of the regions and operating sectors in which the Group operates will be affected to some extent. The Group was unable to reasonably estimate the impact of COVID-19 on the Group's consolidated financial statements as of December 31, 2020, and the resulting effects have not been reflected in the consolidated financial statements.

2.2 New standards and interpretations not yet adopted by the Group

There are no certain new accounting standards and interpretations that have been published that are not mandatory for annual reporting period commencing January 1, 2020 and have not been early adopted by the Group.

2.3 New and amended standards adopted by the Group

The Group has applied the following standards and amendments for the first time for their annual reporting period commencing January 1, 2020.

(a) Amendment to KIFRS 1107 *Financial Instruments: Disclosure*, KIFRS 1109 *Financial Instruments* and KIFRS 1039 *Financial Instruments: Recognition and Measurement - Interest Rate Benchmark Reform*

The amendments to KIFRS 1109 *Financial Instruments* and KIFRS *1039 Financial Instruments: Recognition and Measurement* provide a number of reliefs, which apply to all hedging relationships that are directly affected by interest rate benchmark reform. A hedging relationship is affected if the reform gives rise to uncertainty about the timing and/or amount of benchmark-based cash flows of the hedged item or the hedging instrument. These amendments have no impact on the financial statements of the Group as it does not have any interest rate hedge relationships

The Group plans to replace Libor interest rates with SOFR rates by joining the ISDA IBOR Fallback Protocol. Interest rate hedging-related borrowing contracts contracted as of the reporting date are subject to the interest rate of April 2023 as the maturity is July 2023, so it is not expected to be affected by the cessation

2.3 New and amended standards adopted by the Group (cont'd)

of Libor. Also, the Group does not apply these amendments early. Therefore, there is no significant impact of the amendment on the consolidated financial statements of the Group.

(b) Amendments to KIFRS 1103 *Business Combinations: Definition of a Business*

The amendment to KIFRS 1103 *Business Combinations* clarifies that to be considered a business, an integrated set of activities and assets must include, at a minimum, an input and a substantive process that, together, significantly contribute to the ability to create output. Furthermore, it provides specific guidance and illustrative cases. The assessment method has been established to decide if the acquired subject is a 'business' or 'individual asset.' These amendments had no impact on the consolidated financial statements of the Group.

(c) Amendments to KIFRS 1001 and KIFRS 1008 Definition of Material

The amendments provide a new definition of material that states, "information is material if omitting, misstating or obscuring it could reasonably be expected to influence decisions that the primary users of general purpose financial statements make on the basis of those financial statements, which provide financial information about a specific reporting entity." The amendments clarify that materiality will depend on the nature or magnitude of information, either individually or in combination with other information, in the context of the financial statements. A misstatement of information is material if it could reasonably be expected to influence decisions made by the primary users. These amendments had no impact on the consolidated financial statements of, nor is there expected to be any future impact to the Group.

(d) Conceptual Framework for Financial Reporting issued on 2018

The Conceptual Framework is not a standard, and none of the concepts contained therein override the concepts or requirements in any standard. The purpose of the Conceptual Framework is to assist the IASB in developing standards, to help preparers develop consistent accounting policies where there is no applicable standard in place and to assist all parties to understand and interpret the standards. This will affect those entities which developed their accounting policies based on the Conceptual Framework. The revised Conceptual Framework includes some new concepts, updated definitions and recognition criteria for assets and liabilities and clarifies some important concepts. These amendments had no impact on the consolidated financial statements of the Group.

(e) Amendments to KIFRS 1116 Leases COVID-19 Related Rent Concessions

On May 28, 2020, the IASB issued COVID-19-Related Rent Concessions - amendment to KIFRS 1116 Leases The amendments provide relief to lessees from applying KIFRS 1116 guidance on lease modification accounting for rent concessions arising as a direct consequence of the COVID-19 pandemic. As a practical expedient, a lessee may elect not to assess whether a COVID-19 related rent concession from a lessor is a lease modification. A lessee that makes this election accounts for any change in lease payments resulting from the COVID-19 related rent concession the same way it would account for the change under KIFRS 1116, if the change were not a lease modification. The amendment applies to annual reporting periods beginning on or after June 1, 2020. Earlier application is permitted. This amendment had no impact on the consolidated financial statements of the Group.

2.4 Significant accounting policies

The significant accounting policies applied by the Group in preparation of its consolidated financial statements are included below. The accounting policies set out below have been applied consistently to all periods presented in these consolidated financial statements, except for new and amended standards adopted by the Group as explained in Note 2.3 and changes in accounting policies as explained in Note 51.

(a) Basis of consolidation

(i) Non-controlling interests

Non-controlling interests are measured at their proportionate share of the acquiree's identifiable net assets at the date of acquisition. Changes in the Group's interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

(ii) Subsidiaries

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

(iii) Loss of control

When the Group loses control over a subsidiary, it derecognizes the assets and liabilities of the subsidiary, and any related non-controlling interests and other components of equity. Any resulting gain or loss is recognized in profit or loss. Any interest retained in the former subsidiary is measured at fair value when control is lost.

(iv) Interests in equity-accounted investees

The Group's interests in equity-accounted investees comprise interests in associates and a joint venture. Associates are those entities in which the Group has significant influence, but not control or joint control, over the financial and operating policies. A joint venture is an arrangement in which the Group has joint control, whereby the Group has rights to the net assets of the arrangement, rather than rights to its assets and obligations for its liabilities.

Interests in associates and the joint venture are accounted for using the equity method. They are initially recognized at cost, which includes transaction costs. Subsequent to initial recognition, the consolidated financial statements include the Group's share of the profit or loss and OCI of equity-accounted investees, until the date on which significant influence or joint control ceases.

2.4 Significant accounting policies (cont'd)

(v) Transactions eliminated on consolidation

Intra-group balances and transactions, and any unrealized income and expenses arising from intra-group transactions, are eliminated. Unrealized gains arising from transactions with equity-accounted investees are eliminated against the investment to the extent of the Group's interest in the investee. Unrealized losses are eliminated in the same way as unrealized gains, but only to the extent that there is no evidence of impairment.

(b) Business combination

The acquisition method of accounting is used to account for business combinations by the Group. The consideration transferred in a business combination is measured at the fair values, at the acquisition date (transfer date), of the assets transferred with controlling interest in the acquired entity, liabilities issued or borne by the Group to the former owners of the acquired entity and equity interests issued by the Group in exchange for control of the acquired entity. Acquisition-related costs are generally recognized in profit or loss as incurred.

The identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date except that:

- deferred tax assets and liabilities and assets and liabilities related to employ benefit arrangements are recognized and measured in accordance with KIFRS 1012 *Income Tax* and KIFRS 1019 *Employee Benefits*, respectively;

- liabilities and equity instruments incurred due to replacing the share-based payment of the acquired entity with the share-based payment of the Group are measured in accordance with KIFRS 1102 *Share-based Payment*; and

- non-current assets (or disposal groups comprising assets and liabilities) classified as available-for-sale assets pursuant to KIFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations* are measured in accordance with KIFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations*.

2.4 Significant accounting policies (cont'd)

Goodwill is measured as the excess of the sum of the consideration transferred, the amount of any non-controlling interests in the acquired entity, and the fair value of the Group's previously held equity interest in the acquired entity (if any) over the net of the acquisition-date amounts of the identifiable assets acquired and the liabilities assumed. If, after reassessment, the net of the acquisition-date amounts of the identifiable assets acquired and liabilities assumed exceeds the sum of the consideration transferred, the amount of any non-controlling interest in the acquired entity and the fair value of the Group's previously held interest in the acquire (if any), the excess is recognized immediately in profit or loss as a bargain purchase gain.

Non-controlling interests that present ownership interests and entitle their holders to a proportionate share of the entity's net assets in the event of liquidation may be initially measured either at fair value or at the non-controlling interests' proportionate share of the recognized amounts of the acquired entity's identifiable net assets. The choice of measurement basis is made on a transaction-by-transaction basis. Other types of non-controlling interests are measured at fair value or, when applicable, on other basis specified in KIFRS.

The Group's consideration transferred includes the assets and liabilities on a contingent consideration agreement. The contingent consideration is measured at its fair value at the acquisition date and is included as a part of the consideration transferred in a business combination. Changes in the fair value of the contingent consideration that qualify as measurement period adjustments are adjusted retrospectively, with corresponding adjustments against goodwill. Measurement period adjustments are the adjustments resulted from obtaining additional information on any fact and circumstance that existed at the acquisition date during the 'adjustment period (which cannot exceed one year from the acquisition date)'.

The subsequent accounting for changes in fair value of the contingent consideration, which does qualify as measurement period adjustments, depends on how the contingent consideration is classified. Contingent consideration that is classified as equity is not remeasured at the subsequent reporting dates and its subsequent settlement is accounted for within equity. Contingent consideration that is classified as an asset or a liability is remeasured at the subsequent reporting dates in accordance with KIFRS 1109 *Financial Instruments* or KIFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets*, as appropriate, with the corresponding gain or loss being recognized in profit or loss.

When a business combination is achieved in stages, the Group's previously held equity interest in the acquired entity is remeasured at fair value at the acquisition date (i.e., the date when the Group obtains control) and the resulting gain or loss, if any, is recognized in profit or loss. The amounts arising from interests in the acquisition prior to the acquisition date that have previously been recognized in other comprehensive income are reclassified to profit or loss where such treatment would be appropriate if that interests were disposed of.

2.4 Significant accounting policies (cont'd)

If the initial recognition of the business combination has not been completed until the end of the reporting period in which the combination occurs, the Group reports provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted during the measurement period (see above), or additional assets or liabilities are recognized, to reflect new information obtained on the facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognized at that date.

(c) Investments in associates

An associate is an entity that is not a subsidiary or joint venture of the Group, and over which the Group has significant influence. The Group has a significant influence over an associate when:

- the Group participates in the Board of Directors or such decision-making bodies of the investee;
- the Group participates in making decisions on policies including decisions on dividend payment and other distribution;
- the Group has a material transaction with the investee;
- the Group has a mutual interaction of management with the investee; and
- the Group shares essential information on technology with the investee.

The results and assets and liabilities of associates are incorporated in these consolidated financial statements using the equity method of accounting, except when the investment is classified as held for sale, in which case it is accounted for in accordance with KIFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations*. Under the equity method, an investment in an associate is initially recognized in the consolidated statement of financial position at cost and adjusted thereafter to recognize the Parent Company's share of the profit or loss and other comprehensive income of the associate. When the Parent Company's share of losses of an associate exceeds the Parent Company's interest in that associate (which includes any long-term interests that, in substance, form part of the Parent Company's net investment in the associate), the Parent Company discontinues recognizing its share of further losses. Additional losses are recognized only to the extent that the Parent Company has incurred legal or constructive obligations or made payments on behalf of the associate.

Any excess of the cost of acquisition over the Parent Company's share of the net fair value of the identifiable assets, liabilities and contingent liabilities of an associate recognized at the date of acquisition is recognized as goodwill, which is included within the carrying amount of the investment. Any excess of the Parent Company's share of the net fair value of the identifiable assets, liabilities and contingent liabilities over the cost of acquisition, after reassessment, is recognized immediately in profit or loss.

2.4 Significant accounting policies (cont'd)

The requirements of KIFRS 1109 *Financial Instruments* are applied to determine whether it is necessary to recognize any impairment loss with respect to the Group's investment in an associate. When necessary, the entire carrying amount of the investment as a single asset (including goodwill) is tested for impairment in accordance with KIFRS 1036 *Impairment of Assets* by comparing its recoverable amount (higher of value in use and fair value less costs to sell) with its carrying amount, and any impairment loss recognized forms part of the carrying amount of the investment. Any reversal of that impairment loss is recognized in accordance with KIFRS 1036 to the extent that the recoverable amount of the investment subsequently increases.

When an entity has transactions with an associate of the Group, profits and losses resulting from the transactions with the associate are recognized in the Parent Company's consolidated financial statements only to the extent of interests in the associate that are not related to the Group.

(d) Investments in joint ventures

A joint arrangement is an arrangement for the Group and other parties to perform economic activities that are subject to a joint control. A joint control requires a unanimous consent of the parties sharing the control on the decisions related to the major financial and operational policies on the joint arrangement.

In case of that the Group performs the economic activities in accordance with the joint arrangement, the Group's share of a joint venture and the Group's share of the liabilities that the Group incurred jointly with other parties are recognized in the joint venture's financial statement and classified by nature. The liabilities and expenses incurred directly in relation to the Group's share of a joint venture are recognized on accrual basis. The Group recognizes its share of revenues incurred due to sales or use of its share of the joint venture's business results and the its share of costs incurred by the joint venture when it is highly possible that the economic benefits related to such transactions will flow into or out and the amounts can be measured reliably.

The Group's share of a joint venture is incorporated in the consolidated financial statements using the equity method of accounting, except when the investment share is classified as held for sale, in which case it is accounted for in accordance with KIFRS 1105 *Non-current Assets Held for Sale and Discontinued Operations*.

Goodwill arising from acquiring a share of a joint venture is recognized in accordance with the Group's accounting policies on goodwill arising from a business combination. When the Group has a transaction with a joint venture, a gain or loss incurred from the transaction is recognized on the Group's financial statement only for the amounts that are the share of the joint venture not related to the Group.

2.4 Significant accounting policies (cont'd)

(e) Goodwill

Goodwill arising on an acquisition of a business is carried at cost as established at the date of acquisition of the business, less accumulated impairment losses, if any. For impairment testing, goodwill is allocated to cash-generating units (or groups of cash-generating units) of the Group that were expected, at the date of acquisition, to benefit from the synergies of the combination giving rise to the goodwill.

A cash-generating unit to which goodwill has been allocated is tested for impairment annually or more frequently when there is an indication that the unit may be impaired. If the recoverable amount of the cash-generating unit is less than its carrying amount, the impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the unit and then to the other assets of the unit on a pro rata basis based on the carrying amount of each asset in the unit. Any impairment loss for goodwill is recognized directly in profit or loss in the consolidated statement of comprehensive income. An impairment loss recognized for goodwill is not reversed in subsequent periods.

On disposal of the relevant cash-generating unit, the allocated amount of goodwill is included in the determination of the profit or loss on disposal. The Group's accounting policies with respect to the goodwill arising from acquisition of an affiliate are stated in the Note 2.4 (b).

(f) Non-current assets held for sale

The Group classifies non-current assets or disposal groups as held for sale if their carrying amounts will be recovered principally through a sale rather than through continuing use. These conditions are considered met only when the non-current asset (or disposal group) must be available for immediate sale in its present condition and it is highly probable that it will be sold. Management should commit to a plan for the sale of the asset and should be expected to meet the sale completion requirements within one year from the time of classification.

In the event that the Group commits to a sale plan that results in loss of control over a subsidiary, the Group has all of the above-mentioned conditions, regardless of whether the Group holds a non-controlling interest in the previous subsidiary after the sale. Assets and liabilities are classified as held for sale.

Such non-current assets and disposal groups classified as held for sale are measured at the lower of their carrying amount and fair value less costs to sell or to distribute.

(g) Revenue

Under the new standard, KIFRS 1115, the Group recognizes revenue base on the five-step approach (Step 1: Identify the contract(s) with a customer, Step 2: Identify the performance obligations in the contract, Step 3: Determine the transaction price, Step 4: Allocate the transaction price to the performance obligations in the contract, Step 5: Recognize revenue when the entity satisfied a performance obligation) is applied for all types of contracts or agreements. Revenue is measured based on the consideration defined by the contracts with customers, and the amount collected as an agent of a third party is excluded. In addition, the Group recognizes revenue when the control over the goods or service is transferred to the customer.

2.4 Significant accounting policies (cont'd)

i) Sale of goods

The contracts which the Group entered with customers for the sale of crude oil and others contain a single performance obligation. Depending on sales contract with customers, performance obligation can be distinguished as 'performance obligation satisfied at a point in time' and 'performance obligation satisfied over time'. In the case of 'performance obligation satisfied at a point in time', the Group has concluded that revenue to be recognized at the time of delivery because control of goods is transferred at a point in time of delivery. Also, in the case of 'performance obligation satisfied over time', although revenue should be recognized by measuring progress towards complete satisfaction of a performance obligation, the Group has applied practical expedient allowed under KIFRS 1115 in relation to measuring progress.

ii) Rendering of services

The Group provides services such as lending stockpile oil resources, storing oil resources, and leasing related facilities. Service contract contains a large number of performance obligations whose promises with customers are distinct within the context of the contract and separately identifiable. The Group has determined that service contract contains 'performance obligation satisfied over time', and applied practical expedient of measuring progress allowed under KIFRS 1115.

(h) Leases

The lessor classifies the lease contract as an operating lease or a financial lease depending on the substance of the transaction, and accounting treatment differs according to the classification.

In accordance with the amendment of the standard, lessee applies a single lease model and recognizes assets and liabilities for all lease which lease term is over 12 months and underlying assets are not low value assets. A lessee is required to recognize a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments.

For a contract that is, or contains, a lease, the Group shall account for each lease component within the contract as a lease separately from non-lease components of the contract. However, the Group accounts for each lease components and non-lease components as a single lease components without separating the non-lease components from the lease components as a lessee applying the practical expedients.

i) The Group as a lessor

A lease in which the risks and rewards of ownership of the underlying asset are not transferred to the Group is classified as a finance lease, and leases in which the risks and rewards of ownership of the underlying asset are not transferred to the Group are classified as an operating lease.

The Group recognizes the amount equivalent to the net investment in the leases as finance lease receivables. Uncollected part of net investment is recognized as interest income applying the effective interest rate.

2.4 Significant accounting policies (cont'd)

Lease income from operating leases is recognized in income on a straight-line basis over the lease term. Initial direct costs incurred in negotiating and arranging an operating lease are added to the carrying amount of the lease asset and recognized as expense over the lease term on the same basis as lease income.

ii) The Group as a lessee

Lessee applies a single lease model and recognizes assets and liabilities for all lease which lease term is over 12 months and underlying assets are not low value assets. A lessee is required to recognize a right-of-use asset representing its right to use the underlying leased asset and a lease liability representing its obligation to make lease payments.

- Right-of-use asset

At the commencement date, the Group recognizes right-of-use assets at cost. After the commencement date, the Group measures the right-of-use assets at their costs: (a) less accumulated depreciation and any accumulated impairment losses; and (b) adjusted for any remeasurement of the lease liability. For land, the Group applies the revaluation model, but land-related right-of-use assets are measured at cost.

The cost of the right-of-use assets comprises (a) the amount of the initial measurement of the lease liability, (b) any initial direct costs incurred by the lessee, (c) any lease payments made at or before the commencement date, less any lease incentives received, and (d) an estimate of costs to be incurred by the lessee in dismantling and removing the underlying asset. If the lease does not transfer ownership of the underlying asset to the Group by the end of the lease term, the Group shall depreciate the right-of-use asset from the commencement date to the earlier of the end of the useful life of the right-of-use asset or the end of the lease term. The Group shall apply KIFRS 1036 Impairment of Assets to determine whether the right-of-use asset is impaired and to account for any impairment loss identified.

- Lease liability

The Group measures the lease liability at the present value of the lease payments for the right to use the underlying asset during the lease term that are not paid at the commencement date. Lease payments comprise the following payments:

- Fixed payments (including in-substance fixed payments), less any lease incentives receivable
- Variable lease payment that are based on an index or a rate, initially measured using the index or rate as at the commencement date
- Amounts expected to be payable by the Group (the lessee) under residual value guarantees
- The exercise price of a purchase option if the Group (the lessee) is reasonably certain to exercise that option; and
- Payments of penalties for terminating the lease, if the lease term reflects the Group (the lessee) exercising that option

Variable lease payments, which do not depend on the index or a rate, are recognized as an expense as incurred.

2.4 Significant accounting policies (cont'd)

When measuring the lease liability at the present value of the lease payments, the lease payments shall be discounted using the lessee's incremental borrowing rate if the interest rate implicit in the lease cannot be readily determined. After the commencement date, the Group increases the carrying amount of the lease liability by reflecting the interest on the lease liability and reduces the carrying amount of the lease liability by reflecting the lease payments. In addition, the Group remeasures the lease liability to reflect any reassessment or lease modifications, or to reflect revised in-substance fixed lease payments.

- Short-term leases and leases of low-value assets

The Group elects to apply recognition exemptions to short-term leases (leases that, at the commencement date, have a lease term of 12 months or less and do not contain a purchase option) and leases for which the underlying asset is of low value (i.e., below $ 5,000). Payments of short-term leases and leases for which the underlying asset is of low-value are recognized as an expense on a straight-line basis over the lease term.

The carrying amounts of the right-of-use assets and lease liabilities as of the reporting date and their changes during the reporting period are explained in Note 23.

(i) Foreign currencies

Transactions in foreign currencies are translated to the respective functional currencies of the Group entities at exchange rates at the dates of the transactions. Monetary assets and liabilities denominated in foreign currencies are retranslated to the functional currency using the reporting date's exchange rate. Non-monetary assets and liabilities denominated in foreign currencies that are measured at fair value are retranslated to the functional currency at the exchange rate at the date that the fair value was determined. Non-monetary assets and liabilities denominated in foreign currencies that are measured in terms of historical cost in a foreign currency are translated using the exchange rate at the dates of the transactions.

Foreign currency differences arising on retranslation are recognized in profit or loss, except for differences arising on the retranslation of available-for-sale equity instruments, a financial liability designated as a hedge of the net investment in a foreign operation, or qualifying cash flow hedges, which are recognized in other comprehensive income. When gains or losses on non-monetary items are recognized in other comprehensive income, exchange components of those gains or losses are recognized in other comprehensive income. Conversely, when gains or losses on non-monetary items are recognized in profit or loss, exchange components of those gains or losses are recognized in profit or loss.

2.4 Significant accounting policies (cont'd)

(j) Borrowing costs

The Group capitalizes borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset as part of the cost of that asset. Other borrowing costs are recognized in expense as incurred. A qualifying asset is an asset that requires a substantial period of time to get ready for its intended use or sale. Financial assets and inventories that are manufactured or otherwise produced over a short period of time are not qualifying assets. Assets that are ready for their intended use or sale when acquired are not qualifying assets.

To the extent that the Group borrows funds specifically for the purpose of obtaining a qualifying asset, the Group determines the amount of borrowing costs eligible for capitalization as the actual borrowing costs incurred on that borrowing during the period less any investment income on the temporary investment of those borrowings. To the extent that the Group borrows funds generally and uses them for the purpose of obtaining a qualifying asset, the Group shall determine the amount of borrowing costs eligible for capitalization by applying a capitalization rate to the expenditures on that asset. The capitalization rate shall be the weighted average of the borrowing costs applicable to the borrowings of the Group that are outstanding during the period, other than borrowings made specifically for the purpose of obtaining a qualifying asset. The amount of borrowing costs that the Group capitalizes during a period shall not exceed the amount of borrowing costs incurred during that period.

(k) Government grants

Government grants are not recognized until there is reasonable assurance that the Group complies with the conditions relating to the grants and that the grants will be received. The benefits of government grants with interest rates lower than the market interest rate are treated as government grants. The difference between the fair value of government grants based on the market interest rate and the consideration received are accounted for as government grants.

Government grants related to assets are presented as a deduction of related assets. The related government grants are recognized as profit or loss in a way that decreases the depreciation over the expected lives of the related assets.

Government grants related to income are recognized in profit or loss on a systematic basis over the period to match with the related subsidized expenses. Government grants that are receivable as compensation for expenses or losses already incurred or for the purpose of giving immediate financial support to the Group with no future related costs are recognized in profit or loss in the period in which they become receivable.

2.4 Significant accounting policies (cont'd)

(l) Employee benefits

i) Short-term employee benefits

Short-term employee benefits are employee benefits that are due to be settled within 12 months after the end of the period in which the employees render the related service. When an employee has rendered service to the Group during an accounting period, the Group recognizes the undiscounted amount of short-term employee benefits expected to be paid in exchange for that service.

ii) Retirement benefits: defined contribution plans

When an employee has rendered service to the Group during a period, the Group recognizes the contribution payable to a defined contribution plan in exchange for that service as a liability (accrued expense), after deducting any contribution already paid. If the contribution already paid exceeds the contribution due for service before the end of the reporting period, the Group recognizes that excess as an asset (prepaid expense) to the extent that the prepayment will lead to a reduction in future payments or a cash refund.

A defined benefit plan is a post-employment benefit plan other than a defined contribution plan. The Group's net obligation in respect of defined benefit plans is calculated by estimating the amount of future benefit that employees have earned in return for their service in the current and prior periods; that benefit is discounted to determine its present value. The fair value of plan assets is deducted. The calculation is performed annually by an independent actuary using the projected unit credit method.

The discount rate is the yield at the reporting date on high-quality corporate bonds that have maturity dates approximating the terms of the Group's obligations and that are denominated in the same currency in which the benefits are expected to be paid. The Group recognizes all actuarial gains and losses arising from actuarial assumption changes and experiential adjustments in other comprehensive income when incurred.

Re-measurements of net defined benefit liabilities, which comprise actuarial gains and losses, the return on plan assets (excluding interest) and the effect of the asset ceiling (if any, excluding interest), are recognized immediately in other comprehensive income. The Group determines the net interest expense (income) on the net defined benefit liability (asset) for the period by applying the discount rate used to measure the defined benefit obligation at the beginning of the annual period to the then-net defined benefit liability (asset), taking into account any changes in the net defined benefit liability (asset) during the period as a result of contributions and benefit payments, net interest expense and other expenses related to defined benefit plans are recognized in profit or loss.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss in curtailment is recognized immediately in profit or loss. The Group recognizes gains and losses on the settlement of a defined benefit plan when the settlement occurs.

2.4 Significant accounting policies (cont'd)

(m) Income taxes

Income tax expense comprises current and deferred tax. Current tax and deferred tax are recognized in profit or loss except to the extent that it relates to a business combination, or items recognized directly in equity or in other comprehensive income.

i) Current tax

Current tax is the expected tax payable or receivable on the taxable profit or loss for the year, using tax rates enacted or substantively enacted at the end of the reporting period and any adjustment to tax payable in respect of previous years. The taxable profit is different from the accounting profit for the period since the taxable profit is calculated excluding the temporary differences, which will be taxable or deductible in determining taxable profit (tax loss) of future periods, and non-taxable or non-deductible items from the accounting profit.

ii) Deferred tax

The measurement of deferred tax assets and deferred tax liabilities reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities. The Group recognizes a deferred tax liability for all taxable temporary differences associated with investments in subsidiaries, associates, and interests in joint ventures, except to the extent that the Group is able to control the timing of the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. In addition, the Group recognizes a deferred tax asset for all deductible temporary differences to the extent that it is probable that the temporary difference will reverse in the foreseeable future and taxable profit will be available against which the temporary difference can be utilized.

The carrying amount of a deferred tax asset is reviewed at the end of each reporting period and reduces the carrying amount to the extent that it is no longer probable that sufficient taxable profit will be available to allow the benefit of part or all of that deferred tax asset to be utilized. Deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the period when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

Deferred tax assets and liabilities are offset only if there is a legally enforceable right to offset the related current tax liabilities and assets, and they relate to income taxes levied by the same tax authority and they intend to settle current tax liabilities and assets on a net basis.

2.4 Significant accounting policies (cont'd)

(n) Property, plant and equipment

Property, plant and equipment, except for land, are initially measured at cost and after initial recognition, are carried at cost less accumulated depreciation and accumulated impairment losses.

Land is carried at a revalued amount, being its fair value at the date of the revaluation less subsequent accumulated impairment losses. Revaluations shall be made with sufficient regularity to ensure that the carrying amount does not differ materially from that which would be determined using fair value at the end of the reporting period.

If an asset's carrying amount is increased as a result of a revaluation, the increase shall be recognised in other comprehensive income and accumulated in equity under the heading of revaluation surplus. However, the increase shall be recognised in profit or loss to the extent that it reverses a revaluation decrease of the same asset previously recognised in profit or loss. A revaluation deficit is recognized in the statement of comprehensive income (loss) to the extent that it offsets an existing surplus on the same asset recognized in the asset revaluation reserve.

The cost of property, plant and equipment includes expenditures arising directly from the construction or acquisition of the asset, any costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management and the initial estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

The following costs are capitalized as oil and gas properties.

- the costs incurred in development stage for constructing facilities and drilling wells for production
- the costs of acquiring production areas or fields with proved reserves
- the construction costs and other expenditures for initiating production
- the estimated costs for decommissioning

Additionally, the Group depreciates the acquisition costs of oil and gas properties which are aggregated on an area-by-area basis or field-by-field basis. For the costs of oil and gas properties which are aggregated on an area-by-area basis, the Group depreciates the acquisition costs using proved reserves as the total estimated production when applying the unit-of-production depreciation method.

For the costs of oil and gas properties which are aggregated on a field-by-field basis, the Group depreciates the acquisition costs using proved developed reserves as the total estimated production when applying the unit-of-production depreciation method.

Costs related to undeveloped oil and gas properties are not immediately included in the depletable pool of developed assets but are transferred to the depletable pool as the reserves become proved (for area-by-area basis) or developed (for field-by-filed basis) through drilling activities.

2.4 Significant accounting policies (cont'd)

Subsequent costs are recognized in the carrying amount of property, plant and equipment at cost or, if appropriate, as separated items if it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognized. The costs of the day-to-day servicing are recognized in profit or loss as incurred.

Property, plant and equipment, except for land and oil and gas properties, are depreciated on a straight-line basis over estimated useful lives that appropriately reflect the pattern in which the asset's future economic benefits are expected to be consumed.

	Useful lives
Buildings	20 - 40 years
Structures	20 - 40
Machinery	5 - 20
Tools and fixtures	5 - 12
Vehicles	5 - 12
Right-of-use assets	1 - 40
Others	5 - 10

Gains and losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of property, plant and equipment and are recognized in profit or loss. Depreciation methods, useful lives and residual values are reviewed at the end of each reporting date and adjusted, if appropriate. The change is accounted for as a change in an accounting estimate.

(o) Intangible assets other than goodwill

Intangible assets other than goodwill with finite useful lives acquired separately are carried at cost. Intangible assets other than goodwill acquired in a business combination are initially recognized at their fair value at the acquisition date (which is regarded as their cost). Subsequent to initial recognition, intangible assets acquired in a business combination are reported at cost less accumulated amortization and accumulated impairment losses.

Prior to acquiring the legal rights to explore an area, all costs related to exploration and evaluation of an area are charged directly to the statement of comprehensive loss. Once the legal rights to explore are acquired, all costs associated with acquisition of exploration rights, geological, geophysical and geographical research, drilling costs and evaluation of technical and commercial viability of economic production are capitalized as exploration and evaluation assets. All such costs are subject to review for impairment when facts and circumstances suggest that the carrying amount of the assets exceeds their recoverable amount. When technical feasibility and commercial viability are established, the relevant expenditure is transferred to oil and gas properties after impairment is assessed and any resulting impairment loss is recognized. If no potentially commercial petroleum is discovered from exploration drilling, the relating exploration and evaluation assets are written off through the statement of comprehensive loss.

2.4 Significant accounting policies (cont'd)

The useful lives of intangible assets other than goodwill are assessed as either finite or indefinite. Intangible assets other than goodwill with finite lives are amortized over the useful economic life and assessed for impairment whenever there is an indication that the intangible asset other than goodwill may be impaired. The amortization period and the amortization method for intangible assets other than goodwill with a finite useful lives are reviewed at least each financial year end. Changes in the expected useful life or the expected pattern of consumption of future economic benefits embodied in the asset is accounted for by changing the amortization period or method, as appropriate, and are treated as changes in accounting estimates. The amortization expense on intangible assets other than goodwill with finite lives is recognized in the statement of comprehensive income in the expense category consistent with the function of the intangible asset other than goodwill.

When future economic benefits are not expected through the use or disposition of intangible assets other than goodwill, the Group removes the book value of the assets from the consolidated statements of financial position. The difference between the amounts received from the disposal and the book values of assets is recognized in profit or loss when the assets are removed.

(p) Oil stockpiles

The Group stockpiles crude oil and petroleum products to stabilize domestic demand and market prices and classifies those assets as oil stockpiles (non-current non-financial assets) of which the cost is determined using the moving-average method. The Group performs annual impairment test for oil stockpiles.

(q) Impairment of non-financial assets

The carrying amounts of the Group's non-financial assets, other than assets arising from employee benefits, inventories, deferred tax assets and non-current assets held for sale, are reviewed at the end of the reporting period to determine whether there is any indication of impairment. If any such indication exists, then the asset's recoverable amount is estimated. Intangible assets other than goodwill that have indefinite useful lives or that are not yet available for use, irrespective of whether there is any indication of impairment, are tested for impairment annually by comparing their recoverable amount to their carrying amount.

For impairment testing, assets are grouped together into the smallest group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets ("CGUs"). The recoverable amount of an asset or CGU is the greater of its value in use and its fair value less costs to sell. The value in use is estimated by applying a pre-tax discount rate that reflect current market assessments of the time value of money and the risks specific to the asset or CGU for which estimated future cash flows have not been adjusted, to the estimated future cash flows expected to be generated by the asset or CGU.

2.4 Significant accounting policies (cont'd)

An impairment loss is recognized in profit or loss if the carrying amount of an asset or a CGU exceeds its recoverable amount. When reversing the impairment loss in prior periods, the carrying amount of an asset shall be lower of the modified recoverable amount and the carrying amount that would have been determined had no impairment loss been recognized for the asset in prior periods. Reversed amount should be accounted as profit or loss immediately.

(r) Inventories

Inventories are measured at the lower of cost and net realizable value. The cost of inventories is based on the moving-weighted average method, and includes expenditures for acquiring the inventories, production or conversion costs and other costs incurred in bringing them to their existing location and condition. Net realizable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and selling expenses.

The amount of any write-down of inventories to net realizable value and all losses of inventories are recognized as an expense in the period the write-down or loss occurs. The amount of any reversal of any write-down of inventories, arising from an increase in net realizable value, are recognized as a reduction in the amount of inventories recognized as an expense in the period in which the reversal occurs.

(s) Provisions

Provisions are recognized when the Group has a present legal or constructive obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation.

The risks and uncertainties that inevitably surround many events and circumstances are taken into account in reaching the best estimate of a provision. Where the effect of the time value of money is material, provisions are determined at the present value of the expected future cash flows.

Where some or all of the expenditures required to settle a provision are expected to be reimbursed by another party, the reimbursement shall be recognized when, and only when, it is virtually certain that reimbursement will be received if the entity settles the obligation. The reimbursement shall be treated as a separated asset.

Provisions are reviewed at the end of each reporting period and adjusted to reflect the current best estimates. If it is no longer probable that an outflow of resources embodying economic benefits will be required to settle the obligation, the provision is reversed.

2.4 Significant accounting policies (cont'd)

- Restoration costs

When there is a legal or contractual obligation for dismantling, removing facilities and restoring sites on which they are located to their original condition at the end of the useful lives of the facilities, the present value of the estimated future restoration costs is capitalized at the acquisition date as additions to the cost of oil and gas properties and are accounted for as a provision. The Group subsequently depreciates the restoration costs using the unit-of-production method and the difference between estimated restoration costs and their present value is charged to current operations by applying the effective-interest-rate method.

- Employee incentive

Based on the annual management performance, the Ministry of Strategy and Finance conducts an institutional evaluation and pays incentive based on the evaluation. Performance incentives are reasonably estimated in accordance with KIFRS 1037 and presented as provisions for employee benefits.

(t) Financial assets

i) Classification

The Group classifies its financial assets in the following measurement categories:

- those to be measured at fair value through profit or loss;
- those to be measured at fair value through other comprehensive income; and
- those to be measured at amortized cost.

The classification depends on the Group's business model for managing the financial assets and the contractual terms of the cash flows.

For financial assets measured at fair value, gains and losses will either be recorded in profit or loss or other comprehensive income. For investments in debt instruments, this will depend on the business model in which the investment is held. The Group reclassifies debt investments when, and only when its business model for managing those assets changes.

For investments in equity instruments that are not held for trading, this will depend on whether the Group has made an irrevocable election at the time of initial recognition to account for the equity investment at fair value through other comprehensive income.

2.4 Significant accounting policies (cont'd)

ii) Measurement

At initial recognition, the Group measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss.

Financial assets with embedded derivatives are considered in their entirety when determining whether their cash flows are solely payment of principal and interest.

A. Debt instruments

Subsequent measurement of debt instrumentsF depends on the Group's business model for managing the asset and the cash flow characteristics of the asset. The Group classifies its debt instruments into one of the following three measurement categories:

- Amortized cost: Assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortized cost. A gain or loss on a debt investment that is subsequently measured at amortized cost and is not part of a hedging relationship is recognized in profit or loss when the asset is derecognized or impaired. Interest income from these financial assets is included in 'finance income' using the effective interest rate method.

- Fair value through other comprehensive income: Assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely payments of principal and interest, are measured at fair value through other comprehensive income. Movements in the carrying amount are taken through other comprehensive income, except for the recognition of impairment loss (reversal of impairment loss), interest income and foreign exchange gains and losses which are recognized in profit or loss. When the financial asset is derecognized, the cumulative gain or loss previously recognized in other comprehensive income is reclassified from equity to profit or loss. Interest income from these financial assets is included in 'finance income' using the effective interest rate method. Foreign exchange gains and losses are presented in 'finance income or cost' and impairment losses are presented in 'finance cost'.

- Fair value through profit or loss: Assets that do not meet the criteria for amortized cost or fair value through other comprehensive income are measured at fair value through profit or loss. A gain or loss on a debt investment that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognized in profit or loss and presented net in the statement of profit or loss within 'finance income or cost' in the year in which it arises.

2.4 Significant accounting policies (cont'd)

B. Equity instruments

The Group subsequently measures all equity investments at fair value. Where the Group's management has elected to present fair value gains and losses on equity investments, which held for long-term investment or strategic purpose, in other comprehensive income, there is no subsequent reclassification of fair value gains and losses to profit or loss following the derecognition of the investment. Dividend income from such investments continue to be recognized in profit or loss as 'finance income' when the right to receive payments is established.

Changes in the fair value of financial assets at fair value through profit or loss are recognized in 'finance income or cost' in the statement of profit or loss as applicable. Impairment loss (reversal of impairment loss) on equity investments measured at fair value through other comprehensive income are not reported separately from other changes in fair value.

(iii) Impairment

In respect of the impairment of financial assets, the Group accounts for expected credit losses at each reporting date, and changes in those expected credit losses to reflect changes in credit risk since initial recognition. That is, it is not necessary for a credit event to have occurred before credit losses are recognized.

The Group shall recognize expected credit losses as an allowance for bad debts on i) debt instruments subsequently measured at amortized cost or at fair value through other comprehensive income; ii) lease receivables; iii) contract assets; and iv) loan commitments and financial guarantee contracts under KIFRS 1109.

At each reporting date, the Group measures the loss allowance for a financial instrument at an amount equal to the lifetime expected credit losses if the credit risk on that financial instrument has increased significantly or the credit has been impaired upon the acquisition of assets since initial recognition. If, at the reporting date, the credit risk on a financial instrument has not increased significantly since initial recognition (except for financial assets whose credit has been impaired upon the acquisition), the Group measures the loss allowance for that financial instrument at an amount equal to 12-month expected credit losses.

Under KIFRS 1109, for trade receivables, contract assets and lease receivables that contain a significant financing component, the Group measures the loss allowance using the simplified approach at an amount equal to lifetime expected credit losses.

-Trade receivables

The Group applies the simplified approach to measure the loss allowance at an amount equal to lifetime expected credit losses for trade receivables.

2.4 Significant accounting policies (cont'd)

- Debt investments

Debt investments at amortized cost and those at fair value through other comprehensive income are considered to be low risk, and thus the provision for impairment is determined as 12 months expected credit losses.

(iv) Derecognition

The Group derecognizes a financial asset only when the contractual rights to the cash flows from the asset expire or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity. If the Group neither transfers nor retains substantially all the risks and rewards of ownership and continues to control the transferred asset, the Group recognizes its retained interest in the asset and an associated liability for amounts it may have to pay. If the Group retains substantially all the risks and rewards of ownership of a transferred financial asset, the Group continues to recognize the financial asset and also recognizes a collateralized borrowing for the proceeds received.

(u) Financial liabilities and equity instruments

The Group classifies non-derivative financial liabilities into financial liabilities at fair value through profit or loss or other financial liabilities in accordance with the substance of the contractual arrangement and the definitions of financial liabilities. The Group recognizes financial liabilities in the consolidated statement of financial position when the Group becomes a party to the contractual provisions of the financial liability.

i) Financial liabilities at fair value through profit or loss

The Group requires the effect of changes in the credit risk on financial liabilities designated at fair value through profit or loss attributable to changes in the credit risk to be recognized in other comprehensive income, unless this treatment of the credit risk component creates or enlarges a measurement mismatch. Amounts presented in other comprehensive income are not subsequently transferred to profit or loss. When financial liabilities are derecognized, they are recognized as retained earnings.

ii) Other financial liabilities

At the date of initial recognition, other financial liabilities are measured at fair value minus transaction costs. Subsequent to initial recognition, other financial liabilities are measured at amortized cost using the effective interest method. The effective interest method is a method of calculating the amortized cost of a financial liability and of allocating the interest expense over the relevant period. The effective interest rate is the rate that exactly discounts estimated future cash payments through the expected life of the financial instrument or, when appropriate, a shorter period to the net carrying amount of the financial asset or financial liability at the date of initial recognition.

2.4 Significant accounting policies (cont'd)

iii) Derecognition of financial liabilities

The Group derecognizes a financial liability from the consolidated statement of financial position when it is extinguished (i.e. when the obligation specified in the contract is discharged, cancelled or expires). The difference between carrying amount and consideration paid is recognized through profit or loss when derecognizing a financial liability.

(v) Derivative financial instruments

The Group entered into a variety of derivative financial instruments to manage its exposure to interest rate and foreign exchange rate risk, including foreign exchange forward contracts, interest swap and currency swap. Derivatives are initially recognized at fair value at the date the derivative contract is entered into and are subsequently remeasured to their fair value at the end of each reporting period. The resulting gain or loss is recognized in profit or loss immediately, unless the derivative is designated and effective as a hedging instrument, in which case, the timing of the recognition in profit or loss depends on the nature of the hedge relationship.

i) Embedded derivative

In case of which the embedded derivative instrument is not closely related to the economic characteristics and risks of the host contract and a separated instrument with the same terms as the embedded derivative meets the definition of a derivative, if a hybrid contract contains a host that is not an asset at fair value through profit or loss, an embedded derivative is accounted for separately from the host. Changes of an embedded derivative separated from the host are recognized in profit or loss.

ii) Hedge accounting

The Group holds forward exchange contracts, currency swaps and commodity future contracts to manage foreign exchange risk and commodity fair value risk. The Group designated derivative as hedging instruments to hedge the risk of changes in the fair value of assets, liabilities or firm commitments (a fair value hedge) and foreign currency risk of highly probable forecasted transactions or firm commitments (a cash flow hedge).

On initial designation of the hedge, the Group formally documents the relationship between the hedging instruments and hedged items, including the risk management objectives and strategy in undertaking the hedge transaction, together with the methods that will be used to assess the effectiveness of the hedging relationship.

2.4 Significant accounting policies (cont'd)

iii) Fair value hedge

Changes in the fair value of a derivative hedging instrument designated as a fair value hedge are recognized in profit or loss. The gain or loss from remeasuring the hedging instrument at fair value for a derivative hedging instrument and the gain or loss on the hedged item attributable to the hedged risk are recognized in profit or loss in the same line item of the consolidated statement of comprehensive income. However, the Group elected to present the changes in the fair value as other comprehensive income at the date of initial recognition, the gain or loss from remeasuring the hedging instrument at fair value for a derivative hedging instrument and the gain or loss on the hedged item attributable to the hedged risk are recognized in other comprehensive income.

The Group discontinues fair value hedge accounting if the hedging instrument expires or is sold, terminated or exercised or even after considering re-adjustments, or if the hedge no longer meets the criteria for hedge accounting. Any adjustment arising from gain or loss on the hedged item attributable to the hedged risk is amortized to profit or loss from the date the hedge accounting is discontinued. If the hedge relationship no longer meets the requirements for hedge effectiveness related to the hedge ratio, but the objectives of risk management for the designated hedge relationship remain the same, the hedging ratio of the hedge relationship should be adjusted ('re-adjustments').

iv) Cash flow hedge

When a derivative is designated to hedge the variability in cash flows attributable to a particular risk associated with a recognized asset or liability or a highly probable forecasted transaction that could affect profit or loss, the effective portion of changes in the fair value of the derivative is recognized in other comprehensive income, and accumulated in the hedging reserve. Any ineffective portion of changes in the fair value of the derivative is recognized immediately in profit or loss and is recognized as 'finance income and cost' in the consolidated statement of comprehensive income.

Amounts previously recognized in other comprehensive income and accumulated in equity are reclassified to profit or loss in the periods when the hedged item is recognized in profit or loss, in the same line of the consolidated statement of comprehensive income as the recognized hedged item. However, when the forecast transaction that is hedged results in the recognition of a non-financial asset or a non-financial liability, the gains and losses previously accumulated in equity are transferred from equity and included in the initial measurement of the cost of the non-financial asset or non-financial liability.

If the hedging instrument no longer meets the criteria for hedge accounting, expires or is sold, terminated or exercised, then hedge accounting is discontinued prospectively. The cumulative gain or loss on the hedging instrument that has been recognized in other comprehensive income and accumulated in equity remains in equity. Any gains or losses is reclassified to profit or loss when the forecast transaction is ultimately recognized in profit or loss. If the forecasted transaction is no longer expected to occur, the gains or losses accumulated in equity is reclassified immediately to profit or loss.

2.4 Significant accounting policies (cont'd)

v) Hedges of net investments in foreign operations

Hedges of net investments in foreign operations are accounted for similarly to cash flow hedges. Any gains or losses on the hedging instrument relating to the effective portion of the hedge are recognized in foreign currency translation reserve in other comprehensive income. The gains or losses relating to the ineffective portion is recognized immediately in profit or loss, and is included in the 'finance income and cost'. When a foreign operation is disposed of, gains and losses on the hedging instrument relating to the effective portion of the hedge accumulated in the foreign currency translation reserve are reclassified to profit or loss.

vi) Other derivatives

Changes in the fair value of a derivative that is not designated as a hedging instrument are recognized immediately in profit or loss.

(w) Other accounting policies

i) Discontinued operations

The Group classifies its business segment or subsidiary as discontinued operation when it disposes a separated line of business or a segment, meets the criteria for assets held for sale, or acquires a subsidiary for sole purpose of sale. The consolidated statements of comprehensive income should be restated as if the operations have been discontinued from the beginning of the comparative fiscal period.

ii) Cash and cash equivalents

Cash and cash equivalents comprise cash on hand, demand deposits, and short-term investments in highly liquid securities that are readily convertible to known amounts of cash with maturities of three months or less from the acquisition date and which are subject to an insignificant risk of changes in value. Equity investments are excluded from cash and cash equivalents unless they are, in substance, cash equivalents, for example in the case of preferred shares when it has a short maturity with a specified redemption date.

iii) Share capital
Common stock is classified as equity and the incremental costs arising directly attributable to the issuance of common stock less their tax effects are deducted from equity.

2.4 Significant accounting policies (cont'd)

iv) Finance income and finance costs

The Group's finance income and finance costs include:

- interest income;
- interest expense;
- dividend income;
- the foreign currency gain or loss on financial assets and financial liabilities;
- the net gain or loss on financial assets measured at fair value through profit or loss;
- hedge ineffectiveness recognized in profit or loss; and
- the net gain or loss on the disposal of investments in debt securities measured at fair value through other comprehensive income.

Interest income or expense is recognized using the effective interest method. Dividend income is recognized in profit or loss on the date on which the Group's right to receive payment is established. The 'effective interest rate' is the rate that exactly discounts estimated future cash payments or receipts through the expected life of the financial instrument to:

- the gross carrying amount of the financial asset; or
- the amortized cost of the financial liability.

In calculating interest income and expense, the effective interest rate is applied to the gross carrying amount of the asset (when the asset is not credit-impaired) or to the amortized cost of the liability. However, for financial assets that have become credit-impaired subsequent to initial recognition, interest income is calculated by applying the effective interest rate to the amortized cost of the financial asset. If the asset is no longer credit-impaired, then the calculation of interest income reverts to the gross basis.

3. Critical Accounting Estimates and Assumptions

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

3. Critical Accounting Estimates and Assumptions (cont'd)

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognized in the period in which the estimates are revised and in any future periods affected.

(a) Estimated goodwill impairment

The Group assesses annually whether there is any indication of impairment in accordance with the accounting policy stated in Note 2.4 (e). The recoverable amounts of cash-generating units have been determined based on value-in-use calculations. These calculations require the use of estimates.

(b) Impairment of non-financial assets

The Group assesses whether there is any indication of impairment at the end of the reporting period in accordance with the accounting policy stated in Note 2.4 *(p)*. If any such indication exists, then the asset's recoverable amount is estimated to determine the impairment amount. The recoverable amounts of cash-generating units have been determined based on value-in-use calculations. These calculations require the use of estimates.

(c) Income taxes

The Group is operating in numerous countries and the income generated from these operations is subject to income taxes based on tax laws and interpretations of tax authorities in numerous jurisdictions. Judgement is required as there are many transactions and calculations for which the ultimate tax determination is uncertain. The Group recognizes assets and liabilities for anticipated tax audit issues based on the best estimates of whether additional taxes will be due as a result of operation activities up to present. Where the final tax outcome of these matters is different from the amounts that were initially recorded, such differences will impact the current and deferred income tax assets and liabilities in the period in which such determination is made.

(d) Fair value of financial instruments

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

(e) Provisions

As of the end of each reporting period, the Group recognizes provisions for estimated restoration costs of mining as explained in Note 2.4 *(s)*. These provisions are estimated based on past experience. Based on the annual management performance, the Ministry of Strategy and Finance conducts an institutional evaluation. Performance incentives are reasonably estimated and presented as provisions for employee benefits.

3. Critical Accounting Estimates and Assumptions (cont'd)

(f) Defined benefit obligations

The present value of the defined benefit obligations depends on a number of factors that are determined on an actuarial basis using a number of assumptions. The assumptions used in determining the net cost (income) for pensions include the discount rate. Any changes in these assumptions will impact the carrying amount of the defined benefit obligations. The Group determines the appropriate discount rate at the end of each year. This is the interest rate that is used to determine the present value of estimated future cash outflows expected to be required to settle the defined benefit obligations. In determining the appropriate discount rate, the Group considers the interest rates of high-quality corporate bonds that are denominated in the currency in which the pension benefits will be paid, and that have terms to maturity approximating to the terms of the related pension liability. Other key assumptions for defined benefit liability are based in part on current market conditions. Additional information is disclosed in Note 24.

(g) Revaluation of property, plant and equipment and investment properties

The land is carried at revalued amounts and the changes in fair value amount is recognized in other comprehensive income. The Group engaged an independent valuation specialist to assess fair values as of December 31, 2020 for the investment properties.

(h) Management's judgment

Information about critical judgments in applying accounting policies that have the most significant effect on the amounts recognized in the consolidated financial statements is included in the following notes:

Note 1: Reporting Entity – whether the Group has de facto control

Note 15: Investments in Associates and Joint Ventures – classification of a joint arrangement

(i) Assumptions and estimation uncertainties

Information about assumptions and estimation uncertainties that have a significant risk of resulting in a material adjustment within the next financial year are included in the following notes:

Note 15: Investments in Associates and Joint Ventures – main assumptions for recoverable amounts

Note 16: Property, Plant and Equipment – estimation of factors for depreciation and recoverable amount, main assumptions for estimating recoverable amounts and fair value

Note 17: Intangible assets – main assumptions for recoverable amounts

Note 18: Intangible assets other than goodwill – estimation of factors for depreciation and recoverable amounts

Note 24: Employee Benefits – main actuarial assumptions

Note 25 and 49 : Provisions and Contingencies – assumptions for possibility of cash outflows and their amounts

Note 39: Income tax expense (benefit) – possibility of realization of deferred tax assets

4. Segment and Other Information

For management purposes, the Group is organized into business units based on their goods and services. The Group's operating segments are 1) oil and gas, 2) petroleum distribution, 3) oil stockpiling, 4) others.

Segments	Goods and services	Location of business
Oil and gas	Exploration, development and production of domestic and overseas resources and sales of crude oil	Domestic and overseas
Petroleum distribution	Distribution business of gasoline and gas oil and oil trading	Domestic and overseas
Oil stockpiling	Trading of crude oil and petroleum product, lending and sales of oil stockpiles, management, operation and lending of oil stockpiling facilities	Domestic
Others	Oil information services, other research services, etc.	Domestic and overseas

(a) Segment results for the year ended December 31, 2020

(in Korean won)

	2020						
	Oil and gas	Petroleum distribution	Oil stockpiling	Others	Reportable segment total	Reconciling items[1]	Group total
Revenue	₩ 1,644,575,449,844	₩ 24,207,532,672	₩ 255,238,426,811	₩ 7,201,074,849	₩ 1,931,222,484,176	₩ -	₩ 1,931,222,484,176
Cost of sales	1,527,506,254,712	21,263,309,126	182,531,259,213	2,301,809,530	1,733,602,632,581	-	1,733,602,632,581
Gross profit	117,069,195,132	2,944,223,546	72,707,167,598	4,899,265,319	197,619,851,595	-	197,619,851,595
Selling and administrative expenses	177,292,723,871	392,291,715	-	-	177,685,015,586	74,042,846,333	251,727,861,919
Reportable segment operating profit (loss)[2]	(60,223,528,739)	2,551,931,831	72,707,167,598	4,899,265,319	19,934,836,009	(74,042,846,333)	(54,108,010,324)
Other income	-	-	-	-	32,837,024,509	-	32,837,024,509
Other expenses	-	-	-	-	14,267,357,272	-	14,267,357,272
Other profit (loss), net	-	-	-	-	(1,734,680,692,336)	-	(1,734,680,692,336)
Finance income	-	-	-	-	266,530,707,585	-	266,530,707,585
Finance costs	-	-	-	-	903,418,086,717	-	903,418,086,717
Loss on investments in associates and joint ventures, net	-	-	-	-	(27,441,704,887)	-	(27,441,704,887)
Loss before income tax	₩ -	₩ -	₩ -	₩ -	₩ (2,360,505,273,109)	₩ (74,042,846,333)	₩ (2,434,548,119,442)
Depreciation and amortization of intangible assets other than goodwill	₩ 689,153,902,743	₩ 345,470,978	₩ 92,102,889,956	₩ -	₩ 781,602,263,677	₩ 5,817,795,871	₩ 787,420,059,548
Impairment losses on property, plant and equipment	1,424,500,981,351	-	-	-	1,424,500,981,351	-	1,424,500,981,351
Reversal of impairment losses on property, plant and equipment	2,442,068,314	-	-	-	2,442,068,314	-	2,442,068,314
Impairment losses on intangible assets other than goodwill	273,537,773,246	-	-	-	273,537,773,246	-	273,537,773,246
Impairment losses on goodwill	32,552,922,480	-	-	-	32,552,922,480	-	32,552,922,480
Reversal of impairment losses on intangible assets other than goodwill	4,784,241,479	-	-	-	4,784,241,479	-	4,784,241,479

[1] Primarily consists of operating profit (loss) including depreciation and amortization of intangible assets other than goodwill that are not allocated to the segments.
[2] Segment profit (loss) reported to the group CEO is operating profit (loss).

4. Segment and Other Information (cont'd)

(b) Segment results for the year ended December 31, 2019

(in Korean won)	2019						
	Oil and gas	Petroleum distribution	Oil stockpiling	Others	Reportable segment total	Reconciling items[1]	Group total
Revenue	₩ 2,662,815,845,497	₩ 60,894,664,988	₩ 199,546,442,627	₩ 6,736,006,488	₩ 2,929,992,959,600	₩ -	₩ 2,929,992,959,600
Cost of sales	1,801,810,225,004	70,903,269,672	177,440,324,744	2,259,251,733	2,052,413,071,153	-	2,052,413,071,153
Gross profit	861,005,620,493	(10,008,604,684)	22,106,117,883	4,476,754,755	877,579,888,447	-	877,579,888,447
Selling and administrative expenses	236,226,246,615	364,198,693	-	-	236,590,445,308	69,519,995,626	306,110,440,934
Reportable segment operating profit (loss)[2]	624,779,373,878	(10,372,803,377)	22,106,117,883	4,476,754,755	640,989,443,139	(69,519,995,626)	571,469,447,513
Other income	-	-	-	-	93,597,344,082	-	93,597,344,082
Other expenses	-	-	-	-	8,259,254,071	-	8,259,254,071
Other profit (loss), net	-	-	-	-	(2,095,013,255)	-	(2,095,013,255)
Finance income	-	-	-	-	402,068,273,215	-	402,068,273,215
Finance costs	-	-	-	-	731,432,586,748	-	731,432,586,748
Loss on investments in associates and joint ventures, net	-	-	-	-	53,712,409,399	-	53,712,409,399
Profit (loss) before income tax	₩ -	₩ -	₩ -	₩ -	₩ 448,580,615,761	₩ (69,519,995,626)	₩ 379,060,620,135
Depreciation and amortization of intangible assets other than goodwill	₩ 933,639,067,189	₩ 9,399,809,655	₩ 91,971,649,480	₩ 11,402,911,595	₩ 1,046,413,437,919	₩ -	₩ 1,046,413,437,919
Impairment losses on property, plant and equipment	176,250,820,929	-	-	-	176,250,820,929	-	176,250,820,929
Reversal of impairment losses on property, plant and equipment	25,224,458,258	-	-	-	25,224,458,258	-	25,224,458,258
Impairment losses on intangible assets other than goodwill	18,106,642,179	-	-	-	18,106,642,179	-	18,106,642,179
Reversal of impairment losses on intangible assets other than goodwill	53,230,301,443	-	-	-	53,230,301,443	-	53,230,301,443

[1] Primarily consists of operating profit (loss) including depreciation and amortization of intangible assets other than goodwill that are not allocated to the segments.

[2] Segment profit (loss) reported to the group CEO is operating profit (loss).

4. Segment and Other Information (cont'd)

Revenue by geographic area for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Domestic	₩	477,834,031,948	₩	598,411,295,978
Canada		184,924,607,122		310,288,485,225
United Kingdom		734,489,825,806		1,277,072,045,730
United States		260,029,106,336		465,981,626,484
Kazakhstan		163,249,415,657		278,100,479,141
Arab Emirates		110,687,320,965		-
Others		8,176,342		139,027,042
	₩	1,931,222,484,176	₩	2,929,992,959,600

In presenting information about geographical areas, segment revenue is based on the geographical location of the Group's entities which recorded the related revenue.

Customers whose revenue is 10% or more of consolidated revenue for the year ended December 31, 2020 are Shell Co. (2019: BP P.L.C. and Shell Co.) amounting to ₩ 224,061 million (2019: ₩ 371,225 million and ₩ 530,883 million, respectively). Furthermore, revenues from these customers for the year ended December 31, 2020, are related to oil and gas segment (2019: oil and gas segment).

5. Cash and Cash Equivalents

Cash and cash equivalents in the consolidated statements of cash flows include cash and bank deposit and exclude government grants. Cash and cash equivalents in the consolidated statements of cash flows for the years ended December 31, 2020 and 2019 are comprised of the following items in the consolidated statements of financial position.

(in Korean won)		2020		2019
Cash in hands	₩	106,662,026	₩	484,172,474
Other on demand deposits		236,068,249,091		221,102,996,815
Short-term deposits classified as cash equivalents		321,062,710,823		255,017,200,894
Short-term investments classified as cash equivalents		239,606,411,926		248,463,141,625
Government grants		(65,135,024)		(11,100,917)
	₩	796,778,898,842	₩	725,056,410,891

6. Restricted Cash and Cash Equivalents

Details of restricted cash and cash equivalents and financial assets provided as collateral for liabilities or contingent liabilities as of December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Long-term financial instruments				
Asset retirement obligation	₩	2,649,960,653	₩	2,704,540,912

7. Financial Assets Measured at Fair Value through Profit or Loss and Derivative Instruments

Details of financial assets measured at fair value through profit or loss as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020		2019	
	Current	Non-current[1]	Current	Non-current[1]
Debt securities	₩ 536,899,617,747	₩ 674,664,491,128	₩ 268,670,204,196	₩ 1,495,749,044,152
	₩ 536,899,617,747	₩ 674,664,491,128	₩ 268,670,204,196	₩ 1,495,749,044,152

[1] Includes loans classified as financial assets measured at fair value through profit or loss.

The amounts recognized in profit or loss in relation to financial assets measured at fair value through profit or loss for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Gain on valuation of financial asset measured at fair value through profit or loss	₩ 8,311,881,332	₩ 167,773,467,775
Loss on valuation of financial asset measured at fair value through profit or loss	(117,456,567,243)	(82,191,492,544)
Gain on transaction of financial asset measured at fair value through profit or loss	-	2,072,434,884
	₩ (109,144,685,911)	₩ 87,654,410,115

Details of derivatives as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020		2019	
	Current	Non-current	Current	Non-current
Derivative assets				
Currency forwards	₩ 48,035,634,112	₩ -	₩ 17,253,809,664	₩ 9,634,659,643
Currency swap	513,575,690	122,516,278,216	5,208,863,958	8,643,513,255
Interest swap	-	-	161,161,777	-
Other derivatives	924,171,071	-	18,092,980,877	18,608,341,061
	₩ 49,473,380,873	₩ 122,516,278,216	₩ 40,716,816,276	₩ 36,886,513,959
Derivative liabilities				
Currency swap	₩ 3,435,505,185	₩ 23,029,641,947	₩ 226,707,484	₩ 72,262,073,819
Interest swap	14,783,363,263	29,237,587,231	7,378,119,697	18,829,527,657
Other derivatives	-	-	3,888,054,732	90,948,685
	₩ 18,218,868,448	₩ 52,267,229,178	₩ 11,492,881,913	₩ 91,182,550,161

7. Financial Assets Measured at Fair Value through Profit or Loss and Derivative Instruments (cont'd)

Details of currency swap contracts as of December 31, 2020, are as follows:

(in foreign currencies)

			Contract amount		Contract interest rate per annum (%)	
Type	Counter party	Maturity	Sell	Buy	Sell	Buy
Cash flow hedge	HSBC	2021-02-08	HKD 500,000,000	USD 64,184,852	4.38	5.03
	BNP PARIBAS	2021-03-04	HKD 390,000,000	USD 50,080,900	4.50	5.20
	HSBC	2022-02-10	HKD 390,000,000	USD 50,281,707	3.95	4.45
	BNP PARIBAS	2022-03-28	EUR 50,000,000	USD 65,075,000	4.00	4.55
	HSBC	2023-01-26	HKD 400,000,000	USD 51,599,587	2.85	3.17
	Development Bank of Singapore	2023-02-06	EUR 37,000,000	USD 49,765,000	2.40	3.19
	HSBC	2025-06-24	EUR 60,000,000	USD 80,070,000	3.00	4.06
	HSBC	2023-07-03	EUR 50,000,000	USD 65,670,000	3.09	4.31
	Development Bank of Singapore	2021-01-29	SGD 400,000,000	USD 305,950,741	1.86	U6L+43bp
	BNP PARIBAS	2023-06-01	CHF 200,000,000	USD 199,976,003	0.38	3.69
	Korea Development Bank	2023-06-01	CHF 200,000,000	USD 199,976,003	0.38	3.69
	Standard Chartered Bank	2023-06-01	CHF 100,000,000	USD 99,988,001	0.38	3.68
	CREDIT AGRICOLE	2022-01-21	JPY 30,000,000,000	USD 276,586,917	0.24	3.37
	Mizuho Bank	2022-01-21	JPY 20,000,000,000	USD 184,391,278	0.24	3.39
	BNP PARIBAS	2022-01-21	JPY 20,000,000,000	USD 184,391,278	0.24	3.39
	Korea Development Bank	2024-10-04	CHF 200,000,000	USD 201,940,000	0.00	2.55
	BNP PARIBAS	2024-10-04	CHF 100,000,000	USD 100,970,000	0.00	2.55
	HSBC	2025-03-26	HKD 160,000,000	USD 20,626,531	2.50	2.33
	HSBC	2025-04-22	CHF 200,000,000	USD 204,880,000	0.89	2.34
	Standard Chartered Bank	2027-07-30	CHF 100,000,000	USD 105,970,000	0.27	1.55
	BNP PARIBAS	2027-07-30	CHF 100,000,000	USD 109,340,000	0.27	1.46

Details of interest rate swap contracts as of December 31, 2020, are as follows:

(in USD and CAD)

			Contract	Contract interest rate per annum(%)	
Type	Counter Party	Terms	amount	Sell	Buy
Cash flow hedge	Societe Generale	2023-07-17	USD 400,000,000	U3L+87.5bp	3.70
	HSBC	2023-05-11	CAD 300,000,000	1.95	2.82

7. Financial Assets Measured at Fair Value through Profit or Loss and Derivative Instruments (cont'd)

Details of the currency forward contracts as of December 31, 2020, are as follows:

(in USD, GBP and, Korean won)

Type	Counter party	Contract date	Maturity	Contract amount		Contract currency rate [1]
				Sell	Buy	
Cash flow hedge	ABN AMRO	2020-09-23	2021-01-08	USD 1,270,900	GBP 1,000,000	1.2709
	CIBC	2020-07-09	2021-01-13	USD 3,803,550	GBP 3,000,000	1.2679
	BNP PARIBAS	2020-03-12	2021-01-15	USD 7,692,000	GBP 6,000,000	1.2820
	Royal Bank of Scotland	2020-03-12	2021-01-20	USD 3,825,000	GBP 3,000,000	1.2750
	ABN AMRO	2020-09-23	2021-02-03	USD 2,542,000	GBP 2,000,000	1.2710
	BNP PARIBAS	2020-07-09	2021-02-10	USD 5,080,000	GBP 4,000,000	1.2700
	Royal Bank of Scotland	2020-03-12	2021-02-15	USD 7,678,800	GBP 6,000,000	1.2798
	ABN AMRO	2020-03-12	2021-02-19	USD 3,812,400	GBP 3,000,000	1.2708
	BNP PARIBAS	2020-09-23	2021-03-03	USD 2,548,000	GBP 2,000,000	1.2740
	DNB	2020-07-09	2021-03-10	USD 3,805,800	GBP 3,000,000	1.2686
	CIBC	2020-03-12	2021-03-15	USD 6,388,500	GBP 5,000,000	1.2777
	CIBC	2020-03-12	2021-03-18	USD 3,815,100	GBP 3,000,000	1.2717
	CIBC	2020-07-09	2021-04-15	USD 15,222,060	GBP 12,000,000	1.2685
	CITI	2020-09-23	2021-05-05	USD 3,823,500	GBP 3,000,000	1.2745
	ING	2020-07-09	2021-05-13	USD 10,132,000	GBP 8,000,000	1.2665
	CIBC	2020-09-23	2021-06-09	USD 3,815,190	GBP 3,000,000	1.2717
	CITI	2020-07-09	2021-06-15	USD 12,707,000	GBP 10,000,000	1.2707
	DNB	2020-09-23	2021-07-07	USD 1,271,400	GBP 1,000,000	1.2714
	ABN AMRO	2020-07-09	2021-07-15	USD 8,873,200	GBP 7,000,000	1.2676
	ING	2020-09-23	2021-08-17	USD 10,184,000	GBP 8,000,000	1.2730
	Royal Bank of Scotland	2020-09-23	2021-09-15	USD 10,186,400	GBP 8,000,000	1.2733
	Standard Chartered Bank	2019-05-08	2021-11-23	USD 96,250,000	KRW 115,981,250,000	0.0008
	Bank of America	2019-08-05	2021-11-23	USD 96,250,000	KRW 115,981,250,000	0.0008
	Standard Chartered Bank	2019-08-13	2021-11-23	USD 38,500,000	KRW 45,622,500,000	0.0008
	Standard Chartered Bank	2020-02-24	2021-11-23	USD 38,500,000	KRW 45,260,600,000	0.0009
	Standard Chartered Bank	2020-03-13	2021-11-23	USD 19,250,000	KRW 23,003,750,000	0.0008
	Bank of America	2020-02-24	2021-11-23	USD 38,500,000	KRW 45,260,600,000	0.0009
	Bank of America	2020-02-21	2021-11-23	USD 38,500,000	KRW 45,622,500,000	0.0008
	Bank of America	2020-03-13	2021-11-23	USD 19,250,000	KRW 23,003,750,000	0.0008

[1] The contract currency rate is presented in USD and the contract currency rate is applied to the buy contract amount.

7. Financial Assets Measured at Fair Value through Profit or Loss and Derivative Instruments (cont'd)

Details of other derivatives (zero cost collar options) as of December 31, 2020, are as follows:

(in BBL, MBTU, US dollar)

Type	Counterparty	Terms	Contract amount	Exercise Price	
				Call	Put
Cash flow Hedge	BNP PARIBAS	2021-03-31	21,000	65.03	56.00
	BNP PARIBAS	2021-06-30	21,000	65.03	56.00
	Standard Chartered Bank	2021-03-31	21,000	57.25	57.00
Held for trading	Citi Bank	2021-06-30	34,000	65.17	56.00

Gains and losses on valuation and transaction of derivative for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	Gains(losses) on valuation of derivative instruments		Gains (losses) on transaction of derivative instruments		Gains (losses) on valuation of derivative instruments (other comprehensive income (loss)) [1]	
	2020	2019	2020	2019	2020	2019
Currency forwards	₩ -	₩ -	₩ -	₩ -	₩ 29,188,143,551	₩ -
Currency swaps	-	-	5,079,148	11,338,703,001	(26,856,389,125)	(44,400,266,517)
Interest rate swaps	-	-	227,616,552	-	(16,926,544,003)	(15,742,866,666)
Other derivatives	(18,860,237,629)	16,111,435,699	92,370,856,276	-	(78,249,496)	(50,512,168,189)
	₩ (18,860,237,629)	₩ 16,111,435,699	₩ 92,603,551,976	₩ 11,338,703,001	₩ (14,673,039,073)	₩ (110,655,301,372)

[1] Changes in accumulated other comprehensive income (loss) are net of tax effect amounting to (+) ₩ 13,876 million and (+) ₩ 30,093 million for the years ended December 31, 2020 and 2019, respectively.

8. Trade and Other Receivables

Details of trade and other receivables as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020			
	Gross amounts	Allowance for doubtful accounts	Present value discount	Book value
Current				
Trade receivables	₩ 200,892,622,246	₩ (9,212,085,555)	₩ -	₩ 191,680,536,691
Other receivables	200,398,041,806	-	-	200,398,041,806
Accrued income	360,542,191	-	-	360,542,191
Finance lease receivables	3,185,505,174	-	(226,779,913)	2,958,725,261
Other current receivables	38,312,109,372	-	-	38,312,109,372
	443,148,820,789	(9,212,085,555)	(226,779,913)	433,709,955,321
Non-current				
Other receivables	1,076,403,563	-	-	1,076,403,563
Accrued income	8,568,153,767	(8,568,153,767)	-	-
Deposit received	50,323,620,331	-	(16,723,703,357)	33,599,916,974
Finance lease receivables	10,134,830,388	-	(749,644,305)	9,385,186,083
	70,103,008,049	(8,568,153,767)	(17,473,347,662)	44,061,506,620
	₩ 513,251,828,838	₩ (17,780,239,322)	₩ (17,700,127,575)	₩ 477,771,461,941

(in Korean won)	2019			
	Gross amounts	Allowance for doubtful accounts	Present value discount	Book value
Current				
Trade receivables	₩ 223,306,827,341	₩ (9,732,663,082)	₩ -	₩ 213,574,164,259
Other receivables	210,877,607,930	-	-	210,877,607,930
Accrued income	1,002,741,230	(375,601,898)	-	627,139,332
Finance lease receivables	7,566,303,154	-	(367,497,900)	7,198,805,254
Other current receivables	52,396,900,254	-	-	52,396,900,254
	495,150,379,909	(10,108,264,980)	(367,497,900)	484,674,617,029
Non-current				
Other receivables	1,827,674,448	-	-	1,827,674,448
Accrued income	7,121,330,581	(7,121,330,581)	-	-
Deposit received	50,111,179,032	-	(17,680,017,054)	32,431,161,978
Finance lease receivables	11,054,185,658	-	(1,150,195,593)	9,903,990,065
	70,114,369,719	(7,121,330,581)	(18,830,212,647)	44,162,826,491
	₩ 565,264,749,628	₩ (17,229,595,561)	₩ (19,197,710,547)	₩ 528,837,443,520

8. Trade and Other Receivables (cont'd)

Details of other current receivables as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	
	Gross amounts	Book value
Prepaid value added tax	₩ 3,353,806,534	₩ 3,353,806,534
Overseas prepaid value added tax	1,696,665,019	1,696,665,019
Due from financial institutions	386,374,890	386,374,890
Other current assets	32,875,262,929	32,875,262,929
	₩ 38,312,109,372	₩ 38,312,109,372

(in Korean won)	2019	
	Gross amounts	Book value
Prepaid value added tax	₩ 24,477,691,765	₩ 24,477,691,765
Overseas prepaid value added tax	531,634,089	531,634,089
Due from financial institutions	436,623,643	436,623,643
Other current assets	26,950,950,757	26,950,950,757
	₩ 52,396,900,254	₩ 52,396,900,254

The trade and other receivables include those receivables without allowance provision as they are considered collectible, including accrued interest on the receivables and have no significant changes in their credit rating as of December 31, 2020. Above trade and other receivables are classified as loans and receivables and measured at amortized cost. If objective evidence of impairment for a portfolio of receivables has occurred but no loss has been realized, based on the Group's past experience of collecting payments as well as observable changes in national or local economic conditions that correlate with default on receivables, an allowance account is recognized. The Group has no right to offset against any related liabilities with the counterparties.

8. Trade and Other Receivables (cont'd)

The aging analysis of trade receivables as of December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Receivables not past due and impaired	₩	109,169,730,048	₩	156,698,004,965
Past due but not impaired		82,510,806,643		56,876,159,294
- Within 2 months		35,011,113,953		8,787,511,906
- 2~3 months		3,442,188,253		2,422,497,266
- 3~4 months		4,271,946,403		2,967,311,807
- 4~12 months		35,411,971,857		38,489,304,606
- More than 12 months		4,373,586,177		4,209,533,709
Impaired		9,212,085,555		9,732,663,082
- 2~3 months		-		6,450,366,088
- 4~12 months		-		3,282,296,994
- More than 12 months		9,212,085,555		-
		200,892,622,246		223,306,827,341
Less: allowance for doubtful accounts		(9,212,085,555)		(9,732,663,082)
	₩	191,680,536,691	₩	213,574,164,259

The aging analysis of other receivables as of December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Receivables not past due and impaired	₩	284,951,834,911	₩	331,001,476,901
Past due but not impaired		18,839,217,917		3,459,512,907
- Within 2 months		712,713,286		397,014,344
- 2~3 months		256,041,044		-
- 3~4 months		303,149,908		19,353,403
- 4~12 months		1,351,709,516		70,122,335
- More than 12 months		16,215,604,163		2,973,022,825
Impaired		8,568,153,764		7,496,932,479
- 2~3 months		440,858,449		476,100,517
- 4~12 months		210,293,884		247,598,174
- More than 12 months		-		253,380,273
- Within 2 months		1,224,992,735		2,188,000,433
- 2~3 months		6,692,008,696		4,331,853,082
		312,359,206,592		341,957,922,287
Less: allowance for doubtful accounts		(8,568,153,767)		(7,496,932,479)
Less: present value discounts		(17,700,127,575)		(19,197,710,547)
	₩	286,090,925,250	₩	315,263,279,261

8. Trade and Other Receivables (cont'd)

Movements in the allowance for doubtful accounts of trade and other receivables for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020		2019	
	Trade receivables	Other receivables	Trade receivables	Other receivables
Beginning balance	₩ 9,732,663,082	₩ 7,496,932,479	₩ 8,927,800,430	₩ 5,299,057,395
Amount recognized in profit or loss	2,505,960,363	2,155,335,411	-	3,186,538,955
Write-off	(2,557,859,712)	-	-	-
Reversal	-	(120,459,504)	-	(3,495,036,527)
Others [1]	(468,678,178)	(963,654,619)	804,862,652	2,506,372,656
Ending balance	₩ 9,212,085,555	₩ 8,568,153,767	₩ 9,732,663,082	₩ 7,496,932,479

[1] Include the effect of changes in exchange rates.

9. Financial Assets Measured at Fair Value Through Other Comprehensive Income

Movements in the financial assets at fair value through other comprehensive income for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020				
	Beginning balance	Disposal[1]	Valuation[3]	Others[4]	Ending balance
Marketable[1]	₩ 123,121,459	₩ (37,316,426)	₩ (88,171,118)	₩ 2,366,085	₩ -
Non-marketable[2]	6,335,312,156	-	6,770,400,107	(910,061,591)	12,195,650,672
	₩ 6,458,433,615	₩ (37,316,426)	₩ 6,682,228,989	₩ (907,695,506)	₩ 12,195,650,672

[1] The Group recognized other comprehensive losses of ₩ 88 million, due to liquidation of EP Energy, for the year ended December 31, 2020.

[2] The Group recognized other comprehensive income and losses of ₩ 7,123 million and ₩ 353 million respectively from EP Energy and Troika, in accordance with changes in the fair value of financial asset measured at fair value through other comprehensive income.

[3] Related income tax effect is not recognized for the year ended December 31, 2020 due to unrecognized deferred tax asset as the amount is not expected be realized in a foreseeable future.

[4] Include other changes and the effect of changes in exchange rates and others.

(in Korean won)	2019			
	Beginning balance	Valuation[1,2]	Others[3]	Ending balance
Marketable	₩ 24,479,355,138	₩ (25,396,444,728)	₩ 1,040,211,049	₩ 123,121,459
Non-marketable	7,740,142,479	(1,691,045,371)	286,215,048	6,335,312,156
	₩ 32,219,497,617	₩ (27,087,490,099)	₩ 1,326,426,097	₩ 6,458,433,615

[1] The Group recognized valuation losses on EP Energy and Troika Resource Investment PEF to ₩ 25,396 million and ₩ 1,691 million, respectively, for the year ended December 31, 2019.

[2] Related income tax effect is not recognized for the year ended December 31 ,2019 due to unrecognized deferred tax asset as the amount is not expected be realized in a foreseeable future.

[3] Include other changes and the effect of changes in exchange rates and others.

9. Financial Assets Measured at Fair Value Through Other Comprehensive Income (cont'd)

Details of financial assets measured at fair value through other comprehensive income as of December 31, 2020 and 2019, are as follows:

(in Korean won)		Carrying amount		Fair value	
	Ownership interest (%)	2020	2019	2020	2019
Marketable					
EP Energy	12.82	₩ -	₩ 123,121,459	₩ -	₩ 123,121,459
Non-marketable					
Yemen LNG Company Limited	1.06	₩ 10,757,962,775	₩ 4,458,690,092	₩ 10,757,962,775	₩ 4,458,690,092
Petronado S.A.	5.64	-	-	-	-
Micronic Korea[1]	16.70	832,379,622	885,780,447	832,379,622	885,780,447
Troika Resource Investment PEF	14.47	605,308,275	990,841,617	605,308,275	990,841,617
Global Dynasty Natural Resource PEF	15.67	-	-	-	-
		₩ 12,195,650,672	₩ 6,458,433,615	₩ 12,195,650,672	₩ 6,458,433,615

[1] The dividend income associated with Micronic Korea for the years ended December 31, 2020 and 2019, are ₩ 5 million and ₩ 10 million, respectively.

10. Loans

Details of loans as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020		
	Face value	Provision for loans	Carrying amount
Short-term loans			
Loans to related parties [4]	₩ 30,736,000,000	₩ -	₩ 30,736,000,000
	30,736,000,000	-	30,736,000,000
Long-term loans			
Loans for tuitions [1]	417,080,774	-	417,080,774
Loans for housing [2]	96,529,979,523	-	96,529,979,523
Loans for vehicle [3]	521,590,148	-	521,590,148
General loans	9,054,262,126	(1,099,080,192)	7,955,181,934
Loans to related parties [4]	576,747,247,348	(576,747,247,348)	-
	683,270,159,919	(577,846,327,540)	105,423,832,379
	₩ 714,006,159,919	₩ (577,846,327,540)	₩ 136,159,832,379

[1] The Group provides employees who worked over a year with interest-free loans for their children's tuitions. The loans are repaid from their monthly wages.

[2] The Group provides employees without housing with loans for housing at market interest rates. The loans are due 5~10 years and repaid by lump sum at maturity.

[3] The Group provides non-interest bearing loans to overseas secondees who newly purchase or lease a vehicle. The loans are due when the secondees return to the Headquarters.

[4] The Group provided Offshore International Group and 9 other related parties with loans at interest rates of 2.33~ 7.99%. The loans are due to be repaid in 1~18 year.

10. Loans (cont'd)

(in Korean won)	2019		
	Face value	Provision for loans	Carrying amount
Short-term loans			
Loans to related parties [4]	₩ 2,586,817,903	₩ -	₩ 2,586,817,903
	2,586,817,903	-	2,586,817,903
Long-term loans			
Loans for tuitions [1]	441,556,913	-	441,556,913
Loans for housing [2]	99,434,890,964	-	99,434,890,964
Loans for vehicle [3]	252,819,744	-	252,819,744
General loans	8,460,404,108	(1,147,458,530)	7,312,945,578
Loans to related parties [4]	646,455,977,842	(613,748,127,739)	32,707,850,103
	755,045,649,571	(614,895,586,269)	140,150,063,302
	₩ 757,632,467,474	₩ (614,895,586,269)	₩ 142,736,881,205

[1] The Group provides employees who worked over a year with interest-free loans for their children's tuitions. The loans are repaid from their monthly wages.

[2] The Group provides employees without housing with loans for housing at market interest rates. The loans are due 5~10 years and repaid by lump sum at maturity.

[3] The Group provides non-interest bearing loans to overseas secondees who newly purchase or lease a vehicle. The loans are due when the secondees return to the Headquarters.

[4] The Group provided Offshore International Group and 14 other related parties with loans at interest rates of 3.00 ~ 7.99%. The loans are due to be repaid in 1 year or at maturity

11. Long-term Financial Instruments

Details of long-term financial instruments as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Asset retirement obligation	₩ 5,601,079,085	₩ 5,676,009,105
	₩ 5,601,079,085	₩ 5,676,009,105

12. Other Financial Assets

Details of other current financial assets as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Overseas field operations quick assets	₩ 739,651,047	₩ 503,309,681
	₩ 739,651,047	₩ 503,309,681

13. Inventories

Details of inventories as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020		
	Acquisition cost	Provision for losses on valuation [1]	Carrying amount
Raw materials [1]	₩ 6,758,423,255	₩ (580,897,997)	₩ 6,177,525,258
Merchandises [1]	7,686,589,658	-	7,686,589,658
Work-in-progress	106,988,698	-	106,988,698
Finished goods	11,654,363,633	(2,202,930,959)	9,451,432,674
Supplies	69,222,519,047	-	69,222,519,047
Goods in-transit	65,140,790	-	65,140,790
	₩ 95,494,025,081	₩ (2,783,828,956)	₩ 92,710,196,125

(in Korean won)	2019		
	Acquisition cost	Provision for losses on valuation [1]	Carrying amount
Raw materials [1]	₩ 4,166,555,201	₩ (629,880,018)	₩ 3,536,675,183
Merchandises [1]	4,810,645,732	(336,388,393)	4,474,257,339
Work-in-progress	126,555,181	-	126,555,181
Finished goods	17,905,334,509	-	17,905,334,509
Supplies	71,576,332,485	-	71,576,332,485
Goods in-transit	381,965,514	-	381,965,514
	₩ 98,967,388,622	₩ (966,268,411)	₩ 98,001,120,211

[1] The losses on the valuation of inventories recognized in cost of sales for the year ended December 31, 2020 is ₩ 19,873 million (2019: ₩ 404 million).

14. Non-financial Assets

Details of non-financial assets as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020		2019	
	Current	Non-current	Current	Non-current
Advance payments	₩ 54,345,311,364	₩ -	₩ 56,315,321,907	₩ -
Prepaid expenses	20,108,949,425	541,394,294	31,362,044,815	325,745,942
Oil stockpiles	-	3,686,509,114,195	-	3,910,638,405,954
Others	-	4,440,816,443	-	6,620,763,184
	₩ 74,454,260,789	₩ 3,691,491,324,932	₩ 87,677,366,722	₩ 3,917,584,915,080

15. Investments in Associates and Joint Ventures

Details of investments in associates and joint ventures as of December 31, 2020 and 2019, are as follows:

(in Korean won)

Entity	Principal activity	Country	2020			2019		
			Equity interest (%)	Acquisition cost	Book value	Equity interest (%)	Acquisition cost	Book value
<Investments in associates>								
Kernhem B.V.	Exploration and Production ("E&P")	Netherlands	36.67	₩ 11,116,944,510	₩ -	36.67	₩ 11,830,145,546	₩ -
Oilhub Korea Yeosu Co., Ltd.	Storing of oil	Republic of Korea	29.00	36,781,822,499	63,128,996,115	29.00	39,141,538,685	58,480,114,370
ADA Oil LLP[1]	E&P	Kazakhstan	12.50	19,094,534,150	-	12.50	20,319,532,757	-
Parallel Petroleum LLC [2,6]	E&P	United States	10.00	41,742,635,584	-	10.00	44,420,609,815	-
KNOC EF Star LLC[3]	E&P	United States	100.00	28,288,000,000	64,950,570,540	100.00	30,102,800,000	40,194,986,889
KOREA GS E&P Pte. Ltd.[10]	E&P	Singapore	30.00	367,539,304,474	276,843,002,551	-	-	-
				504,563,241,217	404,922,569,206		145,814,626,803	98,675,101,259
<Investments in joint ventures>								
KNOC Inam Ltd	Exploration	Malaysia	40.00	43,520	-	40.00	46,312	-
KNOC Kamchatka Petroleum Ltd.[4]	Exploration	Cyprus	55.00	1,196,800	-	55.00	1,273,580	-
KNOC Bazian Ltd. [4]	Exploration	Malaysia	66.72	62,016	-	66.72	65,995	-
KNOC Nigerian East Oil Company Ltd. [4]	Exploration	Nigeria	75.00	65,280,000	-	75.00	69,468,000	-
KNOC Nigerian West Oil Company Ltd. [4]	Exploration	Nigeria	75.00	65,280,000	-	75.00	69,468,000	-
Korea kamchatka Co. Ltd	Exploration	Cyprus	50.00	7,394,428,528	-	50.00	7,868,813,741	-
KC kazakh B.V	Exploration	Netherlands	35.00	246,395,508	-	35.00	262,202,867	-
Offshore International Group, Inc.	E&P	United States	50.00	-	-	50.00	735,346,010,333	91,189,025,586
KNOC Ferghana Ltd	Exploration	Malaysia	50.00	544,000	-	50.00	578,900	-
KNOC Ferghana2 Ltd [4]	Exploration	Malaysia	65.00	71,188	-	65.00	75,755	-
KADOC Ltd [5]	E&P	Malaysia	-	-	-	75.00	868,350	-
Korea Energy Terminal Ltd [4]	Storing of oil	Republic of Korea	51.47	43,306,610,908	42,612,869,262	95.00	4,455,105,231	-
Deep Basin Partnership [4,7]	Exploration	Canada	83.52	244,870,024,714	-	83.47	258,876,914,781	17,322,008,564
HKMS Partnership [4,7]	Gas processing plant operation	Canada	68.51	59,632,820,287	31,870,493,504	68.19	62,874,731,116	32,734,367,939
KNOC-VOGO Eagle Ford LLC [8]	E&P	United States	50.00	-	-	50.00	-	-
Al Dhafra Petroleum [9]	E&P	United Arab Emirates	30.00	435,200,000	435,200,000	-	-	-
				356,017,957,469	74,918,562,766		1,069,825,622,961	141,245,402,089
				₩ 860,581,198,686	₩ 479,841,131,972		₩ 1,215,640,249,764	₩ 239,920,503,348

15. Investments in Associates and Joint Ventures (cont'd)

[1] Classified as an investment in associate as the Group's associate, Kernhem B.V. holds 75.00% of the equity interest and by effective equity interest, the Group has the ability to exercise significant influence over the entity.

[2] Classified as an investment in associate as the Group can designate one director in its board of directors. Despite the percentage of ownership is below 20%, the Group has the ability to exercise significant influence over the entity.

[3] Despite the percentage of ownership of the Group is 100%, it is excluded from the scope of consolidation due to reassessment of entity's control.

[4] Despite the percentage of ownership is over 50%, the investment is classified as an investment in joint ventures as the Group is unable to exercise control over investees solely.

[5] The Group acquired control through a change in the shareholders' contract and reclassified KADOC.Ltd from investments in joint venture to investments in subsidiaries for the year ended December 31, 2020.

[6] Parallel Petroleum LLC is an investment in associate held by ANKOR E&P Holdings Corp.

[7] Deep Basin Partnership and HKMS Partnership are investment in joint ventures held by Harvest Operations Corp.

[8] KNOC-VOGO Eagle Ford LLC is an investment in joint venture with 50% of the shares in KNOC Eagleford Corp., as the Group.

[9] It is a joint venture company owned by KADOC Ltd, which was reclassified as a subsidiary in the year ended December 31, 2020.

[10] On April 2, 2020, by exercising the stock option, 30% of stocks were acquired and the difference between the strike price and the fair value of the equity valuation was ₩ 92,371 million recognized as gains on transaction of derivative financial instruments. Meanwhile, as of the end of the reporting period, arbitration related to business participation costs is in progress and the acquisition price may change depending on the results of the arbitration.

[11] Offshore International Group was classified as held for sale during the current period.

15. Investments in Associates and Joint Ventures (cont'd)

Changes in carrying value of investments in associates and joint ventures for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020			
	Beginning balance	Acquisition	Disposal	Dividends received
Investment in associates				
Kernhem B.V. [1]	₩ -	₩ -	₩ -	₩ -
Oilhub Korea Yeosu Co. Ltd	58,480,114,370	-	-	(3,039,200,000)
ADA Oil LLP [1]	-	-	-	-
Parallel Petroleum LLC [1]	-	-	-	-
KNOC EF Star LLC	40,194,986,901	-	-	-
KOREA GS E&P Pte. Ltd [2,3]	-	398,634,886,254	-	(17,700,750,000)
	98,675,101,271	398,634,886,254	-	(20,739,950,000)
Investment in joint ventures				
Offshore International Group, Inc. [2, 4]	91,189,025,586	-	-	-
KADOC Ltd [8,9]	-	-	-	-
Korea Energy Terminal Ltd [9]	-	44,555,171,097	-	-
Deep Basin Partnership	17,322,007,058	1,735,322,055	-	-
HKMS Partnership	32,734,368,413	595,016,800	-	(14,423,621,592)
KNOC-VOGO Eagle Ford LLC [1,6]	-	72,274,109	-	-
Al Dhafra Petroleum [7]	-	472,020,000	-	-
	141,245,401,057	47,429,804,061	-	(14,423,621,592)
	₩ 239,920,502,328	₩ 446,064,690,315	₩ -	₩ (35,163,571,592)

(in Korean won)	2020				
	Share of profit or loss in equity method	Equity method retained earnings	Changes in equity adjustments	Other changes [5]	Ending balance
Investment in associates					
Kernhem B.V. [1]	₩ (1,868,832,535)	₩ -	₩ 1,868,832,535	₩ -	₩ -
Oilhub Korea Yeosu Co. Ltd	7,689,827,946	-	4,215,428,078	(4,217,174,279)	63,128,996,115
ADA Oil LLP [1]	(1,093,470,192)	-	1,093,470,192	-	-
Parallel Petroleum LLC [1]	-	-	-	-	-
KNOC EF Star LLC	29,519,031,229	-	-	(4,763,447,590)	64,950,570,540
KOREA GS E&P Pte. Ltd [2,3]	5,811,871,882	-	-	(109,903,005,585)	276,843,002,551
	40,058,428,330		7,177,730,805	(118,883,627,454)	404,922,569,206
Investment in joint ventures					
Offshore International Group, Inc. [2, 4]	(63,439,958,816)	-	1,877,700,280	(29,626,767,050)	-
KADOC Ltd [8,9]	-	-	-	-	-
Korea Energy Terminal Ltd [9]	(2,458,160,317)	(13,747,583)	3,918,300,738	(3,388,694,673)	42,612,869,262
Deep Basin Partnership	(36,697,692,421)	-	-	17,640,363,308	-
HKMS Partnership	14,202,564,643	-	-	(1,237,834,760)	31,870,493,504
KNOC-VOGO Eagle Ford LLC [1,6]	(72,274,109)	-	-	-	-
Al Dhafra Petroleum [7]	-	-	-	(36,820,000)	435,200,000
	(88,465,521,020)	(13,747,583)	5,796,001,018	(16,649,753,175)	74,918,562,766
	₩ (48,407,092,690)	(13,747,583)	12,973,731,823	(135,533,380,629)	₩ 479,841,131,972

[1] The Group does not apply the equity method as the book value of the investment in associates and joint ventures is less than zero due to the cumulative equity method loss. Gains and losses on investments that are not recognized due to the discontinuation of the use of the equity method are as follows:

15. Investments in Associates and Joint Ventures (cont'd)

(in Korean won)

CGU	Holding company	Gains and losses on investments not recognized (current)	Gains and losses on investments not recognized (cumulative)
ADA Oil LLP	Parent Company	₩ (2,707,560,129)	₩ (14,293,034,846)
Kernhem B.V.	Parent Company	(6,218,169,182)	(34,530,548,249)
Parallel Petroleum LLC	Ankor E&P Holdings Corp.	(7,503,937,950)	(37,702,597,500)
KNOC-VOGO Eagle Ford LLC	KNOC Eagleford Corp.	(69,129,995,913)	(1,049,503,071,295)

[2] Main assumptions used in the impairment test and details of impairment losses for the year ended December 31, 2020 are as follows:

(In Korean won)

CGU	Recoverable amounts	Valuation of recoverable method	Discount rate	Primary assumption	Impairment loss	Reason for impairment
KOREA GS E&P Pte. Ltd.	₩ 276,843,002,563	Net fair value	7.66%	Estimated production quantities based on reserve reports and long-term oil price forecasts by major forecasting Institutions	₩ 86,480,764,760	Decrease in forecasted oil prices, changes in reserves and others
Offshore International Group	₩ 2,720,000,000	Net selling value	-	Amount to be sold	₩ 28,596,258,775	Held for Sale

[3] On April 2, 2020, by exercising the stock option, 30% of stocks were acquired and the difference between the strike price and the fair value of the equity valuation was ₩ 92,371 million recognized as Gains on transaction of derivative financial instruments. Meanwhile, as of the end of the reporting period, arbitration related to business participation costs is in progress and the acquisition price may change depending on the results of the arbitration.

[4] Offshore International Group was classified as held for sale during the current period.

[5] Other changes include the effect of changes in exchange rates and impairment losses that were not recognized as the book value of Deep Basin Partners, an investment in joint ventures, until the previous year was less than zero.

[6] KNOC-VOGO Eagle Ford LLC is SPC with 50% of the shares in KNOC Eagle Ford Corp. KNOC Eagle Ford Corp. invested in EF Energy LLC through KNOC-VOGO EagleFord LLC. EF Energy LLC is 40% of shares owned by KNOC-VOGO EagleFord LLC and 60% owned by KNOC Eagle Ford Corp. Since KNOC Eagle Ford Corp. recognizes EF Energy LLC as the Group, its investment in KNOC-VOGO EagleFord LLC is recognized as '0' because it is offset by the consolidation adjustment process.

[7] It is a joint venture owned by KADOC Ltd, which was reclassified as a subsidiary in the year ended December 31, 2020.

[8] It was reclassified as a subsidiary from a joint venture, as control was acquired through a change in the shareholders' agreement in the year ended December 31, 2020.

[9] The Group recognized gains on sale of investments in joint ventures of ₩131,969 million while acquiring control of KADOC Ltd., and ₩4,073million of gains on sale of investments in joint ventures by the sale of Korea Energy Terminal Ltd.

15. Investments in Associates and Joint Ventures (cont'd)

(in Korean won)

	2019			
	Beginning balance	Acquisition	Disposal	Dividends received
Investment in associates				
Kernhem B.V. [1]	₩ -	₩ -	₩ -	₩ -
Oilhub Korea Yeosu Co. Ltd	53,338,116,553	-	-	(1,519,599,996)
ADA Oil LLP [1]	-	-	-	-
Parallel Petroleum LLC [1]	-	-	-	-
KNOC EF Star LLC	54,127,002,853	-	-	-
	107,465,119,406	-	-	(1,519,599,996)
Investment in joint ventures				
Offshore International Group, Inc. [2]	132,985,475,273	-	-	-
KADOC Ltd [1,3]	-	-	-	-
Korea Energy Terminal Ltd [1]	-	401,913,626	(230,528,700)	-
Deep Basin Partnership	-	8,651,901,397	-	(1,414,645,371)
HKMS Partnership	35,506,905,275	2,772,044	-	(14,322,871,081)
KNOC-VOGO Eagle Ford LLC [1,5]	-	-	-	-
	168,492,380,548	9,056,587,067	(230,528,700)	(15,737,516,452)
	₩ 275,957,499,954	₩ 9,056,587,067	₩ (230,528,700)	₩ (17,257,116,448)

(in Korean won)

	2019			
	Share of profit or loss in equity method [2]	Changes in equity adjustments	Other changes [1]	Ending balance
Investment in associates				
Kernhem B.V. [1]	₩ -	₩ -	₩ -	₩ -
Oilhub Korea Yeosu Co. Ltd	6,704,467,065	(1,914,705,083)	1,871,835,831	58,480,114,370
ADA Oil LLP [1]	-	-	-	-
Parallel Petroleum LLC [1]	-	-	-	-
KNOC EF Star LLC	(15,961,376,341)	-	2,029,360,377	40,194,986,889
	(9,256,909,276)	(1,914,705,083)	3,901,196,208	98,675,101,259
Investment in joint ventures				
Offshore International Group, Inc. [2]	(7,208,684,954)	(372,598,507)	(34,215,166,226)	91,189,025,586
KADOC Ltd [1,3]	-	-	-	-
Korea Energy Terminal Ltd [1]	(202,657,111)	31,272,185	-	-
Deep Basin Partnership	48,063,462,142	-	(37,978,709,604)	17,322,008,564
HKMS Partnership	8,733,946,604	-	2,813,615,097	32,734,367,939
KNOC-VOGO Eagle Ford LLC [1,5]	-	-	-	-
	49,386,066,681	(341,326,322)	(69,380,260,733)	141,245,402,089
	₩ 40,129,157,405	₩ (2,256,031,405)	₩ (65,479,064,525)	₩ 239,920,503,348

[1] The Group does not apply the equity method as the book value of the investment in associates and joint ventures is less than zero due to the cumulative equity method loss.

[2] The fair value less cost to sell was measured and evaluated for Offshore International Group, Inc, which is an investment in joint ventures for the year ended December 31, 2019. Impairment losses on investments in joint ventures amounted to ₩39,252 million (Recoverable amount: ₩9,119 million, Discount rate: 6.59%, Reason for impairment: decrease in estimated production quantities), and included in other changes.

[3] As the collectability of loans from investments in associates and joint ventures have increased, equity method is not applied to investments in associates and joint ventures for which the investment balance has been reduced to zero. As a result, the Group reclassified the loans previously recognized as net investments in equity method to financial assets at fair value through profit or loss through the judgment of the management. Reversal of loss under equity method of ₩52,799 million related to the loans was recognized.

[4] Other changes include the effect of changes in exchange rates and impairment losses that were not recognized as the book value of Deep Basin Partners, an investment in joint ventures, until the previous year was less than zero.

15. Investments in Associates and Joint Ventures (cont'd)

[5] KNOC-VOGO Eagle Ford LLC is SPC with 50% of the shares in KNOC Eagle Ford Corp. KNOC Eagle Ford Corp. invested in EF Energy LLC through KNOC-VOGO EagleFord LLC. EF Energy LLC is 40% of shares owned by KNOC-VOGO EagleFord LLC and 60% owned by KNOC Eagle Ford Corp. Since KNOC Eagle Ford Corp. recognizes EF Energy LLC as the Group, its investment in KNOC-VOGO EagleFord LLC is recognized as '0' because it is offset by the consolidation adjustment process.

The summaries of financial information of major associates and joint ventures for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020			
	Total assets	Total liabilities	Revenue	Profit (loss) for the year
<Investment in associates>				
Kernhem B.V.	₩ 163,806,010,079	₩ 250,626,263,746	₩ 16,498,184,941	₩ (16,957,101,678)
Oilhub Korea Yeosu Co., Ltd	499,372,284,961	281,686,091,447	79,821,629,621	26,516,648,081
Parallel Petroleum LLC	156,034,961,921	315,823,383,719	41,166,853,752	(46,358,505,995)
ADA Oil LLP	60,658,093,323	155,801,297,340	21,997,579,921	(21,660,480,985)
KNOC EF Star LLC	483,866,407,965	14,029,553	14,472,478,530	(43,880,415,061)
KOREA GS E&P Pte. Ltd.	1,571,064,659,270	586,584,952,238	862,986,019,442	30,092,089,983
<Investment in joint ventures>				
Korea Energy Terminal Ltd	235,108,611,603	153,946,871,603	-	(4,668,414,922)
Deep Basin Partnership	195,714,889,335	214,779,363,329	22,012,406,636	(36,697,692,421)
HKMS Partnership	86,610,604,186	66,031,374,356	22,954,604,472	7,225,689,736
KNOC-VOGO Eagle Ford LLC	837,106,222,303	564,589,616,901	-	(166,269,129,961)
Al Dhafra Petroleum	435,200,000	-	-	-

(in Korean won)	2019			
	Total assets	Total liabilities	Revenue	Profit (loss) for the year
<Investment in associates>				
Kernhem B.V.	₩ 179,309,180,761	₩ 260,048,559,166	₩ 32,237,000,755	₩ 8,834,181,877
Oilhub Korea Yeosu Co., Ltd	531,040,914,585	329,385,347,773	74,652,060,604	23,118,851,959
Parallel Petroleum LLC	313,038,649,529	334,104,047,894	67,420,967,894	(12,892,203,409)
ADA Oil LLP	73,984,301,364	162,562,113,239	42,982,667,673	14,076,214,354
KNOC EF Star LLC	484,854,271,594	5,023,845	14,197,883,153	(15,961,376,341)
<Investment in joint ventures>				
Offshore International Group, Inc.	736,527,934,938	397,781,811,491	188,667,982,844	(14,417,369,913)
KADOC Ltd	757,246,728,169	860,552,941,077	60,568,655,544	(33,608,406,610)
Korea Energy Terminal Ltd	12,918,053,721	14,485,498,771	-	(527,110,986)
Deep Basin Partnership	248,543,992,697	233,155,551,826	35,333,765,217	48,063,462,165
HKMS Partnership	90,587,310,269	82,645,076,528	23,116,036,086	4,157,673,897
KNOC-VOGO Eagle Ford LLC	1,006,980,858,160	599,645,487,886	-	29,547,896,696

16. Property, Plant and Equipment

Details of property, plant and equipment as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020					
	Acquisition cost	Contributions for construction	Government grants	Accumulated depreciation	Accumulated impairment losses	Book value
Land	₩ 1,047,517,159,605	₩ -	₩ -	₩ -	₩ -	₩ 1,047,517,159,605
Buildings	79,153,385,318	-	-	(29,483,385,067)	-	49,670,000,251
Structures	1,854,978,295,505	(103,755,205)	-	(782,607,969,482)	-	1,072,266,570,818
Machinery	715,667,502,767	(2,612,223,492)	-	(451,915,313,507)	-	261,139,965,768
Vehicles	10,534,528,840	-	-	(9,077,937,342)	-	1,456,591,498
Tools & fixtures	61,346,145,469	-	-	(56,016,220,790)	(306,053,736)	5,023,870,943
Construction-in-progress	252,089,350,859	-	-	-	-	252,089,350,859
Right-of-use assets	405,696,146,781	-	-	(53,054,756,783)	-	352,641,389,998
Others	54,719,821,549	-	-	(47,641,498,583)	(2,067,606,270)	5,010,716,696
Oil & gas properties[1]	22,153,462,200,554	-	(1,921,246,508)	(12,811,601,902,815)	(4,369,740,355,473)	4,970,198,695,758
	₩ 26,635,164,537,247	₩ (2,715,978,697)	₩ (1,921,246,508)	₩ (14,241,398,984,369)	₩ (4,372,114,015,479)	₩ 8,017,014,312,194

[1] Classified as 'other current assets' in the consolidated statements of financial position.

(in Korean won)	2019					
	Acquisition cost	Contributions for construction	Government grants	Accumulated depreciation	Accumulated impairment losses	Book value
Land	₩ 480,854,588,938	₩ -	₩ -	₩ -	₩ -	₩ 480,854,588,938
Buildings	77,407,452,207	-	-	(30,119,158,950)	-	47,288,293,257
Structures	1,977,284,407,773	(114,218,857)	-	(785,637,518,393)	-	1,191,532,670,523
Machinery	761,686,352,387	(3,103,564,826)	-	(458,080,500,487)	-	300,502,287,074
Vehicles	10,824,603,088	-	-	(8,883,179,143)	-	1,941,423,945
Tools & fixtures	63,438,214,314	-	-	(56,814,195,882)	(317,964,599)	6,306,053,833
Construction-in-progress	228,623,473,504	-	-	-	-	228,623,473,504
Right-of-use assets	438,425,619,585	-	-	(42,748,588,333)	-	395,677,031,252
Others	57,163,260,738	-	-	(46,508,768,550)	(2,157,949,691)	8,496,542,497
Oil & gas properties [1]	21,996,797,205,688	-	(2,573,235,532)	(12,770,926,682,644)	(3,166,800,170,572)	6,056,497,116,940
	₩ 26,092,505,178,222	₩ (3,217,783,683)	₩ (2,573,235,532)	₩ (14,199,718,592,382)	₩ (3,169,276,084,862)	₩ 8,717,719,481,763

[1] Classified as 'other current assets' in the consolidated statements of financial position

16. Property, Plant and Equipment (cont'd)

Changes in property, plant and equipment for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)

	2020						
	Beginning balance	Acquisition / Capital expenditures	Disposal	Depreciation	Reversal of impairment losses [1]	Others [2]	Ending balance
Land[3]	₩ 480,854,588,938	₩ 2,867,134,278	₩ (718,698,761)	₩ -	₩ -	₩ 564,514,135,150	₩ 1,047,517,159,605
Buildings	47,288,293,257	1,529,271,178	(3,642,312,676)	(2,215,902,492)	-	6,710,650,984	49,670,000,251
Structures	1,191,646,889,380	797,089,660	(1,832,464,421)	(51,459,275,436)	-	(66,781,913,160)	1,072,370,326,023
(Contributions to construction)	(114,218,857)	-	-	3,880,465	-	6,583,187	(103,755,205)
Machinery	303,605,851,900	5,257,260,922	(1,895,460,292)	(31,633,549,903)	-	(11,581,913,367)	263,752,189,260
(Contributions to construction)	(3,103,564,826)	-	-	329,977,441	-	161,363,893	(2,612,223,492)
Vehicles	1,941,423,945	410,955,856	(1,742,863)	(983,712,125)	-	89,666,685	1,456,591,498
Tools & fixtures	6,306,053,833	950,255,942	(22,695,865)	(2,594,472,356)	-	384,729,389	5,023,870,943
Construction-in-progress	228,623,473,504	62,107,997,227	-	-	-	(38,642,119,872)	252,089,350,859
Right-of-use assets	395,677,031,252	7,770,994,154	(1,924,127,667)	(24,063,621,858)	-	(24,818,885,883)	352,641,389,998
Others	8,496,542,497	949,287,734	(43,727,012)	(3,213,018,118)	-	(1,178,368,405)	5,010,716,696
Oil & gas properties	6,059,070,352,481	320,150,558,494	(4,433,442,334)	(611,189,801,947)	(1,422,058,913,037)	630,581,188,609	4,972,119,942,266
(Government grants)	(2,573,235,541)	-	-	538,893,493	-	113,095,540	(1,921,246,508)
	₩ 8,717,719,481,763	₩ 402,790,805,445	₩ (14,514,671,891)	₩ (726,480,602,836)	₩ (1,422,058,913,037)	₩ 1,059,558,212,750	₩ 8,017,014,312,194

[1] Impairment loss is a net amount, taking into account reversal amounts.
[2] Include the effect of changes in exchange rates and others.
[3] The Group recognized, pretax valuation gains of ₩646,112 million through revaluation and pretax valuation losses of ₩2,213 million during the current period.

(in Korean won)

	2019							
	Beginning balance	Changes in accounting policies	Acquisition / Capital expenditures	Disposal	Depreciation	Reversal of impairment losses [1]	Others [2]	Ending balance
Land	₩ 464,743,696,853	₩ -	₩ -	₩ (393,254,128)	₩ -	₩ -	₩ 16,504,146,213	₩ 480,854,588,938
Buildings	46,982,869,813	-	41,609,299	(1,108,533,558)	(2,010,194,312)	-	3,382,542,015	47,288,293,257
Structures	1,199,476,049,987	-	260,833,899	(20,498,853)	(51,333,323,536)	-	43,263,827,883	1,191,646,889,380
(Contributions to construction)	(113,979,136)	-	-	-	3,833,112	-	(4,072,833)	(114,218,857)
Machinery	316,979,684,881	-	8,027,834,546	(117,266,395)	(33,715,300,069)	-	12,430,898,937	303,605,851,900
(Contributions to construction)	(3,310,095,134)	-	-	-	326,257,905	-	(119,727,597)	(3,103,564,826)
Vehicles	2,171,499,802	-	535,198,643	(4,045,144)	(844,123,152)	-	82,893,796	1,941,423,945
Tools & fixtures	7,264,415,392	-	2,630,265,191	(10,804,744)	(4,163,739,838)	-	585,917,832	6,306,053,833
Finance lease asset	217,840,322,869	(217,840,322,869)	-	-	-	-	-	-
Construction-in-progress	148,150,981,966	-	85,884,351,812	(1,763,802,505)	-	-	(3,648,057,769)	228,623,473,504
Right-of-use assets	-	419,659,531,842	7,758,591,284	(22,285,137,201)	(30,228,178,974)	-	20,772,224,301	395,677,031,252
Others	10,230,437,591	-	1,179,973,225	(12,079,800)	(2,296,211,289)	-	(605,577,230)	8,496,542,497
Oil & gas properties	6,267,203,585,759	-	392,660,591,332	(16,729,605,422)	(842,633,538,287)	(151,026,362,671)	409,595,681,770	6,059,070,352,481
(Government grants)	(3,312,019,239)	-	-	-	862,188,805	-	(123,405,107)	(2,573,235,541)
	₩ 8,674,307,451,404	₩ 201,819,208,973	₩ 498,979,249,231	₩ (42,445,027,750)	₩ (966,032,329,635)	₩ (151,026,362,671)	₩ 502,117,292,211	₩ 8,717,719,481,763

[1] Impairment loss is a net amount, taking into account reversal amounts.
[2] Include the effect of changes in exchange rates and others.

16. Property, Plant and Equipment (cont'd)

Details of impairments recognized by segments for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	
	Oil and Gas[1]	
General information		
Type of assets	Oil and gas properties	
Valuation method	Value in use	
Assumptions		
Discount rate after tax[2]	4.61%~17%	
Oil prices[3]	International indices	
Production quantities	Estimated production quantities based on reserve reports	
Recoverable amounts	₩	2,691,368,686,505
Impairment losses		1,424,500,981,351
Reason for impairment	Decrease in forecasted oil prices	

[1] The CGUs of the oil and gas segment are fields or areas.

[2] Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

[3] The oil prices are based on the long-term forecasts from globally recognized research institutions.

(in Korean won)	2019	
	Oil and Gas[1]	
General information		
Type of assets	Oil and gas properties	
Valuation method	Value in use	
Assumptions		
Discount rate after tax[2]	9%~14%	
Oil prices[3]	International indices	
Production quantities	Estimated production quantities based on reserve reports	
Recoverable amounts	₩	517,882,275,984
Impairment losses		176,250,829,929
Reason for impairment	Decrease in forecasted oil prices	

[1] The CGUs of the oil and gas segment are fields or areas.

[2] Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

[3] The oil prices are based on the long-term forecasts from globally recognized research institutions.

16. Property, Plant and Equipment (cont'd)

Details of reversal of impairment losses recognized by segments for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)		2020
		Oil and Gas[1]
General information		
Type of assets		Oil and gas properties
Valuation method		Value in use
Assumptions		
Discount rate after tax[2]		4.61%~17%
Oil prices[3]		International indices
Production quantities		Estimated production quantities based on reserve reports
Reversal of impairment losses	₩	2,442,068,314
Reason for impairment		Increase in probable reserves and others

[1] The CGUs of the oil and gas segment are fields or areas.

[2] Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

[3] The oil prices are based on the long-term forecasts from globally recognized research institutions.

(in Korean won)		2019
		Oil and Gas[1]
General information		
Type of assets		Oil and gas properties
Valuation method		Value in use
Assumptions		
Discount rate after tax[2]		9%~14%
Oil prices[3]		International indices
Production quantities		Estimated production quantities based on reserve reports
Reversal of impairment losses	₩	25,224,458,258
Reason for impairment		Increase in probable reserves and others

[1] The CGUs of the oil and gas segment are fields or areas.

[2] Weighted average costs of capital reflecting its own risk of a CGU and an individual asset.

[3] The oil prices are based on the long-term forecasts from globally recognized research institutions.

16. Property, Plant and Equipment (cont'd)

Revaluation of property, plant and equipment (land).

(a) As of December 31, 2020, the Group engaged an independent valuation specialist, Daeil Appraisal Agency and Hana Appraisal Corporation, to assess fair values for the land.

(b) Changes in accumulated other comprehensive income due to revaluation during the year ended December 31, 2020 are as follows:

(In Korean won)		***2020***
Beginning balance	₩	-
Increase in accumulated other comprehensive income due to revaluation		646,111,637,783
Income tax effect of accumulated other comprehensive income due to revaluation		(156,359,016,344)
Ending balance	₩	489,752,621,439

(c) As of December 31, 2020, the carrying amount of land measured based on the revaluation model and the cost model are as follows:

(In Korean won)

		2020		
		Revaluation model		**Cost model**
Land	₩	1,047,517,159,605	₩	453,846,274,657

(d) Fair values of land by hierarchy level as of December 31, 2020, are as follows:

(In Korean won)

		2020						
		Level 1		**Level 2**		**Level 3**		**Total**
Land	₩	-	₩	-	₩	1,047,517,159,605	₩	1,047,517,159,605

16. Property, Plant and Equipment (cont'd)

(e) Description of valuation techniques used and key inputs to valuation of *land*:

Valuation techniques	Significant unobservable inputs	Relationship between unobservable inputs and fair value measurements
(Act on Publicly Announced Land Price) Determined on the basis of publicly announced price of the standard land for the land subject to measurement and the neighboring land, yet fair values are measured by adjusting based on the time, individual factors and others	Adjustment based on time (rate of change in land price)	If the rate of change in land price rises (falls), the fair value increases (decreases).
	Regional factors	If regional factors increase (decrease), fair value increases (decreases)
	Individual factors (conditions of a portion of land, etc.)	If adjustments such as conditions of a portion of land increase (decrease), fair values increase (decrease)
	Others (land price etc.)	If adjustments increase (decrease) by comparing publicly announced standard land price and other similar cases, fair values increase (decrease)

17. Goodwill

Details of goodwill as of December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Acquisition cost	₩	1,255,984,175,545	₩	1,163,295,063,317
Accumulated impairment losses		(1,034,964,146,999)		(1,010,319,143,482)
Book value	₩	221,020,028,546	₩	152,975,919,835

Changes in goodwill for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Beginning balance	₩	152,975,919,835	₩	143,792,882,265
Acquisition [1]		104,298,110,592		-
Impairment losses		(32,552,922,480)		-
Other changes [2]		(3,701,079,401)		9,183,037,570
Ending balance	₩	221,020,028,546	₩	152,975,919,835

[1] It is the recognition amount of KADOC Ltd. Goodwill that was reclassified as a subsidiary from a joint venture, as control was acquried through a change in the shareholders' agreement in 2020.
[2] Include the effect of exchange rate changes.

Changes in accumulated impairment losses for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Beginning balance	₩	(1,010,319,143,482)	₩	(963,785,846,848)
Impairment losses		(32,552,922,480)		-
Other changes [1]		7,907,918,963		(46,533,296,634)
Ending balance	₩	(1,034,964,146,999)	₩	(1,010,319,143,482)

[1] Include the effect of exchange rate changes.

17. Goodwill (cont'd)

The Group recognized goodwill for the acquisition of Dana Petroleum Limited, Altius Holdings Inc. and KADOC Ltd., and allocated the goodwill to each of the Group's cash-generating unit that is expected to benefit from the synergies of the acquisition.

The carrying amounts of goodwill allocated to the Group's CGUs and groups of CGUs as of December 31, 2020 and 2019 are as follows:

(in Korean won)		2020		2019
Dana Petroleum Limited [1]	₩	126,100,922,304	₩	129,187,626,950
Altius Holdings Inc. (a subsidiary of KNOC Kaz B.V.) [2]		20,634,622,402		23,788,292,885
KADOC Ltd. [3]		74,284,483,840		-
	₩	221,020,028,546	₩	152,975,919,835

[1] Dana Petroleum Limited's recoverable amount is estimated based on the value in use. The value in use is estimated from the cash inflows, which are discounted at 8% and 12% derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is no impairment loss on goodwill recognized based on the value in use estimated for each CGU for the year ended December 31, 2020.

[2] Altius Holding Inc.'s recoverable amount is estimated based on the value in use. The value in use is estimated from the cash inflows, which are discounted at 4.34%, derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is no impairment loss on goodwill recognized based on the value in use estimated for each CGU for the year ended December 31, 2020.

[3] KADOC Ltd.'s recoverable amount is estimated based on the value in use. The value in use is estimated from the cash inflows, which are discounted at 8.55%, derived from the oil production in the long-term production plan indicated in the reserve reports and the long-term oil price forecasts by the research institutions. There is impairment loss on goodwill recognized based on the value in use estimated for each CGU for the year ended December 31, 2020.

18. Intangible Assets Other Than Goodwill

Details of intangible assets other than goodwill as of December 31, 2020 and 2019, are as follows:

(in Korean won)

	2020				
	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment losses	Book value
Exploration and evaluation assets	₩ 3,238,637,976,646	₩ -	₩ -	₩ (2,861,127,722,371)	₩ 377,510,254,275
Software	34,037,009,408	(34,266,332)	(29,085,354,944)	-	4,917,388,132
Mining rights	2,848,394,486,503	-	(1,598,941,724,895)	(323,983,700,284)	925,469,061,324
Development cost	42,315,240,736	-	(37,727,394,193)	-	4,587,846,543
Land use right	227,828,353	-	(88,062,056)	-	139,766,297
Others	86,898,525,184	-	(1,105,262,888)	(83,903,879,543)	1,889,382,753
	₩ 6,250,511,066,830	₩ (34,266,332)	₩ (1,666,947,798,976)	₩ (3,269,015,302,198)	₩ 1,314,513,699,324

(in Korean won)

	2019			
	Acquisition cost	Accumulated amortization	Accumulated impairment losses	Book value
Exploration and evaluation assets	₩ 3,191,284,101,953	₩ -	₩ (2,797,975,632,548)	₩ 393,308,469,405
Software	31,811,939,729	(29,276,965,574)	-	2,534,974,155
Mining rights	2,907,549,721,909	(1,651,866,802,705)	(251,933,962,336)	1,003,748,956,868
Development cost	43,026,248,119	(38,097,329,112)	-	4,928,919,007
Land use right	242,444,478	(87,646,618)	-	154,797,860
Others	92,620,669,009	(1,159,225,321)	(89,311,085,182)	2,150,358,506
	₩ 6,266,535,125,197	₩ (1,720,487,969,330)	₩ (3,139,220,680,066)	₩ 1,406,826,475,801

18. Intangible Assets Other Than Goodwill (cont'd)

Changes in intangible assets other than goodwill for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)

	2020						
	Beginning balance	Acquisition / Capital expenditures	Disposal	Amortization	Impairment losses (reversal)	Others [1]	Ending balance
Exploration and evaluation assets	₩ 393,308,469,405	₩ 17,567,520,561	₩ (168,157,125)	₩ -	₩ (160,291,360,202)	₩ 127,093,781,636	₩ 377,510,254,275
Software	2,534,974,155	531,424,329	(1,179,224)	(1,350,620,012)	-	3,202,788,884	4,917,388,132
Mining rights	1,003,748,956,868	9,279,548,352	(1,130,319,696)	(58,756,631,190)	(108,462,171,565)	80,789,678,555	925,469,061,324
Development cost	4,928,919,007	682,441,229	-	(2,089,848,572)	-	1,066,334,879	4,587,846,543
Land use right	154,797,860	-	-	(6,181,031)	-	(8,850,532)	139,766,297
Others	2,150,358,506	9,196,461	(87,590,391)	(51,939,435)	-	(130,642,388)	1,889,382,753
	₩ 1,406,826,475,801	₩ 28,070,130,932	₩ (1,387,246,436)	₩ (62,255,220,240)	₩ (268,753,531,767)	₩ 212,013,091,034	₩ 1,314,513,699,324

[1] Impairment loss is a net amount, taking into account reversal amounts.

[2] Include the effect of changes in exchange rates and others.

(in Korean won)

	2019						
	Beginning balance	Acquisition / Capital expenditures	Disposal [1]	Amortization	Impairment losses (reversal) [2]	Others [3]	Ending balance
Exploration and evaluation assets	₩ 348,543,496,938	₩ 46,459,217,970	₩ -	₩ -	₩ (2,136,533,745)	₩ 442,288,242	₩ 393,308,469,405
Software	3,118,804,660	636,241,292	-	(1,378,563,258)	-	158,491,461	2,534,974,155
Mining rights	1,702,800,332,492	685,994,478	(767,240,772,901)	(77,412,177,985)	37,260,193,009	107,655,387,775	1,003,748,956,868
Development cost	6,518,193,161	184,960,458	-	(2,436,939,409)	-	662,704,797	4,928,919,007
Land use right	155,346,578	-	-	(6,105,605)	-	5,556,887	154,797,860
Others	2,231,502,035	85,068,190	(210,497,973)	-	-	44,286,254	2,150,358,506
	₩ 2,063,367,675,864	₩ 48,051,482,388	₩ (767,451,270,874)	₩ (81,233,786,257)	₩ 35,123,659,264	₩ 108,968,715,416	₩ 1,406,826,475,801

[1] In accordance with the amendment to the CBSA contract in Iraq, the related mining rights of ₩ 767,241 million have been disposed of.

[2] Impairment loss is a net amount, taking into account reversal amounts.

[3] Include the effect of changes in exchange rates and others.

19. Financial Liabilities Measured at Fair Value through Profit or Loss

Details of financial liabilities measured at fair value through profit or loss as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020		2019	
	Current	Non-current	Current	Non-current
Non-derivative liabilities	₩ 2,585,153,204	₩ 29,539,647,462	₩ 13,385,977,456	₩ 55,382,409,262
	₩ 2,585,153,204	₩ 29,539,647,462	₩ 13,385,977,456	₩ 55,382,409,262

The amounts recognized in profit or loss in relation to financial liabilities measured at fair value through profit or loss for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Profit on valuation of financial liabilities measured at fair value through profit or loss	₩ 37,229,917,380	₩ -
Loss on valuation of financial liabilities measured at fair value through profit or loss	(4,862,291,130)	(15,615,393,575)
	₩ 32,367,626,250	₩ (15,615,393,575)

20. Trade and Other Payables

Details of trade and other payables as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020		2019	
	Current	Non-current	Current	Non-current
Trade account payables	₩ 76,799,071,681	₩ 6,176,382,129	₩ 155,458,055,112	₩ -
Other account payables	356,518,241,162	14,830,067,091	426,838,223,343	31,069,709,323
Accrued expenses	107,158,859,364	143,238,704,285	102,733,436,708	137,434,555,894
Deposit received	-	4,729,914,624	-	5,051,954,246
Other deposits received	-	12,885,489	-	14,827,887
Lease liability	31,370,166,488	359,391,205,410	43,652,767,750	375,064,927,912
Other payables[1]	47,841,192,279	-	42,974,828,693	773,845,605
	₩ 619,687,530,974	₩ 528,379,159,028	₩ 771,657,311,606	₩ 549,409,820,867

[1] Details of other payables are as follows:

(in Korean won)	2020		2019	
	Current	Non-current	Current	Non-current
Advances from value added tax	₩ 1,979,819,706	₩ -	₩ 857,363,867	₩ -
Liabilities from overseas oil fields	38,062,273,793	-	40,531,797,231	-
Other than payables	7,799,098,780	-	1,585,667,595	773,845,605
	₩ 47,841,192,279	₩ -	₩ 42,974,828,693	₩ 773,845,605

21. Borrowings and Bond Payables

Details of borrowings and bond payables as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Current Liabilities		
Short-term borrowings	₩ 259,155,616,000	₩ 115,780,000,000
Current portion of long-term borrowings	1,151,261,349,987	443,244,598,733
Less: current portion of present discounted value	(123,868,593)	-
Current portion of bond payables	1,645,555,886,017	982,874,600,007
Less: current portion of discount on bond payables	(577,623,378)	(131,552,154)
	3,055,271,360,033	1,541,767,646,586
Non-current Liabilities		
Long-term borrowings	1,011,213,592,813	1,852,512,931,074
Less: present discounted value	(81,855,473)	(412,706,551)
Bond payables	10,231,001,702,493	10,466,083,138,075
Less: discount on bond payables	(23,975,308,461)	(25,574,361,292)
Add: premium on bond payables	4,281,782,079	4,067,368,894
	11,222,439,913,451	12,296,676,370,200
	₩ 14,277,711,273,484	₩ 13,838,444,016,786

Details of payment schedule as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020		2019	
	Borrowings	Bond payables	Borrowings	Bond payables
Within a year	₩ 1,410,416,965,987	₩ 1,645,555,886,017	₩ 559,024,598,733	₩ 982,874,600,007
1~5 years	818,739,388,465	7,465,415,702,492	1,647,907,573,778	7,181,131,338,076
More than 5 years	192,474,204,348	2,765,586,000,001	204,605,357,296	3,284,951,799,999
	₩ 2,421,630,558,800	₩ 11,876,557,588,510	₩ 2,411,537,529,807	₩ 11,448,957,738,082

Details of short-term borrowings as of December 31, 2020 and 2019, are as follows:

(in Korean won)

Type	Financial Institutions	Interest rate (%)	Maturity	2020
Short-term borrowings	SUMITOMO MITSUI BANKING CORPORATION	2.25	2021-03-31	₩ 127,997,760,000
	Standard Chartered Bank	2.50	2021-08-24	76,798,656,000
	The Export-Import Bank of Korea	L+0.63	2021-06-28	54,359,200,000
				₩ 259,155,616,000

21. Borrowings and Bond Payables (cont'd)

(in Korean won)

Type	Financial Institutions	Interest rate (%)	Maturity	2019
Short-term borrowings	The Export-Import Bank of Korea	L+0.63	2020-06-25	₩ 57,890,000,000
	Development Bank of Singapore	U3L+0.30	2020-03-27	57,890,000,000
				₩ 115,780,000,000

Details of long-term borrowings as of December 31, 2020 and 2019, are as follows:

(in Korean won and foreign currencies)

Type	Financial Institution	Interest rate (%)	Maturity	2020 Amount	2020 Equivalent to Korean won	2019 Amount	2019 Equivalent to Korean won
Long- term borrowings	The Export-Import Bank of Korea	3ML+0.67	2021-11-28	USD 250,000,000	₩ 272,000,000,000	USD 250,000,000	₩ 289,450,000,000
	The Export-Import Bank of Korea	3ML +0.78	2022-01-31	USD 100,000,000	108,800,000,000	USD 100,000,000	115,780,000,000
	The Export-Import Bank of Korea	1.28	2022-09-06	USD 45,955,882	50,000,000,000	USD 43,185,352	50,000,000,000
	The Export-Import Bank of Korea	1.61	2022-11-12	USD 45,955,882	50,000,000,000	USD 43,185,352	50,000,000,000
	SAER [1]	Treasury 3Y -1.25	N/A[1]	USD 95,026,814	103,389,172,783	USD 95,026,813	110,022,044,349
	SAER [1]	Treasury 3Y -2.25 [1]	N/A[1]	USD 81,879,625	89,085,031,565	USD 81,692,272	94,583,313,101
	KNOC EF STAR LLC	3.18	2021-11-25	USD 415,994,623	452,602,149,987	USD 390,915,659	452,602,150,002
	Kernhem International B.V	8.13	2038-04-29	USD 16,717,950	18,189,129,600	USD 16,717,950	19,356,042,510
	SUMITOMO MITSU BANKING CORPORATION	3.97	2023-05-11	USD 234,871,492	255,540,182,872	USD 229,126,310	265,282,441,158
	Credit facility	1.65	2022-07-29	USD 309,016,614	336,210,075,993	USD 350,178,736	405,436,939,954
	The Export-Import Bank of Korea	2.27	2021-02-04	USD 392,150,000	426,659,200,000	USD 382,833,476	443,244,598,733
					2,162,474,942,800		2,295,757,529,807
	Less: present value discount				(205,724,066)		(412,706,551)
					2,162,269,218,734		2,295,344,823,256
	Less: current portion				(1,151,261,349,987)		(443,244,598,733)
	Less: current portion of present discounted value				123,868,593		-
					₩ 1,011,131,737,340		₩ 1,852,100,224,523

[1] SAER stands for Special Accounting for Energy and Resources. Borrowing from SAER have no specific maturity as they were borrowed under the condition that the Group is not obligated to make repayment of the principal and interest until the Group successfully complete the oil exploration.

21. Borrowings and Bond Payables (cont'd)

Details of bond payables as of December 31, 2020 and 2019, are as follows:

(in Korean won and foreign currencies)

			2020		2019	
Type	Interest rate (%)	Maturity	Amount	Equivalent to Korean won	Amount	Equivalent to Korean won
Floating interest rate bond payables	-	-	-	₩ -	USD 500,000,000	₩ 578,900,000,000
	3ML+0.88	2023-07-16	USD 400,000,000.00	435,200,000,000	USD 400,000,000	463,120,000,000
	3ML+0.68	2021-12-20	USD 50,000,000.00	54,400,000,000	USD 50,000,000	57,890,000,000
	3ML+0.68	2022-01-22	USD 150,000,000.00	163,200,000,000	USD 150,000,000	173,670,000,000
Fixed interest rate bond payables	4.38	2021-02-08	HKD 500,000,000	70,175,000,000	HKD 500,000,000	74,329,999,997
	4.50	2021-03-04	HKD 390,000,000	54,736,500,000	HKD 390,000,000	57,977,399,995
	3.95	2022-02-10	HKD 390,000,000	54,736,500,000	HKD 390,000,000	57,977,399,995
	4.00	2022-03-28	EUR 50,000,000	66,912,000,000	EUR 50,000,000	64,871,499,995
	2.85	2023-01-24	HKD 400,000,000	56,140,000,000	HKD 400,000,000	59,464,000,004
	2.40	2023-02-04	EUR 37,000,000	49,514,880,000	EUR 37,000,000	48,004,910,001
	3.00	2025-06-24	EUR 60,000,000	80,294,400,000	EUR 60,000,000	77,845,799,999
	3.09	2023-07-03	EUR 50,000,000	66,912,000,000	EUR 50,000,000	64,871,499,995
	4.00	2024-01-23	USD 500,000,000	544,000,000,000	USD 500,000,000	578,900,000,000
	3.25	2024-07-10	USD 550,000,000	598,400,000,000	USD 550,000,000	636,790,000,000
	-	-	-	-	HKD 310,000,000	46,084,599,999
	3.10	2027-01-21	USD 50,000,000	54,400,000,000	USD 50,000,000	57,890,000,000
	3.10	2027-01-21	USD 70,000,000	76,160,000,000	USD 70,000,000	81,046,000,000
	-	-	-	-	USD 50,000,000	57,890,000,000
	-	-	-	-	KRW 100,000,000,000	100,000,000,000
	3.21	2030-03-19	USD 85,000,000	92,480,000,000	USD 85,000,000	98,413,000,000
	2.99	2025-03-19	USD 90,000,000	97,920,000,000	USD 90,000,000	104,202,000,000
	-	-	-	-	KRW 50,000,000,000	50,000,000,000
	2.82	2025-04-29	USD 65,000,000	70,720,000,000	USD 65,000,000	75,257,000,000
	3.02	2030-04-29	USD 60,000,000	65,280,000,000	USD 60,000,000	69,468,000,000
	-	-	-	-	KRW 150,000,000,000	150,000,000,000
	3.25	2025-10-01	USD 600,000,000	652,800,000,000	USD 600,000,000	694,680,000,000
	3.22	2030-11-10	USD 100,000,000	108,800,000,000	USD 100,000,000	115,780,000,000
	2.13	2021-04-14	USD 500,000,000	544,000,000,000	USD 500,000,000	578,900,000,000
	2.63	2026-04-14	USD 500,000,000	544,000,000,000	USD 500,000,000	578,900,000,000
	2.00	2021-10-24	USD 350,000,000	380,800,000,000	USD 350,000,000	405,230,000,000
	2.50	2026-10-24	USD 650,000,000	707,200,000,000	USD 650,000,000	752,570,000,000
	2.88	2022-03-27	USD 500,000,000	544,000,000,000	USD 500,000,000	578,900,000,000
	3.38	2027-03-27	USD 500,000,000	544,000,000,000	USD 500,000,000	578,900,000,000
	1.96	2021-01-30	SGD 400,000,000	328,888,000,000	SGD 400,000,000	343,420,000,000
	0.37	2023-06-01	CHF 500,000,000	617,165,000,000	CHF 500,000,000	597,760,000,004
	0.24	2022-01-21	JPY 70,000,000,000	737,982,000,000	JPY 70,000,000,000	744,428,999,995
	0.00	2024-10-04	CHF 300,000,000	370,299,000,000	CHF 300,000,000	358,656,000,002
	1.09	2023-06-23	KRW 100,000,000,000	100,000,000,000	-	-
	1.03	2023-07-21	KRW 150,000,000,000	150,000,000,000	-	-
	1.02	2023-08-14	KRW 150,000,000,000	150,000,000,000	-	-
	1.03	2023-08-21	KRW 100,000,000,000	100,000,000,000	-	-
	1.18	2023-09-08	KRW 100,000,000,000	100,000,000,000	-	-
	2.50	2025-03-26	HKD 160,000,000	22,456,000,000	-	-
	0.88	2025-04-21	CHF 200,000,000	246,866,000,000	-	-
	0.88	2025-10-05	USD 400,000,000	435,200,000,000	-	-
	0.26	2027-07-30	CHF 100,000,000	123,433,000,000	-	-
	0.26	2027-07-30	CHF 100,000,000	123,433,000,000	-	-
	1.63	2030-10-05	USD 300,000,000	326,400,000,000	-	-
	2.33	2021-04-14	USD 195,364,325	212,556,386,017	USD 194,649,689	225,365,410,040
	3.00	2022-09-21	USD 482,320,025	524,764,187,200	USD 479,663,240	555,354,099,828
	4.20	2023-06-01	USD 395,159,684	429,933,735,293	USD 393,202,728	455,250,118,233
				11,876,557,588,510		11,448,957,738,082
Less: discount on bond payables				(24,552,931,839)		(25,705,913,446)
Add: premium on bond payables				4,281,782,079		4,067,368,894
				11,856,286,438,750		11,427,319,193,530
Less: current portion				(1,645,555,886,017)		(982,874,600,007)
Add: current portion of discount of bond payables				577,623,378		131,552,154
				₩ 10,211,308,176,111		₩ 10,444,576,145,677

22. Other Financial Liabilities

Details of other financial liabilities as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020		2019	
	Current	Non-current	Current	Non-current
Financial guarantee liabilities	₩ 8,575,601,856	₩ -	₩ 9,125,764,549	₩ -
	₩ 8,575,601,856	₩ -	₩ 9,125,764,549	₩ -

23. Lease

(a) The Group as a lessee

The Group recognized as the lease contract with a lease term of 12 months or less as a short-term lease of ₩1,519 million in 2020 and of ₩9,499 million in 2019, and as a low value contract with underlying assets below $ 5,000 of ₩148 million in 2020 and of ₩ 136 million in 2019.

Details of right-of-use assets as of December 31, 2020, are as follows:

(in Korean won)	2020		
	Acquisition cost	Accumulated depreciation	Book value
Land	₩ 4,155,903,646	₩ (228,344,050)	₩ 3,927,559,596
Buildings	263,492,841,363	(34,209,874,944)	229,282,966,419
Machinery	273,202,022	(182,136,422)	91,065,600
Vessels	10,671,433,363	(4,120,714,540)	6,550,718,823
Vehicles	4,640,735,381	(3,255,953,569)	1,384,781,812
Others	122,462,031,006	(11,057,733,258)	111,404,297,748
	₩ 405,696,146,781	(53,054,756,783)	352,641,389,998

23. Lease (cont'd)

Details of right-of-use assets as of December 31, 2019, are as follows:

(in Korean won)

	2019		
	Acquisition cost	Accumulated depreciation	Book value
Land	₩ 5,477,616,837	₩ (852,762,881)	₩ 4,624,853,956
Buildings	277,993,991,583	(23,517,644,035)	254,476,347,548
Structures	9,320,024,960	(9,320,024,960)	-
Machinery	314,956,566	(104,986,525)	209,970,041
Vessels	10,130,185,334	(2,036,548,187)	8,093,637,147
Vehicles	4,890,023,255	(1,276,342,592)	3,613,680,663
Others	130,298,821,050	(5,640,279,153)	124,658,541,897
	₩ 438,425,619,585	₩ (42,748,588,333)	₩ 395,677,031,252

Changes in right-of-use assets for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)

	2020					
	Beginning balance	Increase	Depreciation	Decrease	Others [1]	Ending balance
Land	₩ 4,624,853,956	₩ 1,831,867,223	₩ (535,416,590)	₩ (1,924,127,667)	₩ (69,617,326)	₩ 3,927,559,596
Buildings	254,476,347,548	2,692,157,711	(12,514,526,139)	-	(15,371,012,701)	229,282,966,419
Machinery	209,970,041	-	(98,773,017)	-	(20,131,424)	91,065,600
Vessels	8,093,637,147	3,143,209,173	(2,393,661,171)	-	(2,292,466,326)	6,550,718,823
Vehicles	3,613,680,663	27,869,646	(2,207,793,983)	-	(48,974,514)	1,384,781,812
Others	124,658,541,897	75,890,401	(6,313,450,958)	-	(7,016,683,592)	111,404,297,748
	₩ 395,677,031,252	₩ 7,770,994,154	₩ (24,063,621,858)	₩ (1,924,127,667)	₩ (24,818,885,883)	₩ 352,641,389,998

[1] Include the effect of changes in exchange rates and others.

(in Korean won)

	2019						
	Beginning balance	Changes in accounting policies	Increase	Depreciation	Decrease	Others [1]	Ending balance
Land	₩ -	₩ 6,285,119,230	₩ -	₩ (858,544,699)	₩ -	₩ (801,720,575)	₩ 4,624,853,956
Buildings	-	254,128,278,492	547,789,186	(10,872,524,229)	-	10,672,804,099	254,476,347,548
Structures	-	30,376,515,538	-	(9,383,215,663)	(22,285,137,201)	1,291,837,326	-
Machinery	-	304,156,967	-	(105,698,344)	-	11,511,418	209,970,041
Vessels	-	3,610,370,377	1,572,994,180	(2,050,356,188)	-	4,960,628,778	8,093,637,147
Vehicles	-	1,219,224,272	3,610,217,314	(1,279,318,709)	-	63,557,786	3,613,680,663
Others	-	123,735,867,033	2,027,590,604	(5,678,521,545)	-	4,573,605,805	124,658,541,897
	₩ -	₩ 419,659,531,909	₩ 7,758,591,284	₩ (30,228,179,377)	₩ (22,285,137,201)	₩ 20,772,224,637	₩ 395,677,031,252

[1] Include the effect of changes in exchange rates and others.

23. Lease (cont'd)

Details of maturity analysis for lease liabilities as of December 31, 2020 and 2019, are as follows:

(in Korean won)

	2020		2019	
	Contractual undiscounted cash flows	Present value of contractual cash flows	Contractual undiscounted cash flows	Present value of contractual cash flows
Lease of main office building				
Within 1 year	₩ 8,526,999,996	₩ 8,327,296,335	₩ 8,526,999,996	₩ 8,327,296,335
1-5 years	38,282,677,083	33,533,698,017	37,216,802,079	32,541,129,971
More than 5 years	453,798,409,707	183,010,609,266	463,391,284,707	182,672,425,176
	500,608,086,786	224,871,603,618	509,135,086,782	223,540,851,482
Lease of public surface of sea, etc.				
Within 1 year	23,895,725,694	23,042,870,153	36,491,534,472	35,325,471,422
1-5 years	59,294,039,722	55,111,112,180	69,043,158,712	63,882,403,525
More than 5 years	114,719,181,243	87,735,785,947	126,113,283,689	95,968,969,233
	197,908,946,659	165,889,768,280	231,647,976,873	195,176,844,180
Total				
Within 1 year	32,422,725,690	31,370,166,488	45,018,534,468	43,652,767,757
1-5 years	97,576,716,805	88,644,810,197	106,259,960,791	96,423,533,496
More than 5 years	568,517,590,950	270,746,395,213	589,504,568,396	278,641,394,409
	₩ 698,517,033,445	₩ 390,761,371,898	₩ 740,783,063,655	₩ 418,717,695,662

23. Lease (cont'd)

Liquidity classification of lease liabilities as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Current	₩ 31,370,166,488	₩ 43,652,767,750
Non-current	359,391,205,410	375,064,927,912
	₩ 390,761,371,898	₩ 418,717,695,662

Changes in lease liabilities in relation to lease contracts for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020					
	Beginning balance	Increase	Interest expense	Decrease	Others	Ending balance
Lease liabilities	₩ 418,717,695,662	₩ 7,703,366,400	₩ 14,465,865,954	₩ (46,144,450,613)	₩ (3,981,105,505)	₩ 390,761,371,898

(in Korean won)	2019						
	Beginning balance	Changes in accounting policies	Increase	Interest expense	Decrease	Others	Ending balance
Lease liabilities	₩ 222,267,254,416	₩ 200,697,139,303	₩ 7,758,591,284	₩ 14,918,929,729	₩ (43,579,827,627)	₩ 16,655,608,557	₩ 418,717,695,662

The statement of profit or loss shows the following amounts relating to leases:

(in Korean won)	2020	2019
Depreciation of right-of-use assets		
Land	₩ (535,416,590)	₩ (858,544,699)
Buildings	(12,514,526,139)	(10,872,524,229)
Structures	-	(9,383,215,663)
Machinery	(98,773,017)	(105,698,344)
Vessels	(2,393,661,171)	(2,050,356,188)
Vehicles	(2,207,793,983)	(1,279,318,709)
Others	(6,313,450,958)	(5,678,521,545)
	₩ (24,063,621,858)	₩ (30,228,179,377)
Interest expense relating to lease liabilities (included in finance cost)	(14,465,865,954)	(14,918,929,729)
Commitments relating to short-term leases	(1,519,217,221)	(9,498,762,607)
Commitments relating to leases of low value assets	(148,458,822)	(136,412,045)
Deferred revenue recognized sale and leaseback transaction	968,431,616	956,613,969
Interest income from leasehold deposits provided	972,907,977	959,528,169
	₩ (38,255,824,262)	₩ (52,866,141,620)

23. Lease (cont'd)

(b) The Group as a lessor

The Group has entered into operating leases on its certain property, plant and equipment. The lease terms are between 1 and 40 years.

Lease income from operating leases where the Group is a lessor, is as follows:

(in Korean won)	2020	2019
Lease income	₩ 23,490,042,672	₩ 64,017,923,241
Related to variable lease payment that does not depend on an index or a rate	10,348,507,525	6,242,117,425
	₩ 33,838,550,197	₩ 70,260,040,666

The maturity analysis for operating lease payments expected to be received (in undiscounted) as of December 31, 2020 and 2019, is as follows:

(in Korean won)	2020	2019
Within 1 year	₩ 1,759,003,598	₩ 23,058,772,589
1~5 years	6,585,286,247	7,274,096,432
More than 5 years	34,385,457,655	38,196,952,884
	₩ 42,729,747,500	₩ 68,529,821,905

Lease income from finance leases where the Group is a lessor, is as follows:

(in Korean won)	2020	2019
Finance income on the net investment in the lease	₩ 411,256,388	₩ 181,348,821
	₩ 411,256,388	₩ 181,348,821

The maturity analysis for finance lease payments receivable expected to be received (in undiscounted); reconciliation to the net investment in the lease as of December 31, 2020 and 2019, is as follows:

(in Korean won)	2020	2019
Within 1 year	₩ 3,185,505,174	₩ 7,566,303,154
1~5 years	6,055,295,096	6,087,878,516
More than 5 years	4,079,535,292	4,966,307,142
	13,320,335,562	18,620,488,812
Unrealized finance income	(976,424,218)	(1,517,693,493)
Net investment in the lease	₩ 12,343,911,344	₩ 17,102,795,319

24. Employee Benefits

Defined contribution pension plan

The Group operates both defined contribution and defined benefit pension plans based on choice of directors and employees. Contributions to the DC plan are separately managed by the plan's administrator. When employees terminate their employment before the benefits have vested, the Group's obligation to make contribution to the plan decreases on a pro rata basis.

Details of expenses relating to defined contribution plans for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)		2020 [1]		2019
Cost of sales	₩	371,626,007	₩	543,803,596
Selling and administrative expenses		888,962,110		698,604,876
	₩	1,260,588,117 [2]	₩	1,242,408,472 [2]

[1] Profit or loss recognized for defined contribution plan that are capitalized as other construction costs (property, plant and equipment) of ₩ 5 million are excluded.

[2] Total expenses of ₩ 1,277 million and ₩ 1,242 million for the years ended December 31, 2020 and 2019, respectively, are contributions paid by the Group based on the payment rate as defined in retirement benefits plan. There are no unpaid amounts as of December 31, 2020.

Defined benefit pension plan

The latest actuarial calculation on both plan assets and defined benefit obligation was performed as of December 31, 2020. The Group uses the projected unit credit method to determine the present value of its defined benefit obligations, the related current service costs and past service cost.

The components of defined benefits liabilities as of December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Present value of defined benefit obligation from funded plans	₩	117,209,580,321	₩	106,177,091,120
Fair value of plan assets		(104,274,909,664)		(92,723,152,505)
	₩	12,934,670,657	₩	13,453,938,615

24. Employee Benefits (cont'd)

Changes in the present value of defined benefit obligations for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Beginning balance	₩ 106,177,091,120	₩ 92,282,603,218
Current service cost	9,748,759,356	8,874,687,581
Interest cost	3,607,856,340	3,402,821,953
Remeasurement components	5,176,012,963	2,751,967,063
Actual payments	(7,500,139,458)	(4,181,051,016)
Past service cost resulting from plan amendments, curtailments or settlement	-	3,046,062,321
Ending balance	₩ 117,209,580,321	₩ 106,177,091,120

Changes in the fair value of plan assets for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Beginning balance	₩ 92,723,152,505	₩ 83,532,790,891
Expected return on plan assets	3,191,092,405	3,136,622,990
Remeasurement components	(1,472,200,972)	(1,470,235,041)
Benefit paid by the plan	(7,681,134,910)	(4,000,055,550)
Contributions paid into the plan	17,514,000,636	11,524,029,215
Ending balance	₩ 104,274,909,664	₩ 92,723,152,505

Details of the fair value of plan assets as of December 31, 2020 and 2019, are as follows:

(in Korean won)	Expected rate of return[2]		Fair value of plan assets	
	2020	2019	2020	2019
Others[1]	3.44%	3.69%	₩ 104,274,909,664	₩ 92,723,152,505

[1] Others are comprised of 17% of deposit and 83% of local and overseas securities, and debt securities as of December 31, 2020.

[2] The expected rate of return is calculated based on the weighted average of expected rate of returns for each type of assets. The management evaluates the expected rate of returns based on the historical rate of return trends and the analysis of the predicted market during the period when the defined benefits liabilities exist.

24. Employee Benefits (cont'd)

Principal actuarial assumptions as of December 31, 2020 and 2019, are as follows:

(in percentage, %)	2020	2019
Discount rate	3.53	3.48
Expected rate of return on plan assets	3.44	3.69
Future salary growth	4.60	4.50

Details of expenses relating to defined benefit plans for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Current service cost	₩ 9,748,759,356	₩ 8,874,687,581
Past service cost	-	3,046,062,321
Interest cost	3,607,856,340	3,402,821,953
Expected return on plan assets	(3,191,092,405)	(3,136,622,990)
Transfer to other account	(225,939,914)	(246,032,561)
	₩ 9,939,583,377	₩ 11,940,916,304

Expenses described above are recognized as the following items in the financial statements.

(in Korean won)	2020	2019
Cost of sales	₩ 3,626,181,729	₩ 4,369,984,316
Selling and administrative expenses	6,313,401,648	7,570,931,988
Others[1]	225,939,914	246,032,561
	₩ 10,165,523,291	₩ 12,186,948,865

[1] Amount is attributed to reclassification and it was reflected in the consolidated statement of financial position as other construction expenses (property, plant and equipment).

Remeasurement components recognized in other comprehensive income for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Defined benefit obligations	₩ (5,176,012,963)	₩ (2,751,967,063)
Return on plan assets	(1,472,200,972)	(1,470,235,038)
Income tax effect	1,608,867,772	1,021,772,911
	₩ (5,039,346,163)	₩ (3,200,429,190)

25. Provisions

Details of provisions as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020			2019		
	Current	Non-current	Total	Current	Non-current	Total
Decommissioning cost[1,3]	₩ 34,348,187,211	₩ 2,371,886,511,619	₩ 2,406,234,698,830	₩ 20,038,914,374	₩ 2,135,809,540,095	₩ 2,155,848,454,469
Social Overhead Capital[2]	1,195,316,294	-	1,195,316,294	10,254,072,407	-	10,254,072,407
Allowance for salaries	15,226,205,769	-	15,226,205,769	4,380,766,760	-	4,380,766,760
Provision for litigations [4]	-	-	-	-	10,165,423,343	10,165,423,343
Onerous contract [5]	12,160,297,254	43,222,751,872	55,383,049,126	11,310,190,359	88,139,212,702	99,449,403,061
Others[3]	12,612,117,619	18,967,894,388	31,580,012,007	14,398,950,848	2,198,686,537	16,597,637,385
	₩ 75,542,124,147	₩ 2,434,077,157,879	₩ 2,509,619,282,026	₩ 60,382,894,748	₩ 2,236,312,862,677	₩ 2,296,695,757,425

[1] The Group recognized provisions for future dismantling, removing and restoring obligations of wells and related facilities. Most of the costs incur at or after the completion of production and the management recognized its best estimations as provisions.

[2] The Group is committed to providing construction services with regards to the Kurdish regional government's Social Overhead Capital to obtain rights on certain exploratory areas. This commitment has been classified as a provision due to its uncertain timing of related cash outflows.

[3] The reclassifications from non-current to current amounted to ₩11,300 million and ₩10,993 million for the years ended December 31, 2020 and 2019, respectively.

[4] During the current year, the first and second lawsuits related to ordinary wages were confirmed, and all the remaining provisions were reversed.

[5] The Group recognized as a provision for an obligation to pay for the oil pipelines due to its uncertain amount of related cash outflows even after production ends in Vietnam 11-2.

Changes in provisions for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020						
	Beginning balance	Business combination	Provision [1]	Payment	Reversal	Others [3]	Ending balance
Decommissioning cost	₩ 2,155,848,454,469	₩ 18,158,873,832	₩ 56,703,351,157	₩ (27,176,294,485)	₩ (1,324,968,684)	₩ 204,025,282,541	₩ 2,406,234,698,830
Social Overhead Capital	10,254,072,407	-	-	(9,154,684,087)	-	95,927,974	1,195,316,294
Allowance for salaries	4,380,766,760	-	12,049,461,485	-	-	(1,204,022,476)	15,226,205,769
Provision for litigations [4]	10,165,423,343	-	-	(8,818,402,595)	(5,009,558,857)	3,662,538,109	-
Onerous contract [5]	99,449,403,061	-	4,623,675,686	(14,603,707,996)	(31,679,676,866)	(2,406,644,759)	55,383,049,126
Others	16,597,637,385	-	117,356,811	-	-	14,865,017,811	31,580,012,007
	₩ 2,296,695,757,425	₩ 18,158,873,832	₩ 73,493,845,139	₩ (59,753,089,163)	₩ (38,014,204,407)	₩ 219,038,099,200	₩ 2,509,619,282,026

[1] Include the provisions.

[2] Recognition of provisions related to KADOC that was reclassified as a subsidiary from a joint venture during the current year.

[3] Include decrease in provisions of ₩ 2,843 million, changes in estimates due to changes in discount rate and the effect of changes in exchange rates regarding disposal of assets.

[4] Payment includes ₩ 3,339 million which is substituted provisions to unpaid amount, as the company losses of ordinary wage lawsuit.

[5] The set amount of provisions of ₩ 3,351 million and the amount of reversal of ₩ 31,680 million are reflected in sales commission

25. Provisions (cont'd)

(in Korean won)	2019						
	Beginning balance	Changes in accounting policies [4]	Provision [1]	Payment	Reversal	Others [2]	Ending balance
Decommissioning cost	₩ 1,973,067,598,205	₩ -	₩ 53,255,315,050	₩ (37,013,324,879)	₩ (6,945,023,876)	₩ 173,483,889,969	₩ 2,155,848,454,469
Social Overhead Capital	12,465,831,150	-	89,612,001	(2,738,147,589)	-	436,776,845	10,254,072,407
Allowance for salaries	49,304,084	-	4,359,067,934	-	-	(27,605,258)	4,380,766,760
Provision for litigations [3]	8,866,454,140	-	990,824,065	-	-	308,145,138	10,165,423,343
Onerous contract	129,907,974,785	(4,313,513,149)	1,585,885,767	(7,666,908,391)	(24,786,154,683)	4,722,118,732	99,449,403,061
Others	57,122,644,320	-	2,213,593,071	(7,932,703,634)	-	(34,805,896,372)	16,597,637,385
	₩ 2,181,479,806,684	₩ (4,313,513,149)	₩ 62,494,297,888	₩ (55,351,084,493)	₩ (31,731,178,559)	₩ 144,117,429,054	₩ 2,296,695,757,425

[1] Include the provisions.

[2] Include decrease in provisions of ₩ 8,648 million and the effect of changes in exchange rates regarding disposal of assets.

[3] The Group recognized provision in relation to litigation amount and statutory interest on the partial loss of litigation on the return of normal wage.

[4] Amounts were reclassified from the onerous contract to lease liability due to a change in accounting policies.

26. Government Grants

In accordance with the accounting standards and the provisions in the standard for public enterprise and quasi-government, government grants relating to property, plant and equipment are presented as the deduction from related assets.

Details of assets and liabilities of government grants as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	
	Assets	Liabilities
Cash	₩ 65,135,024	₩ -
Others	1,921,246,508	-
Software	34,266,332	-
	₩ 2,020,647,864	₩ -

(in Korean won)	2019	
	Assets	Liabilities
Cash	₩ 11,100,917	₩ -
Others	2,573,235,532	-
	₩ 2,584,336,449	₩ -

26. Government Grants (cont'd)

Changes in assets and liabilities of government grants for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)

	2020					
	Beginning balance	Additional grants	Offset with depreciation	Revenue recognized	Others [1]	Ending balance
Cash	₩ 11,100,917	₩ 1,307,500,000	₩ -	₩ (1,365,040,373)	₩ 111,574,480	₩ 65,135,024
Others	2,573,235,532	-	(538,893,493)	-	(113,095,531)	1,921,246,508
Software	-	45,508,687	(8,343,260)	-	(2,899,095)	34,266,332
	₩ 2,584,336,449	₩ 1,353,008,687	₩ (547,236,753)	₩ (1,365,040,373)	₩ (4,420,146)	₩ 2,020,647,864

[1] Include the effect of changes in exchange rates, return of government grants and others.

(in Korean won)

	2019					
	Beginning balance	Additional grants	Offset with depreciation	Revenue recognized	Others [1]	Ending balance
Cash	₩ 77,710,041	₩ 1,421,000,000	₩ -	₩ (5,466,365,576)	₩ 3,978,756,452	₩ 11,100,917
Others	3,312,019,239	-	(862,188,805)	-	123,405,098	2,573,235,532
	₩ 3,389,729,280	₩ 1,421,000,000	₩ (862,188,805)	₩ (5,466,365,576)	₩ 4,102,161,550	₩ 2,584,336,449

[1] Include the effect of changes in exchange rates, return of government grants and others.

Details of government grants income recognized for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)

	2020	2019
Government grants income	₩ 1,365,040,373	₩ 5,466,365,576
Offset with depreciation	547,236,753	862,188,805
	₩ 1,912,277,126	₩ 6,328,554,381

Details of the government grants business by category and changes in government grants for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)

	2020												
						Increase			Decrease				
						Issuance		Interest	Return		Interest	Others	Carried forward to subsequent year
	Business	Details	Period	Budget	Carried over from prior year	Paid by the Group	Government grants	Paid by the Group	Paid by the Group	Government grants	Paid by the Group		
New Growth Project Promotion Team	Offshore wind power transportation installation national research project	Development of optimal transportation and installation technology of offshore wind power systems	2020.11.01. ~ 2021.1.31	10,500,000	-	10,000,000	500,000	13,617	2,319,130	-	-	-	8,194,487

26. Government Grants (cont'd)

(in Korean won)

2019														
	Business	Details	Period	Budget	Carried over from prior year	Increase			Decrease			Others	Carried forward to subsequent year
						Issuance		Interest	Return		Interest		
						Paid by the Group	Government grants	Paid by the Group	Paid by the Group	Government grants	Paid by the Group		
Korea Institute of Energy Technology Evaluation and Planning	A Study on the Development and Empirical Study of the Production Enhancement of the Low-Rise Carbonate Layers in UAE	Building a Model of Integrated Stationary Deposition Rock	2019.2.1 ~ 2019.11.30	42,000,000	-	46,000,000	46,000,000	476,005	46,000,000	46,000,000	476,005	-	-

27. Contributions for Construction

Details of contributions for construction as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Others [1]	₩ 333,857,906	₩ 330,091,017
	₩ 333,857,906	₩ 330,091,017

[1] The amounts were offset against the depreciation of the related assets for the years ended December 31, 2020 and 2019, from cash equivalents transferred from SK Energy in accordance with the expansion construction of connecting line between the Group (Ulsan branch) and SK Energy.

28. Non-Financial Liabilities

Details of non-financial liabilities as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020		2019	
	Current	Non-current	Current	Non-current
Advance received	₩ 21,467,610,401	₩ -	₩ 23,136,687,444	₩ -
Unearned revenue	3,851,072,429	19,533,807,960	61,973,658,781	23,461,366,740
Withholdings	58,960,771,359	-	65,160,003,401	-
Others	1,282,072,620	32,218,409,346	110,768,741	34,285,362,446
	₩ 85,561,526,809	₩ 51,752,217,306	₩ 150,381,118,367	₩ 57,746,729,186

29. Share Capital

Details of share capital as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020			2019		
	Government	Non-government	Total	Government	Non-government	Total
Share capital	₩ 10,554,372,780,075	₩ -	₩ 10,554,372,780,075	₩ 10,515,105,780,075	₩ -	₩ 10,515,105,780,075
	₩ 10,554,372,780,075	₩ -	₩ 10,554,372,780,075	₩ 10,515,105,780,075	₩ -	₩ 10,515,105,780,075

The changes in share capital for the year ended December 31, 2020, are as follows:

(in Korean won)	Description	Amount
Beginning balance		₩ 10,515,105,780,075
2020-04-17	Contribution for oil field development	6,000,000,000
2020-06-15	Contribution for oil stockpiling business	17,967,000,000
2020-07-13	Contribution for oil stockpiling business	2,984,000,000
2020-07-13	Contribution for oil field development	7,483,000,000
2020-09-15	Contribution for oil stockpiling business	908,000,000
2020-10-20	Contribution for oil stockpiling business	1,000,000,000
2020-11-30	Contribution for oil stockpiling business	2,925,000,000
Ending balance		₩ 10,554,372,780,075

30. Accumulated Deficit and Dividend

Details of accumulated deficit as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Undisposed accumulated deficit	₩ (13,100,233,643,918)	₩ (9,393,324,831,534))

Changes in accumulated deficit for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Beginning balance	₩ (9,393,324,831,534)	₩ (8,627,443,113,991)
Net loss for the year	(3,171,486,517,554)	(762,681,288,353)
Fair value through other comprehensive income - Reclassification adjustments	(530,382,948,667)	-
Remeasurement components of defined benefits plan	(5,039,346,163)	(3,200,429,190)
Ending balance	₩ (13,100,233,643,918)	₩ (9,393,324,831,534)

30. Accumulated Deficit and Dividend (cont'd)

Changes in remeasurement components for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Beginning balance	₩ (17,992,338,336)	₩ (14,791,909,146)
Changes during the current year	(6,648,213,935)	(4,222,202,101)
Income tax effects	1,608,867,772	1,021,772,911
Ending balance	₩ (23,031,684,499)	₩ (17,992,338,336)

31. Statements of Disposition of Accumulated Deficit

Statements of disposition of accumulated deficit for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
I. Undisposed deficit	₩ (13,100,233,643,918)	₩ (9,393,324,831,534)
Undisposed accumulated deficit carried over from prior years	(9,393,324,831,534)	(8,627,443,113,991)
Loss for the year	(3,171,486,517,554)	(762,681,288,353)
Fair value through other comprehensive income - Reclassification adjustments	(530,382,948,667)	-
Remeasurement components	(5,039,346,163)	(3,200,429,190)
II. Undisposed deficit to be carried forward to the subsequent year	₩ (13,100,233,643,918)	₩ (9,393,324,831,534)

Dates of disposition for the years ended December 31, 2020 and 2019 are February 26, 2021, and July 24, 2020, respectively.

32. Other Components of Equity

Details of other components of equity as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Other capital surpluses[1]	₩ 24,934,262,869	₩ 24,934,262,869
Accumulated other comprehensive loss	(33,723,893,057)	(1,180,692,068,420)
	₩ (8,789,630,188)	₩ (1,155,757,805,551)

[1] Details of other capital surpluses as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Assets contributed	₩ 24,954,221,211	₩ 24,954,221,211
Loss on capital reduction	(19,958,342)	(19,958,342)
	₩ 24,934,262,869	₩ 24,934,262,869

Details of accumulated other comprehensive loss as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Revaluation surplus	₩ 489,752,621,439	₩ -
Loss on valuation of equity instruments measured at fair value through other comprehensive income	(32,247,255,298)	(569,312,432,955)
Equity adjustments in equity method	37,369,469,452	24,395,737,781
Foreign currency translation differences for foreign operations	(518,914,767,154)	(640,764,450,823)
Gains on valuation of derivative instruments	(9,683,961,496)	4,989,077,577
	₩ (33,723,893,057)	₩ (1,180,692,068,420)

33. Revenue

Details of revenues (based on customer locations) except for other income, other profit and financial income (Notes 35, 36, and 37) for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020		
	Domestic	Overseas	Total
Sales of goods and finished goods	₩ 69,849,192,597	₩ 1,546,553,315,814	₩ 1,616,402,508,411
Revenues from services provided	47,310,995,212	213,477,064,872	260,788,060,084
Income on government grants	1,354,434,803	10,605,570	1,365,040,373
Others	1,098,864,837	51,568,010,471	52,666,875,308
	₩ 119,613,487,449	₩ 1,811,608,996,727	₩ 1,931,222,484,176

33. Revenue (cont'd)

(in Korean won)	2019		
	Domestic	Overseas	Total
Sales of goods and finished goods	₩ 149,323,867,319	₩ 2,530,369,714,845	₩ 2,679,693,582,164
Revenues from services provided	36,396,460,697	163,149,981,930	199,546,442,627
Income on government grants	5,466,365,576	-	5,466,365,576
Others	1,165,754,501	44,120,814,732	45,286,569,233
	₩ 192,352,448,093	₩ 2,737,640,511,507	₩ 2,929,992,959,600

34. Selling and Administrative Expenses

(In Korean won)	2020	2019
Salaries	₩ 106,384,971,560	₩ 100,704,455,485
Post-employment benefits	7,732,965,512	9,621,482,551
Employee benefits	12,795,639,800	12,454,874,364
Insurance	2,164,417,961	2,391,010,258
Depreciation	16,780,503,608	18,377,153,596
Amortization	3,155,151,383	3,808,668,508
Commission expense	24,128,123,709	27,296,294,826
Advertising expense	568,273,457	667,137,630
Training	1,364,285,601	1,338,705,884
Vehicle	959,098,583	1,169,775,294
Publication	250,440,336	249,571,167
Promotional expense	76,135,729	134,210,458
Rental expense	746,900,363	1,530,977,066
Communication	596,945,203	478,528,210
Taxes and dues	1,879,794,326	1,918,187,952
Supplies expense	1,685,029,788	1,527,590,550
Utilities expense	1,051,542,402	1,096,977,316
Repairs	4,405,619,616	4,071,598,362
Ordinary research and development expense	3,057,117,278	2,799,743,321
Travel expense	654,906,887	1,764,013,756
Clothing expense	9,880,299	22,358,624
Association expense	309,609,412	401,683,818
Sales promotional expense	180,902	(93,027,403)
Sales commissions	47,713,456,551	99,826,667,823
Other selling and administrative expenses	13,256,871,653	12,551,801,518
	₩ 251,727,861,919	₩ 306,110,440,934

34. Selling and Administrative Expenses (cont'd)

Details of accumulated other selling and administrative expenses for the years ended December 31, 2020 and 2019, are as follows:

(In Korean won)		2020		2019
Rewards expense	₩	32,753,515	₩	62,371,915
Litigation expense		2,494,959,973		3,388,258,126
Promotion expense		175,193,928		397,665,029
Overhead expense for production		8,519,789,279		6,500,312,536
Miscellaneous expense		2,034,174,958		2,203,193,912
	₩	13,256,871,653	₩	12,551,801,518

35. Other Income and Expenses

Details of other income for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Reversal of other provisions	₩	6,334,527,540	₩	2,454,517,994
Reversal of other bad debt allowance		120,459,504		3,495,036,527
Gains on exemption of debts		-		76,223,080,929
Compensation and indemnity		23,530,138		9,747,888
Rental income		698,170,482		533,336,117
Others		25,660,336,845		10,881,624,627
	₩	32,837,024,509	₩	93,597,344,082

Details of other incomes for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Income tax refunds	₩	1,061,273,247	₩	-
Adjusted income resulting from inventory inspection		135,204,028		-
Other income from overseas fields		1,443,299,094		3,867,437,620
Other non-operating income		23,020,560,476		7,014,187,007
	₩	25,660,336,845	₩	10,881,624,627

Details of other expenses for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Transfer to other provision	₩	371,732,967	₩	938,611,291
Other bad debt expense		4,661,295,775		3,186,538,955
Donations		2,028,563,100		888,857,187
Others		7,205,765,430		3,245,246,638
	₩	14,267,357,272	₩	8,259,254,071

35. Other Income and Expenses (cont'd)

Details of others expenses for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Adjusted expense resulting from inventory inspection	₩	518,193,232	₩	407,928,589
Other expenses from overseas fields		535,704,018		5,863
Other non-operating expenses		6,151,868,180		2,837,312,186
	₩	7,205,765,430	₩	3,245,246,638

36. Other Profit and Loss

Details of other profit and loss for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Gains on disposal of property, plant and equipment	₩ 325,296,642	₩ 12,234,503,767
Gains on disposal of intangible assets other than goodwill	12,656,237	87,120,730,552
Gains on transactions of derivative (other than finance income)	227,616,552	159,775,646
Reversal of impairment losses on property, plant and equipment	2,442,068,314	25,224,458,258
Reversal of impairment losses on intangible assets other than goodwill	4,784,241,479	53,230,301,443
Gains on foreign currency translation (other than finance income)	49,243,856,929	22,942,425,015
Gains on foreign currency transactions	188,298,565,240	47,825,588,716
Gains on insurance contracts	-	15,584,042,427
Other gains	14,314,960,913	14,461,524,928
Losses on disposal of property, plant and equipment	(6,679,846,717)	(17,491,127,469)
Losses on disposal of intangible assets other than goodwill	(173,442,262)	-
Losses on valuation of property, plant and equipment	(2,213,358,552)	-
Losses on transactions of derivative (other than finance cost)	-	(159,775,646)
Impairment losses on property, plant and equipment	(1,424,500,981,351)	(176,250,820,929)
Impairment losses on intangible assets	(306,090,695,726)	(18,106,642,179)
Losses on foreign currency translation (other than finance cost)	(48,630,115,580)	(21,518,126,092)
Losses on foreign currency transactions (other than finance cost)	(189,318,239,778)	(43,341,210,015)
Other losses	(16,723,274,676)	(4,010,661,677)
	₩ (1,734,680,692,336)	₩ (2,095,013,255)

Details of accumulated other gains for the years ended December 31, 2020 and 2019, are as follows:

(In Korean won)	2020	2019
Gains on stockpile oil quantity adjustment	₩ 1,084,173,203	₩ 13,333,276,766
Gains on duty from stockpile lease	118,264,481	79,902,533
Miscellaneous gains	13,112,523,229	1,048,345,629
	₩ 14,314,960,913	₩ 14,461,524,928

Details of accumulated other losses for the years ended December 31, 2020 and 2019, are as follows:

(In Korean won)	2020	2019
Losses on duty from stockpile lease	₩ 1,499,884,793	₩ 1,721,220,669
Losses on disposal of stored items	818,193,757	-
Losses on settlement of stockpiled oil quantity	5,099,826,782	-
Losses on settlement of joint expansion volume	-	488,174,441
Losses on cancellation of debt exemption	2,599,318,580	1,065,761,174
Miscellaneous losses	6,706,050,764	735,505,393
	₩ 16,723,274,676	₩ 4,010,661,677

37. Finance income

Details of finance income for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Interest income	₩ 14,608,760,475	₩ 22,512,597,370
Dividend income	5,840,386	10,232,181
Gains on valuation of financial liabilities measured at fair value through profit or loss	37,229,917,380	-
Gains on transactions of financial assets measured at fair value through profit or loss	-	2,072,434,884
Gains on valuation of financial assets measured at fair value through profit or loss	8,311,881,332	167,773,467,775
Gains on valuation of derivative financial instruments	-	18,630,088,549
Gains on transactions of derivative financial instruments	92,375,935,424	11,338,703,001
Gains on foreign currency translation	72,133,591,704	136,666,853,054
Gains on foreign currency transactions	41,864,780,884	43,063,896,401
	₩ 266,530,707,585	₩ 402,068,273,215

Details of interest income by sources included in finance income for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Cash and cash equivalents	₩ 8,068,387,373	₩ 16,205,685,110
Loans and receivables	6,540,373,102	6,306,912,260
	₩ 14,608,760,475	₩ 22,512,597,370

38. Finance costs

Details of finance costs for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Interest expenses	₩ 467,531,643,267	₩ 474,593,305,053
Losses on valuation of financial assets measured at fair value through profit or loss	117,456,567,243	82,191,492,544
Losses on valuation of financial liabilities measured at fair value through profit or loss	4,862,291,130	15,615,393,575
Losses on valuation of derivative financial instruments	18,860,237,629	2,518,652,850
Losses on foreign currency translation	197,395,882,448	65,411,763,076
Losses on foreign currency transactions	30,178,311,794	13,650,654,166
Other financial costs	67,133,153,206	77,451,325,484
	₩ 903,418,086,717	₩ 731,432,586,748

Details of interest expenses by sources included in finance costs for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Short-term borrowings	₩ 10,385,069,144	₩ 5,998,164,131
Long-term borrowings	66,138,961,034	82,006,064,345
Bond payables	282,557,464,758	316,132,779,675
Derivative liabilities	90,371,344,993	54,747,916,675
Lease liability	14,465,865,895	14,918,929,729
Other financial liabilities	3,612,937,443	789,450,498
	₩ 467,531,643,267	₩ 474,593,305,053

39. Income Tax Expense from Continuing Operations

The components of income tax expense for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Current income tax	₩	245,379,937,624	₩	165,120,598,417
Deferred tax directly charged to equity		(140,874,118,936)		34,114,477,553
Changes in deferred taxes arising from temporary differences		(133,847,525,893)		289,478,488,607
Adjustment for prior periods		33,966,938,221		45,099,027,827
Income tax expense	₩	4,625,231,016	₩	533,812,592,404

[1] The Company had a tax audit from the Busan Regional Tax Office for the corporate taxes reported and paid during 2015-2017. As a result, the Company was notified additional tax about ₩ 68,772 million on July 23, 2020, and it is reflected in corporate tax expense. The tax notice is under suitability screening before taxation.

Reconciliations of loss before income tax to income tax expense for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Profit (loss) before income tax	₩	(2,434,548,119,442)	₩	379,060,620,135
Income tax expense computed at the statutory rate[1]	₩	(589,160,644,776)	₩	91,732,670,073
Adjustments				
Adjustments to prior year tax return		68,771,545,351		(957,903,194)
Non-taxable income		(9,515,407,518)		(18,961,389,592)
Non-deductible expenses		38,987,526,804		24,198,713,324
Temporary differences not recognized in deferred tax assets		389,578,972,395		249,616,165,355
Differences in tax rates in overseas entities		(73,706,076,300)		288,843,951,397
Effect of changes in tax rates		145,702,376,839		(145,758,642,786)
		(29,341,707,205)		488,713,564,577
Effect from temporary differences not recognized in prior years		33,966,938,221		45,099,027,827
Income tax expense	₩	4,625,231,016	₩	533,812,592,404
Effective tax rate		-		-

[1] The average effective tax rate for the current and previous years is negative and has not been calculated. The expected applicable statutory tax rate for the years ended December 31, 2020 and 2019, is both 24.2%, which is the Korea statutory corporate income tax rate where the Group is domiciled.

39. Income Tax Expense from Continuing Operations (cont'd)

Income tax recognized as accumulated other comprehensive income for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Revaluation gain or loss	₩ (156,359,016,344)	₩ -
Net change in the unrealized fair value of derivative using cash flow hedge accounting	13,876,029,636	33,092,704,642
Remeasurement components	1,608,867,772	1,021,772,911
	₩ (140,874,118,936)	₩ 34,114,477,553

Changes in deferred income tax assets (liabilities) recognized in the consolidated statements of financial position for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020				
	Beginning balance	Amounts recognized in profit or loss	Amounts recognized in other comprehensive income	Others	Ending balance
Deferred income tax on temporary differences					
Contributions for construction	₩ -	₩ 6,178,242	₩ -	₩ (481,934)	₩ 5,696,308
Investment in associates and others	(470,704,667)	1,830,811,572	-	(114,435,511)	1,245,671,394
Investment in subsidiaries	-	37,367,531,164	-	(2,914,860,593)	34,452,670,571
Financial guarantee liabilities	15,125,847	8,151,145,211	-	(636,743,350)	7,529,527,708
Bad debt allowance	24,328,680,926	(50,843,613,399)	-	2,499,367,547	(24,015,564,926)
Financial assets measured at fair value through other comprehensive income	17,390,103	3,112,096,145	-	(243,807,980)	2,885,678,268
Intangible assets other than goodwill	13,481,399,400	(6,698,422,084)	-	(290,238,217)	6,492,739,099
Accrued expenses	-	381,245,137	-	(29,739,092)	351,506,045
Asset retirement obligation	(1,549,395,450)	(4,766,949,399)	-	465,254,712	(5,851,090,137)
Property, plant and equipment	29,576,307,212	(3,107,710,390)	-	(1,540,641,985)	24,927,954,837
Land	-	(68,369,357,357)	(156,359,016,344)	17,529,974,830	(207,198,398,871)
Gain (loss) on valuation of derivative	1,841,518,182	(5,157,049,840)	11,235,817,663	(585,194,461)	7,335,091,544
Defined benefit obligations	(2,451,930,197)	3,660,773,937	1,608,867,772	(263,240,388)	2,554,471,124
Others	6,631,289,018	(58,652,898,036)	-	4,175,450,592	(47,846,158,426)
	71,419,680,374	(143,086,219,097)	(143,514,330,909)	18,050,664,170	(197,130,205,462)
Deferred tax assets of subsidiaries	712,918,743,442	117,082,355,593	2,640,211,973	(52,318,533,728)	780,322,777,280
Increase through business combinations	-	123,961,659,694	-	(9,669,650,587)	114,292,009,107
Deferred tax liabilities of subsidiaries	(221,647,766,711)	(90,929,922,852)	-	20,455,427,686	(292,122,261,877)
	491,270,976,731	150,114,092,435	2,640,211,973	(41,532,756,629)	602,492,524,510
	₩ 562,690,657,105	₩ 7,027,873,338	₩ (140,874,118,936)	₩ (23,482,092,459)	₩ 405,362,319,048

Temporary differences not recognized in deferred tax assets, tax loss carryforwards and tax deduction are ₩ 19,324,309 million as of December 31, 2020.

39. Income Tax Expense from Continuing Operations (cont'd)

(in Korean won)	2019				
	Beginning balance	Amounts recognized in profit or loss	Amounts recognized in other comprehensive income	Others	Ending balance
Deferred income tax on temporary differences					
Contributions for construction	₩ 689,076,085	₩ (718,380,768)	₩ -	₩ 29,304,683	₩ -
Investment in associates and others	41,261,540,597	(43,490,186,499)	-	1,757,941,235	(470,704,667)
Financial guarantee liabilities	98,389,028,086	(102,558,039,278)	-	4,184,137,039	15,125,847
Bad debt allowance	62,597,695,028	(40,766,186,488)	-	2,497,172,386	24,328,680,926
Financial assets measured at fair value through other comprehensive income	(21,412,227,719)	22,340,344,535	-	(910,726,713)	17,390,103
Intangible assets other than goodwill	317,695,240,079	(317,633,219,360)	-	13,419,378,681	13,481,399,400
Accrued expenses	15,702,777,532	(16,370,577,536)	-	667,800,004	-
Asset retirement obligation	36,256,829,958	(39,358,643,182)	-	1,552,417,774	(1,549,395,450)
Property, plant and equipment	(1,569,762,086)	31,413,357,607	-	(267,288,309)	29,576,307,212
Land	(64,962,508,952)	67,725,202,123	-	(2,762,693,171)	-
Gain (loss) on valuation of derivative	(13,412,499,508)	(3,899,647,947)	19,736,552,670	(582,887,033)	1,841,518,182
Defined benefit obligations	4,761,545,132	(8,454,368,988)	1,021,772,655	219,121,004	(2,451,930,197)
Others	(74,985,082,805)	84,850,258,180	-	(3,233,886,357)	6,631,289,018
	401,011,651,427	(366,920,087,601)	20,758,325,325	16,569,791,223	71,419,680,374
Deferred tax assets of subsidiaries	605,588,612,356	73,053,469,159	13,356,151,505	20,920,510,422	712,918,743,442
Deferred tax liabilities of subsidiaries	(185,533,918,235)	(29,726,348,460)	-	(6,387,500,016)	(221,647,766,711)
	420,054,694,121	43,327,120,699	13,356,151,505	14,533,010,406	491,270,976,731
	₩ 821,066,345,548	₩ (323,592,966,902)	₩ 34,114,476,830	₩ 31,102,801,629	₩ 562,690,657,105

Details of deferred income tax assets (liabilities) recognized in the consolidated statements of financial position as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Deferred income tax assets	₩ 780,322,777,378	₩ 784,338,423,816
Deferred income tax liabilities	(374,960,458,330)	(221,647,766,711)
	₩ 405,362,319,048	₩ 562,690,657,105

40. Non-current Assets Held for Sale

Details of non-current assets held for sale as of December 31, 2020, are as follows:

(In Korean won)	2020
Investments in joint ventures held for sale [1]	₩ 2,565,848,624

[1] The Group disposed 50% of ownership interests in Offshore International Group in January 2021. It was presented as net value after recognition of an impairment losses, ₩ 28,596 million on the investments in joint ventures held for sale, as of December 31, 2020 (See Notes 50).

41. Expenses Classified by Nature

Expenses classified by nature for the year ended December 31, 2020, are as follows:

(in Korean won)	2020			
	Changes in inventories	Selling and administrative expenses	Cost of sales	Total
Changes in inventories - merchandise	₩ (3,776,670,584)	₩ -	₩ -	₩ (3,776,670,584)
Changes in inventories - finished goods	10,571,720,166	-	-	10,571,720,166
Changes in inventories - others	(4,891,157,207)	-	-	(4,891,157,207)
Purchases of inventories	-	-	16,070,640,011	16,070,640,011
Raw materials used	-	-	3,714,515,014	3,714,515,014
Salaries	-	106,384,971,560	109,665,153,229	216,050,124,789
Severance and retirement benefits	-	7,732,965,512	4,287,112,882	12,020,078,394
Other employee benefits	-	12,795,639,800	8,277,486,155	21,073,125,955
Insurance	-	2,164,417,961	11,353,376,329	13,517,794,290
Depreciation	-	16,780,503,608	708,384,335,700	725,164,839,308
Amortization	-	3,155,151,383	59,100,068,857	62,255,220,240
Commissions and fees	-	24,128,123,709	43,771,855,795	67,899,979,504
Advertising expense	-	568,273,457	77,259,207	645,532,664
Education and training	-	1,364,285,601	326,076,408	1,690,362,009
Vehicle maintenance	-	959,098,583	834,382,520	1,793,481,103
Books and printing	-	250,440,336	13,381,791	263,822,127
Business development	-	76,135,729	(28,438,108)	47,697,621
Rental expense	-	746,900,363	21,034,384,217	21,781,284,580
Communications	-	596,945,203	342,902,847	939,848,050
Transport	-	-	67,297,205,209	67,297,205,209
Taxes and dues	-	1,879,794,326	32,096,617,737	33,976,412,063
Supplies	-	1,685,029,788	7,099,873,867	8,784,903,655
Utilities	-	1,051,542,402	48,504,039,592	49,555,581,994
Repairs	-	4,405,619,616	77,694,891,801	82,100,511,417
Research and development	-	3,057,117,278	671,865,008	3,728,982,286
Travel	-	654,906,887	372,968,491	1,027,875,378
Clothing expenses	-	9,880,299	133,157,857	143,038,156
Investigation and analysis	-	-	35,878,240	35,878,240
Association fee	-	309,609,412	15,512,713	325,122,125
Sales promotion	-	180,902	948,160,853	948,341,755
Sales commissions	-	47,713,456,551	4,976,709,829	52,690,166,380
Others	-	13,256,871,653	504,627,366,155	517,884,237,808
	₩ 1,903,892,375	₩ 251,727,861,919	₩ 1,731,698,740,206	₩ 1,985,330,494,500

41. Expenses Classified by Nature (cont'd)

Expenses classified by nature for the year ended December 31, 2019, are as follows:

(in Korean won)	2019			
	Changes in inventories	Selling and administrative expenses	Cost of sales	Total
Changes in inventories - merchandise	₩ 4,623,193,955	₩ -	₩ -	₩ 4,623,193,955
Changes in inventories - finished goods	(5,440,776,878)	-	-	(5,440,776,878)
Changes in inventories - others	1,838,057,359	-	-	1,838,057,359
Purchases of inventories	-	-	44,886,072,373	44,886,072,373
Raw materials used	-	-	4,903,613,990	4,903,613,990
Salaries	-	100,704,455,485	198,242,784,353	298,947,239,838
Severance and retirement benefits	-	9,621,482,551	5,637,267,678	15,258,750,229
Other employee benefits	-	12,454,874,364	8,544,833,775	20,999,708,139
Insurance	-	2,391,010,258	17,260,150,506	19,651,160,764
Depreciation	-	18,377,153,596	946,841,765,323	965,218,918,919
Amortization	-	3,808,668,508	77,385,850,492	81,194,519,000
Commissions and fees	-	27,296,294,826	42,916,303,162	70,212,597,988
Advertising expense	-	667,137,630	85,911,331	753,048,961
Education and training	-	1,338,705,884	983,651,365	2,322,357,249
Vehicle maintenance	-	1,169,775,294	663,342,775	1,833,118,069
Books and printing	-	249,571,167	12,615,305	262,186,472
Business development	-	134,210,458	48,034,268	182,244,726
Rental expense	-	1,530,977,066	29,579,778,697	31,110,755,763
Communications	-	478,528,210	624,647,286	1,103,175,496
Transport	-	-	166,498,570,132	166,498,570,132
Taxes and dues	-	1,918,187,952	52,823,893,025	54,742,080,977
Supplies	-	1,527,590,550	9,428,055,149	10,955,645,699
Utilities	-	1,096,977,316	63,721,425,138	64,818,402,454
Repairs	-	4,071,598,362	143,317,219,027	147,388,817,389
Research and development	-	2,799,743,321	-	2,799,743,321
Travel	-	1,764,013,756	540,254,856	2,304,268,612
Clothing expenses	-	22,358,624	119,818,551	142,177,175
Investigation and analysis	-	-	98,734,052	98,734,052
Association fee	-	401,683,818	15,973,590	417,657,408
Sales promotion	-	(93,027,403)	884,142,145	791,114,742
Sales commissions	-	99,826,667,823	-	99,826,667,823
Others	-	12,551,801,518	235,327,888,373	247,879,689,891
	₩ 1,020,474,436	₩ 306,110,440,934	₩ 2,051,392,596,717	₩ 2,358,523,512,087

42. Categories of Financial Instruments

Details of current financial assets by category as of December 31, 2020 and 2019, are as follows:

(in Korean won)

	2020			
	Fair value through profit or loss	Amortized costs	Fair value – hedging instruments	Total
Cash and cash equivalents	₩ -	₩ 796,778,898,842	₩ -	₩ 796,778,898,842
Derivative assets	445,915,201	-	49,027,465,672	49,473,380,873
Other current financial assets	-	739,651,047	-	739,651,047
Short-term loans	-	30,736,000,000	-	30,736,000,000
Current portion of financial assets at fair value through profit or loss	536,899,617,747	-	-	536,899,617,747
Trade and other receivables	-	433,709,955,321	-	433,709,955,321
	₩ 537,345,532,948	₩ 1,261,964,505,210	₩ 49,027,465,672	₩ 1,848,337,503,830

The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

(in Korean won)

	2019			
	Fair value through profit or loss	Amortized costs	Fair value – hedging instruments	Total
Cash and cash equivalents	₩ -	₩ 725,056,410,891	₩ -	₩ 725,056,410,891
Derivative assets	17,172,238,357	-	23,544,577,919	40,716,816,276
Other current financial assets	-	503,309,681	-	503,309,681
Short-term loans	-	2,586,817,903	-	2,586,817,903
Current portion of financial assets at fair value through profit or loss	268,670,204,196	-	-	268,670,204,196
Trade and other receivables	-	484,674,617,029	-	484,674,617,029
	₩ 285,842,442,553	₩ 1,212,821,155,504	₩ 23,544,577,919	₩ 1,522,208,175,976

The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values

42. Categories of Financial Instruments (cont'd)

Details of non-current financial assets by category as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020				
	Fair value through profit or loss	Fair value through other comprehensive income	Amortized costs	Fair value – Hedging instruments	Total
Financial assets at fair value through profit or loss[1]	₩ 674,664,491,128	₩ -	₩ -	₩ -	₩ 674,664,491,128
Financial assets at fair value through other comprehensive income	-	12,195,650,672	-	-	12,195,650,672
Long-term loans	-	-	105,423,832,379	-	105,423,832,379
Long-term financial instruments	-	-	5,601,079,085	-	5,601,079,085
Derivative assets	-	-	-	122,516,278,216	122,516,278,216
Long-term trade and other receivables	-	-	44,061,506,620	-	44,061,506,620
	₩ 674,664,491,128	₩ 12,195,650,672	₩ 155,086,418,084	₩ 122,516,278,216	₩ 964,462,838,100

[1] Loans to related parties and accrued income from related parties are included.

The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

(in Korean won)	2019				
	Fair value through profit or loss	Fair value through other comprehen-sive income	Amortized costs	Fair value – Hedging instruments	Total
Financial assets at fair value through profit or loss[1]	₩ 1,495,749,044,152	₩ -	₩ -	₩ -	₩ 1,495,749,044,152
Financial assets at fair value through other comprehensive income	-	6,458,433,615	-	-	6,458,433,615
Long-term loans	-	-	140,150,063,302	-	140,150,063,302
Long-term financial instruments	-	-	5,676,009,105	-	5,676,009,105
Derivative assets	-	-	-	36,886,513,959	36,886,513,959
Long-term trade and other receivables	-	-	44,162,826,491	-	44,162,826,491
	₩ 1,495,749,044,152	₩ 6,458,433,615	₩ 189,988,898,898	₩ 36,886,513,959	₩ 1,729,082,890,624

[1] Loans to related parties and accrued income from related parties are included.

The above fair values of the financial assets measured at amortized costs do not significantly differ from their book values.

42. Categories of Financial Instruments (cont'd)

Details of current financial liabilities by category as of December 31, 2020 and 2019, are as follows:

(in Korean won)

	2020			
	Fair value through profit or loss	Amortized costs	Fair value – Hedging instruments	Total
Financial liabilities at fair value through profit or loss	₩ 2,585,153,204	₩ -	₩ -	₩ 2,585,153,204
Current portion of long-term borrowings	-	1,151,137,481,394	-	1,151,137,481,394
Current portion of bond payables	-	1,644,978,262,639	-	1,644,978,262,639
Current portion of derivative liabilities	-	-	18,218,868,448	18,218,868,448
Other current financial liabilities	-	8,575,601,856	-	8,575,601,856
Trade and other payables	-	619,687,530,974	-	619,687,530,974
Short-term borrowings	-	259,155,616,000	-	259,155,616,000
	₩ 2,585,153,204	₩ 3,683,534,492,863	₩ 18,218,868,448	₩ 3,704,338,514,515

The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

(in Korean won)

	2019			
	Fair value through profit or loss	Amortized costs	Fair value – Hedging instruments	Total
Financial liabilities at fair value through profit or loss	₩ 13,385,977,456	₩ -	₩ -	₩ 13,385,977,456
Current portion of long-term borrowings	-	443,244,598,733	-	443,244,598,733
Current portion of bond payables	-	982,743,047,853	-	982,743,047,853
Current portion of derivative liabilities	1,270,493,722	-	10,222,388,191	11,492,881,913
Other current financial liabilities	-	9,125,764,549	-	9,125,764,549
Trade and other payables	-	771,657,311,606	-	771,657,311,606
Short-term borrowings	-	115,780,000,000	-	115,780,000,000
	₩ 14,656,471,178	₩ 2,322,550,722,741	₩ 10,222,388,191	₩ 2,347,429,582,110

The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

42. Categories of Financial Instruments (cont'd)

Details of non-current financial liabilities by category as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020			
	Fair value through profit or loss	Amortized costs	Fair value – Hedging instruments	Total
Financial liabilities at fair value through profit or loss	₩ 29,539,647,462	₩ -	₩ -	₩ 29,539,647,462
Long-term borrowings	-	1,011,131,737,340	-	1,011,131,737,340
Bond payables	-	10,211,308,176,111	-	10,211,308,176,111
Derivative liabilities	-	-	52,267,229,178	52,267,229,178
Long-term trade and other payables	-	528,379,159,028	-	528,379,159,028
	₩ 29,539,647,462	₩ 11,750,819,072,479	₩ 52,267,229,178	₩ 11,832,625,949,119

The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

(in Korean won)	2019			
	Fair value through profit or loss	Amortized costs	Fair value – Hedging instruments	Total
Financial liabilities at fair value through profit or loss	₩ 55,382,409,262	₩	₩ -	₩ 55,382,409,262
Long-term borrowings	-	1,852,100,224,523	-	1,852,100,224,523
Bond payables	-	10,444,576,145,677	-	10,444,576,145,677
Derivative liabilities	90,948,710	-	91,091,601,451	91,182,550,161
Long-term trade and other payables	-	549,409,820,867	-	549,409,820,867
	₩ 55,473,357,972	₩ 12,846,086,191,067	₩ 91,091,601,451	₩ 12,992,651,150,490

The above fair values of the financial liabilities measured at amortized costs do not significantly differ from their book values.

42. Categories of Financial Instruments (cont'd)

Net gains or losses by financial instruments for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Financial assets measured at fair value through profit of loss		
Gain (loss) on valuation, net	₩ (109,144,685,911)	₩ 85,581,975,231
Gain on transactions	-	2,072,434,884
Gain (loss) on foreign currency translation, net	(23,248,462,423)	16,102,208,624
Financial assets measured at amortized costs		
Interest income	14,608,760,475	22,512,597,370
Gain (loss) on foreign currency transactions, net	(1,962,416,385)	36,889,675,353
Gain (loss) on foreign currency translation, net	(22,608,968,727)	(36,532,658,552)
Bad debt expenses	(4,661,295,775)	(3,186,538,955)
Reversal of bad debt allowance	120,459,504	3,495,036,527
Financial assets measured at fair value through other comprehensive income		
Dividend income	5,840,870	10,232,367
Other comprehensive gain (loss), net of tax	6,682,228,990	(27,087,489,925)
Financial assets designated as hedging instruments		
Gain on transactions	92,603,551,976	-
Loss on valuation	(18,860,237,629)	(16,111,435,699)
Gain (loss) on foreign currency translation, net	171,546,997,993	14,995,058,552
Other comprehensive gain (loss) , net of tax	(7,200,329,931)	(34,911,286,327)
Financial liabilities measured at fair value through profit or loss		
Gain (loss) on valuation	32,367,626,250	(15,615,393,575)
Financial liabilities measured at amortized cost		
Interest expense [1]	(467,004,743,366)	(474,248,120,081)
Gain (loss) on foreign currency transactions, net	12,629,210,937	(2,992,054,091)
Gain (loss) on foreign currency translation, net	(283,023,137,598)	72,007,244,827
Other financial cost[2]	16,348,031,001	24,625,957,678
Financial liabilities designated as hedging instruments		
Gain on transactions, net	-	11,338,703,001
Gain (loss) on foreign currency translation, net	32,685,021,360	6,107,535,252
Other comprehensive gain (loss), net of tax	(7,472,709,338)	(75,744,015,045)
	₩ (565,589,257,531)	₩ (390,690,332,584)

[1] Excludes interest cost on provisions amounting to ₩ 527 million and ₩ 345 million for the years ended December 31, 2020 and 2019, respectively.

[2] Excludes increase in other provisions amounting to ₩ 50,785 million and ₩ 52,825 million for the years ended December 31, 2020 and 2019, respectively.

43. Netting Agreements

Offsetting of financial assets and financial liabilities

As of December 31, 2020 and 2019, financial assets and financial liabilities subject to offsetting, enforceable master netting arrangements and similar agreements are as follows:

(in Korean won)

	2020					
	Gross amounts recognized as financial instruments	Gross amounts of recognized financial instruments set off in the statement of financial position	Net amounts of financial instruments presented in the statement of financial position	Related amounts not set off in the statement of financial position		Net amount[2]
				Financial instruments	Collateral received or pledged	
Financial assets						
Derivative[1]	₩ 171,989,659,089	₩ -	₩ 171,989,659,089	₩ (70,486,097,626)	₩ -	₩ 101,503,561,463
	₩ 171,989,659,089	₩ -	₩ 171,989,659,089	₩ (70,486,097,626)	₩ -	₩ 101,503,561,463
Financial liabilities						
Derivative[1]	₩ 70,486,097,626	₩ -	₩ 70,486,097,626	₩ (70,486,097,626)	₩ -	₩ -
	₩ 70,486,097,626	₩ -	₩ 70,486,097,626	₩ (70,486,097,626)	₩ -	₩ -

[1] Some of derivative contracts are made under International Swaps and Derivative Association (ISDA) master netting agreements.

[2] In general, under such agreements the amounts owed by each counter party on a single day in respect of all transactions outstanding in the same currency are aggregated into a single net amount that is payable by one party to the other. In certain circumstances (i.e. when a default occurs), all standing transactions under the agreement are terminated, the termination value is assessed and only a single amount is payable in settlement of all transactions.

(in Korean won)

	2019					
	Gross amounts recognized as financial instruments	Gross amounts of recognized financial instruments set off in the statement of financial position	Net amounts of financial instruments presented in the statement of financial position	Related amounts not set off in the statement of financial position		Net amount
				Financial instruments	Collateral received or pledged	
Financial assets						
Derivative[1]	₩ 56,612,713,477	₩ -	₩ 56,612,713,477	₩ (56,612,713,477)	₩ -	₩ -
	₩ 56,612,713,477	₩ -	₩ 56,612,713,477	₩ (56,612,713,477)	₩ -	₩ -
Financial liabilities						
Derivative[1]	₩ 102,675,432,074	₩ -	₩ 102,675,432,074	₩ (56,612,713,477)	₩ -	₩ 46,062,718,597
	₩ 102,675,432,074	₩ -	₩ 102,675,432,074	₩ (56,612,713,477)	₩ -	₩ 46,062,718,597

[1] Some of derivative contracts are made under International Swaps and Derivative Association (ISDA) master netting agreements. In general, under such agreements the amounts owed by each counter party on a single day in respect of all transactions outstanding in the same currency are aggregated into a single net amount that is payable by one party to the other. In certain circumstances (i.e. when a default occurs), all standing transactions under the agreement are terminated, the termination value is assessed and only a single amount is payable in settlement of all transactions.

44. Risk Management

(a) Capital management

The primary objective of the Group's capital management is to ensure that it maintains a strong credit rating and healthy capital ratios in order to support its business and maximize the owners' value. To maintain the sound capital structure, management periodically reviews the Group's capital structure through short- and long-term borrowings and issuance of share capital. The Group's capital structure consists of equity and net debt, net of cash and cash equivalents and borrowing. No changes were made in the objectives, policies or processes for managing capital for the year ended December 31, 2020.

The Group's debt-to-equity ratios as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Total borrowings and debt securities (A)	₩ 14,277,711,273,484	₩ 13,838,444,016,786
Cash and cash equivalents (B)	796,778,898,842	725,056,410,891
Net borrowings and debt securities (A – B = C)	13,480,932,374,642	13,113,387,605,895
Total equity (D)	(1,140,910,626,746)	530,846,395,550
Total invested capital (C + D = E)	₩ 12,340,021,747,896	₩ 13,644,234,001,445
Net borrowings and debt securities-to-total invested capital ratio (C/E)	109.25%	96.11%

(b) Financial risk management

The Group is exposed to various risks related to its financial instruments such as credit risk, market risk (currency risk, interest rate risk and price risk) and liquidity risk.

(i) Risk management structure

The board of directors is responsible for implementing and monitoring the Group's risk management structure and the management regularly updates the policies for each risk and confirms the validity of the policies. The purpose of the risk management policies is to identify the risks that could potentially affect the Group's financial results and reduce, to an acceptable level, avoid or eliminate those risks. The policies are reviewed regularly to reflect the current market conditions and the Group's activities. The Group makes constant efforts to improve the policies by monitoring on real time basis and with support from the outside experts. The audit committee oversees the Group's compliance to the risk management policies and procedures and reviews the effectiveness of the structure.

44. Risk Management (cont'd)

(ii) Credit risk

Credit risk is the risk of financial loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations, and arises principally from the Group's receivables from customers, investment securities, derivatives and financial guarantee contracts.

Credit risk also arises from transactions with financial institutions, and such transactions include transactions of cash and cash equivalents, various deposits, and financial instruments such as derivative contracts. The Group manages its exposure to this credit risk by only entering into transactions with banks that have high international credit ratings. The Group implements a credit risk management policy under which the Group only transacts business with counterparties that have a certain level of credit rate evaluated based on financial condition, historical experience, and other factors.

Book values of the financial assets and guarantee amounts by the contract represent the maximum amounts exposed to the credit risk. Details of the Group's level of maximum exposure to credit risk as of December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Cash and cash equivalents	₩	796,778,898,842	₩	725,056,410,891
Derivative assets		171,989,659,089		77,603,330,235
Financial assets at amortized costs		620,272,024,452		677,753,643,511
Financial assets measured at fair value through profit or loss		1,211,564,108,875		1,764,419,248,348
Financial guarantee contracts		72,285,617,856		36,658,248,549

The Group recognizes allowance for bad debt to record impairment losses until it is convinced that the amount of the asset amount cannot be recovered. After the Group decides that the asset amount cannot be recovered, the allowance for bad debt is offset against that asset. Further disclosures relating to impairment of assets are provided as follows:

Impairment losses of accounts receivable and other receivables: *Note 8*

Impairment losses of financial assets measured at fair value through OCI: *Note 9*

Impairment losses of loans: *Note 10*

44. Risk Management (cont'd)

(iii) Market risk

① Crude oil price risk

Crude oil price risk is the risk that the profit or cash flows will fluctuate due to changes in the international market prices of crude oil. The Group entered into derivative contracts according to the expected fluctuations of changes in the international market prices of crude oil to avoid the crude oil price risk and secure the product margin. With all other variables held constant, the changes in Company's profit before tax for the years ended December 31, 2020 and 2019, from crude oil price fluctuations are as follows:

(in Korean won)	2020		2019	
	Increase by 10%	Decrease by 10%	Increase by 10%	Decrease by 10%
Increase (decrease) of profit before tax	₩ 141,014,036,202	₩ (141,014,036,202)	₩ 240,076,760,867	₩ (240,076,760,867)

② Interest rate risk

The Group is exposed to interest rate risk due to its borrowings with floating interest rates. Assuming a 100 basis points increase or decrease in interest rates as of December 31, 2020, the Group's total equity and its profit or loss will also increase or decrease. The Group mitigates risks from fluctuation in interest rate through interest rate swap contracts.

Except for the effect of derivative transactions, this analysis considers the Group's total exposed risks associated with the fluctuation in interest rate. This analysis assumes that all other variables are held constant and the same method is applied as the method used in the prior periods. The details of increase or decrease in the total equity and profit or loss are as follows:

(in Korean won)	2020		2019	
	Increase by 100bp	Decrease by 100bp	Increase by 100bp	Decrease by 100bp
Increase (decrease) of profit before tax	₩ (21,875,113,849)	₩ 21,875,113,849	₩ (20,039,662,441)	₩ 20,039,662,441

③ Foreign currency risk

Items included in the financial statements of each of the Group's entities are measured using the currency of the primary economic environment in which the entity operates (the 'functional currency'). The Group is exposed to currency risk from the sales, purchases and borrowings not in United States dollar. The Group reduces currency risk from fluctuations in foreign exchange rates by carrying out and interest rate swap and currency swaps.

44. Risk Management (cont'd)

Without considering the effect of the derivative aforementioned, the Group's exposures to foreign currency risk as of December 31, 2020 and 2019, are as follows:

(in foreign currencies and Korean won)

		2020		2019	
	Currency unit	Foreign currencies	Equivalent to Korean won	Foreign currencies	Equivalent to Korean won
Financial assets					
denominated in foreign currencies	KRW	222,396,133,387	₩ 204,408,211	287,313,762,103	₩ 287,313,762,103
	VND	80,696,621,357	3,469,955	33,545,748,294	1,677,722,133
	EGP	287,700,000	18,297,720	85,300,000	6,152,769,182
			₩ 226,175,886		₩ 295,144,253,418
Financial liabilities					
denominated in foreign currencies	KRW	1,434,104,093,188	₩ 1,318,110,380	1,208,015,872,660	₩ 1,208,015,872,660
	EUR	375,731,537	462,149,790	422,823,600	543,801,454,808
	SGD	402,173,063	303,922,184	403,304,284	344,008,236,414
	HKD	1,892,815,351	244,173,180	2,044,091,981	303,874,713,869
	CHF	1,202,452,626	1,364,182,504	801,117,083	957,751,495,463
	JPY	69,841,044,542	676,759,722	70,086,700,276	742,489,391,453
	VND	33,936,930,295	1,459,288	80,095,685,087	4,005,822,211
	NOK	-	-	62,300,000	8,179,648,596
	CAD	-	-	1,411,833	1,251,628,112
			₩ 4,370,757,048		₩ 4,113,378,263,586

The exchange rates applied for the years ended and as of December 31, 2020 and 2019, are as follows:

(in US dollar per one foreign currency)	Average rates		Reporting date spot rate	
	2020	2019	2020	2019
KRW	0.0008	0.0009	0.0009	0.0009
VND	0.0000	-	0.0000	-
EUR	1.1419	1.1196	1.2300	1.1108
SGD	0.7252	0.7331	0.7557	0.7367
HKD	0.1289	0.1276	0.1290	0.1284
CHF	1.0664	1.0066	1.1345	1.0326
AED	0.2722	0.2722	0.2722	0.2722
JPY	0.0094	0.0092	0.0097	0.0092
EGP	0.0632	0.0595	0.0636	0.0623
NOK	0.1066	0.1137	0.1172	0.1134
CAD	0.7463	0.7537	0.7843	0.7657

44. Risk Management (cont'd)

The Group and its subsidiaries use various functional currencies depending on their primary economic environment in which the entities operate. The functional currencies of Harvest Operations Corp., Dana Petrolum Limited, and KNOC Kaz B.V. are CAD, GBP and KZT, respectively. A sensitivity analysis below indicates the effect on the Group's profit before tax from the fluctuations in each function currency exchange rate. As of December 31, 2020 and 2019, the effect of a 5% increase or decrease in each functional currency exchange rate on profit before tax assuming all other variables held constant is as follows:

(in Korean won)

		2020		2019	
		Increase by 5%	Decrease by 5%	Increase by 5%	Decrease by 5%
Increase (decrease) of profit before tax	KRW	₩ (65,711,212,223)	₩ 65,711,212,223	₩ (46,347,228,156)	₩ 46,347,228,156
	HKD	(14,406,828,069)	14,406,828,069	(15,296,750,744)	15,296,750,744
	CHF	(80,490,178,175)	80,490,178,175	(48,212,257,328)	48,212,257,328
	EUR	(27,267,992,980)	27,267,992,980	(27,374,424,158)	27,374,424,158
	JPY	(39,930,515,474)	39,930,515,474	(37,376,177,196)	37,376,177,196
	SGD	(17,932,168,646)	17,932,168,646	(17,317,032,336)	17,317,032,336
	Others	1,198,245,587	(1,198,245,587)	(282,231,048)	282,231,048

44. Risk Management (cont'd)

(iv) Liquidity risk

The details of contractual maturities of financial liabilities and other contractual obligations as of December 31, 2020, are as follows:

(in Korean won)	2020					
	Book value	Contractual cash flows[1]	Less than 1 year	1 ~ 2 years	2 ~ 5 years	More than 5 years
Short-term borrowings	₩ 259,155,616,000	₩ 259,155,616,000	₩ 259,155,616,000	₩ -	₩ -	₩ -
Bond payables	11,856,286,438,750	12,714,530,237,801	1,843,993,283,153	2,260,345,779,900	5,734,613,686,614	2,875,577,488,134
Long-term borrowings [2]	2,162,269,218,734	2,262,363,531,224	1,180,749,873,781	629,496,382,682	259,643,070,413	192,474,204,348
Lease liabilities	390,761,371,898	698,517,033,445	32,422,725,690	25,887,355,176	70,859,941,902	569,347,010,677
Trade and other payables [2]	757,305,318,104	757,305,317,907	377,996,978,397	241,995,349,814	2,438,960,918	134,874,028,778
Derivative liabilities	70,486,097,626	70,486,097,626	18,218,868,450	4,561,444,306	47,705,784,870	-
Financial liabilities measured at fair value through profit or loss	32,124,800,666	32,124,800,666	2,585,153,204	-	-	29,539,647,462
Financial guarantee liabilities [3]	8,575,601,856	104,438,880,470	101,416,960,470	-	3,021,920,000	-
	₩ 15,536,964,463,634	₩ 16,898,921,515,139	₩ 3,816,539,459,145	₩ 3,162,286,311,878	₩ 6,118,283,364,717	₩ 3,801,812,379,399

[1] Contractual cash flows include the estimated interest payments but exclude the effects of offsetting contracts.

[2] Loans from Special Accounting for Energy and Resources ("SAER") included in borrowings have no specific maturity as entities were borrowed under the condition that the Group is not obligated to make repayment of the principal and interest until the Group successfully complete the oil exploration.

[3] Financial guarantee is allocated at the earliest period that the maximum amount could be requested.

44. Risk Management (cont'd)

The Group had a working capital (current assets minus current liabilities) deficit of ₩ 1,903,226 million as of December 31, 2020. The Group's management currently anticipates that expected future capital contributions from the Government and the cash flows that the Group generates from its operations, together with its existing cash and cash equivalents and credit sources, will be sufficient to meet its currently anticipated needs for working capital, capital expenditures and business expansion throughout the foreseeable future.

(v) Other price risk

Other price risk is the risk that the fair value or cash flows of financial instruments will fluctuate because of changes in market prices other than interest rate risk and foreign currency risk. The Group's marketable available-for-sale equity securities are exposed to market price risk arising from the fluctuation in the price of the securities. However, the Group's management believes that the effect of the fluctuation in the price of the securities on the financial statements is not significant.

(c) Fair value measurement

A number of the Group's accounting policies and disclosures require the measurement of fair values, for both financial and non-financial assets and liabilities. The Group has an established control framework with respect to the measurement of fair values. This includes a valuation team that has overall responsibility for overseeing all significant fair value measurements, including Level 3 fair values, and reports directly to the CFO.

The valuation team regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as broker quotes or pricing services, is used to measure fair values, then the valuation team assesses the evidence obtained from the third parties to support the conclusion that such valuations meet the requirements of KIFRS, including the level in the fair value hierarchy in which such valuations should be classified.

When measuring the fair value of an asset or a liability, the Group uses market observable data as far as possible. Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows.

· Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.
· Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices).
· Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

If the inputs used to measure the fair value of an asset or a liability fall into different levels of the fair value hierarchy, then the fair value measurement is categorized in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement.

44. Risk Management (cont'd)

(i) Fair value and book value of financial assets and liabilities as of December 31, 2020 and 2019, are as follows:

(in Korean won)	2020		2019	
	Book value	Fair value	Book value	Fair value
Assets recognized at fair value				
Financial assets measured at fair value through other comprehensive income	₩ 12,195,650,672	₩ 12,195,650,672	₩ 6,458,433,615	₩ 6,458,433,615
Financial assets measured at fair value through profit or loss	1,211,564,108,875	1,211,564,108,875	1,764,419,248,348	1,764,419,248,348
Currency forwards	48,035,634,112	48,035,634,112	26,888,469,307	26,888,469,307
Currency swap	123,029,853,906	123,029,853,906	13,852,377,213	13,852,377,213
Interest rate swap	-	-	161,161,777	161,161,777
Other derivative	924,171,071	924,171,071	36,701,321,938	36,701,321,938
	₩ 1,395,749,418,636	₩ 1,395,749,418,636	₩ 1,848,481,012,198	₩ 1,848,481,012,198
Assets recognized at amortized costs				
Cash and cash equivalent	₩ 796,778,898,842	₩ 796,778,898,842	₩ 725,056,410,891	₩ 725,056,410,891
Loans	136,159,832,379	136,159,832,379	142,736,881,205	142,736,881,205
Long-term financial instruments	5,601,079,085	5,601,079,085	5,676,009,105	5,676,009,105
Other financial assets	739,651,047	739,651,047	503,309,681	503,309,681
Trade receivables and other receivables	477,771,461,941	477,771,461,941	528,837,443,520	528,837,443,520
	₩ 1,417,050,923,294	₩ 1,417,050,923,294	₩ 1,402,810,054,402	₩ 1,402,810,054,402
Liabilities recognized at fair value				
Currency swap	₩ 26,465,147,132	₩ 26,465,147,132	₩ 72,488,781,303	₩ 72,488,781,303
Interest swap	44,020,950,494	44,020,950,494	26,207,647,354	26,207,647,354
Financial liabilities measured at fair value through profit or loss	32,124,800,666	32,124,800,666	68,768,386,718	68,768,386,718
Other derivative	-	-	3,979,003,417	3,979,003,417
	₩ 102,610,898,292	₩ 102,610,898,292	₩ 171,443,818,792	₩ 171,443,818,792
Liabilities recognized at amortized costs				
Bond payables without collateral	₩ 11,856,286,438,750	₩ 11,856,286,438,750	₩ 11,427,319,193,530	₩ 11,427,319,193,530
Bank borrowings without collateral	2,421,424,834,734	2,421,424,834,734	2,411,124,823,256	2,411,124,823,256
Trade and payables	1,148,066,690,002	1,148,066,690,002	1,321,067,132,473	1,321,067,132,473
Others	8,575,601,856	8,575,601,856	9,125,764,549	9,125,764,549
	₩ 15,434,353,565,342	₩ 15,434,353,565,342	₩ 15,168,636,913,808	₩ 15,168,636,913,808

44. Risk Management (cont'd)

The fair values of the financial assets and liabilities measured at amortized costs do not significantly differ from their book values.

(ii) Fair value hierarchy

The following table provides an analysis of financial instruments that are measured subsequent to initial recognition at fair value, classified as Level 1, 2, or 3, based on the degree to which the fair value is observable.

Level 1: Unadjusted quoted prices in active markets for identical assets or liabilities;
Level 2: Inputs other than quoted prices that are observable for the asset or liability either directly or indirectly; and
Level 3: Inputs that are not based on observable market data.

Fair values of financial instruments by hierarchy level as of December 31, 2020, are as follows:

(in Korean won)	2020 [1]			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value				
Through other comprehensive income	₩ -	₩ -	₩ 12,195,650,672	₩ 12,195,650,672
Through profit or loss		536,899,617,344	674,664,491,531	1,211,564,108,875
Derivative assets		171,989,659,089	-	171,989,659,089
	₩ -	₩ 708,889,276,433	₩ 686,860,142,203	₩ 1,395,749,418,636
Financial liabilities at fair value				
Derivative liabilities	₩ -	₩ 70,486,097,626	₩ -	₩ 70,486,097,626
Through profit or loss	-	-	32,124,800,666	32,124,800,666
	₩ -	₩ 70,486,097,626	₩ 32,124,800,666	₩ 102,610,898,292

[1] There was no transactions between levels of financial instruments in current period

45. Transaction with Government and Public Institution

Transactions with government and public institution for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)

		Income		Expenses	
Counter party	**Transaction**	**2020**	**2019**	**2020**	**2019**
KOREA GAS CORPORATION	Sales	₩ 47,219,456,999	₩ 91,410,158,836	₩ -	₩ -
Ministry of Trade, Industry and Energy.	Gains on exemption of debts	-	76,223,080,929	-	-
Ministry of Trade, Industry and Energy	Loss on cancellation of debt exemption	-	-	2,599,318,580	1,065,761,174
Ministry of Trade, Industry and Energy	Government grants income	1,365,040,373	5,466,365,576	-	-
		₩ 48,584,497,372	₩ 173,099,605,341	₩ 2,599,318,580	₩ 1,065,761,174

The outstanding assets and liabilities, arising from the transactions with government and public institution at December 31, 2020 and 2019, are as follows:

(in Korean won)

		Receivables		Payables	
Counter party	**Transaction**	**2020**	**2019**	**2020**	**2019**
KOREA GAS CORPORATION	Trade receivables	₩ 2,657,299,332	₩ 5,920,959,097	₩ -	₩ -
Ministry of Trade, Industry and Energy.	Borrowings based on Accounting for Energy and Resources	-	-	192,474,204,348	204,605,357,450
Ministry of Trade, Industry and Energy	Government grants for others	-	-	1,921,246,517	2,573,235,542
Ministry of Trade, Industry and Energy	Government grants for software	-	-	34,266,332	-
		₩ 2,657,299,332	₩ 5,920,959,097	₩ 194,429,717,197	₩ 207,178,592,883

46. Related Parties

The Group's major related parties as of December 31, 2020, are as follows:

Type	Related parties
Associates	Oilhub Korea Yeosu Co., Ltd.
	Kernhem B.V.
	ADA Oil LLP
	Korea GS E&P Pte. Ltd.
	Parallel Petroleum LLC
	KNOC EF Star LLC and its subsidiaries
Joint ventures	KNOC Inam Ltd
	KNOC Kamchatka Petroleum Ltd.
	KNOC Bazian Ltd.
	KNOC Nigerian West Oil Company Ltd.
	KNOC Nigerian East Oil Company Ltd.
	Korea Kamchatka Co. Ltd
	KC Kazakh B.V
	Offshore International Group, Inc.
	KNOC Ferghana Ltd.
	KNOC Ferghana2 Ltd.
	KADOC Ltd.[1]
	Korea Energy Terminal Co., Ltd
	Deep Basin Partnership
	HKMS Partnership
	KNOC-VOGO Eagle Ford LLC
	Al Dhafra Petroleum[2]

[1] It was reclassified as a subsidiary for the year ended December 31, 2020 and the transactions prior to the reclassifications were disclosed.
[2] It is a joint venture owned by KADOC Ltd, which was reclassified as a subsidiary for the year ended December 31, 2020

46. Related Parties (cont'd)

Transactions between the company and its subsidiaries have been removed at the time of consolidation and are not disclosed in the notes. Significant transactions with related parties for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)

		Sales and others		Purchases and others	
	Transaction	2020	2019	2020	2019
Oilhub Korea Yeosu Co., Ltd.	Revenues from rental services	₩ 1,593,088,835	₩ 1,567,551,293	₩	₩
	Interest expense	-	-	366,326,903	805,576,952
	Acquisition of right-of-use assets	-	-	-	31,668,352,864
Kernhem B.V.	Interest on loans	1,788,814,241	2,633,894,184	-	-
	Other bad debt expenses	-	-	1,788,814,241	2,633,894,184
	Reversal of bad debt allowance	-	2,629,628,173	-	-
ADA Oil LLP	Interest on loans	366,521,170	552,644,771	-	-
	Other bad debt expenses	-	-	366,521,170	552,644,771
	Reversal of bad debt allowance	120,459,504	865,408,354	-	-
KNOC Nigerian West Oil Company Ltd.	Loss on valuation of financial asset measured at fair value through profit or loss	-	-	332,774,100	37,120,683,552
KNOC Nigerian Eest Oil Company Ltd.	Loss on valuation of financial asset measured at fair value through profit or loss	-	-	250,465,613	39,319,500,482
Offshore International Group, Inc.	Interest on loans	1,829,835,729	1,857,714,950	-	-
KNOC Ferghana2 Ltd.	Loss on valuation of financial asset measured at fair value through profit or loss	-	-	348,999,788	5,751,308,509
KADOC Ltd. [1]	Gain on valuation of financial asset measured at fair value through profit or loss	7,254,216,265	12,090,737,904	-	-
Korea Energy Terminal Co., Ltd	Interest on loans	275,456,110	-	-	-
	Other income	3,459,998,986	-	-	-
Deep Basin Partnership	Other expenses	-	-	225,625,131	351,486,849
	Other income	524,130,512	621,375,388	-	-
HKMS Partnership	Other income	164,492,484	216,115,380	-	-
KNOC EF STAR LLC	Interest expense	-		14,472,478,537	14,197,883,161
		₩ 17,377,013,836	₩ 23,035,070,397	₩ 18,152,005,483	₩ 132,401,331,324

[1] The Group made a crude oil purchase contract with KADOC during the period. The purchased crude oil is sold to a third party without risk, which is recognized in net amount ₩ 640 million as of December 31, 2020.

46. Related Parties (cont'd)

The receivables and payables, arising from the transactions with related parties as of December 31, 2020 and 2019, are as follows:

(in Korean won)		Receivables		Payables	
	Transaction	**2020**	**2019**	**2020**	**2019**
Oilhub Korea Yeosu Co., Ltd.	Other receivables	₩ 700,378	₩ -	₩	₩
	Account payables	-		1,255,507,000	1,341,402,349
	Lease liabilities	-		3,406,085,744	17,756,095,979
Offshore International Group, Inc.	Accrued interest	186,173,642	57,573,631	-	-
KADOC Ltd.	Accrued interest	-	41,995,191,781	-	-
	Other receivables	2,038,788,458	-	-	-
ADA Oil LLP	Other payables	-	-	134,229,704	118,003,312
	Trade receivables	-	1,317,507	-	-
Al Dhafra Petroleum	Other receivables	1,611,955,025	-	-	-
	Account payables	-	-	38,050,454,827	-
KNOC EF STAR LLC	Accrued expenses	-	-	1,419,558,741	1,086,982,062
		₩ 3,837,617,503	₩ 42,054,082,919	₩ 44,265,836,016	₩ 20,302,483,702

The Group recognized other bad debt expenses of ₩ 2,155 million and reversal of other bad debt expenses of ₩ 120 million on receivables arising from the transaction with related parties for the year ended December 31, 2020. The balance of loans and borrowings from related parties is excluded from the balance of receivables and payables above.

Loans to related parties as of December 31, 2020 and 2019, are as follows:

(in Korean won)	**2020**	**2019**
Joint ventures		
KNOC Nigerian West Oil Company Ltd.	₩ -	₩ 118,095,600
KNOC Nigerian East Oil Company Ltd.	-	106,807,050
Offshore International Group, Inc.	30,736,000,000	32,707,850,000
KADOC Ltd. [1]	-	514,706,627,297
Korea Energy Terminal Co., Ltd [2]	-	2,586,817,903
	₩ 30,736,000,000	₩ 550,226,197,850

[1] It was reclassified as a subsidiary from a joint venture, as control was acquired through a change in the shareholders' agreement in 2020. All loans were converted to equity excluding ₩ 161 million receivables due to single shares and interest income.

[2] For the year ended December 31, 2020, ₩ 2,600 million of loans were converted to investment.

46. Related Parties (cont'd)

For the year ended December 31, 2020, the Group provided associates and joint ventures with additional loans of ₩ 4,951 million and recognized loss on valuation of ₩ 1,039 million. There were increases of ₩ 8,044 million due to the effect of changes in foreign exchange rate.

Borrowings from the related parties as of December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Associates				
KNOC EF Star LLC	₩	452,602,149,987	₩	452,602,150,002

Lease agreements with related parties for the years ended December 31, 2020 and 2019, are as follows:
The Group leases storage facilities with a volume of 240,000 cbm per year through a Commercial Storage Agreement with Oilhub Korea Yeosu Co., Ltd., its associates, and the agreement ends on April 1, 2021. In accordance with the lease agreement entered into with the associates, the Group recognized right-of-use assets of ₩ 30,816 million and lease liabilities of ₩ 32,094 million as of January 1, 2020. The repayment of lease liabilities is ₩ 14,801 million and interest expense is ₩ 366 million for the year ended December 31, 2020.

As of December 31, 2020, the Group does not provide any guarantees to the related parties.

As of December 31, 2020, the Group is not provided with any guarantees from the related parties.

The compensations to the Parent Company's key management personnel for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)		2020		2019
Salaries	₩	485,000,550	₩	444,403,410
Severance and retirement benefits		69,622,950		43,449,303
	₩	554,623,500	₩	487,852,713

As of December 31, 2020, other transactions with related parties are as follows:
JB Patriot Investment Type Private Investment Limited Liability Company entered into an agreement of acquiring redeemable preferred shares with KNOC Eagle Ford Corporation and KNOC EF Star LLC, its subsidiary. The Group entered into the cash deficiency support agreement with KNOC Eagle Ford Corporation and its associates.

As of December 31, 2020, the details of rental agreements provided to related parties are as follows:
The Group entered into a USD 70 million loan agreement with maturity date of Feb 19, 2021 with Offshore International Group Inc., an investment in joint venture. As of December 31, 2020, Offshore International Group Inc. had ₩ 30,736 million drawn under the loan agreement.

47. Additional Cash Flow Statement Information

Non-Cash Transactions

Significant non-cash investment and finance transactions excluded from statements of cash flows for the years ended December 31, 2020 and 2019, are as follows:

(in Korean won)	2020	2019
Revaluation of Land classified as property, plant and equipment	₩ 643,898,279,766	₩ -
Bond payables transferred to current portion	1,780,931,360,340	989,538,588,269
Mining rights transferred to financial assets measured at fair value through profit or loss [1]	-	854,313,296,086
Financial assets measured at fair value through profit or loss transferred to investments in subsidiaries [2]	2,529,999,174	
Derivative assets transferred to associates and joint ventures [3]	17,502,245,529	
Long-term borrowings transferred to current portion	295,012,500,000	233,130,000,000
Effect of changes in accounting policies	-	196,383,626,154
Construction in progress transferred to other accounts	21,581,368,345	8,398,458,920
Provisions transferred to current portion	14,093,666,974	13,884,326,780
Increase (decrease) in other account payables due to acquisition of fixed assets	-	12,162,807,934

[1] In accordance with the amendment to the CBSA contract in Iraq, the related mining rights were transferred to financial assets measured at fair value through profit or loss.

[2] The loan to Korea Energy Terminal Co. Ltd. has been converted to investment.

[3] The Company acquired 30% stake of Korea GS E&P Pte. Ltd, by exercising the stock option.

47. Additional Cash Flow Statement Information (cont'd)

Details of change in liabilities in financing activities are as follows:

(in Korean won)

	Beginning balance	Cash flow	Changes in non-cash			Ending balance
			Change in exchange rate	Change in fair value	Others [1]	
Lease liability	₩ 418,717,695,662	₩ (46,144,450,612)	₩ 21,803,113,995	₩ -	₩ (3,614,987,147)	₩ 390,761,371,898
Short-term borrowings	115,780,000,000	149,524,196,747	-	-	(6,148,580,747)	259,155,616,000
Long term borrowings	1,852,100,224,523	(60,232,119,968)	6,732,852,730	-	(787,469,219,945)	1,011,131,737,340
Current portion of long-term borrowings	443,244,598,733	-	8,542,425,802	-	699,350,456,859	1,151,137,481,394
Bond payables	10,444,576,145,677	1,938,016,446,081	281,105,186,659	-	(2,452,389,602,306)	10,211,308,176,111
Current portion of bond payables [2]	982,743,047,853	(1,001,762,974,145)	(7,323,424,132)	-	1,671,321,613,063	1,644,978,262,639
Liabilities held to hedge risk of bond payable [2]	77,603,330,235	1,123,240,857	171,546,997,954	81,799,390	(78,365,709,347)	171,989,659,089
Assets held to hedge risk of bond payable [2]	102,675,432,098	(61,392,976,847)	(32,685,021,265)	(7,488,695,929)-	69,377,359,569	70,486,097,626

[1] Includes liquidity transfer and amortization to present value etc.

[2] The assets and liabilities above are comprised of currency swap and interest swap derivative and included in the cash flow of related bond payables.

48. Business Combinations

(a) Details of the Group's business combinations for the year ended December 31, 2020 are as follows:

(In Korean won)

Entity	Principal activity	Acquisition date [1]	Ownership interests	Consideration transferred
KADOC Ltd.	Exploration and Production	June 30, 2020	75.00	₩ 121,643,477,145

[1] June 9, 2020, the effective date of the revised contract, is the acquisition date. However, the Company applied June 30, 2020, the earliest closing date that the Company can practically apply, as the deemed acquisition date.

(b) The fair values of consideration transferred with regards to the business combination for the year ended December 31, 2020 are as follows:

(In Korean won)

	Amounts
Cash	-
Settlement of pre-existing investment stocks under equity method accounting	121,643,477,145
Total consideration transferred	₩ 121,643,477,145

48. Business Combinations (cont'd)

(c) The following table summarises the recognized amounts of assets acquired and liabilities assumed as of the date of acquisition.

In Korean won

		Amounts
Assets		
Cash and cash equivalents	₩	127,773,954,157
Short-term trade receivable		14,705,338,586
Short-term other receivables		990,211,887
Other current financial assets		224,253,370
Inventories, net		2,372,624,361
Current assets		146,066,382,361
Property, plant and equipment, net		22,043,250
Exploration and production asset		802,879,226,255
Intangible assets other than goodwill, net		2,885,017,352
Other non-current assets		782,177,910
Deferred tax assets		872,169,730
Non-current assets		807,440,634,497
Total identifiable assets		953,507,016,858
Liabilities		
Trade and other payables		54,588,772,287
Short-term accrued expenses		6,523,366,904
Other current liabilities		5,661,267
Current tax liabilities		4,625,484,282
Current liabilities		65,743,284,740
Long-term borrowings		707,353,688,780
Employee benefits, net		59,865,688
Provision for restoration		18,158,873,832
Deferred tax liabilities		139,064,147,001
Non-current liabilities		864,636,575,301
Total identifiable liabilities		930,379,860,041
Total identifiable net assets acquired	₩	23,127,156,817

48. Business Combinations (cont'd)

(d) Goodwill arising from the acquisition has been recognized as follows:

In Korean won

Consideration transferred		121,643,477,145
Add: Non-controlling interests		5,781,790,052
Less: Identifiable net assets acquired		23,127,156,816
Goodwill	₩	104,298,110,381

(e) Details of net cash inflows as a result of business combinations are as follows:

In Korean won

Consideration paid in cash		-
Less: acquisition of cash and cash equivalents		127,773,954,157
Total after deduction	₩	(127,773,954,157)

(f) The income and net loss of KADOC Ltd. after the acquisition date included in the consolidated statement of comprehensive loss for the year ended December 31, 2020 are ₩110,687 million and ₩9,324 million, respectively. Assuming that KADOC Ltd. were acquired as of January 1, 2020, the Group's net loss and net loss before income tax would have been ₩2,003,085 million and ₩2,324,178 million, respectively.

49. Contingencies and Commitments

Details of the Group's significant pending litigations as of December 31, 2020, are as follows:

(In Korean won)

Plaintiff	Defendant	Description [1]	Amount	Status
SK Engineering & Construction Co., Ltd. and POSCO Engineering & Construction Co., Ltd.	The Company	Claiming adjustment of contracted amount due to design change and extension of construction period and additional construction charge thereto.(1st claim)	₩ 6,413,302,000	In first trial
SK Engineering & Construction Co., Ltd. and POSCO Engineering & Construction Co., Ltd.	The Company	Claiming adjustment of contracted amount due to design change and extension of construction period and additional construction charge thereto.(2nd claim)	₩ 12,577,605,543	In first trial
SK Engineering & Construction Co., Ltd	The Company	Claiming construction costs, overhead and stone pipe construction cost which is equivalent to late compensation imposed by the Company	₩ 2,948,403,700	In first trial
AAA company and Dr. Owolabi[2]	The Company	Claims for damages equivalent to brokerage fees, claims for contribution to acquisition of a mining site	₩ 108,800,000,000	In first trial
The Company[3]	GS Energy Corporation	Claiming for refund of the difference in payment amount, arising from the settlement in USD for the share purchase claim that the Company should have settled in Korean won.	₩ 23,666,811,750	In arbitration

[1] As of December 31, 2020, in addition to the above lawsuits, 3 lawsuits have been filed against the Group, with the total litigation value of ₩ 1,885 million, and 8 cases were filed by the Group, with the total litigation value of ₩ 6,408 million.

[2] Dr. Owolabi and others are engaged in a lawsuit demanding that the Company pay for the cooperation to acquire Nigerian mining rights. The Group currently believes that it has no obligations and as of December 31, 2020, it has not recognized any provisions for these litigations.

[3] As a result of this litigation case, there is a possibility that the cost of investment stocks in relation to KOREA GS E&P Pte. will flutuate (Note 15).

In relation to the East Coast oil leakage accident that occurred in 2020, the Company's calculation for the damage to nearby fishermen and residents is underway. The expected amount of damage is not reasonably estimable, and it is unclear whether the Company would be liable for indemnification, and accordingly, the provisions were not recognized.

The Company has provided loan guarantees to non-related parties as of December 31, 2020 and 2019, as follows:

(In US dollar)

Description of guarantee	Guaranteed Party	Guarantee period	2020	2019
Payment guarantees for Parallel business	Samsung C&T Corporation and others	Until loans are fully repaid	$ 8,458,987 23,780,000	$ 7,881,987 23,780,000
Payment guarantees for Korea GS E&P	GS Energy	2021.07.06	34,200,000	-

49. Contingencies and Commitments (cont'd)

As of December 31, 2020, the payment guarantees provided by the Company to others are as follows:

(in thousands of US dollar, millions of Korean won)

Details of contract [1]	Financial institutions	Credit line	Current Balance
Trade finance	BNP Paribas[2]	$ 200,000	$ -
	Development Bank of Singapore [2]	240,000	-
	Bank of America [2]	190,000	-
	ING Bank [2]	100,000	-
	Standard Chartered Bank [2]	150,000	-
	Credit Agricole[2]	100,000	-
	Shinhan Bank	100,000	-
	The Export-Import Bank of Korea	200,000	-
		$ 1,280,000	$ -
Credit line	BNP Paribas	$ 200,000	$ -
	BNP Paribas[2]	200,000	-
	Development Bank of Singapore [2]	240,000	-
	Mizuho Corporate Bank	100,000	-
	Bank of America [2]	190,000	-
	ING Bank [2]	100,000	-
	Credit Agricole[2]	100,000	-
	Standard Chartered Bank [2]	150,000	-
		$ 1,280,000	$ -
Bank overdraft	Woori Bank	₩ 10,000	₩ -

[1] The above arrangement does not include an arrangement on the basis that the Company successfully complete oil exploration.
[2] A portion of or all of lines of credit for trade finance and financial loans have been integrated

As of December 31, 2020, the Group has received a repayment guarantee of ₩ 2,025 million from Seoul Guarantee Insurance Company for the repayment of 13 lease deposits provided in connection with the lease contract.

Regarding the investment agreement for Korea Energy Terminal, on November 13, 2019, the Company signed a Joint Venture Agreement with SK Gas Co., Ltd. and MOL Chemical Tanker to promote the Ulsan North Port project. According to this agreement, the total investment cost is expected to be ₩ 616,005 million, and for the amounts that are not financed through external borrowings, each participant promised to invest in the amounts equivalent to the participant's share.

49. Contingencies and Commitments (cont'd)

As of December 31, 2020, other significant contingencies and commitments related to the Company's subsidiaries are as follows:

(i) Dana Petroleum Limited ("Dana") and its subsidiaries

The Company provided a performance guarantee of GBP 127 million to Nexen and others for the expenses that will incur for restoration of the sites, decommissioning, dismantling and removal of the facilities and structures.

In connection with the acquisition of Dana Petroleum Limited, the Company guaranteed compensation to the Norwegian government for possible environmental and human damage during the exploration and production activities of its subsidiary Dana Petroleum Norway AS.

(ii) Harvest Operations Corp. and its subsidiaries

Guarantees provided by the Company for Harvest Operations Corp. as of December 31, 2020 are as follows:

In foreign currencies

Beneficiary	Description	Amount	Maturity
Harvest Operations Corp.	Guarantees for borrowing from banks	CAD 500,000,000	2021.02.24
Harvest Operations Corp.	Guarantees for borrowing from banks	CAD 500,000,000	2022.07.29
Harvest Operations Corp.	Guarantees for issuing of bonds	USD 195,770,000	2021.04.14
Harvest Operations Corp.	Guarantees for issuing of bonds	USD 285,000,000	2022.09.21
Harvest Operations Corp.	Guarantees for issuing of bonds	USD 200,000,000	2022.09.21
Harvest Operations Corp.	Guarantees for borrowing from banks	CAD 300,000,000	2023.05.11
Harvest Operations Corp.	Guarantees for issuing of bonds	USD 397,500,000	2023.06.01
Harvest Operations Corp.	Guarantees for borrowing from banks	CAD 150,000,000	2021.04.01
Harvest Operations Corp.	Guarantees for borrowing from banks	CAD 90,000,000	2021.08.25

(iii) ANKOR E&P Holdings Corp. ("ANKOR") and its subsidiaries

The Company provided a guarantee of $ 121 million to Chubb Limited and others for the future restoration of oil and gas sites held by ANKOR.

(iv) KNOC Yemen Ltd.

The Company is discussing business acquisition with local acquirer YICOM regarding the withdrawal of business of its subsidiary, KNOC Yemen Ltd. Depending on the acquisition agreement, there may be settlements to be paid or received between the Company and YICOM, but the amounts are not reasonably estimable.

49. Contingencies and Commitments (cont'd)

(v) KNOC Eagle Ford and its subsidiaries

KNOC EF Star LLC, an associate of KNOC Eagle Ford Corporation, has entered into a contract to acquire redeemable preferred stocks with JB Patriot Private Equity Fund, and the Company has entered into a funding agreement with KNOC Eagle Ford Corporation regarding the aforementioned contract. In case of breach of the contract between the Company and JB Patriot Private Equity Fund, the latter may exercise a drag along right to require the KNOC Eagle Ford Corporation to sell the entire common shares held by KNOC Eagle Ford Corporation together with the preferred shares.

Details of agreements with financial institutions of KNOC Eagle Ford and its subsidiaries are as follows:

(in US dollar)

Agreement	Financial Institution	Credit line amount	Executed amount
Credit line	Bank of America	$ 25,000,000	$ -
	Sumitomo Mitsui Banking Corporation	70,000,000	-
	Societe Generale Bank	30,000,000	-
		$ 125,000,000	$ -

50. Events after the Reporting Period that do not require adjustments

In January 2021, the Company sold equity securities of Offshore International Group, a joint venture, classified as assets held for sale as of December 31, 2020. This agreement includes an arrangement of which the buyer of equity securities reimburses the Company in case of a refund in connection with a tax dispute that was incurred prior to the sale of Offshore International Group.

51. Changes in Accounting Policies

The Group changed the accounting policy for subsequent measurement method of land classified as property, plant and equipment from cost model to revaluation model for the year ended December 31, 2020. The financial implications of the change in accounting policy are as follows:

(In Korean won)	Cost model	Fair value	Net difference	Deferred tax liabilities
Land	₩ 453,846,274,657	₩ 1,047,517,159,605	₩ 488,074,895,652	₩ 155,823,383,572

As a result, the carrying amount of land increased by ₩ 646,112 million (revaluation gain of ₩ 489,753 million, net of tax effect), which was recognized in other comprehensive income. The decrease in the carrying amount of land by ₩ 2,213 million was reflected in other non-operating expenses. The change in accounting policy has

51. Changes in Acoounting Policies (cont'd)

been applied prospectively from the start of 2020 in accordance with the KIFRS 1008 *Accounting Policies, Changes in Accounting Estimates and Errors.*

52. Date of Authorization of Issue

The consolidated financial statements were approved for issue by the Board of Directors on February 26, 2021.

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