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 Citigroup Global Markets Inc., Crédit Agricole Corporate and Investment Bank, The Hongkong and Shanghai Banking Corporation Limited, J.P. Morgan Securities plc, Merrill Lynch International 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 HYDRO & NUCLEAR POWER CO., LTD.

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

Issue of US$500,000,000 1.25% Notes due 2026
under the US$5,000,000,000
Global Medium Term Note Program

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

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

Joint Bookrunners and Joint Lead Managers

BofA Merrill Lynch	**Citigroup**	**Crédit Agricole CIB**
HSBC	**J.P. Morgan**	**UBS**

The date of this Pricing Supplement is April 20, 2021

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

UK MiFIR PRODUCT GOVERNANCE – Solely for the purposes of each UK MiFIR manufacturer's product approval process, the target market assessment in respect of the Notes has led to the conclusion that: (i) the target market for the Notes is eligible counterparties, as defined in the FCA Handbook Conduct of Business Sourcebook ("COBS") and professional clients, as defined in Regulation (EU) No 600/2014 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018 ("UK MiFIR"); and (ii) all channels for distribution of the Notes to eligible counterparties and professional clients are appropriate. Any person subsequently offering, selling or recommending the Notes (a "UK MiFIR distributor") should take into consideration each UK MiFIR manufacturer's target market assessment; however 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.

The Notes have not been registered with the Financial Services Commission of Korea under the Financial Investment Services and Capital Markets Act of Korea. Accordingly, the Notes may not be offered delivered, or sold directly or indirectly in the Republic of Korea ("Korea") or to any resident of Korea (as defined in the Foreign Exchange Transaction Act of Korea and the rules and regulations promulgated thereunder) or to others for reoffering or resale directly or indirectly in Korea or to any resident of Korea except as otherwise permitted under applicable Korean laws and regulations. Further, during the first year after the issuance of the Notes, the Notes may not be offered, sold or delivered, directly or indirectly, in Korea or to, or for the account or benefit of, any resident of Korea (as defined under the Foreign Exchange Transactions Act of Korea and the rules and regulations promulgated thereunder) other than a "qualified institutional buyer" (a "Korean QIB," as defined in the Regulations on Securities Issuance, Public Disclosure, Etc. of Korea) who is registered with the Korea Financial Investment Association as a Korean QIB, provided that the amount of the Notes acquired by such Korean QIBs in the primary market is limited to no more than 20% of the aggregate issue amount of the Notes.

Korea Hydro & Nuclear Power Co., Ltd.

Issue of US$500,000,000 1.25% Notes due 2026
under the US$5,000,000,000
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 Terms and Conditions of the Notes (the "**Conditions**") set forth in the Offering Circular dated April 15, 2021. This Pricing Supplement is supplemental to and must be read in conjunction with such Offering Circular.

1.		Issuer:	Korea Hydro & Nuclear Power Co., Ltd.
2.	(i)	Series Number:	15
	(ii)	Tranche Number:	1
	(iii)	Reopening:	Not Applicable
3.		Specified Currency or Currencies:	United States dollars ("US$")
4.		Aggregate Nominal Amount:	
	(i)	Series:	US$500,000,000
	(ii)	Tranche:	US$500,000,000
5.	(i)	Issue Price of Tranche:	99.388% of the Aggregate Nominal Amount
	(ii)	Net Proceeds (after deducting a combined management and underwriting commission but not estimated expenses):	US$495,815,000
	(iii)	Use of Proceeds:	General corporate purposes
6.	(i)	Specified Denominations:	US$200,000 and integral multiples of US$1,000 in excess thereof
	(ii)	Calculation Amount:	US$1,000
7.	(i)	Issue Date:	April 27, 2021
	(ii)	Interest Commencement Date:	April 27, 2021
8.		Maturity Date:	April 27, 2026
9.		Interest Basis:	1.25% Fixed Rate (further particulars specified below)
10.		Redemption/Payment Basis:	Redemption at par

11.	Change of Interest Basis or Redemption/Payment Basis:	Not Applicable
12.	Put/Call Options:	Not Applicable
13.	Status of the Notes:	Senior, unsecured (as per Condition 3)
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(s) of Interest:	1.25% per annum payable semi-annually in arrears
	(ii) Interest Payment Date(s):	(April 27 and October 27 in each year up to and including the Maturity Date)
	(iii) Fixed Coupon Amount(s):	US$6.25 per Calculation Amount
	(iv) Broken Amount(s):	Not Applicable
	(v) Day Count Fraction:	30/360 (unadjusted)
	(vi) Determination Date(s):	Not Applicable
	(vii) 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:	Not Applicable

GENERAL PROVISIONS APPLICABLE TO THE NOTES

23.	Form of Notes:	Registered Notes
24.	Additional Financial Center(s) or other special provisions relating to Payment Dates:	New York City, London, Seoul
25.	Talons for future Coupons or Receipts to be attached to Definitive Bearer Notes:	Not Applicable
26.	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
27.	Details relating to Installment Notes:	
	(i) Installment Amount(s):	Not Applicable
	(ii) Installment Date(s):	Not Applicable
28.	Redenomination applicable:	Not Applicable
29.	Other terms or special conditions:	Not Applicable

DISTRIBUTION

30.	(i) If syndicated, names of Managers:	Citigroup Global Markets Inc. Crédit Agricole Corporate and Investment Bank The Hongkong and Shanghai Banking Corporation Limited J.P. Morgan Securities plc Merrill Lynch International UBS AG Hong Kong Branch
	(ii) Stabilizing Manager (if any):	Each of the Managers
31.	If non-syndicated, name of relevant Dealer:	Not Applicable

32.	Whether TEFRA D or TEFRA C rules applicable or TEFRA rules not applicable:	Not Applicable
33.	U.S. Selling Restrictions:	Regulation S Category 2 / Rule 144A
34.	Additional selling restrictions:	Not Applicable
35.	Prohibition of Sales to EEA or UK Retail Investors:	Not Applicable

OPERATIONAL INFORMATION

36.	Any clearing system(s) other than Euroclear and Clearstream and the relevant identification number(s):	The Depository Trust Company
37.	Delivery:	Delivery free of payment
38.	In the case of Registered Notes, specify the location of the office of the Registrar if other than New York:	Citigroup Global Markets Europe AG, Reuterweg 16, 60323 Frankfurt, Germany
39.	Additional Paying Agent(s) (if any):	None

ISIN:	Rule 144A Notes:	US50064YAP88
	Regulation S Notes:	USY4899GEG48
CUSIP:	Rule 144A Notes:	50064Y AP8
	Regulation S Notes:	Y4899G EG4

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

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

LISTING APPLICATION

Application will be made to the SGX-ST for the listing and quotation of the Notes. The SGX-ST assumes no responsibility for the correctness of any of the statements made, opinions expressed or reports contained in this Pricing Supplement. Approval in-principle from, admission to the Official List of, and the listing and quotation of the Notes on, the SGX-ST are not to be taken as an indication of the merits of the Issuer, the Program or the Notes.

This Pricing Supplement comprises the details required to list the issue of Notes described herein pursuant to the listing of the US$5,000,000,000 Global Medium Term Note Program of Korea Hydro & Nuclear Power Co., Ltd.

RESPONSIBILITY

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

OFFERING CIRCULAR **CONFIDENTIAL**

US$5,000,000,000
KOREA HYDRO & NUCLEAR POWER CO., LTD.

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

Global Medium Term Note Program

This offering circular (the "**Offering Circular**") replaces and supersedes in its entirety the previous offering circular dated July 12, 2018 describing the US$5,000,000,000 Global Medium Term Note Program (the "**Program**", as amended, supplemented or restated) of Korea Hydro & Nuclear Power Co., Ltd. (the "**Issuer**" or the "**Company**"). Any Notes (as defined below) issued under the Program on or after the date of this Offering Circular are issued subject to the provisions described herein. Under the Program, the Company may from time to time issue notes (the "**Notes**") denominated in any currency agreed between the Issuer and the relevant Dealer (as defined below).

The Notes 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 US$5,000,000,000 (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*" 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 "**SGX-ST**") in connection with the Program and application will be made for the listing and quotation of Notes that may be issued under the Program, which Notes are agreed, at or prior to the time of issue thereof, to be so listed on the SGX-ST. Such permission will be granted when such Notes have been admitted for listing and quotation on the SGX-ST. The SGX-ST assumes no responsibility for the correctness of any of the statements made, opinions expressed or reports contained in this Offering Circular. Approval in-principle from, admission to the Official List of, and the listing and quotation of any Notes on, the SGX-ST are not to be taken as an indication of the merits of the Issuer, the Program or the Notes.

Notice of the aggregate nominal amount of Notes, interest (if any) payable in respect of Notes, the issue price of Notes and any other terms and conditions not contained herein which are applicable to each Tranche (as defined under "*Terms and Conditions of the Notes*") of Notes will be set out in a pricing supplement (the "**Pricing Supplement**") which, with respect to Notes to be listed on the SGX-ST, will be submitted to the SGX-ST before the date of listing of the Notes of such Tranche.

The Program provides that Notes may be listed 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.

Investing in the Notes involves certain risks that are described in the "*Risk Factors*" section beginning on page 70 of this Offering Circular.

The Notes of each Series will be in either bearer form, with or without interest coupons attached, or registered form, without interest coupons attached. Bearer Notes will be issued only outside the United States to non-U.S. persons in reliance on the exemption from registration provided by Regulation S under the U.S. Securities Act of 1933, as amended (the "**Securities Act**") and Registered Notes may be issued both outside the United States to non-U.S. persons in reliance on the exemption from registration provided by Regulation S and within the United States or to U.S. persons in private transactions (i) to "qualified institutional buyers" within the meaning of Rule 144A under the Securities Act ("**QIBs**") or (ii) to "accredited investors" (as defined in Rule 501(a)(1), (2), (3) or (7) under the Securities Act) that are institutions ("**Institutional Accredited Investors**") who agree to purchase the Notes for their own account and not with a view to the distribution thereof. Bearer Notes are subject to U.S. tax law requirements. Subject to certain exceptions, the Notes may not be offered or sold, or in the case of Bearer Notes delivered, in the United States or its possessions or to, or for the benefit of, U.S. persons (as defined in Regulation S under the Securities Act or, in the case of Bearer Notes, the U.S. Internal Revenue Code of 1986, as amended (the "**Code**")). See "*Form of the Notes*" for more description of the manner in which Notes will be issued. Notes are subject to certain restrictions on transfer. See "*Subscription and Sale and Transfer and Selling Restrictions*."

The Issuer 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 SGX-ST) a supplementary Offering Circular, if appropriate, will be submitted to the SGX-ST and made available which will describe the effect of the agreement reached in relation to such Notes.

Arranger

Citigroup

Dealers

BofA Merrill Lynch	**BNP PARIBAS**
Citigroup	**Crédit Agricole CIB**
HSBC	**J.P. Morgan**
Standard Chartered Bank	**UBS**

The date of this Offering Circular is April 15, 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 issue and offering of Notes, that the information contained or incorporated by reference 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 whose omission 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 in this Offering Circular misleading in any material respect. The Issuer accepts responsibility accordingly.

This Offering Circular is to be read in conjunction with all documents which are deemed to be incorporated herein by reference. See "*Documents Incorporated by Reference*." This Offering Circular should be read and construed on the basis that such documents are incorporated in and form part of this Offering Circular.

This Offering Circular is based on information provided by the Issuer and by other sources that the Issuer believes are reasonable. No representation, warranty or undertaking, express or implied, is made and no responsibility or liability is accepted by the Dealers as to the authenticity, origin, validity, accuracy or completeness of the information contained or incorporated by reference in this Offering Circular or any supplement hereto or any other information provided by the Issuer in connection with the Program or any other statement, made or purported to be made by any Dealer or on its behalf in connection with the Issuer, the Program or the issue and offering of the Notes. To the fullest extent permitted by law, no Dealer accepts any liability (and accordingly disclaims all liability whether arising in tort or contract or otherwise) in relation to the information contained or incorporated by reference in this Offering Circular, or any other information provided by the Issuer in connection with the Program or any other statement, made or purported to be made by any Dealer or on its behalf in connection with the Issuer, the Program or the issue and offering of the Notes. Each Dealer and its affiliates accordingly disclaims 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.

No person is or has been authorized by the Issuer to give any information or to make any representation which is not contained in or which is not consistent with this Offering Circular or any other information supplied by or on behalf of the Issuer 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 (i) is intended to provide the basis of any credit, taxation or other evaluation or (ii) should be considered as a recommendation or to constitute an invitation or offer by the Issuer or any of the Dealers to any of its recipient to 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 the most recently published documents incorporated by reference in this Offering Circular when deciding whether or not to purchase any Notes.

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 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 Code and the regulations promulgated thereunder.

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 Notes may be restricted by law in certain jurisdictions. Neither the Issuer nor any of the Dealers 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 which 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 come must inform themselves about, and observe, any such restrictions on the distribution of this Offering Circular and the offering and sale of Notes. In particular, there are restrictions on the distribution of this Offering Circular and the offer or sale of Notes in the United States, the European Economic Area (the "EEA"), the United Kingdom (the "UK"), Japan, Korea, Singapore and Hong Kong. See "*Subscription and Sale and Transfer and Selling Restrictions*."

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

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

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

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

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

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

IMPORTANT – UK RETAIL INVESTORS – If the final terms (or the Pricing Supplement, as the case may be) in respect of any Series of Notes includes a legend entitled "Prohibition of Sales to UK Retail Investors," the Notes of any such Series are not intended to be offered, sold or otherwise made available to and should not be offered, sold or otherwise made available to any retail investor in the UK. For these purposes: (a) the expression "retail investor" means a person who is one (or more) of the following: (i) a retail client as defined in point (8) of Article 2 of Regulation (EU) No 2017/565 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018 ("EUWA"); (ii) a customer within the meaning of the provisions of the Financial Services and Markets Act ("FSMA") and any rules or regulations made under the FSMA to implement Directive (EU) 2016/97, where that customer would not qualify as a professional client, as defined in point (8) of Article 2(1) of Regulation (EU) No 600/2014 as it forms part of domestic law by virtue of the

EUWA; or (iii) not a qualified investor as defined in Article 2 of the Prospectus Regulation as it forms part of domestic law by virtue of the EUWA; and (b) the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes. Consequently, no key information document required by the PRIIPs Regulation as it forms part of domestic law by virtue of the EUWA (the "UK PRIIPs Regulation") for offering or selling the Notes or otherwise making them available to retail investors in the UK has been prepared and therefore, offering or selling the Notes or otherwise making them available to any retail investor in the UK may be unlawful under the UK PRIIPs Regulation.

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

In making an investment decision, investors must rely on their own examination of the 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 U.S. Securities and Exchange Commission or any other securities commission or other regulatory authority in the United States, nor have the foregoing authorities approved this Offering Circular or confirmed the accuracy or determined the adequacy of the information contained in this Offering Circular. Any representation to the contrary is unlawful.

None of the Dealers or the Issuer makes any representation to any investor in the Notes regarding the legality of its investment under any applicable laws. Any investor in the Notes 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 may be offered and sold outside the United States to non-U.S. persons pursuant to Regulation S under the Securities Act ("**Regulation S**"). 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 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 Definitive IAI Registered Notes (as defined under "*Form of the Notes*") will be required to execute and deliver an IAI Investment Letter (as defined under "*Terms and Conditions of the Notes*"). Each purchaser or holder of Definitive IAI Registered Notes, Notes represented by a Rule 144A Global Note 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*."

The distribution of this Offering Circular and the offer, sale or delivery of Notes may be restricted by law in certain jurisdictions. Persons into whose possession this Offering Circular or any Notes come must inform themselves about, and observe, any such restrictions. The Notes have not been and will not be registered under the Securities Act, and may include Notes that are in bearer form that are subject to U.S. tax law requirements and limitations. Subject to certain exceptions, the Notes may not be offered, sold or delivered within the United States or to U.S. persons. For a description of certain restrictions on offers and sales of Notes and on distribution of this Offering Circular, see "*Subscription and Sale and Transfer and Selling Restrictions*."

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).

CERTAIN DEFINED TERMS AND CONVENTIONS

The Issuer has prepared this Offering Circular using a number of conventions that should be considered when reading the information contained in this Offering Circular. References to the "**Company**", "**KHNP**" or the "**Issuer**" are to Korea Hydro & Nuclear Power Co., Ltd. References to "we", "us", "our" and "ourselves" are to our Company and where the context requires, our Company and our subsidiaries.

References herein to "**Korea**" are to the Republic of Korea, and references to the "**Government**" or "**government**" are to the Government of Korea. The Issuer's consolidated financial statements as of and for the years ended December 31, 2015, 2016 and 2017 have been prepared in accordance with the Korean International Financial Reporting Standards ("**K-IFRS**"). The Issuer's condensed consolidated interim financial statements as of March 31, 2018 and for the three months ended March 31, 2017 and 2018 have been prepared in accordance with K-IFRS No. 1034 'Interim Financial Reporting'.

All references in this Offering Circular to "**U.S. dollars**", "**dollars**", "**US$**" and "**$**" refer to the currency of the United States of America, all references to "**Won**" and "**₩**" refer to the currency of Korea, all references to "**Yen**" and "**¥**" refer to the currency of Japan, all references to "**C$**" refer to the currency of Canada and all references to "**€**", "**Euro**" and "**euro**" refer to the currency introduced at the start of the third stage of European economic and monetary union pursuant to the Treaty establishing the European Community, as amended. All references in this Offering Circular to "**KW**" refer to kilowatt, "**MW**" to megawatt, "**GW**" to gigawatt and "**kWh**" to kilowatt hour.

Any discrepancies in any table between totals and sums of the amounts listed are due to rounding. The Company maintains its accounts in Won. Unless otherwise indicated, all translations from Won to U.S. dollars herein indicated as of or for the year ended December 31, 2020 were made at the rate of Won 1,088.0 to US$1.00, the exchange rate based on the basic rate under the market average exchange rate system, provided by Seoul Money Brokerage Services, Ltd. between Won and U.S. dollars (the "**Market Average Exchange Rate**") and in effect on December 31, 2020. These translations were made solely for the convenience of the reader. No representation is made that the Won or U.S. dollar amounts referred to herein could have been or could be converted into U.S. dollars or Won, as the case may be, at any particular rate or at all. See "*Exchange Rates*."

FORWARD-LOOKING STATEMENTS

Certain statements in this Offering Circular constitute “forward-looking statements”, including statements regarding the Issuer’s expectations and projections for future operating performance and business prospects. The words “believe”, “expect”, “anticipate”, “estimate”, “project”, “will”, “aim”, “will likely result”, “will continue”, “intend”, “plan”, “contemplate”, “seek to”, “future”, “objective”, “goal”, “should”, “will pursue” and similar expressions or variations of these expressions identify forward-looking statements. In addition, all statements other than statements of historical facts included in this Offering Circular, including, without limitation, those regarding the Issuer’s financial position and results, business strategy, plans and objectives of management for future operations, including development plans and objectives relating to the Issuer’s products and services, are forward-looking statements. Such forward-looking statements and any other projections contained in this Offering Circular (whether made by the Issuer or any third party) involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements to be materially different from the future results, performance or achievements expressed or implied by forward-looking statements. Such forward-looking statements are based on current beliefs, assumptions, expectations, estimates and projections regarding the Issuer’s present and future business strategies and the environment in which the Issuer will operate in the future. Among the important factors that could cause some or all of those assumptions not to occur or cause the Issuer’s actual results, performance or achievements to differ materially from those in the forward-looking statements include, among other things, the Issuer’s ability to successfully implement its business strategy and its safety policies, the condition of and changes in the Korean, Asian or global economies, the Issuer’s growth and expansion, including whether the Issuer succeeds in its capital investment program to increase its installed capacity, changes in interest rates and changes in government regulation and licensing of its businesses in Korea and in other jurisdictions where the Issuer may operate, and the change in the price of electricity sold by the Issuer. Additional factors that could cause the Issuer’s actual results, performance or achievements to differ materially include, but are not limited to, those discussed under “*Risk Factors*.” Any forward-looking statements contained in this Offering Circular speak only as of the date of this Offering Circular. Each of the Issuer and the Dealers expressly disclaims any obligation or undertaking to release, publicly or otherwise, any updates or revisions to any forward-looking statement contained herein to reflect any change in the Issuer’s expectations with regard thereto or any change in events, conditions, assumptions or circumstances on which any such statement was based.

ENFORCEMENT OF CIVIL LIABILITIES

The Issuer is a corporation organized under the laws of Korea. All of the officers and directors named herein reside outside the United States and all or a substantial portion of the assets of the Issuer and its officers and directors are located outside the United States. As a result, it may not be possible for investors to effect service of process outside Korea upon the Issuer or such persons, or to enforce judgments against them obtained in courts outside Korea predicated upon civil liabilities of the Issuer or its directors and officers under laws other than Korean law, including any judgment predicated upon United States federal securities laws. The Issuer has been advised by Lee & Ko, its counsel, that as a matter of Korean law there would be certain conditions to be met under Korean law regarding the enforceability in Korea, either in original actions or in actions for the enforcement of U.S.-court judgments, of civil liabilities based on the U.S. federal securities laws.

DOCUMENTS INCORPORATED BY REFERENCE

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

(a) the publicly available audited consolidated annual financial statements and the interim consolidated financial statements (if any) of the Issuer for the most recent financial period; see "*General Information*" for a description of the financial statements currently regularly published by the Issuer; and

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

except 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 registered offices set out at the end of this Offering Circular.

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

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 the Program Agreement to furnish, upon the request of a holder of such Notes or any beneficial interest therein, to such holder or to a prospective purchaser designated by him or her, 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 Section 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.

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 upon 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, 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 which, when added to the aggregate nominal amount then outstanding of all Notes previously or simultaneously issued under the Program, does not exceed US$5,000,000,000 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 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 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 Notes, described under "*Form of the Notes*") and other Notes issued at a discount or premium shall be calculated in the manner specified above by reference to the net proceeds received by the Issuer for the relevant issue.

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In connection with the issue of any Tranche of Notes, the Dealer or Dealers (if any) named as the Stabilizing Manager(s) (or persons acting on behalf of any Stabilizing Manager(s)) in the applicable Pricing Supplement may over-allot Notes or effect transactions with a view to supporting the market price of the Notes at a level higher than that which might otherwise prevail. However, there is no assurance that the Stabilizing Manager(s) (or persons acting on behalf of a Stabilizing Manager) will undertake stabilization action. Any stabilization action may begin on or after the date on which adequate public disclosure of the terms of the offer of the relevant Tranche of Notes is made and, if begun, may be ended at any time, but it must end (unless otherwise indicated in the applicable Pricing Supplement) no later than the earlier of 30 days after the issue date of the relevant Tranche of Notes and 60 days after the date of the allotment of the relevant Tranche of Notes. Any stabilization action or over-allotment must be conducted by the relevant Stabilizing Manager(s) (or person(s) acting on behalf of any Stabilizing Manager(s)) in accordance with all applicable laws and rules.

SUMMARY

We were established on April 2, 2001 as a result of a corporate split from KEPCO, pursuant to which KEPCO transferred all of its nuclear and hydroelectric power generation assets and related liabilities to us in accordance with the Act on the Promotion of Restructuring the Electric Power Industry and the Restructuring Plan for the electricity industry in Korea announced by the Ministry of Trade, Industry and Energy (the "MOTIE"). See "*The Korean Electricity Industry – Restructuring of the Electricity Industry in Korea.*" Pursuant to Article 2 of our Articles of Association, we engage in nuclear and hydroelectric power generation and sell all of our generated electricity to KEPCO through the KPX in accordance with Article 31 of the Electricity Business Act of Korea. We are wholly owned by KEPCO and are the only nuclear power generation company in Korea.

Our vision is to become a trusted leader in the global energy industry. Our key strategic priorities are in the following three areas: enhanced safety for our nuclear operations, incremental and selective expansion of overseas businesses and creation of new business opportunities based on technological development. We maintain a "safety first, corruption free" principle for all our operating systems and comprehensively improve our business through technological innovation. We plan to continue to focus on winning mandates for engineering, procurement and construction ("EPC") projects as well as explore opportunities to expand into the "build, operate and own" business. We also strive to explore new business areas, such as decommissioning and renewable energy optimization, with a view of exporting such services in the future.

As of December 31, 2020, we owned and operated 24 nuclear power generation units with aggregate installed capacities of 23,250 MW, 53 hydroelectric power generation units (which includes pumped-storage hydro power generation units) with aggregate installed capacities of 5,307 MW, 28 solar generation units with aggregate installed capacities of 43 MW and one wind power generation unit with installed capacity of 1 MW. All of our nuclear power plants supply base load power, and hydroelectric power plants supply electricity during peak hours.

Nuclear power is one of the largest electricity supply sources in Korea. As of December 31, 2020, we owned approximately 22.1% of the total electricity generation capacity in Korea (excluding plants generating electricity primarily for private or emergency use). In 2019 and 2020, we sold 142,949 GW hours and 156,726 GW hours of electricity, respectively, to KEPCO. Nuclear power, all of which is generated by us, accounted for 26.2% and 29.6% of total electricity sold in Korea in 2019 and 2020, respectively, in terms of sales volume. In 2019 and 2020, nuclear power generation accounted for 97.1% and 97.3%, respectively, of the electricity generated by us.

In 2018, 2019 and 2020, our sales were Won 8,955 billion, Won 8,983 billion and Won 10,000 billion, respectively. We recorded loss of Won 102 billion in 2018, profit of Won 247 billion in 2019 and profit of Won 618 billion in 2020. As of December 31, 2020, our total assets amounted to Won 62,284 billion.

We are a corporation of unlimited duration incorporated with limited liability under the laws of Korea. Our registered office is located at 1655 Bulguk-ro, Munmudaewang-myeon, Gyeongju-si, Gyeongsangbuk-do 38120, Republic of Korea. Our corporate registration number in the commercial registry office in Korea is 120-86-18943.

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. Capitalized terms 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 Hydro & Nuclear Power Co., Ltd. (Legal Entity Identifier: 9884008CRY5MLCN8OQ43)
Description	Global Medium Term Note Program
Arranger	Citigroup Global Markets Inc.
Dealers	BNP Paribas, Citigroup Global Markets Inc., Crédit Agricole Corporate and Investment Bank, The Hongkong and Shanghai Banking Corporation Limited, J.P. Morgan Securities plc, Merrill Lynch International, 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 United Kingdom, 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*."
Fiscal Agent	Citicorp International Limited
Principal Paying Agent	Citibank, N.A., London Branch
Registrar	Citigroup Global Markets Europe AG

Program Size	Up to US$5,000,000,000 (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 Euro (to the extent permitted under the applicable Korean laws and regulations). The relevant provisions applicable to any such redenomination are contained in Condition 5 (Redenomination).
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	The 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 bearer or registered form as described in "Form of the Notes." Registered Notes will not be exchangeable for Bearer Notes and vice versa.
Fixed Rate Notes	Fixed Rate Notes will bear fixed interest 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 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 the Notes of the relevant Series); or ii. on the basis of a reference rate appearing on the agreed screen page of a commercial quotation service; or iii. on such other basis as may be agreed between the Issuer and the relevant Dealer. The margin (if any) relating to such floating rate will be agreed between the Issuer and the relevant Dealer for each Series of Floating Rate Notes.
Index Linked Notes	Payments of interest in respect of Index Linked Interest Notes will be calculated by reference to such index and/or formula or to changes in the prices of securities or commodities or to such other factors as the Issuer 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.

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) or that such Notes will be redeemable at the option of the Issuer and/or the Noteholders upon giving notice to the Noteholders or the Issuer, 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 set forth in the applicable Pricing Supplement. The applicable Pricing Supplement may provide that Notes may be redeemable in two or more installments of such amounts and on such dates as are indicated in the applicable Pricing Supplement.
Denomination of Notes	Notes will be issued in such denominations as may be agreed between the Issuer and the relevant Dealer except that the minimum denomination of each Note will be such as may be allowed or required from time to time by the 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 (as defined under "*Terms and Conditions of the Notes*") will be US$500,000 or its approximate equivalent in other Specified Currencies.
Withholding Taxes	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 Condition 10 (Taxation)), subject to exceptions as provided in Condition 10 (Taxation). In the event that any such deduction is made, the Issuer will, except in certain limited circumstances provided in Condition 10 (Taxation), be required to pay additional amounts to cover the amounts so deducted.
Certain Covenants	The terms of the Notes will contain limitations on liens, and sale and leaseback transactions, consolidation, merger and sale of assets and certain other covenants, as further described in Condition 4 (Certain Covenants).
Cross Acceleration	The terms of the Notes will contain a cross acceleration provision as further described in Condition 12 (Events of Default).

Status of the Notes	The Notes will constitute direct, unconditional, unsubordinated and, subject to the provisions of Condition 4 (Certain Covenants), unsecured obligations of the Issuer and will rank *pari passu* among themselves and (except for certain obligations required to be preferred by law) equally with all other unsecured obligations (other than subordinated obligations, if any) of the Issuer, from time to time outstanding.
Listing	Approval in-principle has been received from the SGX-ST in connection with the Program and application will be made for the listing and quotation of Notes that may be issued under the Program, which Notes are agreed, at or prior to the time of issue thereof, to be so listed on the SGX-ST. Such permission will be granted when such Notes have been admitted for listing and quotation on the SGX-ST. For so long as any Notes are listed on the SGX-ST and the rules of the SGX-ST so require, such Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of S$200,000 (or its equivalent in foreign currencies). 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 or Tranche. Unlisted Notes may also be issued. The applicable Pricing Supplement will state whether or not the relevant Notes are to be listed and, if so, on which stock exchange(s).
Governing Law	The Notes will be governed by, and construed in accordance with the laws of the state of New York.
Selling Restrictions	There are restrictions on the offer, sale and transfer of the Notes in the United States, the EEA, the UK, Korea, Japan, Singapore, Hong Kong 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*." Bearer Notes will be issued in compliance with U.S. Treasury Regulation §1.163-5(c)(2)(i)(D) (the "**D Rules**") unless the relevant Pricing Supplement states that (i) the Notes are issued in compliance with U.S. Treasury Regulation §1.163-5(c)(2)(i)(C) (the "**C Rules**") or (ii) the Notes are issued other than in compliance with the D Rules or the C Rules; Notes with a maturity of 365 days or less (taking into account unilateral extensions and rollovers) will be issued other than in compliance with the D Rules or the C Rules and will be referred to in the relevant Pricing Supplement as a transaction to which the United States Tax Equity and Fiscal Responsibility Act of 1982 ("**TEFRA**") is not applicable.

FORM OF THE NOTES

Certain capitalized terms used herein are defined in the "*Terms and Conditions of the Notes*." Any reference herein to Euroclear and/or Clearstream and/or DTC shall, whenever the context so permits, be deemed to include a reference to any additional or alternative clearing system specified in the applicable Pricing Supplement.

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 in reliance on Regulation S and Registered Notes will be issued both outside the United States in reliance on the exemption from registration provided by Regulation S and within the United States in reliance on Rule 144A or another available exemption from the registration requirements of the Securities Act. Bearer Notes will also be subject to U.S. tax restrictions described below.

BEARER NOTES

Each Tranche of Bearer Notes will be initially issued in the form of either a temporary bearer global note ("**Temporary Bearer Global Note**") or a permanent bearer global note ("**Permanent Bearer Global Note**" and, together with Temporary Bearer Global Note, the "**Bearer Global Notes**") 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**"). Bearer Notes issued under the D Rules will be initially issued in the form of Temporary Bearer Global Note. While any Bearer Note is represented by a Temporary Bearer Global Note, payments of principal, interest (if any) and any other amount payable in respect of the Notes due prior to the Exchange Date (as defined below) will be made against presentation of the Temporary Bearer Global Note only to the extent that certification (in a form annexed to the Agency Agreement) has been received by Euroclear and/or Clearstream and Euroclear and/or Clearstream, as applicable, has given a similar certification (based on the certifications it has received) to the Principal Paying Agent, as required by U.S. Treasury Regulations. Such certification shall state that on the Exchange Date, the Bearer Notes are (i) owned by persons that are not United States persons, (ii) owned by United States persons that (a) are foreign branches of the United States financial institutions (as defined in United States Treasury Regulations Section 1.165-12(c)(1)(iv)) ("**financial institutions**") purchasing for their own account or for resale, or (b) acquire the Bearer Notes through foreign branches of United States financial institutions and that hold the Bearer Notes through such financial institutions through such date (and in either case (a) or (b), each such United States financial institution has agreed, on its own behalf or through its agent, that the Issuer has been advised that such United States financial institutions will comply with the requirements of Section 165(j)(3)(A), (B) or (C) of the Code and the regulations thereunder), or (iii) owned by United States or foreign financial institutions for the purposes of resale during the restricted period (as defined in United States Treasury Regulations Section 1.163-5(c)(2)(i)(D)(7)) and such financial institutions certify that they have not acquired the Bearer Notes for purposes of resale directly or indirectly to a United States person or to a person within the United States or its possessions.

From the date (the "**Exchange Date**") which is 40 days after a Temporary Bearer Global Note is issued, interests in such Temporary Bearer Global Note will be exchangeable (free of charge) by the Noteholder either for (i) interests in a Permanent Bearer Global Note of the same Series or (ii) definitive Bearer Notes of the same Series with, where applicable, receipts, interest coupons and talons attached (as indicated in the applicable Pricing Supplement), in each case against certification of beneficial ownership as described above unless such certification has already been given. Definitive Bearer Notes will only be delivered outside the United States. The holder of an interest in 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 interest in the Temporary Bearer Global Note for an interest in a Permanent Bearer Global Note or for definitive Bearer Notes is improperly withheld or refused.

Payments of principal, interest (if any) or any other amounts on a Permanent Bearer Global Note will be made through Euroclear and/or Clearstream against presentation or surrender (as the case may be) of the Permanent Bearer Global Note without any requirement for certification.

The applicable Pricing Supplement will specify that a Permanent Bearer Global Note will be exchangeable (free of charge), in whole but not in part, for definitive Bearer Notes with, where applicable, receipts, interest coupons and talons attached upon either (i) not less than 60 days' written notice from Euroclear and/or Clearstream (acting on the instructions of any holder of an interest in such Permanent Bearer Global Note) to the Principal Paying Agent as described therein or (ii) only upon the occurrence of an Exchange Event. For these purposes, "**Exchange Event**" means that (i) an Event of Default (as defined in Condition 12 (Events of Default)) has occurred and is continuing, (ii) the Issuer 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 successor 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. For so long as any Notes are listed on the SGX-ST and the rules of the SGX-ST 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, where the 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 or on behalf of the Issuer through the SGX-ST and such announcement will include all material information with respect to the delivery of the definitive Bearer Notes, including details of the Paying Agent in Singapore. 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 which have a maturity of more than 365 days (including unilateral rollovers and extensions) and on all talons, receipts and interest coupons relating to such Notes:

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

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

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

REGISTERED NOTES

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

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

Registered Global Notes will either (i) be deposited with a custodian for, and registered in the name of a nominee of, DTC for the accounts of its participants, including Euroclear and Clearstream or (ii) be deposited with a common depositary for, and registered in the name of a common nominee of, Euroclear and Clearstream, as specified in the applicable Pricing Supplement. Persons holding beneficial interests in Registered Global Notes will be entitled or required, as the case may be, under the circumstances described below, to receive physical delivery of definitive Notes in fully registered form. Unless otherwise stated in the applicable Pricing Supplement, the minimum denomination of each Global Note shall be €100,000 or its approximate equivalent in other Specified Currencies.

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 US$500,000 and integral multiples of US$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 provisions to the contrary, be made to the person shown on the Register (as defined in Condition 8(d) (*Payments – Payments in Respect of Registered Notes*)) 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 8(d) (*Payments – Payments in Respect of Registered Notes*)) immediately preceding the due date for payment in the manner provided in that Condition.

Interests in a Registered Global Note will be exchangeable (free of charge), in whole but not in part, for definitive Registered Notes only upon the occurrence of an Exchange Event. For these purposes, "**Exchange Event**" means that (i) an Event of Default has occurred and is continuing, (ii) in the case of Notes registered in the name of a nominee for DTC, either DTC has notified the Issuer that it is unwilling or unable to continue to act as depository for the Notes and no alternative clearing system is available or DTC has ceased to constitute a clearing agency registered under the Exchange Act, (iii) in the case of Notes registered in the name of a nominee for a common depositary for Euroclear and Clearstream, the Issuer 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 (iv) 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. For so long as any Notes are listed on the SGX-ST and the rules of the SGX-ST so require, in the event that a Registered Global Note is exchanged for definitive Registered Notes, the Issuer will appoint and maintain a Paying Agent in Singapore, where the Notes may be presented or surrendered for payment or redemption. In addition, in the event that a Registered Global Note is exchanged for definitive Registered Notes, an announcement of such exchange shall be made by or on behalf of the Issuer through the SGX-ST and such announcement will include all material information with respect to the delivery of the definitive Registered Notes, including details of the Paying Agent in Singapore. In the event of the occurrence of an Exchange Event, DTC, Euroclear and/or Clearstream (acting on the instructions of any holder of an interest in such Registered Global Note) may give notice to the Registrar requesting exchange and, in the event of the occurrence of an Exchange Event as described in (iv) above, the Issuer may also give notice to the Registrar requesting exchange. Any such exchange shall occur not later than 10 days after the date of receipt of the first relevant notice by the Registrar.

TRANSFER OF INTERESTS

Interests in a Registered Global Note may, subject to compliance with all applicable restrictions, be transferred to a person who wishes to hold such interest in another Registered Global Note or in the form of a Definitive IAI Registered Note 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*."

GENERAL

Pursuant to the Agency Agreement, the Principal Paying Agent or the Registrar, as the case may be, shall arrange that, where a further Tranche of Notes is issued which is intended to form a single Series with an existing Tranche of Notes, the Notes of such further Tranche shall be assigned a Common Code and ISIN and, where applicable, a CUSIP and CINS number which are different from the Common Code, ISIN, CUSIP and CINS assigned to Notes of any other Tranche of the same Series until at least the expiry of the distribution compliance period applicable to the Notes of such Tranche and, for Bearer Notes subject to the certification requirements under U.S. Treasury regulations, until at least the Notes represented by interests in a temporary Global Note are exchanged for Notes represented by an interest in a permanent Global Note or for definitive Bearer Notes; provided that any further Tranche of Notes consisting of Registered Notes shall be issued under a separate Common Code, ISIN, CUSIP or CINS unless the Additional Notes are issued pursuant to a "qualified reopening" of the original series, are otherwise treated as part of the same "issue" of debt instruments as the original series or are issued with no more than a *de minimis* amount of original discount, in each case for U.S. federal income tax purposes.

For so long as any of the Notes is represented by a Global Note held on behalf of Euroclear and/or Clearstream, each person (other than Euroclear or Clearstream) who is for the time being shown in the records of Euroclear or of Clearstream as the holder of a particular nominal amount of such Notes (in which regard any certificate or other document issued by Euroclear or Clearstream as to the nominal amount of such Notes standing to the account of any person shall be conclusive and binding for all purposes except in the case of manifest error) shall be treated by the Issuer and 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 and/or Clearstream and/or DTC shall, whenever the context so permits, be deemed to include a reference to any additional or alternative clearing system specified in the applicable Pricing Supplement.

A Note may be accelerated by the holder thereof in certain circumstances described in Condition 12 (*Events of Default*). In such circumstances, where any Registered Note is still represented by a Global Note and the Global Note (or any part thereof) has become due and repayable in accordance with the Terms and Conditions of such Notes and payment in full of the amount due has not been made in accordance with the provisions of the Global Note, then holders of interests in such Global Note credited to their accounts with DTC may require DTC to deliver Definitive Notes in registered form in exchange for their interest in such Global Note in accordance with DTC's standard operating procedures.

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

Form of Applicable Pricing Supplement

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

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

[UK MiFIR PRODUCT GOVERNANCE – Solely for the purposes of each UK MiFIR manufacturer's product approval process, the target market assessment in respect of the Notes has led to the conclusion that: (i) the target market for the Notes is eligible counterparties, as defined in the FCA Handbook Conduct of Business Sourcebook ("COBS") and professional clients, as defined in Regulation (EU) No 600/2014 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018 ("UK MiFIR"); and (ii) all channels for distribution of the Notes to eligible counterparties and professional clients are appropriate. Any person subsequently offering, selling or recommending the Notes (a "UK MiFIR distributor") should take into consideration each UK MiFIR manufacturer's target market assessment; however 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 Hydro & Nuclear Power Co., Ltd.

Issue of [Aggregate Nominal Amount of Tranche] [Title of Notes]
under the US$5,000,000,000
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 Terms and Conditions of the Notes (the "**Conditions**") set forth in the Offering Circular dated April 15, 2021. This Pricing Supplement is supplemental to and must be read in conjunction with such Offering Circular.

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

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

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

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

1.	Issuer:	Korea Hydro & Nuclear Power Co., Ltd. (Legal Entity Identifier: 9884008CRY5MLCN8OQ43)
2.	(i) Series Number:	[●]
	(ii) Tranche Number:	[●] *(if re-opening fungible with an existing Series, details of that Series, including the date on which the Notes become fungible)*
	(iii) Reopening:	[Yes/No] *[Specify terms of initial or eventual fungibility]*
3.	Specified Currency or Currencies:	[●]
4.	Aggregate Nominal Amount:	
	(i) Series:	[●]
	(ii) Tranche:	[●]
5.	(i) Issue Price of Tranche:	[●] % of the Aggregate Nominal Amount [*plus accrued interest from [insert date] (in the case of fungible re-opening issues only, if applicable)*].
	(ii) Net Proceeds:	[●]
	(iii) Use of Proceeds:	[●]
6.	(i) Specified Denominations: *(in the case of Registered Notes, this means the minimum integral amount in which transfers can be made)*	[●] *(N.B. In the case of Registered Notes, this means the minimum integral amount in which transfers can be made. For Registered Global Notes, consider including language substantially to the following effect (however, appropriate amendments should be made for different currencies) "[€100,000] and integral multiples of [€1,000] in excess thereof")*

			(*N.B. For Bearer Notes with a Specified Denomination and higher integral multiples above the minimum denomination, consider including language substantially to the following effect (however, appropriate amendments should be made for different currencies*): *"[US$200,000] and integral multiples of [US$1,000] in excess thereof, up to and including [US$499,000] and, for so long as the Notes are represented by a Global Note (as defined below) and Euroclear and Clearstream so permit, the Notes shall be tradable only in the minimum authorized denomination of [US$200,000] and higher integral multiples of [US$1,000], notwithstanding that no definitive notes will be issued with a denomination above [US$499,000]."*) [*(in the case of Registered Notes, this means the minimum integral amount in which transfers can be made)*]
	(ii)	Calculation Amount	[●] *(If there is only one Specified Denomination, insert the Specified Denomination. If there is more than one Specified Denomination, insert the highest common factor. N.B. there must be a common factor in the case of two or more Specified Denominations*)
7.	(i)	Issue Date:	[●]
	(ii)	Interest Commencement Date:	[●]
8.		Maturity Date:	[*Fixed rate – specify date/Floating rate – Interest Payment Date falling in or nearest to [specify month and year]*]
9.		Interest Basis:	[% Fixed Rate] [[LIBOR/EURIBOR] +/- % 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 provisions for change of Notes into another Interest Basis or Redemption/Payment Basis*]
12.	Put/Call Options:	[Investor Put] [Issuer Call] [(further particulars specified below)]
13.	Status of the Notes:	Senior
14.	Listing:	[Singapore Exchange Securities Trading Limited/*specify other/None*]
15.	Method of Distribution:	[Syndicated/Non-syndicated]

PROVISIONS RELATING TO INTEREST (IF ANY) PAYABLE

16.	Fixed Rate Note Provisions	[Applicable/Not Applicable] (*If not applicable, delete the remaining subparagraphs of this paragraph*)
	(i) Rate(s) of Interest:	[●] % per annum [payable [annually/semi-annually/quarterly] in arrears] *If payable other than annually, consider amending Condition 6 (Interest)*)
	(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): (*applicable to Notes in definitive form*)	[●] per Calculation Amount
	(iv) Broken Amount(s): (*applicable to Notes in definitive form*)	[●] per Calculation Amount payable on the Interest Payment Date falling [in/on] [Š] *[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. N.B.: This will need to be amended in the case of regular interest payment dates which are not of equal duration. N.B.: Only relevant where Day Count Fraction is Actual/Actual (ICMA)*]
	(vii) Other terms relating to the method of calculating interest for Fixed Rate Notes:	[*None/Give details*]
17.	Floating Rate Note Provisions	[Applicable/Not Applicable] (*If not applicable, delete the remaining subparagraphs of this paragraph*)
	(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 Center(s):	[●] (*Insert New York City for U.S. dollar denominated Notes to be held through DTC and for non-U.S. dollar denominated Notes where exchange into U.S. dollars is contemplated for DTC participants holding through Euroclear and Clearstream*)
	(iv) Manner in which the Rate of Interest and Interest Amount are 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 Agent):	[●]
	• Reference Rate:	[●] (*Either LIBOR, EURIBOR or other, although additional information is required if other – including fallback provisions in the Agency Agreement*)

	• Interest Determination Date(s):	[●] (*Second London business day prior to the start of each Interest Period if LIBOR (other than Sterling or Euro LIBOR), first day of each Interest Period if Sterling LIBOR and the second day on which the TARGET2 System is open prior to the start of each Interest Period if EURIBOR or Euro LIBOR*)
	• Relevant Screen Page:	[●] (*In the case of EURIBOR, if not Reuters Page EURIBOR 01 ensure it is a page which shows a composite rate or amend the fallback provisions appropriately*)
	(vii) ISDA Determination:	
	• Floating Rate Option:	(*if not on the same basis as the floating rate under a notional interest rate swap transaction in the relevant Specified Currency governed by an agreement incorporating the 2006 ISDA Definitions, the Issuer shall describe the basis here*)
	• Designated Maturity:	[●]
	• Reset Date:	[●]
	(viii) Margin(s):	[+/-] [●] % per annum
	(ix) Rate of Interest:	[+/-] [●] % per annum
	(x) Maximum Rate of Interest:	[●] % per annum
	(xi) Day Count Fraction:	[●] [Actual/Actual (ISDA) Actual/Actual Actual/365 Actual/365 (Fixed) Actual/365 (Sterling) Actual/360 30/360 30E/360 30E/360 [ISDA] Other] (*See Condition 6 (Interest) for alternatives*)
18.	Zero Coupon Note Provisions	[Applicable/Not Applicable] (*If not applicable, delete the remaining subparagraphs of this paragraph*)
	(i) Accrual Yield:	% per annum

	(ii) Reference Price:	[●]
	(iii) Any other formula/basis of determining amount payable:	[●]
	(iv) Day Count Faction in relation to Early Redemption Amounts and late payment:	[Conditions 9(e) (Redemption and Purchase – *Early Redemption Amounts*) – (iii) and Condition 9(j) (Redemption and Purchase – *Late Payment on Zero Coupon Notes*)] (*Consider applicable day count fraction if not U.S. dollar denominated*)
19.	Index Linked Interest Note Provisions	[Applicable/Not Applicable] *(If not applicable, delete the remaining subparagraphs of this paragraph*)
	(i) Index/Formula:	[give or annex details]
	(ii) Calculation Agent responsible for calculating the principal and/or 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 Center(s):	[●]
	(vii) Minimum Rate of Interest:	[●] % per annum
	(viii) Maximum Rate of Interest:	[●] % per annum
	(ix) Day Count Fraction:	[●]
20.	Dual Currency Note Provisions	[Applicable/Not Applicable] (*If not applicable, delete the remaining subparagraphs 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]
	(i)	Optional Redemption Date(s):	(If not applicable, delete the remaining subparagraphs of this paragraph)
	(ii)	Optional Redemption Amount of each Note and method, if any, of calculation of such amount(s):	[●]
	(iii)	If redeemable in part:	
		(a) Minimum Redemption Amount:	[●]
		(b) Maximum 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 Agent*)
22.		Investor Put:	[Applicable/Not Applicable] (*If not applicable, delete the remaining subparagraphs 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 Calculation Amount
	(iii)	Notice period (if other than as set out in the Conditions):	[●] (*N.B. If setting notice periods which are different from 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 Agent*)
23.	Final Redemption Amount of each Note:		[●] [per Calculation Amount/specify other]
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 9(e) (*Redemption and Purchase – Early Redemption Amounts*)):		[●]

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]* FN] [Temporary Bearer Global Note exchangeable for Definitive Notes on and after the Exchange Date* FN]

* N.B. – Regard should be given to the specific requirements of the relevant clearing system(s), if any.Ensure that this is consistent with the wording in the "Form of the Notes" section in the Offering Circular and the Notes themselves. The exchange upon notice/at any time options should not be expressed to the applicable if the Specified Denomination of the Notes in paragraph 6 includes language substantially to the following effect: "[US$200,000] and integral multiples of [US$1,000] in excess thereof up to and including [US$499,000]."

Noteholders will not have the right to exchange such Global Notes for Definitive Notes other than upon the occurrence of an Exchange Event.

		[Permanent Bearer Global Note exchangeable for Definitive Notes [on 60 days' notice given at any time/only upon an Exchange Event]* FN]]** FN [Registered Notes:
		Regulation S Global Note (US$[●] nominal amount) registered in the name of a nominee for [DTC/a common depositary for Euroclear and Clearstream]/Rule 144A Global Note (US$[●] 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 Center(s) or other special provisions relating to Payment Dates:	[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; insert New York City for U.S. dollar denominated Notes to be held through DTC*)
27.	Talons for future Coupons or Receipts to be attached to Definitive Bearer Notes:	[Not Applicable/give details]
28.	Details relating to Partly Paid Notes: amount of each payment comprising the Issue Price and date on which each payment is to be made and consequences of failure to pay, including any right of the Issuer to forfeit the Notes and interest due on late payment:	[Not Applicable/*give details. N.B.:*] *[new forms of Global Note may be required for Partly Paid issues*]
29.	Details relating to Installment Notes:	
	(i) Installment Amount(s):	[Not Applicable/give details]
	(ii) Installment Date(s):	[Not Applicable/give details]
30.	Redenomination applicable:	Redenomination [not] applicable [(*If Redenomination is applicable, specify the applicable Day Count Fraction and any provisions necessary to deal with floating rate interest calculation (including alternative reference rates)*)]
31.	Other terms or special conditions:	[Not Applicable/give details]

* N.B. – Regard should be given to the specific requirements of the relevant clearing system(s), if any.Ensure that this is consistent with the wording in the "Form of the Notes" section in the Offering Circular and the Notes themselves. The exchange upon notice/at any time options should not be expressed to the applicable if the Specified Denomination of the Notes in paragraph 6 includes language substantially to the following effect: "[US$200,000] and integral multiples of [US$1,000] in excess thereof up to and including [US$499,000]."

Noteholders will not have the right to exchange such Global Notes for Definitive Notes other than upon the occurrence of an Exchange Event.

** May not be used if TEFRA D applies.

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.		Whether TEFRA D or TEFRA C rules applicable or TEFRA rules not applicable:	[TEFRA D/TEFRA C/TEFRA not applicable (for Bearer Notes with a maturity of one year or less (including unilateral rollovers and extensions) or Registered Notes)]*
35.		U.S. Selling Restrictions:	[Regulation S Category 2]
36.		Additional selling restrictions:	[Not Applicable/*give details*]
37.		Prohibition of Sales to EEA or UK Retail Investors:	[Applicable/Not Applicable]

OPERATIONAL INFORMATION

38.	Any clearing system(s) other than Euroclear and Clearstream and the relevant identification number(s):	[Not Applicable/give name(s) and number(s)]
39.	Delivery:	Delivery [against/free of] payment
40.	In the case of Registered Notes, specify the location of the office of the Registrar if other than New York:	[Not applicable/Frankfurt]
41.	Additional Paying Agent(s) (if any):	[●]

ISIN:	[●]
Common Code:	[●]
CUSIP:	[●]
CINS:	[●]

(insert here any other relevant codes)

* Where TEFRA D is applicable, a Note must be issued in the form of a Temporary Bearer Global Note exchangeable upon U.S. tax certification for a Permanent Bearer Global Note or for Definitive Notes.

[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).]

[*If a private banking rebate is paid, please include the following:* "We have agreed with the [Dealers/Managers] that we will pay a commission to certain private banks in connection with the distribution of the Notes to their clients. This commission will be based on the principal amount of the Notes so distributed, and may be deducted from the purchase price for the Notes payable by such private banks upon settlement."]

[LISTING APPLICATION

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

This Pricing Supplement comprises the details required to list the issue of Notes described herein pursuant to the listing of the US$5,000,000,000 Global Medium Term Note Program of Korea Hydro & Nuclear Power Co., Ltd.

RESPONSIBILITY

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

Signed on behalf of the Issuer:

By: ____________________________

Duly authorized signatory

Name:

Title:

If the applicable Pricing Supplement specifies any modification to the Terms and Conditions of the Notes as described herein, it is envisaged that, to the extent that such modification relates only to Conditions 1 (*Form, Denomination and Title*), 5 (*Redenomination*), 6 (*Interest*), 8 (*Payments*), 9 (*Redemption and Purchase* (except Condition 9(b) (*Redemption and Purchase – Redemption for tax reasons*)), 13 (*Replacement of Notes, Receipts, Coupons and Talons*), 14 (*Agents*), 15 (*Exchange of Talons*), 16 (*Notices*) (insofar as such Notes are not listed or admitted to trade on any stock exchange) or 18 (*Further Issues*), they will not necessitate the preparation of a supplement to this Offering Circular. If the Terms and Conditions of the Notes of any Series are to be modified in any other respect, a supplement to this Offering Circular will be prepared, if appropriate.

TERMS AND CONDITIONS OF THE NOTES

The following are the Terms and Conditions 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 (if any) and agreed to 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. Reference herein to "Condition" shall be to the Terms and Conditions set forth below.

This Note is one of a Series (as defined below) of Notes issued by Korea Hydro & Nuclear Power Co., Ltd. (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:

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

(ii) any Global Note;

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

(iv) 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 an Agency Agreement dated September 30, 2008 (such Agency Agreement as amended and/or supplemented and/or restated from time to time, the "**Agency Agreement**"), made between the Issuer, Citicorp International Limited as fiscal agent, and Citibank, N.A., London Branch as principal paying agent and exchange agent (the "**Agent**", which expression shall include any successor agent) and the other paying agents named therein (together with the Agent, the "**Paying Agents**", which expression shall include any additional or successor paying agents), and Citigroup Global Markets Europe AG, 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 Agents**", which expression shall include any additional or successor transfer agents).

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

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

Copies of the Agency Agreement are available for inspection during normal business hours at the specified office of each of the 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, except that, if this Note is an unlisted Note of any Series, the applicable Pricing Supplement will only be obtainable by a Noteholder holding one or more unlisted Notes of that Series and such Noteholder must produce evidence satisfactory to the Issuer and the relevant 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 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 or between the Terms and Conditions and the applicable Pricing Supplement, the applicable Pricing Supplement will prevail.

1. FORM, DENOMINATION AND TITLE

The Notes may be in bearer form or in registered form as specified in the applicable Pricing Supplement and, in the case of definitive Notes, will be serially numbered, in the Specified Currency and the Specified Denomination(s). Except as provided in Condition 2, 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 upon the Redemption/Payment Basis shown in the applicable Pricing Supplement.

This Note may also be a Limited Recourse Note, as indicated in the applicable Pricing Supplement.

Definitive Bearer Notes are issued with Coupons attached, 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 any Agent will (except as otherwise required by law) deem and treat the bearer of any Bearer Note, Receipt or Coupon and the registered holder of any Registered Note as the absolute owner thereof (whether or not overdue and notwithstanding any notice of ownership or writing thereon or notice of any previous loss or theft thereof) for all purposes but, in the case of any Global Note, without prejudice to the provisions set out in the next succeeding paragraph.

For so long as any of the Notes is represented by a Global Note held on behalf of Euroclear Bank SA/NV ("**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 except in the case of manifest error) shall be treated by the Issuer and the Agents as the holder of such nominal amount of such Notes for all purposes other than with respect to the payment of principal or interest on such nominal amount of such Notes, for which purpose the bearer of the relevant Bearer Global Note or the registered holder of the relevant Registered Global Note shall be treated by the Issuer and any Agent as the holder of such nominal amount of such Notes in accordance with and subject to the terms of the relevant Global Note and the expressions "**Noteholder**" and "**holder of Notes**" and related expressions shall be construed accordingly.

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

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

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 10 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 9 (*Redemption and Purchase*), the Issuer shall not be required to register the transfer of any Registered Note, or part of a Registered Note, called for partial redemption.

(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 Distribution Compliance Period (as defined below), 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 5 of the Agency Agreement, amended as appropriate ("**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, in which case the Transfer Certificate must be accompanied by a duly executed investment letter from the relevant transferee substantially in the form set out in Schedule 6 of 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 (as defined below) 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, 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 NOTES

The Notes and any relative Receipts and Coupons are direct, unconditional, unsubordinated and (subject to the provisions of Condition 4 (*Certain Covenants*)) unsecured obligations of the Issuer and rank *pari passu* among themselves and (except for certain obligations required to be preferred by law) equally with all other unsecured obligations (other than subordinated obligations, if any) of the Issuer, from time to time outstanding.

4. CERTAIN COVENANTS

(a) Limitation on Liens

The Issuer will not itself, and will not permit any Restricted Subsidiary (as defined below) to, create, incur, issue or assume or guarantee any External Indebtedness (as defined below) secured by any mortgage, charge, pledge, encumbrance or other security interest (a "**Lien**") on any Restricted Property without in any such case effectively providing that the Notes (together with, if the Issuer shall so determine, any other indebtedness of the Issuer or such Restricted Subsidiary then existing or thereafter created) are secured equally and ratably with or prior to such secured External Indebtedness unless, after giving effect thereto, the aggregate principal amount of all such secured External Indebtedness, plus Attributable Debt (as defined below) of the Issuer and its Restricted Subsidiaries in respect of sale and leaseback transactions as described under "Limitation upon Sale and Leaseback Transactions" below, in each case entered into after the date of the issuance of the Notes, would not exceed 10% of Consolidated Net Tangible Assets (as defined below).

The foregoing restriction will not apply to External Indebtedness secured by:

(i) any Lien existing on any Restricted Property prior to the acquisition thereof by the Issuer or any of its Restricted Subsidiaries or arising after such acquisition pursuant to contractual commitments entered into prior to and not in contemplation of such acquisition;

(ii) any Lien on any Restricted Property securing External Indebtedness incurred or assumed for the purpose of financing the purchase price thereof or the cost of construction, improvement or repair of all or any part thereof, **provided that** such Lien attaches to such Restricted Property concurrently with or within 12 months after the acquisition thereof or completion or construction, improvement or repair thereof;

(iii) any Lien existing on any Restricted Property of any Restricted Subsidiary prior to the time such Restricted Subsidiary becomes a Subsidiary of the Issuer or arising after such time pursuant to contractual commitments entered into prior to and not in contemplation thereof;

(iv) any Lien securing External Indebtedness owing to the Issuer or to a Restricted Subsidiary; or

(v) any Lien arising out of the refinancing, extension, renewal or refunding of any External Indebtedness secured by any Lien permitted by any of the foregoing clauses or existing at the date of the issuance of the Notes, **provided that** such External Indebtedness is not increased and is not secured by any additional Restricted Property.

For the purposes of Conditions 4(a) and 4(b), the giving of a guarantee which is secured by a Lien on a Restricted Property, and the creation of a Lien on a Restricted Property to secure External Indebtedness which existed prior to the creation of such Lien, shall be deemed to involve the creation of indebtedness in an amount equal to the principal amount guaranteed or secured by such Lien; but the amount of indebtedness secured by Liens on Restricted Properties shall be computed without cumulating the underlying indebtedness with any guarantee thereof or Lien securing the same.

(b) Limitation upon Sale and Leaseback Transactions

The Issuer will not itself, and will not permit any Restricted Subsidiary to, enter into any arrangement, after the date of the issuance of the Note, with any person providing for the leasing by the Issuer or any Restricted Subsidiary of any Restricted Property which has been or is to be sold or transferred to such person or to any other person to whom funds are advanced by such person on the security of such Restricted Property (a "**sale and leaseback transaction**"), unless (a) the Attributable Debt of the Issuer and its Restricted Subsidiaries in respect thereof and in respect of all other sale and leaseback transactions entered into after the date of the issuance of the Notes (other than transactions permitted by clause (b) below) plus the aggregate principal amount of External Indebtedness secured by Liens on Restricted Property then outstanding (excluding any such External Indebtedness secured by Liens described in clause (i) through (v) under "*Limitation on Liens*" above) without equally and ratably securing the Notes, would not exceed 10% of Consolidated Net Tangible Assets or (b)the Issuer or a Restricted Subsidiary within 12 months after such sale and leaseback transactions, applies to the retirement of External Indebtedness, which is not subordinate to the Notes, of the Issuer or a Restricted Subsidiary an amount equal to the greater of (i) the net proceeds of the sale or transfer of the property or other assets which are the subject of such sale and leaseback transactions or (ii) the fair market value of the Restricted Property so leased (in each case as determined by the Issuer).

The foregoing restriction shall not apply to any transaction (x) between the Issuer and a Restricted Subsidiary or between Restricted Subsidiaries or (y) involving a lease for a temporary period not exceeding three years by the end of which it is intended that the use of such Restricted Property by the lessee will be discontinued.

(c) Consolidation, Merger and Sale of Assets

The Issuer will not consolidate with, merge or amalgamate into or transfer its assets substantially as an entirety to any corporation or convey or transfer its properties and assets substantially to any person, except as provided herein and in the Agency Agreement. The Issuer, without the consent of any Noteholder, may consolidate with, or merge into, or sell, transfer, lease or convey its assets substantially as an entirety (each a "**transaction**") to any corporation organized under the laws of Korea, **provided that** (a) any successor corporation expressly assumes the Issuer's obligations under the Notes and the Agency Agreement, (b) after giving effect to the transaction, no Event of Default and no event which, after notice or lapse of time or both, would become an Event of Default, shall have occurred and be continuing, (c) if, as a result of any such transaction, properties or assets of the Issuer or a Restricted Subsidiary would become subject to a Lien which would not be permitted under these Terms and Conditions, the Issuer or such successor corporation, as the case may be, shall take such steps as shall be necessary effectively to secure the Notes (together with, if the Issuer shall so determine, any other indebtedness of the Issuer or such Subsidiary then existing or thereafter created which is not subordinate to the notes) equally and ratably with (or prior to) all indebtedness secured thereby and (d) the Issuer has delivered to the Fiscal 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 agreement is required in connection with such transaction, such supplemental 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.

(d) Certain Definitions

In these Conditions, the following expressions have the following meanings:

"**Attributable Debt**" means, as to any lease, at the date of determination, the total net amount of rent required to be paid under such lease during the remaining term thereof including renewal terms at the option of the lessor (excluding amounts on account of maintenance and repairs, insurance, taxes, assessments, water rates and similar charges and contingent rents), discounted from their respective due dates at the rate of interest borne by the Notes, at the date of determination, compounded annually.

"**Consolidated Net Tangible Assets**" means the total amount of assets of the Issuer and its consolidated Subsidiaries, including investments in unconsolidated Subsidiaries, after deducting therefrom (a) all current liabilities (excluding any current liabilities constituting Long term Debt by reason of their being renewable or extendible) and (b) all goodwill, trade names, trademarks, patents, unamortized debt discount and expense and other like intangible assets, all as set forth on the most recent audited annual balance sheet of the Issuer and its consolidated Subsidiaries and computed in accordance with K-IFRS.

"**External Indebtedness**" means any obligation for the payment or repayment of money borrowed which is denominated in a currency other than the currency of Korea and which has a final maturity of one year or more from its date of incurrence or issuance.

"**Long-term Debt**" means any note, bond, debenture or other similar evidence of indebtedness of money borrowed having a maturity of more than one year from the date such evidence of indebtedness was incurred or having a maturity of less than one year but by its terms being renewable or extendible, at the option of the borrower beyond one year from the date such evidence on indebtedness was incurred.

"**person**" means any individual, corporation, partnership, joint venture, association, joint stock company, trust, unincorporated organization or government or any agency or political subdivision thereof.

"**Restricted Property**" means any generation facility located in Korea, whether at the date of the issuance of the Notes owned or thereafter acquired, including any land, buildings, structures or machinery and other fixtures that constitute any such facility, or portion thereof, other than any such facility, or portion thereof, reasonably determined by the Issuer's board of directors not to be of material importance to the total business conducted by the Issuer and its Subsidiaries as a whole.

"**Restricted Subsidiary**" means any Subsidiary that owns Restricted Property.

"**Subsidiary**" means any corporation or other entity of which securities or other ownership interests having ordinary voting power to elect a majority of the board of directors or other persons performing similar functions are at the time directly or indirectly owned by the Issuer.

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 Agent, Euroclear and Clearstream and at least 30 days' prior notice to the Noteholders in accordance with Condition 16 (*Notices*), elect that, with effect from the Redenomination Date specified in the notice, the Notes shall be redenominated in euro.

The election will have effect as follows:

(i) the Notes and the Receipts shall be deemed to be redenominated into euro with a principal amount for each Note and Receipt equal to the principal amount of that Note or Receipt in the Specified Currency, converted into euro at the Established Rate (as defined below), rounded to the nearest euro 0.01 if the conversion results in an amount involving a fraction of euro 0.01, **provided that**, if the Issuer determines that the then market practice in respect of the redenomination into euro of internationally offered securities is different from the provisions specified above, such provisions shall be deemed to be amended so as to comply with such market practice and the Issuer shall promptly notify the Noteholders, the stock exchange (if any) on which the Notes may be listed and the Agents of such deemed amendments;

(ii) except to the extent that an Exchange Notice has been given in accordance with paragraph

(iii) below, the amount of interest due in respect of the Notes will be calculated by reference to the aggregate principal amount of Notes presented (or, as the case may be, in respect of which Coupons are presented) for payment by the relevant holder and the amount of such payment shall be rounded down to the nearest euro 0.01;

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

(v) 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 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;

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

(vii) if the Notes are Fixed Rate Notes and interest for any period ending on or after the Redenomination Date is required to be calculated for a period ending other than on an Interest Payment Date (as specified in the applicable Pricing Supplement), it will be calculated by applying the Rate of Interest to each Specified Denomination, multiplying such sum by the applicable Day Count Fraction, 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;

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

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

(b) Definitions

In these Conditions, the following expressions have the following meanings:

"**Established Rate**" means the rate for the conversion of the Specified Currency (including compliance with rules relating to 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;

"**euro**" means the lawful currency of the Member States of the European Union that have adopted the single currency in accordance with 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, which falls on or after the date on which the country of the Specified Currency first participates in the third stage of European economic and monetary union; and

"**Treaty**" means the Treaty establishing the European Community (signed in Rome on 25 March 1957), as amended from time to time.

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 these Terms and Conditions, "**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 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 (as defined below), and rounding the resultant figure to the nearest sub-unit of the relevant Specified Currency, half of any such sub-unit being rounded upwards or otherwise in accordance with applicable market convention.

In these Conditions:

"**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 months of 30-day duration) divided by 360.

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

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

(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) 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 such date, together with each Specified Interest Payment Date, an "**Interest Payment Date**") which falls on 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 which 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 (*Interest (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 on 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 these Terms and Conditions, "**Business Day**" means a day which 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 Center 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 center of the country of the relevant Specified Currency (if other than London and any Additional Business Center and which if the Specified Currency is Australian dollars or New Zealand dollars shall be Melbourne or Wellington, respectively) or (2) in relation to any sum payable in euro, a day on which the Trans European Automated Real-Time Gross Settlement Express Transfer (TARGET2) System (the "TARGET2 System") is open.

(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 Agent under an interest rate swap transaction if the 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), the terms "**Floating Rate**", "**Calculation Agent**", "**Floating Rate Option**", "**Designated Maturity**" and "**Reset Date**" shall 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 specified in the applicable Pricing Supplement) 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 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 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 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 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 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 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 Agent of the Rate of Interest for the relevant Interest Period as soon as practicable after calculating the same.

The 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 above) 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):

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

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

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

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

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

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

where:

"$\mathbf{Y_1}$" is the year, expressed as a number, in which the first day of the Interest Period falls;

"$\mathbf{Y_2}$" is the year, expressed as a number, in which the day immediately following the last day of the Interest Period falls;

"$\mathbf{M_1}$" is the calendar month, expressed as a number, in which the first day of the Interest Period falls;

"$\mathbf{M_2}$" is the calendar month, expressed as a number, in which the day immediately following the last day of the Interest Period falls;

"$\mathbf{D_1}$" is the first calendar day, expressed as a number, of the Interest Period, unless such number is 31, in which case D1 will be 30; and D2 is the calendar day, expressed as a number, immediately following the last day included in the Interest Period, unless such number would be 31 and D1 is greater than 29, in which case D2 will be 30;

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

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

where:

"$\mathbf{Y_1}$" is the year, expressed as a number, in which the first day of the Interest Period falls;

"$\mathbf{Y_2}$" is the year, expressed as a number, in which the day immediately following the last day of the Interest Period falls;

"$\mathbf{M_1}$" is the calendar month, expressed as a number, in which the first day of the Interest Period falls;

"$\mathbf{M_2}$" is the calendar month, expressed as a number, in which the day immediately following the last day of the Interest Period falls;

"$\mathbf{D_1}$" is the first calendar day, expressed as a number, of the Interest Period, unless such number is 31, in which case D1 will be 30; and D2 is the calendar day, expressed as a number, immediately following the last day included in the Interest Period, unless such number would be 31, in which case D2 will be 30;

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

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

where:

"$\mathbf{Y_1}$" is the year, expressed as a number, in which the first day of the Interest Period falls;

"$\mathbf{Y_2}$" is the year, expressed as a number, in which the day immediately following the last day of the Interest Period falls;

"$\mathbf{M_1}$" is the calendar month, expressed as a number, in which the first day of the Interest Period falls;

"$\mathbf{M_2}$" is the calendar month, expressed as a number, in which the day immediately following the last day of the Interest Period falls;

"$\mathbf{D_1}$" is the first calendar day, expressed as a number, of the Interest Period, unless that day is the last day of February or (ii) such number would be 31, in which case D1 will be 30; and

"$\mathbf{D_2}$" is the calendar day, expressed as a number, immediately following the last day included in the Interest Period, unless (i) that day is the last day of February but not the Maturity Date or (ii) such number would be 31, in either which case D2 will be 30.

(v) Notification of Rate of Interest and Interest Amounts

The 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 any stock exchange on which the relevant Floating Rate Notes or Index Linked Interest Notes are for the time being listed and notice thereof to be published in accordance with Condition 16 (*Notices*) as soon as practicable after their determination but in no event later than the fourth London Business Day 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 16 (*Notices*). For the purposes of this paragraph, the expression "**London Business Day**" means a day (other than a Saturday or a Sunday) on which banks and foreign exchange markets are open for general business in London. For the avoidance of doubt, this Condition 6(b)(v) shall not apply if a Benchmark Transition Event (as defined above) 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) (*Interest – Interest on Floating Rate Notes and Index Linked Interest Notes*), whether by the 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 Agent, the Calculation Agent (if applicable), the other Agents and all Noteholders, Receiptholders and Couponholders and (in the absence as aforesaid) no liability to the Issuer, the Noteholders, the Receiptholders or the Couponholders shall attach to the 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 Interest Notes

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

(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 only part 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 Agent or the Registrar, as the case may be, and notice to that effect has been given to the Noteholders in accordance with Condition 16 (*Notices*).

7. LIMITED RECOURSE

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

8. PAYMENTS

(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 check in such Specified Currency drawn on, a bank in the principal financial center of the country of such Specified Currency (which, if the Specified Currency is Australian dollars or New Zealand dollars, shall be Melbourne or Wellington, respectively); and

(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 check.

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 10 (*Taxation*).

(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 six years after the Relevant Date (as defined in Condition 10 (*Taxation*)) in respect of such principal (whether or not such Coupon would otherwise have become void under Condition 11 (*Prescription*)) or, if later, six years from the date on which such Coupon would otherwise have become due, but in no event thereafter.

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

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

(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 US$250,000 (or its approximate equivalent in any other Specified Currency), payment will instead be made by a check in the Specified Currency drawn on a Designated Bank (as defined below). For these purposes, "**Designated Account**" means the account (which, in the case of a payment in Japanese yen to a non-resident of Japan, shall be a non-resident account) maintained by a holder with a Designated Bank and identified as such in the Register and "**Designated Bank**" means (in the case of payment in a Specified Currency other than euro) a bank in the principal financial center of the country of such Specified Currency (which, if the Specified Currency is Australian dollars or New Zealand dollars, shall be Melbourne or Wellington, respectively) and (in the case of a payment in euro) any bank which processes payments in euro.

Payments of interest and payments of installments of principal (other than the final installment) in respect of each Registered Note (whether or not in global form) will be made by a check in the Specified Currency drawn on a Designated Bank and mailed by uninsured mail on the business day in the city where the specified office of the Registrar is located immediately preceding the relevant due date to the holder (or the first named of joint holders) of the Registered Note appearing in the Register at the close of business on the day on which DTC, Euroclear and/or Clearstream, as applicable to the extent such Registered Note is cleared and settled through such facility, is open for business, immediately preceding 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 check posted in accordance with this Condition arriving after the due date for payment or being lost in the post. No commissions or expenses shall be charged to such holders by the Registrar in respect of any payments of principal or interest in respect of the Registered Notes.

All amounts payable to DTC or its nominee as registered holder of a Registered Global Note in respect of Notes denominated in a Specified Currency other than U.S. dollars shall be paid by transfer by the Paying Agent 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, Clearstream or DTC as the beneficial holder of a particular nominal amount of Notes represented by such Global Note must look solely to Euroclear, Clearstream or DTC, 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 applicable to payments on Bearer Notes, 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 which (subject to Condition 11 (*Prescription*)) is:

(i) 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;

(B) London; or

(C) any Additional Financial Center specified in the applicable Pricing Supplement;

(ii) either (1) in relation to any sum payable in a Specified Currency other than euro, a day on which commercial banks and foreign exchange markets settle payments and are open for general business (including dealing in foreign exchange and foreign currency deposits) in the principal financial center of the country of the relevant Specified Currency (if other than the place of presentation, London and any Additional Financial Center 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 TARGET2 System is open; and

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

(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 10 (*Taxation*);

(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 9(e) (*Redemption and Purchase – Early Redemption Amounts*)); and

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

Any reference in 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 10 (*Taxation*).

9. REDEMPTION AND PURCHASE

(a) Redemption at Maturity

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

(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, 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, 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 Agent and, in accordance with Condition 16 (*Notices*), 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 10 (*Taxation*) as a result of any change in, or amendment to, the laws of a Tax Jurisdiction (as defined in Condition 10 (*Taxation*)) or any regulations or rulings promulgated thereunder or any change in the application or official interpretation of such laws or regulations or rulings, or any change in the application or official interpretation of, or any execution of or amendment to, any treaty or treaties affecting taxation to which the Tax Jurisdiction is a party, which change or amendment becomes effective on or after the date on which agreement is reached to issue the first Tranche of the Notes; and

(ii) such obligation cannot be avoided by the Issuer taking reasonable measures available to it,

provided that no such notice of redemption shall be given earlier than 90 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.

Prior to the publication of any notice of redemption pursuant to this Condition, the Issuer shall deliver to the Agent a certificate signed by an authorized officer 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 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 9(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 16 (*Notices*); and

(ii) not less than 15 days before the giving of the notice referred to in (i), notice to the Agent and, in the case of a redemption of Registered Notes, the Registrar;

(which notices shall be irrevocable and shall specify the date fixed for redemption), redeem all or some only of the Notes then outstanding on any Optional Redemption Date and at the Optional Redemption Amount(s) specified in, or determined in the manner specified in, the applicable Pricing Supplement together, if appropriate, with interest accrued to (but excluding) the relevant Optional Redemption Date. Any such redemption must be of a nominal amount not less than the Minimum Redemption Amount and not more than the Maximum Redemption Amount in each case as may be specified in the applicable Pricing Supplement. In the case of a partial redemption of Notes, the Notes to be redeemed ("**Redeemed Notes**") will be selected individually by lot, in the case of Redeemed Notes represented by definitive Notes, and in accordance with the rules of Euroclear and/or 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 16 (*Notices*) not less than 15 days prior to the date fixed for redemption. The aggregate nominal amount of Redeemed Notes represented by definitive Notes shall bear the same proportion to the aggregate nominal amount of all Redeemed Notes as the aggregate nominal amount of definitive Notes outstanding bears to the aggregate nominal amount of the Notes outstanding, in each case on the Selection Date, **provided that**, such first mentioned nominal amount shall, if necessary, be rounded downwards to the nearest integral multiple of the Specified Denomination and the aggregate nominal amount of Redeemed Notes represented by a Global Note shall be equal to the balance of the Redeemed Notes. No exchange of the relevant Global Note will be permitted during the period from (and including) the Selection Date to (and including) the date fixed for redemption pursuant to this paragraph (c) and notice to that effect shall be given by the Issuer to the Noteholders in accordance with Condition 16 (*Notices*) at least five days prior to the Selection Date.

(d) Redemption at the Option of the Noteholders (Investor Put)

If Investor Put is specified in the applicable Pricing Supplement, upon the holder of any Note giving to the Issuer in accordance with Condition 16 (*Notices*) not less than 15 nor more than 30 days' notice the Issuer will, upon the expiry of such notice, redeem, subject to, and in accordance with, the terms specified in the applicable Pricing Supplement, 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 9(d) 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 ("**Put Notice**") and in which the holder must specify a bank account (or, if payment is required to be made by check, an address) to which payment is to be made under this Condition 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 (*Transfers of Registered Notes – Transfers of Registered Notes in Definitive Form*). If this Note is in definitive form, the Put Notice must be accompanied by this Note or evidence satisfactory to the 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 12 (*Events of Default*).

(e) Early Redemption Amounts

For the purpose of paragraphs (b) through (d) above and Condition 12 (*Events of Default*), each Note will be redeemed at its 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 and a Partly Paid Note) with a Final Redemption Amount which is or may be less or greater than the Issue Price or which is payable in a Specified Currency other than that in which the Note is denominated, at the amount specified in, or determined in the manner specified in, the applicable Pricing Supplement or, if no such amount or manner is so specified in the applicable Pricing Supplement, at its nominal amount; or

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

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

where:

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

"**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 and the applicable Pricing Supplement.

(h) Purchases

The Issuer or any Subsidiary of the Issuer may at any time purchase Notes (**provided that**, in the case of definitive Bearer Notes, all unmatured Receipts, Coupons and Talons appertaining thereto are purchased therewith) at any price in the open market or otherwise. If purchases are made by tender, tenders must be available to all Noteholders alike.

Notes held by the Issuer and its Subsidiaries are not "outstanding" for the purpose of Condition 17 (*Meetings of Noteholders and Modification*).

(i) Cancellation

All Notes which are redeemed will forthwith be cancelled (together with all unmatured Receipts, Coupons and Talons attached thereto or surrendered therewith at the time of redemption). All Notes so cancelled (together with all unmatured Receipts, Coupons and Talons cancelled therewith) shall be forwarded to the 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 12 (*Events of Default*) is improperly withheld or refused, the amount due and repayable in respect of such Zero Coupon Note shall be the amount calculated as provided in paragraph (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 Agent or the Registrar and notice to that effect has been given to the Noteholders in accordance with Condition 16 (*Notices*).

10. TAXATION

All payments of principal and interest by the Issuer in respect of the Notes, Receipts and Coupons will be made without withholding or deduction for or on account of any present or future taxes or duties of whatever nature imposed or levied by or on behalf of any 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 shall equal the respective amounts of principal, premium, if any, 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; **provided that** no such additional amounts shall be payable with respect to any Note, Receipt or Coupon:

(a) presented for payment (where presentation is required) in Korea (provided the Notes can also be presented at an office of a Paying Agent outside Korea); or

(b) where such withholding or deduction is imposed on a payment to a holder who is liable for such taxes or duties in respect of such Note, Receipt or Coupon by reason of his having some connection with a Tax Jurisdiction other than the mere holding of such Note, Receipt or Coupon; or

(c) presented for payment (where presentation is required) more than 30 days after the Relevant Date (as defined below) except to the extent that the holder thereof would have been entitled to an additional amount on presenting the same for payment on such 30th day assuming that day to have been a Payment Day (as defined in Condition 8(f) (*Payments – Payment Day*)); or

(d) where such withholding or deduction is imposed on a payment to a holder who would be able to avoid such withholding or deduction by either (i) presenting (where presentation is required) the relevant Note, Receipt or Coupon to another Paying Agent or (ii) by making a declaration of non-residence or other similar claim for exemption to the relevant tax authority if, after having been requested to make such a declaration or claim, such holder fails to do so; or

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

Nor will additional amounts be paid with respect to any payment on a Note, Receipt or Coupon to a holder who is a fiduciary, a partnership, a limited liability company or other than the sole beneficial owner of that payment to the extent that payment would be required by the laws of a Tax Jurisdiction (or any political subdivision thereof) to be included in the income, for tax purposes, of a beneficiary or settlor with respect to the fiduciary, a member of that partnership, an interest holder in a limited liability company or a beneficial owner who would not have been entitled to the additional amounts had that beneficiary, settlor, member or beneficial owner been the holder.

As used herein:

(i) "**Tax Jurisdiction**" means Republic of Korea or any other jurisdiction in which the Issuer or a successor company is organized or within or through which payment is made or any political subdivision or any authority thereof or therein having power to tax; and

(ii) the "**Relevant Date**" means the date on which such payment first becomes due, except that, if the full amount of the moneys payable has not been duly received by the Agent or the Registrar, as the case may be, on or prior to such due date, it means the date on which, the full amount of such moneys having been so received, notice to that effect is duly given to the Noteholders in accordance with Condition 16 (*Notices*).

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

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

11. PRESCRIPTION

Claims for principal in respect of the Notes (whether in bearer or registered form) will become void unless presented for payment within a period of 10 years after the Relevant Date (as defined in Condition 10 (*Taxation*)) therefor. Claims for interest in respect of the Notes (including the Receipts and Coupons) shall become void unless claimed for payment within a period of five years after the Relevant Date.

There shall not be included in any Coupon sheet issued on exchange of a Talon any Coupon the claim for payment in respect of which would be void pursuant to this Condition or Condition 8(b) (*Payments – Presentation of Definitive Bearer Notes, Receipts and Coupons*) or any Talon which would be void pursuant to Condition 8(b) (*Payments – Presentation of Definitive Bearer Notes, Receipts and Coupons*).

12. EVENTS OF DEFAULT

The occurrence and continuance of the following events will constitute events of default ("**Events of Default**"):

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

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

(c) failure on the part of the Issuer duly to observe or perform any other of the covenants or agreements on the part of the Issuer contained in these Terms and Conditions or in the Agency Agreement for a period of 60 days after the date on which written notice specifying such failure, stating that notice is a "**Notice of Default**" under these Terms and Conditions and demanding that the Issuer remedy the same, shall have been given by registered or certified mail, return receipt requested, to the Issuer or to Issuer at the office of the Agent by the holders of at least 10% in aggregate principal amount of the Notes at the time outstanding; or

(d) any External Indebtedness of the Issuer in the aggregate principal amount of US$15,000,000 or more either (i) becoming due and payable prior to the due date for payment thereof by reason of acceleration thereof following default by the Issuer or (ii) 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 External Indebtedness of any other Person in the aggregate principal amount of US$15,000,000 or more not being honored when, and remaining dishonored after becoming, due and called, provided that, if any such default under any such External Indebtedness shall be cured or waived, then the default under these Terms and Conditions by reason thereof shall be deemed to have been cured and waived; or

(e) certain events of bankruptcy, insolvency or reorganization with respect to the Issuer, or the Issuer ceasing 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 (other than in furtherance of the Plan of Restructuring (as defined below)).

If any one or more of the above Events of Default shall occur and be continuing then any holder of a Note may, by written notice to the Issuer at the specified office of the Agent, effective upon the date of receipt thereof by the Agent, declare any Notes held by the holder to be forthwith due and payable whereupon the same shall become forthwith due and payable at the Early Redemption Amount (as described in Condition 9(e) (*Redemption and Purchase – Early Redemption Amounts*)), together with accrued interest (if any) to the date of repayment, without presentment, demand, protest or other notice of any kind.

"**Plan of Restructuring**" means the Plan for Restructuring the Electricity Industry in Korea as issued on January 21, 1999 by the Ministry of Trade, Industry and Energy (formerly, the Ministry of Commerce, Industry and Energy) of Korea, (A) as it has been amended, modified and supplemented by (i) the Act on Promotion of Restructuring of the Electricity Power Industry (Act No: 6282) as promulgated on December 23, 2000, (ii) the Basic Plan for Privatization of Power Generation Companies as issued on April 9, 2002 by the Committee for Privatization of Public Enterprises and (iii) the Basic Plan of Electricity Supply and Demand as promulgated in February 2013 and as amended from time to time or (B) as it may be amended, modified or supplemented from time to time as required by, or in accordance with, applicable law or relevant governmental authorities.

13. REPLACEMENT OF NOTES, RECEIPTS, COUPONS AND TALONS

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

14. AGENTS

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

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

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

(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 (outside the United States in the case of Bearer Notes) 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 London; and

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

In addition, the Issuer shall forthwith appoint a Paying Agent having a specified office in New York City in the circumstances described in Condition 8(e) (*Payments – General Provisions Applicable to Payments*). Any variation, termination, appointment or change shall only take effect (other than in the case of insolvency, when it shall be of immediate effect) after not less than 30 nor more than 45 days' prior notice thereof shall have been given to the Noteholders in accordance with Condition 16 (*Notices*).

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

15. EXCHANGE OF TALONS

On and after the Interest Payment Date on which the final Coupon comprised in any Coupon sheet matures, the Talon (if any) forming part of such Coupon sheet may be surrendered at the specified office of the Agent or any other Paying Agent in exchange for a further Coupon sheet including (if such further Coupon sheet does not include Coupons to (and including) the final date for the payment of interest due in respect of the Note to which it appertains) a further Talon, subject to the provisions of Condition 11 (*Prescription*).

16. 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 (ii) if and for so long as the Bearer Notes are listed on the SGX-ST and the rules of the SGX-ST so require, a leading newspaper of general circulation in Singapore. It is expected that such publication will be made in the *Financial Times* in London and the Business Times in Singapore. The Issuer shall also ensure that notices are duly published in a manner which complies with the rules of any stock exchange (or any other relevant authority) on which the Bearer Notes are for the time being listed. 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 and/or Clearstream and/or DTC, be substituted for such publication in such newspaper(s) the delivery of the relevant notice to Euroclear and/or 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 any other relevant authority) so require, such notice will be published in a manner specified by those rules. Any such notice shall be deemed to have been given to the holders of the Notes one day after the day on which the said notice was given to Euroclear and/or 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 Agent (in the case of Bearer Notes) or the Registrar (in the case of Registered Notes). While any of the Notes are represented by a Global Note, such notice may be given by any holder of a Note to the Agent or the Registrar through Euroclear and/or Clearstream and/or DTC, as the case may be, in such manner as the Agent, the Registrar and Euroclear and/or Clearstream and/or DTC, as the case may be, may approve for this purpose.

17. MEETINGS OF NOTEHOLDERS AND MODIFICATION

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% in nominal amount of the Notes for the time being remaining outstanding.

The quorum at any such meeting for passing an Extraordinary Resolution is one or more persons holding or representing not less than 50% in nominal amount of the Notes for the time being outstanding, or at any adjourned meeting one or more persons being or representing Noteholders whatever the nominal amount of the Notes so held or represented, except that at any meeting the business of which includes the modification of certain provisions of the Notes, the Receipts or the Coupons (including modifying the date of maturity of the Notes or any date for payment of interest thereon, 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, the Receipts or the Coupons), the quorum shall be one or more persons holding or representing not less than two-thirds in nominal amount of the Notes for the time being outstanding, or at any adjourned such meeting one or more persons holding or representing not less than one-third 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 Agent and the Issuer may agree, without the consent of the Noteholders, Receiptholders or Couponholders, to:

(i) any modification (except as mentioned above) of the Notes, the Receipts, the Coupons 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 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.

Any such modification shall be binding on the Noteholders, the Receiptholders and the Couponholders and any such modification shall be notified to the Noteholders in accordance with Condition 16 (*Notices*) as soon as practicable thereafter.

The Agency Agreement also provides that quorum and voting requirements for certain resolutions which may affect the Notes of more than one Series shall be deemed to require separate meetings for the holders of each Series so affected.

18. FURTHER ISSUES

The Issuer may from time to time without the consent of the Noteholders, the Receiptholders or the Couponholders, create and issue further notes with the same terms and conditions as the Notes in all respects except for the amount and date of the first payment of interest thereon so that such further issue shall be consolidated and form a single Series with the outstanding Notes; **provided that** further Notes in registered form must be issued with no more than *de minimis* original issue discount for U.S. federal income tax purposes, constitute a "qualified reopening" for U.S. federal income tax purposes or otherwise be treated as part of the same "issue" of debt instruments as the outstanding Notes; and **provided further that**, in the case of Bearer Notes initially represented by interests in a Temporary Global Note exchangeable for interests in a Permanent Global Note or definitive Bearer Notes, such consolidation will occur only upon certification of non-U.S. beneficial ownership and exchange of interests in the Temporary Global Note for interests in the Permanent Global Note or definitive Bearer Notes.

19. GOVERNING LAW AND SUBMISSION TO JURISDICTION

(a) Governing Law

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

(b) Submission to Jurisdiction

The Issuer irrevocably submits to the non-exclusive jurisdiction of any federal or state court located in the Borough of Manhattan, The City of New York, United States of America ("**New York Courts**"), in any suit, action or proceeding brought by any Noteholder, Receiptholder or Couponholder arising out of or based upon the Notes, the Receipts/or the Coupons, and irrevocably agrees that all claims in respect of any such suit, action or proceeding may be determined in any such court. The Issuer irrevocably waives, to the fullest extent permitted by applicable law, any objection it may have to the laying of venue in any such court and any claim that any such suit, action or proceeding brought in such a court has been brought in an inconvenient forum. The Issuer hereby appoints Cogency Global Inc., 122 East 42nd Street, 18th Floor, New York, New York 10168, United States of America, as its authorized agent (the "**Authorized Agent**", which expression shall include any replacement authorized agent) upon whom process may be served in any such suit or proceeding set forth herein, it being understood that the designation and appointment of the Authorized Agent as such authorized agent shall become effective immediately without any further action on the part of the Issuer; **provided that** if for any reason the Authorized Agent named above ceases to act as Authorized Agent hereunder for the Issuer, the Issuer will appoint another person acceptable to the Dealers in the Borough of Manhattan, The City of New York as Authorized Agent. The Issuer agrees to take any and all action as may be necessary, including the filing of any and all documents that may be necessary, to maintain such designation and appointment of the authorized agent in full force and effect. If for any reason the appointment of the Authorized Agent shall cease to be in force, the Issuer shall forthwith appoint a new agent to be the Authorized Agent and shall deliver to the Dealers and the Arranger a copy of the new Authorized Agent's acceptance for that appointment within 30 days. Service of process upon the Authorized Agent shall be deemed, in every respect, effective service of process upon the Issuer. The parties hereto each hereby waive any right to trial by jury in any action, proceeding or counterclaim arising out of or relating to the Notes, the Receipts, the Talons and/or Coupons.

(c) Other Documents

The Issuer has in the Agency Agreement submitted to the jurisdiction of the New York Courts and appointed an agent for service of process in terms substantially similar to those set out in this Condition 19.

20. 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 (the "**required currency**") thereunder, 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.

21. WAIVER OF IMMUNITY

To the extent that the Issuer has or hereafter may acquire any immunity (sovereign or otherwise) from any legal action, suit or proceeding, from jurisdiction of any court or from set-off or any legal process (whether service or notice, attachment in aid or otherwise) with respect to itself or any of its property, the Issuer hereby irrevocably waives and agrees not to plead or claim such immunity in respect of its obligations under the Agency Agreement, the Notes, the Receipts or the Coupons, as the case may be.

USE OF PROCEEDS

The net proceeds from each issue of Notes will be applied by the Company for its general corporate purposes or such other purposes as may be specified in the applicable Pricing Supplement.

EXCHANGE RATES

The table below sets forth the Market Average Exchange Rate for the last day of, and the average for, the periods indicated. No representation is made that the Won or U.S. dollar amounts referred to herein could have been or could be converted into U.S. dollars or Won, as the case may be, at any particular rate or at all.

Period	At End of Period	Average Rate(1)	High	Low
		(Won per US$1.00)		
2016	1,208.5	1,160.5	1,240.9	1,093.2
2017	1,071.4	1,130.8	1,208.5	1,071.4
2018	1,118.1	1,100.3	1,142.5	1,057.6
2019	1,157.8	1,165.7	1,218.9	1,111.6
2020	1,088.0	1,180.1	1,280.1	1,082.7
October	1,133.4	1,144.7	1,169.5	1,127.6
November	1,104.4	1,116.8	1,136.5	1,104.4
December	1,088.0	1,095.1	1,108.9	1,082.7
2021 (through April 14)	1,126.1	1,115.5	1,141.1	1,083.1
January	1,114.6	1,097.5	1,114.6	1,083.1
February	1,108.4	1,111.7	1,124.0	1,099.7
March	1,133.5	1,131.0	1,141.1	1,121.3
April (through April 14)	1,126.1	1,124.3	1,132.6	1,116.4

Source: Seoul Money Brokerage Services, Ltd.

Note:

(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).

RISK FACTORS

Prospective purchasers of the Notes should carefully consider all of the information contained in this Offering Circular, including our financial statements and related notes, in addition to the following risk factors. In particular, investors should pay attention to the fact that we are subject to the legal and regulatory environment of Korea, which in many respects differs from that which prevails in other countries.

RISKS RELATING TO OUR BUSINESS

The Government's plan and policy for the electricity industry in Korea, including its plan to gradually reduce the proportion of nuclear energy, may have a material adverse effect on us and the price of the Notes.

Since our establishment, the Government has introduced successive policy initiatives to foster efficiency in the Korean electric power industry and has adopted policy measures that have substantially modified our business and operations. However, these policy initiatives have not always been fully implemented as originally planned and in some cases have been amended or replaced by new initiatives, among others, due to economic or policy considerations or a change in administration. There can be no assurance that the initiatives and plans announced by the Government will be implemented as planned or at all, or that the implementation of any such plans will not have a negative effect on our business, results of operations or financial condition.

Since his election in May 2017, President Moon Jae-in has been gradually moving towards a nuclear-free national energy policy by abandoning existing plans to construct new nuclear power generation units and opting against extending the operating lives of aged nuclear power generation units.

In June 2019, the Government announced the Third Basic National Energy Plan, which is a comprehensive plan that covers the entire spectrum of energy industries in Korea from 2019 to 2040. The Third Basic National Energy Plan focuses on the following five key tasks: (i) innovating the structure of energy consumption by strengthening the energy demand management of various sectors such as industrial, building and transportation, and streamlining pricing systems with the aim of improving the efficiency of energy consumption by 38% by 2040 and reducing energy demand by 18.6% by 2040, (ii) transitioning to a clean and safe mix of energy through increasing the share of renewable energy by 30~35% while reducing the share of nuclear and coal energy, (iii) expanding decentralized and participatory energy systems by increasing the share of distributed energy resources (such as renewable energy and fuel cells) in areas with demand and strengthening regional management by expanding the roles and responsibilities of local governments, (iv) bolstering the global competitiveness of Korea's energy industry by fostering future energy industries such as renewable energy, hydrogen and efficiency-enhancing industries, as well as through adding value to existing traditional energy industries, and (v) laying the foundation for conversion to clean and safe energy by improving the electricity, gas and heat market systems and building an energy big data platform to promote the creation of new industries.

In December 2020, the Government announced the Ninth Basic Plan for the period from 2020 to 2034, which focuses on, among other things, (i) changing energy policy to a safe and clean energy mix by reducing coal and nuclear power generation and increasing renewable energy, (ii) preparing implementation measures for further reduction of greenhouse gas, (iii) accelerating investments in renewable energy and expanding infrastructure for the transition to a low-carbon economy/society and (iv) improving the electricity market system to promote fair competition and lay the foundation for expansion of eco-friendly energy. Furthermore, the Ninth Basic Plan includes the following implementation measures: (i) six coal-fired generation plants will be retired by 2022, (ii) 24 other coal-fired generation plants will be retired and converted to LNG fuel use by 2034, (iii) domestic renewable energy generation capacity will be expanded to 77.8 gigawatts by 2034 to meet the target set in the Third Basic National Energy Plan and (iv) the extension of life of eleven nuclear generation units will not be granted and such units will be retired by 2034.

Pursuant to such Government plans, in June 2018, we announced our decision to shut down Wolsong unit #1 and to abandon our plans to construct four new nuclear units (Daejin units #1 and 2 and Cheonji units #1 and 2). Our plans to construct two new nuclear units, Shin-Hanul units #3 and 4 for which construction permits have already been received, have been suspended until further notice from the Government. In December 2019, we permanently shut down Wolsong unit #1.

The early shutdown of Wolsong unit #1, the preclusion of extending the operating lives of eleven nuclear generation units and the abandonment of plans to construct the four new nuclear generation units will result in lower generating capacity. Furthermore, we have not been able to realize the benefits of the capital improvements we have made to Wolsong unit #1 in preparation for extended operating life and the preparations we have made to construct the four new nuclear generation units. While shutting down and eventually decommissioning a nuclear unit is a process that can take several years, and further analysis will be required in order to gauge the actual financial impact we would face from a decommissioning, we have recognized significant impairment losses related to our decision to shut down Wolsong unit #1 and abandon plans to construct the four new nuclear generation units in our consolidated financial statements for 2018. In 2018, we recorded impairment loss on property, plant and equipment of Won 570 billion for Wolsong unit #1 and Won 39 billion for Cheonji units #1 and 2 and Daejin units # 1 and 2. In addition, we have suspended construction of Shin-Hanul units #3 and 4 and we recorded impairment loss of Won 133 billion in 2018 and Won 2 billion in 2019 related to such units. See notes 2 and 14 to our audited financial statements as of and for the years ended December 31, 2019 and 2020, included elsewhere in the Offering Circular. In addition, our provision for decommissioning liabilities increased from Won 16,240 billion in 2018 to Won 19,097 billion in 2019. While the Government has stated its intention to compensate us for legitimate and reasonable losses in connection with the implementation of the Roadmap, there is no assurance that any compensation provided will be sufficient to fully offset our losses.

As a result of the above, our results of operation, financial condition and cash flow have been and in the future could be adversely affected. There can be no assurance that the initiatives and plans announced by the Government will not continue to have a material adverse effect on our business, results of operations or financial condition or will not lead to a decline in the market value of the Notes.

Inherent in the operation of nuclear power generation facilities are numerous hazards and risks, any of which could result in a material loss of revenues or increased expenses.

The operation of nuclear power plants is subject to certain hazards, including but not limited to:

- leaks, ruptures and discharge of toxic and radioactive substances and materials whether as a result of human error or otherwise;

- extreme weather or environmental conditions, such as hurricanes, tropical storms, rising water and earthquakes;

- explosions, fires, accidents, mechanical malfunctions, faulty measurement and other operating errors; and

- acts of war, terrorism or vandalism.

These hazards can cause personal injuries or loss of life, severe damage to or destruction of property and natural resources, pollution or other environmental damage, clean-up responsibilities, regulatory investigation and penalties and suspension of operations.

From time to time, our nuclear power generation units may experience unexpected shutdowns or reduced output. For example, following a series of earthquakes in Gyeongju city in September 2016, four nuclear power generation units at the Wolsong site were shut down for approximately three months as part of a preventive and safety assurance program although these units were not directly affected by the earthquakes. In October 2017, Wolsong unit #3 was shut down for repairs after coolant leakage was discovered. In May 2018, we reduced output at our Kori unit #3 after detecting abnormal vibrations of the feed water pump. In September 2020, six nuclear generation units in Kori and Wolsong were temporarily shut down for approximately 32 days for the Kori units and 13 days for the Wolsong units due to the breakdown of certain electric facilities of the units as a result of typhoons Maysak and Haishen. In March 2021, we announced that we would be further delaying construction of Shin-Kori units #5 and 6 by one year and nine months respectively, in order to comply with the safety measures required by the comprehensive measures for the prevention of earthquake disasters which was announced in December 2016 in light of the Gyeongju earthquakes and was further amended in May 2018. The breakdown, failure, reduced output or suspension of operation of a nuclear power generation unit could result in a material loss of revenues and/or additional repair and maintenance costs, greater risk of litigation and increased social and political hostility to the use of nuclear power, which could have a material adverse impact on our reputation, business and results of operation and could lead to a decline in the market value of the Notes.

In response to the damage to the nuclear facilities (including nuclear meltdowns) in Japan as a result of the tsunami and earthquake in March 2011, the Government announced plans to further enhance the safety and security of nuclear power facilities, including by establishing the Nuclear Safety and Security Commission ("**NSSC**") in July 2011 for neutral and independent safety appraisals, subjecting nuclear power plants to additional safety inspections by governmental authorities and civic groups and requiring us to prepare a comprehensive safety improvement plan. As a result of the foregoing, as well as a generally higher level of public and regulatory scrutiny of nuclear power following the nuclear incident in Japan, we adopted a plan to implement a significant number of measures to improve the safety and efficiency of our generation facilities. We completed the implementation of all such measures in December 2015. Following the earthquakes in Gyeongju city in September 2016, we have engaged in more frequent safety and maintenance inspections of our nuclear power generation units during which inspections such units are shut down or operated at a reduced output resulting in depressed capacity factors, which in turn have had a material adverse effect on our results of operations for the first half of 2018. However, our capacity factor gradually improved during the second half of 2018. See "*Management's Discussion and Analysis of Financial Condition and Results of Operation – Results of Operations.*" There is no assurance, however, that we would not be required to adopt and implement additional safety measures in the future, which may be costly and may depress our capacity factor and could have a material adverse impact on our business, financial conditions and results of operation.

In addition, in December 2014, we became subject to a cyber terror incident. According to the preliminary findings of the Prosecutor's Office announced in March 2015, hackers suspected to be affiliated with North Korean authorities stole and distributed a mock blueprint for a hypothetical nuclear unit that had been devised for educational purposes, hacked into the computer network of our employees and threatened to shut down certain of our nuclear plants. The hacking incident did not jeopardize our nuclear operation in any material respect and none of the stolen information was material to our nuclear operation or the national nuclear policy. In response to such incident, we and our subsidiaries have further bolstered anti-hacking and other preventive and remedial measures in relation to potential cyber terror. However, there is no assurance that a similar or more serious hacking or other forms of cyber terror will not happen with respect to us, which could have a material adverse impact on our business, financial conditions and results of operation.

Our risk management policies and procedures relating to nuclear safety may not be fully effective at all times.

Although we devote significant resources to developing and improving our risk management policies and procedures relating to nuclear safety and expect to continue to do so in the future, our risk management practices may not be fully effective at all times in eliminating or mitigating risk exposures that are unidentified or unanticipated, such as employee misconduct. For example, in May 2017, the MOTIE assessed a warning against us and recommended that we reprimand a number of our employees for failing to properly oversee the installation of Passive Auto Catalytic Recombiner ("**PAR**") safety systems to our nuclear generation units. PAR safety systems remove hydrogen gas generated from a nuclear accident, which if left to build up, can result in an explosion. Between 2011 and 2015, we installed PAR units to all our nuclear generation units as one of the safety measures we implemented in response to the Fukushima Dai-ichi nuclear disaster in Japan in March 2011. Of the more than 600 PAR units that were installed, the MOTIE reported in its audit report that the anchor bolts of 38 units were not properly secured and covered on the wall of the containment building, resulting in small holes in the wall. Since the release of the MOTIE audit report, we have reinstalled the affected units, conducted our own internal audit and taken appropriate actions against the responsible contractors and employees. In addition, in June 2018, we were assessed a fine of Won 5.9 billion by the NSSC in connection with the discovery of substandard steam relief valves at 13 of our nuclear units.

We believe we are in compliance in all material respects with internal compliance policies and procedures and all other additional safety measures initiated internally or required by regulatory and governmental agencies. However, we cannot assure you that, despite all precautionary and reform measures undertaken by us, these measures will prove to be fully effective at all times against all the risks we face or that an incident that could cause harm to our reputation and operation will not happen in the future, including due to factors beyond our control.

Opposition to the construction and operation of nuclear power generation units may have an adverse effect on us.

From time to time, we encounter social and political opposition to the construction and operation of our nuclear power generation units, and protracted community opposition to the construction and operation of our nuclear power generation units takes time and resources to resolve. For example, in September 2016, Greenpeace and 559 Korean nationals brought a lawsuit against the NSSC to revoke the permit the NSSC granted to us in relation to the construction of Shin-Kori units #5 and 6. We filed to join the lawsuit as a third party stakeholder in April 2017. In February 2019, the Seoul Administrative Court ruled against the plaintiffs and in January 2021, the Seoul High Court dismissed the appeal by the plaintiffs. This case is currently pending at the Supreme Court of Korea. If the courts were to ultimately rule against the construction of these new nuclear power generation units, we will experience a loss of revenues, which could adversely affect our results of operation and financial condition.

We also face heightened public scrutiny into nuclear safety, including in connection with past quality assurance issues involving certain of our nuclear power generation units. Accordingly, we undergo extensive safety review process, including by the International Atomic Energy Agency (the "**IAEA**") and the Korea Institute of Nuclear Safety (the "**KINS**"), and undertake various infrastructure and other community improvement projects, such as building schools and parks and providing financial support, for the surrounding communities, in each case, at significant costs.

Although the Government and we have undertaken and will continue to undertake various community programs to address concerns of residents of areas near our nuclear units, continued community opposition to the construction, operation and extension of nuclear power generation units could result in delayed construction, relocation of planned nuclear power generation units, or early shut-downs, all of which could have a material adverse impact on our business and results of operation and could lead to a decline in the market value of the Notes.

Constructing and operating our generation units requires substantial capital expenditures which will likely require additional debt incurrence in the future.

While we have abandoned plans to construct four new nuclear power generation units and suspended plans to construct two new nuclear power generation units in accordance with the Eighth and Ninth Basic Plans, we still require substantial capital expenditures to complete the construction of the four nuclear power generation units already underway as well as renewable generation units, such as solar and wind power units. In 2018, 2019 and 2020, we spent Won 2,191 billion, Won 2,649 billion and Won 2,596 billion, respectively, on capital expenditures, which represent the amount of cash used in the acquisitions of land, buildings, structures, machinery, ships, vehicles, fixtures and furniture and tools and intangible assets and increase in construction-in-progress in our statements of cash flows, and we have budgeted Won 2,736 billion, Won 2,579 billion and Won 2,123 billion for capital expenditures (including capitalized interest) for 2021, 2022 and 2023, respectively.

The budgeted amounts may vary from the actual amounts of our capital expenditures for a variety of reasons, including changes in the number of units to be constructed and the timing of such construction, changes in rates of exchange between the Won and foreign currencies, changes in interest rates, changes in the Government's policy objectives and other factors. For example, in June 2019, the Government announced through the Third Basic National Energy Plan, its plans to increase the portion of renewable energy generated in Korea to 30~35% of the total energy generated in Korea by 2040, which calls for the Generation Subsidiaries, including us, to make significant investments in the construction and operation of power plants fueled by renewable energy. Although we plan to fund a substantial portion of our capital expenditures with net cash from operating activities, no assurance can be given that we will be able to do so. We expect that a significant portion of our future capital expenditures will need to be financed through foreign currency borrowings in the international capital markets, as well as borrowings of Korean Won in the domestic capital market, which may lead to an increase in our overall debt levels as well as our debt ratio. It is also possible that the required financing may not be available to us or that the cost at which such financing may be available may not be acceptable to us. In addition to funding requirements relating to our capital investment program, payments of principal and interest on indebtedness will require considerable capital resources. See "*Management's Discussion and Analysis of Financial Conditions and Results of Operations – Capital Requirements.*" If we are unable to obtain debt financing at acceptable rates on a timely basis, or at all, we may be unable to meet our funding requirements or debt repayment obligations, including those arising in respect of the Notes, which could have a material adverse impact on our business and results of operations and could lead to a decline in the market value of the Notes.

In recent years, in light of the previous policy guidelines of the Government for public enterprises (including us) in general to reduce their respective overall debt levels, we implemented various measures to reduce our debt levels, including by way of disposing of equity interests in unprofitable subsidiaries and other non-core assets. If the Government reprises such policy guidelines in the future, we cannot provide assurance that we will be able to successfully reduce our debt to a level contemplated by the Government or to a level that would be optimal for our capital structure. If we fail to reduce our debt to a level contemplated by the Government or the measures taken by us to reduce debt levels have unintended adverse consequences, such developments may have an adverse effect on our business, results of operation and financial condition.

We are dependent on fuel imported from overseas suppliers and under contracts with limited quantity and duration, and market and political circumstances could lead to a rise in fuel costs that adversely affect our results of operations.

Nuclear fuel costs represented 12.7%, 13.5% and 12.9% of our sales in 2018, 2019 and 2020, respectively. Substantially all of the nuclear fuel we use comes from sources outside of Korea at prices determined in part by prevailing market prices. In addition, we purchase a significant portion of our fuel requirements under contracts with limited quantity and duration. See "*Business – Fuel.*" Our average fuel cost per kWh of electricity sold remained relatively consistent at Won 7.9 in 2018 and Won 7.9 in 2019 but decreased by 2.5% to Won 7.7 in 2020. We expect nuclear fuel costs to be at similar levels through at least 2021.

Under the current electricity pricing system, called the cost-based pool system, which protects the generation companies from significant fuel cost fluctuations by purchasing electricity on a cost-plus basis while providing generation companies with incentives to maintain lower costs, our exposure to fuel price fluctuations is limited. For a more detailed description of the tariff setting mechanism, see "*The Korea Electricity Industry – Restructuring of the Electricity Industry in Korea.*" However, as the purchase price at which KEPCO purchases electricity from us is adjusted periodically in consideration of, among other factors, changes in fuel costs, our profitability may be adversely affected if fuel prices were to rise steeply in a short period of time, including as a result of depreciation of the Won against currencies in which we purchase our nuclear fuels.

Furthermore, any significant interruption or delay in the supply of nuclear fuel from any of our suppliers could cause us to purchase fuel on the spot market at prices higher than contracted. For example, the political situation in Russia and the Ukraine region remains unstable, and any future U.S. or European Union ("**EU**") sanctions against Russian entities could potentially disrupt our long-term supply relationship with Techsnabexpoert (also known as TENEX), an enriched uranium supplier under Russian state control. Although neither TENEX nor its shareholding entities are currently subject to any sanctions, there can be no assurance that future sanctions that disrupt our supply relationship with TENEX or other suppliers will not be imposed.

Accordingly, our operating income and net income may be negatively affected from period to period, and sudden rises in fuel costs could have a material adverse impact on our business and results of operation and could lead to a decline in the market value of the Notes.

Environmental regulations may limit our operations.

We are required to comply with numerous laws and regulations relating to the protection of the environment and land use in Korea. See *"Business – Environment and Community Programs."* These laws and regulations are constantly changing. While we believe we are in compliance with applicable environmental laws and regulations in all material respects and that we have obtained all material environmental approvals currently required to own and operate our facilities, we may incur significant costs as a result of these requirements.

Starting January 2012, the Government has enforced the Renewable Portfolio Standard ("RPS"), under which each generation company, including us, is required to supply 10% of the total energy generated from such generation company in the form of renewable energy by 2022, with interim annual targets for the intervening years. Any generation company failing to do so in the prescribed timeline is subject to penalties. We satisfied our RPS requirements for 2018, 2019 and 2020 and did not pay any fines for those years. While we intend to continue increasing the proportion of generation capacity from renewable energy relative to generation capacity from non-renewable energy in order to meet our future RPS targets, there is no assurance that we will be able to do so quickly enough to meet such targets. Furthermore, while we expect that additional capital expenditures to increase generation capacity from renewable energy will be covered by a corresponding increase in electricity tariff levied on end-users, which will in turn increase the amount payable to us by KEPCO, there is no assurance that the Government will in fact raise the electricity tariff to a level sufficient to fully cover such additional capital expenditures or at all.

In addition, in 2015, the Government implemented a carbon emission trading system in order to reduce the emission of greenhouse gases by 37% from 2030 business-as-usual levels in accordance with the Act on Allocation and Trading of Greenhouse Gas Emission Allowances. Under the Government's emission trading system, the Government allocates emission allowance units to companies in certain industries, including generation companies, and such companies are allowed to emit levels of greenhouse gases based on the number of allowance units that have been allocated to them. If a company emits more than the amount of allowance units that have been allocated to it, the company must purchase additional allowance units on the emission trading system. In 2020, we emitted approximately 2.9 million tons of carbon equivalents, which was less than the amount of allowance units that had been allocated to us for that year. The Government is currently evaluating our 2020 carbon emission level. Adhering to such annual emission reduction targets is expected to result in our incurring significant compliance costs.

Failure to comply with environmental laws and regulations could have a material adverse effect on us, including closure of individual facilities not in compliance, as well as the imposition of civil or criminal liability and the imposition of liens, penalties or fines, and expenditures to bring facilities into compliance.

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

The occurrence of one or more unexpected events, including fires, tornadoes, tsunamis, hurricanes, earthquakes, floods and other forms of severe weather, as well as severe health epidemics such as the current global pandemic of a novel strain of coronavirus (referred to as "COVID-19") in Korea or in other countries where we operate or where our suppliers or customers are located could adversely affect our operations and financial performance. In addition, the normal operations of our existing facilities or the construction of our new facilities may be interrupted by accidents caused by operating hazards, power supply disruptions, equipment failures, natural disasters or other events or by disruptions due to health epidemics.

In particular, COVID-19, an infectious disease caused by severe acute respiratory syndrome coronavirus 2 that is known to have been first transmitted to humans in November 2019 and has spread globally, has materially and adversely affected the global economy and financial markets in recent months. The World Health Organization declared the COVID-19 as a pandemic in March 2020. While we believe that COVID-19 has not caused material disruption to our business operations to date, any interruption (partial or complete) to our operations at our facilities as a result of any such accidents or otherwise, including a prolonged outbreak of COVID-19, could materially and adversely affect our business, financial condition and results of operations. There can be no assurance that such events will not occur in the future or that our production capacity will not be materially and adversely impacted as a result of such events.

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

- disruption in the normal operations of our industrial and commercial customers, which in turn may decrease in demand for electricity for such uses;

- an increase in unemployment among, and/or decrease in disposable income of, Korean consumers, which may decrease demand for electricity for residential use and the products and services of our industrial and commercial customers, thereby also leading to a decrease in demand for electricity for such uses;

- disruption in the supply of fuel and equipment from our suppliers;

- disruptions or delays in the construction of new generation facilities or maintenance and refurbishment of existing generation facilities;

- disruption in the normal operations of our business resulting from contraction of COVID-19 by our employees, which may necessitate our employees to be quarantined and/or our generation facilities or offices to be temporarily shut down;

- disruption resulting from the necessity for social distancing, including implementation of temporary adjustment of work arrangements requiring employees to work remotely, which may lead to a reduction in labor productivity;

- depreciation of the Won against major foreign currencies, which in turn may increase the cost of imported raw materials and equipment;

- unstable global and Korean financial markets, which may adversely affect our ability to meet our funding needs on a timely and cost-effective basis;

- significant or extended decline in the prices of LNG, which may lead to the replacement of thermal generation with LNG-combined cycle generation; and

- impairments in the fair value of our investments in companies that may be adversely affected by the pandemic.

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, our business, financial condition and results of operations may be materially adversely affected.

We are involved in numerous legal proceedings, the outcomes of which are uncertain, and resolutions adverse to us could negatively affect our cash flows, financial conditions or results of operations.

We are subject to numerous legal proceedings, many of which are related to the alleged impact of our nuclear power generation plants on the environment and health of the local population. We have incurred a significant amount of compensation cost, paid to the plaintiffs, including claims that were settled outside of court. As we construct additional generation plants and facilities, similar claims may be brought against us in the future, resulting in an increase of costs for compensating such claims.

In December 2020, the Daejeon District Prosecutor's Office commenced investigations on twelve individuals, including five of our employees for, among others, allegedly undervaluing the economic viability of Wolsong unit #1 which led to its early shutdown. The investigation is currently ongoing and the outcome of such investigation remains uncertain. There can be no assurance that the outcome of the ongoing case will not have a material adverse effect on us, our reputation or our business.

In addition, in September 2016, Greenpeace and 559 Korean nationals brought a lawsuit against the NSSC to revoke the permit the NSSC granted to us in relation to the construction of Shin-Kori units #5 and 6. We filed to join the lawsuit as a third party stakeholder in April 2017. In February 2019, the Seoul Administrative Court ruled against the plaintiffs and in January 2021, the Seoul High Court dismissed the appeal by the plaintiffs. This case is currently pending at the Supreme Court of Korea. If the courts were to ultimately rule against the construction of these new nuclear power generation units, we will experience a loss of revenues, which could adversely affect our results of operation and financial condition.

We plan to vigorously defend our position in such legal proceedings. However, the outcome of these lawsuits cannot presently be determined. We cannot presently assure you that there will not be further lawsuits in relation to the aforementioned matters or that the reserve amount that we have set aside will be sufficient to cover any compensation or damages arising from the present or future litigation. However, if the courts ultimately rule against us in these proceedings, such outcomes could have a material adverse impact on our business and results of operation and could lead to a decline in the market value of the Notes.

We may be exposed to potential claims made by current or former employees relating to unpaid wages and benefits and may also incur increased labor costs as a result of the expansion of the scope of applicable wages and benefits.

From time to time, we have been subject to various lawsuits involving our current and former employees seeking compensation for unpaid wages based on interpretations of relevant labor laws in Korea. For example, under the Labor Standards Act and Labor Severance Payment Security Act of Korea, the amount of compensation to which an employee is legally entitled, such as overtime allowance for night shifts or work performed outside of working hours as well as severance pay, is determined by the definition of "ordinary wage." After a decision by the Supreme Court of Korea in 2013 that provided a standard rule for determining what kinds of payments should be included as part of ordinary wage, we became subject to a number of lawsuits involving hundreds of our current and former employees for unpaid ordinary wages and related retirement benefits, which were decided in the plaintiffs' favor. Pursuant to such decisions, we have made an aggregate payment of Won 98 billion to cover the amounts claimed by the plaintiffs, as well as to address substantially all of the other current and former employees that would have had similar claims. We have set aside a reserve of Won 2 billion to cover any potential future payments in relation to the related lawsuits.

Separately from such prior cases involving ordinary wages, we are currently subject to one lawsuit which was filed in 2020 involving hundreds of our current and former employees seeking compensation for allegedly unpaid retirement benefits in relation to certain employee bonuses based on our institutional performance, based on a decision by the Supreme Court of Korea in 2018 that such bonuses should be a part of "average wage" that determines the applicable amount of retirement benefits. The lawsuit is currently pending before the trial court, and the aggregate claim amount of such lawsuit is Won 12 billion. We have set aside a reserve of Won 17 billion to cover any potential future payments of additional retirement benefits in relation to the related lawsuit.

We cannot presently assure you that there will not be further lawsuits seeking additional wages or benefits based on current or future interpretations of applicable laws and regulations, or that the foregoing amount of provisions will be sufficient to cover payments of any additional wages, retirement benefits or other compensation and damages arising from the present or future litigation relating to claims for additional wages and benefits.

The value of our assets is subject to the nature and extent of decommissioning obligations applicable to us.

Our facilities and related properties may become subject to decommissioning obligations that may require material unplanned expenditures or otherwise materially affect the value of those assets. The closure or modification of any of our facilities could lead to substantial liabilities, including the cleanup of any contamination that occurred during the facility's operation. While we have a reserve for such decommissioning liabilities, the reserved amount may not be sufficient to cover the actual liabilities to be incurred in the future. Further, laws and regulations may change to require additional decommissioning obligations in the future, all of which will negatively impact the value of our assets. For further descriptions on decommissioning costs, see "*Business – Nuclear Safety – Decommissioning*."

Our insurance coverage may not be sufficient.

As of December 31, 2020, we maintain property damage insurance coverage that covers damage at any of our nuclear plants up to US$1 billion per accident, which includes property insurance coverage for acts of terrorism up to US$300 million and for breakdown of machinery up to US$300 million. In addition, we have construction insurance for Shin-Kori units #5 and 6, and Shin-Hanul units #1 and 2. We also maintain nuclear liability insurance for personal injury and property damage caused to third parties for coverage of up to 300 million Special Drawing Rights ("**SDRs**"), which is equivalent to approximately US$436 million as of December 31, 2020 (based on the exchange rate published by the International Monetary Fund), per accident per plant complex, for total coverage of 1.5 billion SDRs. We are also the beneficiary of a Government indemnity for damage claims of up to 300 million SDRs per accident per nuclear plant, for a total coverage of 1.5 billion SDRs.

In March 2021, the National Assembly approved an amendment to the Nuclear Damage Compensation Act that increases the maximum liability of the business operator from 300 million SDRs to 900 million SDRs per nuclear incident, which will become effective six months after the promulgation of the amendment.

In addition, we maintain liability insurance related to our hydro and renewable plant facilities and nuclear fuel transportation, as well as directors' and officers' liability insurance. We are not responsible for the insurance coverage related to the construction of low and intermediate level integrated radioactive waste ("**LILW**") management facilities, which were transferred to the Korea Radioactive Waste Agency ("**KORAD**") in 2008. See "*Business – Insurance.*"

While we believe that we carry insurance coverage meeting the expected standards in our industry, our insurance policy does not cover all of the assets that we own and operate and does not cover all types or amounts of loss which could arise in connection with the ownership and operation of our power plants. Furthermore, we currently do not maintain any business interruption insurance. As a result, significant accidents with damages over our "per occurrence" amount limitations that affect our assets, or other events for which we are not insured could have a material adverse impact on our business and results of operation and could lead to a decline in the market value of the Notes. See "*Business – Insurance.*"

The movement of the Won against the U.S. Dollar and other currencies may have a material adverse effect.

The Won has fluctuated significantly against major currencies from time to time, including recently in light of the ongoing COVID-19 outbreak in Korea and globally. See "*Exchange Rates.*" Depreciation of the Won against the U.S. dollar and other foreign currencies typically results in a material increase in the cost of fuel and equipment purchased by us from overseas since the prices for substantially all of the fuel materials and a significant portion of the equipment we purchase are denominated in currencies other than the Won, generally in U.S. dollars. Changes in foreign exchange rates may also impact the cost of servicing our foreign currency-denominated debt. Since substantially all of our revenues are denominated in Won, we must generally obtain foreign currencies through foreign-currency denominated financings or from foreign currency exchange markets to make such purchases or service such debt. As a result, any significant depreciation of the Won against the U.S. dollar or other major foreign currencies may have a material adverse effect on our profitability and results of operations.

We may not be successful in implementing new business strategies.

In response to the Ninth Basic Plan, we plan to export our nuclear technology and services to overseas markets and invest in renewable energy generation capabilities, while managing our existing nuclear and renewable generation units, as part of our overall business strategy.

Due to their inherent uncertainties, such new and expanded strategic initiatives expose us to a number of risks and challenges, including the following:

- unanticipated capital expenditures and additional compliance requirements;
- less growth or profit than we currently anticipate with no assurance that such business activities will become profitable;
- failure to identify and enter into alternative business areas in a timely fashion, putting us at a disadvantage vis-a-vis competitors, particularly in overseas markets; and
- failure to hire or retain personnel who are able to supervise and conduct the relevant business activities.

As part of our business strategy, particularly in relation to overseas expansion and renewable energy development, we may also, on a selective basis, seek, evaluate or engage in potential acquisitions, mergers, combinations or other similar opportunities, including with existing or future joint ventures and strategic alliances. The prospects of these initiatives are uncertain, and there can be no assurance that we will be able to successfully implement or grow new ventures, and these ventures may prove more difficult or costly than we originally expect. In addition, we regularly review the profitability and growth potential of our businesses. As a result of such review, we may decide to exit from or reduce the resources that we allocate to new business ventures in the future. There is a risk that these ventures may not achieve profitability or operational efficiencies to the extent that we originally expect and we may fail to recover investments or expenditures we have already made. Any of the foregoing may have a material adverse effect on our reputation, business, financial condition, results of operations and cash flows.

We plan to pursue international expansion opportunities that may subject us to different or greater risk from those associated with our domestic operations.

While our operations have, to date, been primarily based in Korea, we plan to expand, on a selective basis, our overseas operations in the future after engaging in rigorous feasibility studies and risk analyses. Overseas operations generally carry risks that are different from those we face in our domestic operations. These risks include:

- challenges of complying with multiple foreign laws and regulatory requirements, including tax laws and laws regulating our operations and investments;
- volatility of overseas economic conditions, including fluctuations in foreign currency exchange rates;
- difficulties in enforcing creditors' rights in foreign jurisdictions;

- risk of expropriation and exercise of sovereign immunity where the counterparty is a foreign government;

- difficulties in establishing, staffing and managing foreign operations;

- differing labor regulations;

- political and economic instability, natural calamities, war and terrorism;

- lack of familiarity with local markets and competitive conditions;

- changes in applicable laws and regulations in Korea that affect foreign operations; and

- obstacles to the repatriation of earnings and cash.

Any failure by us to recognize or respond to these differences may adversely affect the success of our operations in those markets, which in turn could materially and adversely affect our business and results of operations.

RISKS RELATING TO KOREA

Unfavorable financial and economic conditions in Korea and globally may have a material adverse impact on our financial condition and results of operations.

We are incorporated in Korea and a significant portion of our assets are located in Korea. As a result, we are subject to political, economic, legal and regulatory risks specific to Korea, and our performance and successful execution of our operational strategies are dependent on the overall Korean economy. The economic indicators in Korea in recent years have shown mixed signs of growth and uncertainty, and future growth of the Korean economy is subject to many factors beyond 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 on-going COVID-19 pandemic to the Korean economy in 2021 and for the foreseeable future remains highly uncertain.

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

- declines in consumer confidence and a slowdown in consumer spending;

- the occurrence of additional severe health epidemics;

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

- adverse changes or volatility in foreign currency reserve levels, commodity prices (including oil prices), exchange rates;

- deterioration in economic or diplomatic relations between Korea and its trading partners or allies, including deterioration resulting from territorial or trade disputes or disagreements in foreign policy (such as the removal of Korea from Japan's "white list" of preferred trading nations in August 2019 and the controversy between Korea and China regarding the deployment of a Terminal High Altitude Area Defense System in Korea by the United States in March 2017 and the ensuing economic and other retaliatory measures by China against Korea during the remainder of 2017);

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

- deterioration in the financial condition or performance of small- and medium-sized enterprises and other companies in Korea due to the Government's policies to increase minimum wages and limit working hours of employees;

- investigations of large Korean business groups and their senior management for possible misconduct;

- a continuing rise in the level of household debt and increasing delinquencies and credit defaults by retail and small- and medium-sized enterprise borrowers in Korea;

- the economic impact of any pending or future free trade agreements or of any changes to existing free trade agreements;

- social and labor unrest;

- substantial decreases in the market prices of Korean real estate;

- a substantial decrease in tax revenues and a substantial increase in the Government's expenditures for fiscal stimulus measures, unemployment compensation and other economic and social programs, in particular in light of the Government's ongoing efforts to provide emergency relief payments to households and emergency loans to corporations in need of funding in light of COVID-19, which, together, would likely lead to a national budget deficit as well as an increase in the Government's debt;

- financial problems or lack of progress in the restructuring of Korean business groups, other large troubled companies, their suppliers or the financial sector;

- loss of investor confidence arising from corporate accounting irregularities and corporate governance issues concerning certain Korean companies;

- increases in social expenditures to support an aging population in Korea or decreases in economic productivity due to the declining population size in Korea;

- geo-political 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 us and the market value of the Notes.

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

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

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

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

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

There are special risks involved with investing in securities of Korean companies.

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

In addition, our audited consolidated financial statements included in this Offering Circular are presented 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, we have also applied K-IFRS. Our future financial statements will be prepared in accordance with Government

Accounting Standards or K-IFRS, which differ in certain respects from accounting principles applicable to companies in certain other countries, including the United States. There may also be less publicly available information about Korean companies, such as us, than is regularly made available by companies in other countries. In making an investment decision, investors must rely upon their own examination of us, the terms of the offering and the financial and other information contained in this Offering Circular.

RISKS RELATING TO THE NOTES

The Notes are subject to transfer restrictions.

The Notes will not be registered under the Securities Act or any state securities laws and may not be offered or sold within the United States or to, or for the account or benefit of, U.S. persons, except to QIBs in reliance on the exemption provided by Rule 144A, to certain persons in offshore transactions in reliance on Regulation S, or, if available, pursuant to another exemption from, or in another transaction not subject to, the registration requirements of the Securities Act and, in each case, in accordance with applicable state securities laws. In addition, subject to the conditions set forth in the Agency Agreement (as defined in "*Terms and Conditions of the Notes*"), a Note may be transferred only if the principal amount of Notes transferred is at least US$200,000. Under certain conditions and if so set forth in the applicable Pricing Supplement, a Note may be transferred only if the principal amount of Notes transferred is at least €100,000 or the equivalent in another foreign currency. For a further discussion of the transfer restrictions applicable to the Notes, see "*Subscription and Sale and Transfer and Selling Restrictions.*"

The Notes have not been and will not be registered under the Financial Investment Services and Capital Markets Act of Korea (the "**FSCMA**"). Accordingly, the Notes may not be offered, sold or delivered, directly or indirectly, in Korea or to, or for the account or benefit of, any resident of Korea (as such term is defined under the Foreign Exchange Transactions Act of Korea and its Enforcement Decree), except as otherwise permitted under applicable Korean laws and regulations.

In addition, during the first year after the issuance of the Notes, the Notes may not be transferred to any resident of Korea other than a "qualified institutional buyer" (a "**Korean QIB**," as defined in the Regulation on Securities Issuance, Public Disclosure, Etc. of Korea) who is registered with the Korea Financial Investment Association (the "**KOFIA**") as a Korean QIB, provided that (a) the Notes are denominated, and the principal and interest payments thereunder are made, in a currency other than Korean won, (b) the amount of the Notes acquired by such Korean QIBs in the primary market is limited to no more than 20% of the aggregate issue amount of the Notes, (c) the Notes are listed on one of the major overseas securities markets designated by the Financial Supervisory Service of Korea, or certain procedures, such as registration or report with a foreign financial investment regulator, have been completed for offering of the Notes in a major overseas securities market, (d) the one-year restriction on offering, delivering or selling of Notes to a Korean resident other than a Korean QIB is expressly stated in the Notes, the relevant purchase agreement and offering circular and (e) the Company and the Dealers shall individually or collectively keep the evidence of fulfillment of conditions (a) through (d) above after having taken necessary actions therefor.

The Notes are unsecured obligations.

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

- we enter into bankruptcy, liquidation, reorganization or other winding-up proceedings;
- there is a default in payment under our secured indebtedness or other unsecured indebtedness; or

- there is an acceleration of any of our indebtedness.

If any of these events were to occur, our assets and any amounts received from the sale of such assets may not be sufficient to pay amounts due on the Notes.

The Notes are subject to prescription regulations in Korea.

Failure to exercise a right of action for more than a certain period of time may operate as a bar to exercise of such right. Under Korean laws, claims against the issuer in respect of the payment of principal of notes or bonds are prescribed upon the expiry of 10 years, and claims for payment of interest in respect of notes or bonds are prescribed upon the expiry of five years, in each case, from the relevant due date as adjusted by any acceleration or otherwise, in respect thereof. If the Note holders fail to exercise his or her right of payment for more than the period set forth above, the Korean courts may not enforce a claim for payment for principal or interest in respect of the Notes.

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

The Notes constitute a new issue of securities for which there is no existing market. Approval in-principle has been received from the SGX-ST in connection with the Program and application will be made for the listing and quotation of Notes that may be issued under the Program, which Notes are agreed, at or prior to the time of issue thereof, to be so listed on the SGX-ST. Such permission will be granted when such Notes have been admitted for listing and quotation on the SGX-ST. Although the Dealers have advised us that they currently intend to make a market in the Notes, they are not obligated to do so, and any market making activity with respect to the Notes, if commenced, may be discontinued at any time without notice in their sole discretion. For a further discussion of the Dealers' planned market making activities, see "*Subscription and Sale and Transfer and Selling Restrictions.*"

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

- prevailing interest rates;
- our results of operations and financial condition;
- the rate of exchange between Won and the currency of the Notes;
- political and economic developments in and affecting Korea and other regions;
- the market conditions for similar securities; and
- the financial condition and stability of the Korean financial and other sectors.

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 us.

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 our 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.

The Notes are not protected by restrictive covenants.

The Notes and the Agency Agreement relating to the Notes do not contain restrictive financial or operating covenants or restrictions on the payment of dividends, the incurrence of indebtedness, the sale of assets or the issuance or repurchase of securities by us.

CAPITALIZATION

The following table sets forth our actual capitalization, as derived from our consolidated financial statements as of December 31, 2020 included in this Offering Circular.

The table below should be read in connection with our consolidated financial statements and the related notes as of and for the year ended December 31, 2020 and 2019, which have been prepared in accordance with K-IFRS and are included elsewhere in this Offering Circular.

	As of December 31, 2020(1)	
	(Billions of Won)	**(Millions of US$)(4)**
Long-term debt:		
Bonds, net of discounts and premiums (excluding current portion)	₩ 9,379	US$ 8,620
Long-term borrowings (excluding current portion)	296	272
Total long-term debt	9,675	8,892
Shareholder's equity:		
Share capital	₩10,705	US$ 9,839
Retained earnings(2)	15,519	14,264
Other components of equity	(45)	(41)
Equity attributable to the owners of the parent	26,179	24,062
Non-controlling interests	27	25
Total equity	26,206	24,087
Total capitalization(3)	₩35,881	US$32,979

Notes:

(1) There has been no material change in our capitalization since December 31, 2020.

(2) Retained earnings before appropriations include reserves.

(3) Total capitalization is defined as the sum of the bonds, net of discount and premium (excluding current portion) and long-term borrowings (excluding current portion) plus total equity.

(4) The Won financial information as of December 31, 2020 has been translated into U.S. dollars at the exchange rate of Won 1,088.0 to US$1.00, which was the Market Average Exchange Rate in effect on December 31, 2020.

SELECTED FINANCIAL DATA

The following tables present selected financial data as of and for the years ended December 31, 2018, 2019 and 2020. The selected financial data below have been derived from and should be read together with our financial statements as of and for the years ended December 31, 2018, 2019 and 2020 and the related notes included elsewhere in this Offering Circular.

Our consolidated financial statements as of and for the years ended December 31, 2018, 2019 and 2020 have been prepared in accordance with K-IFRS.

We have adopted K-IFRS 1116 with a date of initial application of January 1, 2019. Accordingly, the comparative information presented for 2018 has not been restated and is presented, as previously reported, under K-IFRS No. 1017 and related interpretations. See note 2.5 to the Company's financial statements as of and for the year ended December 31, 2019 included elsewhere in this Offering Circular.

SELECTED STATEMENT OF COMPREHENSIVE INCOME DATA

	For the Year Ended December 31,		
	2018	**2019**	**2020**
	(In billions of Won)		
Sales	₩ 8,955	₩ 8,983	₩10,000
Cost of sales	(7,598)	(7,976)	(8,467)
Gross profit	1,357	1,006	1,533
Selling and administrative expenses	(212)	(223)	(217)
Operating profit	1,146	783	1,316
Other income	54	45	61
Other expenses	(170)	(178)	(173)
Other gains (losses), net	(719)	11	(56)
Finance income	133	266	261
Finance expenses	(662)	(648)	(639)
Gain (loss) on investments in associates and joint ventures, net	10	(6)	(5)
Profit (loss) before income taxes	(209)	274	766
Income tax (expense) benefit	107	(27)	(148)
Profit (loss) for the year	(102)	247	618
Total other comprehensive income (loss), net of tax	(31)	37	26
Total comprehensive income (loss), net of tax	₩ (133)	₩ 283	₩ 644

SELECTED STATEMENT OF FINANCIAL POSITION DATA

	As of December 31,		
	2018	2019	2020
	(In billions of Won)		
Assets:			
Cash and cash equivalents	₩ 111	₩ 35	₩ 316
Other current assets(1)	6,527	6,529	7,011
Property, plant and equipment, net	45,608	49,961	51,502
Other non-current assets(2)	3,790	3,218	3,455
Total assets	₩56,035	₩59,743	₩62,284
Liabilities and shareholder's equity:			
Short-term borrowings	–	210	340
Current portion of long-term borrowings	174	18	19
Current portion of long-term bonds, net of discount	625	500	1,154
Current provisions	410	825	962
Other current liabilities(3)	1,331	1,301	1,528
Bonds, net of discount and premium (excluding current portion)	8,869	9,580	9,379
Long-term borrowings (excluding current portion)	9	148	296
Other non-current liabilities(4)	19,235	21,495	22,400
Total liabilities	₩30,653	₩34,077	₩36,078
Total equity	₩25,382	₩25,666	₩26,206
Total liabilities and equity	₩56,035	₩59,743	₩62,284

Notes:

(1) Other current assets consist of current financial assets, trade and other receivables, inventories, income tax receivables, non-current assets held for sale and current non-financial assets.

(2) Other non-current assets consist of non-current financial assets, non-current trade and other receivables, intangible assets, investments in associates and joint ventures, deferred tax assets and non-current non-financial assets.

(3) Other current liabilities consist of trade and other payables, current derivative liabilities, income tax payable and current non-financial liabilities.

(4) Other non-current liabilities consist of non-current trade and other payables, non-current derivative liabilities, non-current non-financial liabilities, employee benefit obligation and non-current provisions.

OTHER SELECTED FINANCIAL DATA

	For the Year Ended December 31,		
	2018	2019	2020
	(In billions of Won, except percentages)		
Net cash flow from operating activities	₩ 1,902	₩ 1,835	₩ 2,427
Net cash flow used in investment activities	(2,430)	(2,592)	(2,919)
Net cash flow from financing activities	522	681	773
Operating income margin (%)	12.8%	8.7%	13.2%
Net income margin (%)	(1.1)%	2.7%	6.2%

	As of December 31,		
	2018	2019	2020
	(In billions of Won, except percentages)		
Debt to equity ratio (%)(1)	38.1	40.7	42.7
Net debt to equity ratio (%)(2)	37.7	40.6	41.5
Total liabilities to equity ratio (%)	120.8	132.8	137.7
Net working capital(3)	4,098	3,709	3,324

Notes:

(1) Debt-to-equity ratio equals the sum of short-term borrowings, bonds (net of discount and premium, including the current portion) and long-term borrowings (including the current portion) divided by total equity.

(2) Net debt-to-equity ratio equals (i) the sum of short-term borrowings, bonds (net of discount and premium, including the current portion) and long-term borrowings (including the current portion) less (ii) cash and cash equivalents, divided by (iii) total equity.

(3) Net working capital means current assets minus current liabilities.

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

The following discussion of our financial condition and results of operations should be read together with our financial statements and the related notes included elsewhere in this Offering Circular. Our consolidated financial statements as of and for the years ended December 31, 2018, 2019 and 2020 have been prepared in accordance with Government Accounting Standards or K-IFRS. This discussion contains forward-looking statements that involve risks and uncertainties. Actual results and the timing of events may differ materially from those contained in these forward-looking statements due to a number of factors, including those discussed in the section entitled "Risk Factors" and elsewhere in this Offering Circular.

OVERVIEW

We were established on April 2, 2001 as a result of a corporate split from KEPCO, pursuant to which KEPCO transferred all of its nuclear and hydroelectric power generation assets and related liabilities to us in accordance with the Act on the Promotion of Restructuring the Electric Power Industry and the Restructuring Plan for the electricity industry in Korea announced by MOTIE. See "*The Korean Electricity Industry – Restructuring of the Electricity Industry in Korea.*" Pursuant to Article 2 of our Articles of Association, we engage in nuclear and hydroelectric power generation and sell all of our generated electricity to KEPCO through the KPX in accordance with Article 31 of the Electricity Business Act of Korea. We are wholly owned by KEPCO and are the only nuclear power generation company in Korea.

As of December 31, 2020, we owned and operated 24 nuclear power generation units with aggregate installed capacities of 23,250 MW, 53 hydroelectric power generation units (which includes pumped-storage hydro power generation units) with aggregate installed capacities of 5,307 MW, 28 solar generation units with aggregate installed capacities of 43 MW and one wind power generation unit with installed capacity of 1 MW. All of our nuclear power plants supply base load power, and hydroelectric power plants supply electricity during peak hours.

Nuclear power is one of the largest electricity supply sources in Korea. As of December 31, 2020, we owned approximately 22.1% of the total electricity generation capacity in Korea (excluding plants generating electricity primarily for private or emergency use). In 2019 and 2020, we sold 142,949 GW hours and 156,726 GW hours of electricity, respectively, to KEPCO. Nuclear power, all of which is generated by us, accounted for 26.2% and 29.6% of total electricity sold in Korea in 2019 and 2020, respectively, in terms of sales volume. In 2019 and 2020, nuclear power generation accounted for 97.1% and 97.3%, respectively, of the electricity generated by us.

The Third Basic National Energy Plan, which was announced by the Government in June 2019, focuses on transitioning to a clean and safe mix of energy through increasing the share of renewable energy by 30~35% while reducing the share of nuclear and coal energy. In addition, the Ninth Basic Plan, which was released in December 2020, plans to gradually reduce the proportion of nuclear energy generated from 25.9% of the energy generated nationally in 2019 to 25.0% by 2030. Accordingly, we expect our current capital requirements in the medium to long-term future to gradually decrease. See "– *Capital Requirements.*"

In addition to capital expenditures related to the construction of power generation assets, we also incur significant cash expenditures following the establishment by the Government of KORAD, a separate corporate entity responsible for nuclear waste management, as a result of which we pay fees to KORAD for the disposal of low- and intermediate- level radioactive waste and spent fuel. See "*Business – Nuclear Safety Research and Development – Nuclear Waste Management.*"

Unexpected or prolonged shutdowns of our nuclear generation units may result in a significant loss of revenue. For example, in September 2020, six nuclear generation units in Kori and Wolsong were temporarily shut down for approximately 32 days for the Kori units and 13 days for the Wolsong units due to the breakdown of certain electric facilities of the units as a result of typhoons Maysak and Haishen. Since then, we have engaged in safety and maintenance inspections and improvement works across our nuclear generation units to prevent the recurrence of such incidents. The breakdown, failure or suspension of operation of a nuclear generation unit could result in a material loss of revenues and/or additional repair and maintenance costs, greater risk of litigation and increased social and political hostility to the use of nuclear power, which could have a material adverse impact on our reputation, business and results of operation and could lead to a decline in the market value of the Notes. See "*Risk Factors – Risk Relating to Our Business – Inherent in the operation of nuclear power generation facilities are numerous hazards and risks, any of which could result in a material loss of revenues or increased expenses.*"

We have established a provision for decommissioning costs related to nuclear plant operation (which costs principally consist of (i) costs related to spent fuel, (ii) costs related to radioactive waste, and (iii) costs related to dismantling nuclear plants) as a liability since 1983. The decommissioning costs of nuclear facilities are estimated based on the study by the Cost Determination Committee established by the MOTIE and as provided under the Radioactive-Waste Management Act, and are adjusted annually. The decommissioning costs are reviewed by the MOTIE every two years and the MOTIE is required to issue, every two years, guidelines relating to the accounting treatment of decommissioning, which we are required to adopt. The estimated decommissioning costs increased in 2020 based on the 2019 MOTIE guidelines as well as in consideration of overseas cases of decommissioning, inflation rate assumptions, changes in the operating environment and other criteria. We believe that the guidelines adopted to-date capture the substantial majority of the accounting adjustments required in connection with determining decommissioning costs and liabilities. As of December 31, 2020, we have accrued Won 20,074 billion for the cost of dismantling and decontaminating existing nuclear power plants, which consists of dismantling costs of nuclear plants of Won 16,975 billion and dismantling costs of spent fuel and radioactive waste of Won 3,099 billion. As of December 31, 2020, we hold Won 844 billion in beneficiary securities exclusively for the payment of decommissioning costs, which is the estimated cost of decommissioning one nuclear plant, and plan to maintain a similar amount of reserve going forward. See also "*Business – Nuclear Safety – Decommissioning*" and "*– Critical Accounting Policies – Retirement of Tangible Assets.*"

The adjusted coefficient is one of the factors in determining the price of electricity sold by us to KEPCO and is reset from time to time. The adjusted coefficient applicable to electricity generated from nuclear fuels was adjusted upwards in 2019 and 2020, which contributed to an increase in our revenue in 2019 compared to 2018 and an increase in our revenue in 2020 compared to 2019, respectively.

RECENT ACCOUNTING CHANGES

For a discussion of new accounting standards, interpretations and amendments applicable to us, see note 3 of our audited financial statements as of and for the years ended December 31, 2019 and 2020 included elsewhere in this Offering Circular.

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.

We have 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 2.5 to the Company's financial statements as of and for the year ended December 31, 2019 included elsewhere in this Offering Circular.

CRITICAL ACCOUNTING POLICIES

We have prepared our consolidated financial statements in accordance with K-IFRS. These accounting principles require us to make certain estimates and judgments that affect the reported amounts in our consolidated financial statements. Critical accounting policies are defined as those that are both most important to the portrayal of our financial condition and results of operations and require our management's most difficult, subjective, or complex judgment, often as a result of the need to make estimates about the effect of matters that are inherently uncertain and may change in subsequent periods. Our estimates and judgments are based on historical experience, forecasted future events and various other assumptions that we believe to be reasonable under the circumstances. Certain accounting estimates are particularly sensitive because of their significance to the financial statements and because of the possibility that future events affecting the estimate may differ significantly from the management's current judgments. We evaluate our estimates and judgments on an ongoing basis. We believe the following represents our critical accounting policies.

Property, Plant and Equipment

Our property, plant and equipment are depreciated on a straight-line basis over their estimated useful lives or unit-of-production method (for loaded nuclear fuel and asset retirement costs of spent fuel). The depreciable lives and salvage residual values of these assets are estimated and reviewed at each reporting date. Such estimates are made based on management's knowledge of the useful lives, prior experience to reflect economic lives of these assets and takes into account anticipated technological or other changes lives and salvage residual values of these assets are estimated and reviewed at each reporting date and such estimates are made based on management's knowledge of the useful lives and prior experience to reflect economic lives of these assets. The estimated useful lives of our buildings are between 8 to 32 years, structures are between 8 to 50 years, machinery is between 6 to 32 years, loaded heavy water is 30 year, asset retirement costs of nuclear power plants is 30, 40 and 60 years and others are between 4 to 9 years. We review our depreciation methods, useful lives and residual values at the end of each financial year and makes adjustments, if appropriate.

At each reporting date, we review the carrying amounts of property, plant and equipment to determine whether there is any indication that the carrying amount of these assets may not be recoverable through continuing use. If any such indication exists, then the asset's recoverable amount is estimated. The recoverable amount is the greater of its value-in-use and its fair value less costs to sell. An impairment loss is recognized if the carrying amount exceeds its recoverable amount and impairment losses are recognized in profit or loss. In 2018, we recognized impairment loss of Won 742 billion. In 2019, we recognized reversal of impairment loss of Won 13 billion. We did not recognize impairment loss in 2020.

Our estimates of the useful lives and recoverable amounts of our assets are based on historical trends adjusted to reflect our best estimate of future market and operating conditions. Our estimates include the expected future period in which the future cash flows are expected to be generated from continuing use of the assets that we review for impairment and cash outflows to prepare the assets for use that can be directly attributed or allocated on a reasonable and consistent basis.

While we believe that our estimates of the useful lives and recoverable amounts of our assets are reasonable, different assumptions regarding such estimates could produce different results, which could have a material impact on us. We review our depreciation methods, useful lives and residual values at the end of each financial year and makes adjustments, if appropriate. For further information regarding our assumptions, see note 3 to our audited financial statements as of and for the years ended December 31, 2018 and 2019 and note 3 to our audited financial statements as of and for the years ended December 31, 2019 and 2020, included elsewhere in the Offering Circular.

Retirement of Tangible Assets

Provisions are recognized when we have a present obligation (legal or constructive) as a result of a past event, it is probable that we will be required to settle the obligation, and a reliable estimate can be made of the amount of the obligation. The amount recognized as a provision is the best estimate of the consideration required to settle the present obligation at the end of the reporting period, taking into account the risks and uncertainties surrounding the obligation. When a provision is measured using the cash flows estimated to settle the present obligation, its carrying amount is the present value of those cash flows (where the effect of the time value of money is material).

Asset retirement obligations including the decommissioning costs of nuclear facilities are adjusted for changes in the estimate of expected undiscounted cash flows or discount rate as of each reporting date. The asset retirement obligations are remeasured at each reporting date using an updated discount rate that reflects the then current market conditions. As of December 31, 2020, we estimated our asset retirement obligations based on an average discount rate of 2.20% and average inflation rate of 1.07%. Due to changing market and economic conditions, the underlying key assumptions may differ from actual developments and may lead to significant changes in our retirement of tangible assets. See note 38 to our audited financial statements as of and for the years ended December 31, 2018 and 2019 and note 38 to our audited financial statements as of and for the years ended December 31, 2019 and 2020, included elsewhere in the Offering Circular.

Deferred Income Tax Assets

In assessing the realization of deferred income tax assets, we consider whether it is probable that a portion or all of the deferred income tax assets will not be realized. The ultimate realization of our deferred income tax assets is dependent on whether we are able to generate future taxable income in specific tax jurisdictions during the periods in which temporary differences become deductible.

We have scheduled the expected future reversals of the temporary differences and projected future taxable income in making this assessment. However, the amount of deferred tax assets may be different if we do not realize estimated future taxable income during the carry forward periods as originally expected. See note 3 to our audited financial statements as of and for the years ended December 31, 2018 and 2019 and note 3 to our audited financial statements as of and for the years ended December 31, 2019 and 2020, included elsewhere in the Offering Circular.

Retirement benefit plans

We offer defined benefit plans to our employees. The cost of providing benefits is determined using the Projected Unit Credit Method, with actuarial valuations being carried out at each reporting period. For actuarial valuations, discount rate, future salary increase and expected return on plan assets are estimated and these estimations are uncertain. The discount rates are determined by reference to the yield at the reporting date on high quality corporate bonds that have maturity dates approximating the terms of our benefits obligations and that are denominated in the same currency in which the benefits are expected to be paid. The expected rate of returns assumptions on plan assets are based on the rate used to discount the defined benefit obligation. Due to changing market and economic conditions, the underlying key assumptions may differ from actual developments and may lead to significant changes in our defined benefit plan. See note 38 to our audited financial statements as of and for the years ended December 31, 2018 and 2019 and note 38 to our audited financial statements as of and for the years ended December 31, 2019 and 2020, included elsewhere in the Offering Circular.

RESULTS OF OPERATIONS

The table below presents statement of comprehensive income information for the years indicated.

	For the Year Ended December 31,		
	2018	2019	2020
	(In billions of Won)		
Sales	₩ 8,955	₩ 8,983	₩10,000
Cost of sales	(7,598)	(7,976)	(8,467)
Gross profit	1,357	1,006	1,533
Selling and administrative expenses	(212)	(223)	(217)
Operating profit	1,146	783	1,316
Other income	54	45	61
Other expenses	(170)	(178)	(173)
Other gains (losses), net	(719)	11	(56)
Finance income	133	266	261
Finance costs	(662)	(648)	(639)
Gain (loss) on investments in associates and joint ventures	10	(6)	(5)
Profit (loss) before income taxes	(209)	274	766
Income tax expense (benefit)	107	(27)	(148)
Profit (loss) for the year	(102)	247	618
Other comprehensive income (loss), net of tax	(31)	37	26
Total comprehensive income (loss) for the period	₩ (133)	₩ 283	₩ 644

2020 Compared to 2019

Our sales, substantially all of which are derived from the sales of electric power to KEPCO, increased by 11.3% to Won 10,000 billion in 2020 from Won 8,983 billion in 2019, mainly due to a 9.6% increase in the volume of electricity sold to 156,726 GWh in 2020 from 142,949 GWh in 2019, enhanced by a 1.2% increase in the average unit price of electricity sold to Won 60.96 per kWh in 2020 from Won 60.22 per kWh in 2019. The increase in the volume of electricity sold was mainly due to an increase in the capacity factor of our nuclear generation units. The increase in the average unit price of electricity sold was mainly due to an increase in the adjusted coefficient applicable to nuclear energy.

Cost of sales increased by 6.2% to Won 8,467 billion in 2020 from Won 7,976 billion in 2019, primarily due to a 24.6% increase in repairs to Won 1,495 billion in 2020 from Won 1,199 billion in 2019 and a 25.0% increase in salaries to Won 944 billion in 2020 from Won 755 billion in 2019. The increase in repairs was primarily related to our undertaking of additional preventative maintenance measures at our nuclear plants. The increase in salaries was due to an increase in the average salary paid to employees, as well as an increase in the number of employees. Such increases were offset in part by a 51.8% decrease in provisions for decommissioning cost to Won 217 billion in 2020 from Won 449 billion in 2019 primarily related to an increase in provisions for costs related to the disposal of low and intermediate-level radioactive waste in 2019, which were not repeated in 2020.

As a result of the above factors, our gross profit increased by 52.3% to Won 1,533 billion in 2020 from Won 1,006 billion in 2019. Our gross profit margin increased to 15.3% in 2020 from 11.2% in 2019.

Our selling and administrative expenses decreased by 2.9% to Won 217 billion in 2020 from Won 223 billion in 2019, primarily attributable to decreases in commission and depreciation expenses, which were partially offset by an increase in salaries. Commission decreased by 12.2% to Won 37 billion in 2020 from Won 42 billion in 2019 primarily due to a decrease in commissions paid by our subsidiaries. Depreciation expenses decreased by 9.3% to Won 41 billion in 2020 from Won 46 billion in 2019 primarily due to a decrease in the depreciation of office equipment. Salaries increase by 10.2% to Won 54 billion 2020 from Won 49 billion in 2019 primarily due to the reasons described above.

As a result of the above factors, our operating profit increased by 68.0% to Won 1,316 billion in 2020 from Won 783 billion in 2019 and our operating profit margin increased to 13.2% in 2020 from 8.7% in 2019.

Our net other expense decreased by 16.3% to Won 111 billion in 2020 from Won 133 billion in 2019, primarily due to decreases in other miscellaneous expenses and other bad debt expenses, which were partially offset by an increase in donations. Other miscellaneous expenses decreased by 90.7% to Won 10 billion in 2020 from Won 103 billion in 2019 primarily due to the cancellation of an installment plan for a containment filtered venting system in 2019 that was not repeated in 2020. We recognized other bad debt expenses of Won 49 billion in 2019 primarily related to a debt-equity swap in one of our subsidiaries in 2019, compared to no such recognition of other bad debt expenses in 2020. Donations increased by 730.6% to Won 157 billion in 2020 from Won 19 billion in 2019 primarily due to our Won 131 billion contribution to the Nuclear Plant Decommissioning Research Institute in 2020.

We recorded net other loss of Won 56 billion in 2020 compared to net other profit of Won 11 billion in 2019. This change was primarily attributable to increases in net loss on disposals of property, plant and equipment and loss on disposal of inventories. Net loss on disposals of property, plant and equipment increased by 385.9% to Won 74 billion in 2020 from Won 15 billion in 2019 mainly in connection with write-offs relating to the flooding of the Yecheon pumped storage units. Loss on disposal of inventories increased by 367.0% to Won 35 billion in 2020 from Won 7 billion in 2019 primarily due to write-offs of obsolete inventories.

Our net finance expense decreased by 0.8% to Won 378 billion in 2020 from Won 381 billion in 2019, primarily as a result of net gain on foreign currency translations of Won 172 billion in 2020 compared to net loss on foreign currency translations of Won 105 billion in 2019, which were in significant part offset by net loss on valuation of derivative financial instruments, which we entered into to hedge foreign currency risks, of Won 88 billion in 2020 compared to net gain on valuation of derivative financial instruments of Won 169 billion in 2019, primarily due to fluctuations of the Won against the U.S. dollar in 2019 and 2020, in which a majority of our foreign currency debt is denominated. In terms of the Market Average Exchange Rate, the Won depreciated from Won 1,118.1 to US$1.00 as of December 31, 2018 to Won 1,157.8 to US$1.00 as of December 31, 2019, but appreciated to Won 1,088.0 to US$1.00 as of December 31, 2020.

As a result of the above factors, our profit before income tax increased by 179.7% to Won 766 billion in 2020 from Won 274 billion in 2019.

Our income tax expense increased by 442.7% to Won 148 billion in 2020 from Won 27 billion in 2019 primarily due to the increase in profit before income tax and, to a lesser extent, the decrease in adjustment recognized in the current period for the income tax in previous periods to Won 1 billion in 2020 from Won 65 billion in 2019. The effective tax rate increased to 19.33% in 2020 from 9.97% in 2019, primarily due to the increase in profit before tax as described above, as well as a decrease in adjustments recognized in the current period for the income tax in previous periods. See note 33 to our audited financial statements as of and for the years ended December 31, 2019 and 2020, included elsewhere in the Offering Circular.

As a result of the above factors, our profit for the period increased by 150.6% to Won 618 billion in 2020 from Won 247 billion in 2019.

2019 Compared to 2018

Our sales increased by 0.3% to Won 8,983 billion in 2019 from Won 8,955 billion in 2018, mainly due to an 8.4% increase in the volume of electricity sold to 142,949 GWh in 2019 from 131,931 GWh in 2018, offset in part by a 6.6% decrease in the average unit price of electricity sold to Won 60.22 per kWh in 2019 from Won 64.45 per kWh in 2018. The increase in the volume of electricity sold was mainly due to an increase in the capacity factor of our nuclear generation units. The decrease in the average unit price was mainly due to a decrease in the system marginal price in 2019 compared to 2018.

Cost of sales increased by 5.0% to Won 7,976 billion in 2019 from Won 7,598 billion in 2018, primarily due to a 71.6% increase in provisions for decommissioning cost to Won 449 billion in 2019 from Won 262 billion in 2018 and a 12.7% increase in amortization of nuclear fuel to Won 1,078 billion in 2019 from Won 956 billion in 2018. The increase in provisions for decommissioning cost was primarily related to an increase in provisions for disposal of low and intermediate-level radioactive waste, which was re-assessed in 2019 as part of a biennial assessment. The increase in amortization of nuclear fuel was due to an increase in the volume of electricity generated in 2019 compared to 2018 and a corresponding increase in the rate of depreciation of nuclear fuel in accordance with the unit-of-production method.

As of a result of the above factors, our gross profit decreased by 25.8% to Won 1,006 billion in 2019 from Won 1,357 billion in 2018. Our gross profit margin decreased to 11.2% in 2019 from 15.2% in 2018.

Our selling and administrative expenses increased by 5.6% to Won 223 billion in 2019 from Won 212 billion in 2018, primarily attributable to a 20.0% increase in depreciation of property, plant and equipment to Won 46 billion from Won 38 billion primarily due to the recognition of our right-of-use assets with respect to certain leased properties under K-IFRS No. 1116, which was adopted as of January 1, 2019. As a result of the above factors, our operating profit decreased by 31.6% to Won 783 billion in 2019 from Won 1,146 billion in 2018 and our operating profit margin decreased to 8.7% in 2019 from 12.8% in 2018.

Our net other expense increased by 14.1% to Won 133 billion in 2019 from Won 117 billion in 2018, primarily due to an increase in other miscellaneous expenses which was partially offset by a decrease in other bad debt expenses. Other miscellaneous expenses increased by 97.4% to Won 103 billion in 2019 from Won 52 billion in 2018 primarily due to the cancellation of an installment plan for a containment filtered venting system. Other bad debt expenses decreased by 43.4% to Won 49 billion in 2019 from Won 87 billion in 2018 primarily due to certain liquidated damages in connection with the installation of solar panels in the Yecheon pumped storage units being written off as irrecoverable.

We recorded net other profit of Won 11 billion in 2019 compared to net other loss of Won 719 billion in 2018. This change was primarily attributable to a 99.5% decrease in impairment loss on property, plant and equipment from Won 703 billion in 2018 to Won 4 billion in 2019 mainly in connection with impairment loss relating to the shut down of our Wolsong unit #1 and the discontinuation of the construction of Cheonji units #1 and 2 and Daejin units #1 and 2 in 2018. In 2018, we recorded impairment loss on property, plant and equipment of Won 570 billion for Wolong unit #1 and Won 39 billion for Cheonji units #1 and 2 and Daejin units #1 and 2, compared to impairment loss on property, plant and equipment of Won 2 billion for Wolsong unit #1 in 2019. In addition, we have suspended construction of Shin-Hanul units #3 and 4 and we recorded impairment loss of Won 133 billion in 2018 and Won 2 billion in 2019 relating to such units. See notes 2 and 14 to our audited financial statements as of and for the years ended December 31, 2019 and 2020, included elsewhere in the Offering Circular.

Our net finance expense decreased by 27.9% to Won 381 billion in 2019 from Won 529 billion in 2018, primarily as a result of a 466.5% increase in net gain on valuation of derivative financial instruments to Won 169 billion in 2019 from Won 30 billion in 2018 related primarily to the depreciation of the Won against the U.S. dollar in 2019, in which a majority of our foreign currency debt is denominated. In terms of the Market Average Exchange Rate, the Won depreciated from Won 1,071.4 to US$1.00 as of December 31, 2017 to Won 1,118.1 to US$1.00 as of December 31, 2018 and to Won 1,157.8 to US$1.00 as of December 31, 2019.

As a result of the above factors, we recorded loss before income tax of Won 209 billion in 2018 compared to profit before income tax of Won 274 billion in 2019.

We recorded income tax benefit of Won 107 billion in 2018 compared to income tax expense of Won 27 billion in 2019 primarily due to the recognition of loss before income tax in 2018 compared to profit before income tax in 2019 and, to a lesser extent, the decrease in deferred tax benefit arising from changes in temporary differences from Won 307 billion in 2018 to Won 196 billion in 2019. The effective tax rate for 2019 was 9.97% while the effective tax rate for 2018 was not calculated as it was negative. Such difference was primarily due to profit before income tax in 2019 compared to loss before income tax in 2018 as described above. See note 35 to our audited financial statements as of and for the years ended December 31, 2019 and 2020, included elsewhere in the Offering Circular.

As a result of the above factors, we recorded loss for the year of Won 102 billion in 2018 compared to profit for the year of Won 247 billion in 2019.

CASH FLOWS

Cash Flows from Operating Activities

Net cash provided by operating activities increased from Won 1,835 billion in 2019 to Won 2,427 billion in 2020, primarily due to the increase in net profit.

Net cash provided by operating activities decreased from Won 1,902 billion in 2018 to Won 1,835 billion in 2019, notwithstanding the net profit in 2019 as compared to the net loss in 2018, primarily due to increases in cash used for inventories.

Cash Flows from Investing Activities

Net cash used in investing activities increased from Won 2,592 billion in 2019 to Won 2,919 billion in 2020, primarily due to cash used for net increase in current financial assets at fair value through profit or loss in 2020 compared to cash generated from net decrease in current financial assets at fair value through profit or loss in 2019, which were partially offset by a decrease in cash used for increase in construction-in-progress.

Net cash used in investing activities increased from Won 2,430 billion in 2018 to Won 2,592 billion in 2019, primarily due to increases in cash used for increases in construction-in-progress, which were partially offset by cash generated from net decrease in current financial assets at fair value through profit or loss in 2019 compared to cash used in net increase in current financial assets at fair value through profit or loss in 2018.

Cash Flows from Financing Activities

Net cash provided by financing activities increased from Won 681 billion in 2019 to Won 773 billion in 2020, primarily due to increase in cash generated from proceeds from long-term borrowings and decrease in cash used for repayment of current portion of bonds, which were partially offset by an increase in cash used for payments of dividends.

Net cash used in financing activities increased from Won 522 billion in 2018 to Won 681 billion in 2019, primarily due to an increase in cash generated from net proceeds from short-term borrowings and decrease in cash used for net repayment of current portion of bonds, which were partially offset by a decrease in cash generated from the net issuance of bonds.

CAPITAL REQUIREMENTS

Capital Expenditures

Our most significant cash requirement has been funding capital expenditures related to the construction of power generation facilities. Our capital expenditures, which represent the amount of cash used in the acquisitions of land, buildings, structures, machinery, ships, vehicles, fixtures and furniture and tools and intangible assets and increase in construction-in-progress in our statements of cash flows, were Won 2,191 billion, Won 2,649 billion and Won 2,596 billion in 2018, 2019 and 2020, respectively, and we have budgeted Won 2,736 billion, Won 2,579 billion and Won 2,123 billion for capital expenditures (including capitalized interest) for 2021, 2022 and 2023, respectively. The budgeted amounts may vary from the actual amounts of our capital expenditures for a variety of reasons, including changes in the number of units to be constructed and the timing of such construction, changes in rates of exchange between the Won and foreign currencies, changes in interest rates and other factors.

We expect our current capital requirements in the medium to long-term future to gradually decrease in accordance with our capital investment program, which reflects the Government's plan to gradually reduce the proportion of nuclear energy generated from 25.9% of the energy generated nationally in 2019 to 25.0% by 2030 under the Ninth Basic Plan announced in December 2020. See "*Business – Capital Investment Program.*"

The current capital investment program contemplates the construction of four additional nuclear power generation units consisting of two units at the Shin-Kori site and two units at the Shin-Hanul site, each with a 1,400 megawatt capacity. We expect to complete these units by 2025. The construction of new nuclear power generation units requires significant investment over extended periods of time before such units can commence operation. We anticipate that capital expenditures for construction of nuclear power generation facilities will be the most significant use of our funds over the next several years.

Spent Fuel Disposal Expenses and Interest Expenses

In addition to the capital expenditures relating to the construction of additional nuclear power generation facilities, we also incur fees payable to a separate waste management corporation for disposal of low and intermediate level radioactive waste and spent fuel. Such costs reflect, to a large extent, past and future disposal costs related to spent fuel and waste. Pursuant to the Radioactive

Waste Management Act enacted in 2009, payment in cash for existing disposal cost for spent fuel has been deferred for five years since 2009 and became payable at the end of 2014. Disposal fees for existing spent fuel, whose accrued amount as of December 31, 2020 was Won 2,276 billion, are being paid out with interest over a 15-year period from the end of 2014 until 2028. We also accrued interest on the deferred amounts beginning in 2009. Such spent fuel disposal expenses and interest expenses to be incurred and paid out in cash over the next five years are estimated as follows:

Type	**2021**	**2022**	**2023**	**2024**	**2025**
			(In billions of Won)		
Newly created[(1)]	₩487	₩418	₩460	₩561	₩467
Existing	194	194	194	194	194
Interest[(2)]	103	116	130	144	158
Total	₩784	₩728	₩784	₩899	₩819

Notes:

(1) Based on (i) our internal spent fuel estimates and (ii) expected disposal costs of Won 319.8 million per fuel assembly for light water reactors and Won 13.2 million per fuel assembly for heavy water reactors.

(2) Based on assumed annual interest of 4.36%.

See also "*Business – Nuclear Safety – Decommissioning*" and "*– Critical Accounting Policies – Retirement of Tangible Assets.*"

Repayment of Debt and Other Cash Requirements

Our current portion of long-term debt (including borrowings and bonds), net of discount, amounted in the aggregate to Won 799 billion, Won 518 billion and Won 1,172 billion as of December 31, 2018, 2019 and 2020, respectively. Our short-term borrowings amounted to Won 210 billion and Won 340 billion as of December 31, 2019 and 2020, respectively, and was nil as of December 31, 2018. Our non-current portion of long-term debt (including borrowings and bonds), net of discount and premium, amounted in the aggregate to Won 8,878 billion, Won 9,727 billion and Won 9,675 billion as of December 31, 2018, 2019 and 2020, respectively. The payments of principal and interest on our borrowings will require a considerable amount of funding. The scheduled maturities of our outstanding debt as of December 31, 2020 were as follows:

Year ended December 31,	**Local currency borrowings**	**Foreign currency borrowings**	**Domestic bonds payable**	**Foreign bonds payable**	**Total**
			(in billions of Won)		
2021	₩359	₩–	—₩610	—₩544	—₩1,513
2022	37	–	550	816	1,403
2023	38	–	640	653	1,331
2024	39	–	580	247	866
2025	33	–	340	326	699
Thereafter	148	–	4,570	682	5,400
Total	₩654	₩–	₩7,290	₩3,268	₩11,212

For a description of our contingencies and contracts, see note 41 to our audited financial statements as of and for the years ended December 31, 2018 and 2019 and note 41 to our unaudited condensed consolidated interim financial statements as of and for the years ended December 31, 2019 and 2020, included elsewhere in the Offering Circular.

LIQUIDITY AND CAPITAL RESOURCES

We have met our working capital and other capital requirements primarily from, and we intend to continue to rely on, net cash provided by operating activities and financing activities. We had working capital (current assets minus current liabilities) of Won 4,098 billion, Won 3,709 billion and Won 3,324 billion as of December 31, 2018, 2019 and 2020, respectively.

During 2020, the balance of our cash and cash equivalents increased by Won 281 billion as we had net cash provided by operating activities of Won 2,427 billion and net cash provided by financing activities of Won 773 billion, while had net cash used in investing activities of Won 2,919 billion.

During 2019, the balance of our cash and cash equivalents decreased by Won 76 billion as we had net cash used in investing activities of Won 2,592 billion, mainly for the construction of new nuclear power plants, while we had net cash provided by operating activities of Won 1,835 billion and net cash provided by financing activities of Won 681 billion.

In 2018, we paid dividends of Won 281 billion, or Won 1,160 per share, related to income earned in 2017. In 2020, we paid dividends of Won 107 billion, or Won 440 per share, related to income earned in 2019. We did not make dividend payments in 2019.

In order to meet future working capital and other capital requirements, including our capital expenditures and servicing of our future debt, we intend to rely upon net cash provided by operating activities and debt financings.

Our ability to incur long-term debt in the future is subject to a variety of uncertainties including, among others, the amount of capital that other Korean entities may seek to raise in the markets. Economic, political and other conditions in Korea may also affect investor demand for our debt securities and those of other Korean entities. In addition, our ability to incur debt will also be affected by the Government's policies relating to borrowings, the liquidity of the Korean capital markets and our operating results and financial condition. We expect that a portion of our long-term debt will need to be raised through foreign currency borrowings outside of Korea.

As of December 31, 2020, our cash and cash equivalents were Won 316 billion, our total and unused committed bank credit lines amounted to Won 400 billion provided by local Korean banks and our total unused uncommitted trade finance credit facility amounted to US$750 million provided by major foreign banks.

MARKET RISKS

Our primary market risk exposures are to fluctuations in exchange rates, interest rates and fuel prices.

We are exposed to foreign exchange risk related to our purchases of fuels since substantially all of our fuel materials directly or indirectly come from sources outside Korea. Prices for such fuel materials are quoted based on prices stated in, and in many cases are paid for in, currencies other than Won. Nuclear fuel costs represented 12.7%, 13.5% and 12.9% of our sales in 2018, 2019 and 2020, respectively. We are currently not exposed to any material foreign exchange risk related to foreign currency denominated liabilities, as the majority of our long-term borrowings and bonds are currently denominated in Won and our foreign currency denominated bonds are fully hedged. We expect that our reliance on access to the foreign capital markets will increase and that, as a result, we will have to continue to take measures to mitigate a significant portion of our exposure to exchange rate fluctuations through currency forward contracts, including any U.S. dollar-denominated notes that we may issue from time to time under this Program.

We are exposed to interest rate risk. Upward fluctuations in interest rates increase the cost of additional debt and the interest cost of outstanding variable rate borrowings. We manage interest rate exposure in our debt positions by limiting our variable-rate and fixed-rate exposures to percentages of total debt and by monitoring the effects of market changes in interest rates. As of December 31, 2020, Won 4 billion of our long-term debt (including borrowings and bonds) were floating rate debts.

INFLATION

The effects of inflation in Korea on our financial condition and results of operations are reflected primarily in construction costs as well as in labor expenses. Inflation in Korea was 1.5% in 2018, 0.4% in 2019 and 0.5% in 2020. Based on preliminary data, GDP in 2020 contracted by 1.0% at chained 2015 year prices primarily as a result of the ongoing global outbreak of the COVID-19 pandemic. Inflation in Korea has not had a significant impact on our results of operations. It is possible that future inflation may have an adverse effect on our financial condition or results of operations.

THE KOREAN ELECTRICITY INDUSTRY

BACKGROUND

Total demand for electricity in Korea increased by 3.6% in 2018 but decreased by 1.1% in 2019 and by 2.2% in 2020, in each case, year on year, according to KEPCO. The consumption of electric power is expected to increase by 1.6% per year from 2020 to 2034, according to the Ninth Basic Plan.

Historically, KEPCO and its Generation Subsidiaries have made substantial expenditures for the construction of power plants and other facilities to meet increased demand for electric power. Subject to the Restructuring Plan as defined and discussed in "– Restructuring of the Electricity Industry in Korea" below, KEPCO and the Generation Subsidiaries plan to continue to make substantial expenditures to expand and enhance their generation, transmission and distribution system in the future.

The Korean electric utility industry traces its origin to the establishment of the first electric utility company in Korea in 1898. On July 1, 1961, the industry was reorganized by the merger of Korea Electric Power Company, Seoul Electric Company and South Korea Electric Company, which resulted in the formation of Korea Electric Company. From 1976 to 1981, the Government acquired the private minority shareholdings in Korea Electric Company. After the Government had acquired all of the outstanding shares of Korea Electric Company, Korea Electric Company dissolved, and KEPCO was incorporated in 1981, assuming the assets and liabilities of Korea Electric Company. KEPCO ceased to be wholly owned by the Government in 1989 when the Government sold 21.0% of its common stock. As of December 31, 2020, the Government owned 51.1% (including indirect holdings by Korea Development Bank, which is wholly owned by the Government) of the outstanding shares of KEPCO's common stock.

The Korea Electric Power Corporation Act requires that the Government own at least 51% of KEPCO's capital stock. Direct or indirect ownership of more than 50% of KEPCO's outstanding common stock enables the Government to control the approval of certain corporate matters which require a stockholders' resolution, including approval of dividends. The rights of the Government and Korea Development Bank as holders of KEPCO's common stock are exercised by the MOTIE in consultation with the Ministry of Economy and Finance (the "**MOEF**"). To our knowledge, the Government currently has no plan to cease to own, directly or indirectly, at least 51% of KEPCO's outstanding common stock.

Prior to the corporate reorganization effected on April 2, 2001, which created six generation subsidiaries wholly owned by KEPCO (including us), KEPCO was the principal electricity generation company in Korea. KEPCO continues to be the principal electricity transmission and distribution company in Korea, subject to the implementation of the Restructuring Plan.

RESTRUCTURING OF THE ELECTRICITY INDUSTRY IN KOREA

On January 21, 1999, the MOTIE published a plan to restructure the electricity industry (the "Restructuring Plan"). The overall objectives of the Restructuring Plan were to:

- introduce competition and thereby increase efficiency in the Korean electricity industry,
- ensure a long-term, inexpensive and stable electricity supply, and
- promote consumer convenience through the expansion of consumer choice.

The following is a description of the Restructuring Plan and the Government's position relating to the Restructuring Plan.

Phase I

During Phase I, which was the preparation stage for Phase II and lasted from January 1, 1999 to April 2, 2001, KEPCO continued to be the principal electricity generator, with several independent power producers ("IPPs") supplying electricity to it under existing power purchase agreements. On February 23, 2001, KEPCO's board of directors approved a plan to split its non-nuclear and non-hydroelectric generation capacity into five separate wholly owned generation subsidiaries, namely, Korea East-West Power Co., Ltd. ("EWP"), Korea Midland Power Co., Ltd. ("KOMIPO"), Korea South-East Power Co., Ltd. ("KOSEP"), Korea Southern Power Co., Ltd. ("KOSPO") and Korea Western Power Co., Ltd. ("KOWEPO"), each with its own management structure, assets and liabilities. KEPCO's hydroelectric and nuclear generation capacity was transferred into a separate wholly owned generation subsidiary (namely, us). On March 16, 2001, KEPCO's shareholders approved the plan to establish the Generation Subsidiaries effective as of April 2, 2001.

The Government's objectives in dividing the power generation capacity into separate generation subsidiaries were principally to:

- introduce competition and thereby increase efficiency in the electricity generation industry in Korea, and
- ensure the stable supply of electricity in Korea.

Following the implementation of Phase I, KEPCO retained, until the adoption of the Community Energy System ("CES") in July 2004, its monopoly position with respect to the transmission and distribution of electricity in Korea.

While KEPCO's ownership percentage of the non-nuclear and non-hydroelectric generation subsidiaries was to be decided by the ultimate form of the Restructuring Plan approved by the Government, to our knowledge, KEPCO plans to continue to retain 100% ownership of us and the transmission and distribution business.

Phase II

Phase II of the Restructuring Plan began on April 2, 2001. For Phase II, the Government introduced a competitive or bidding pool system under which KEPCO purchases power from the Generation Subsidiaries and other companies for transmission and distribution to customers. Such competitive bidding pool system, which is a cost-based system, was established on April 2, 2001. For a further description of the pool system, see "– Power Purchase – Cost-based Pool System" below.

Pursuant to the Electricity Business Act amended on December 23, 2000, the Government established the KPX on April 2, 2001 to deal with the sale of electricity and implement regulations governing the electricity market to allow for electricity distribution through a competitive bidding process. The Government also established the Electricity Regulatory Commission ("KOREC") on April 27, 2001 to regulate the restructured Korean electricity industry and to ensure fair competition. As part of this process, the KPX established the Electricity Market Rules relating to the operation of the bidding pool system. To amend the Electricity Market Rules, the KPX must have the proposed amendment reviewed by the KOREC and then obtain the approval of the MOTIE.

The KOREC's main functions include implementation of necessary standards and measures for electricity market operation and review of matters relating to licensing participants in the Korean electricity industry. The KOREC also acts as an arbitrator in disputes involving utility rates and participants in the Korean electricity industry and consumers and investigates illegal or deceptive activities of the participants in the Korean electricity industry.

Privatization of Non-nuclear Generation Subsidiaries

In April 2002, the MOTIE released the basic privatization plan for the five non-nuclear Generation Subsidiaries. KEPCO commenced the process for selling its interest in KOSEP in 2002. According to the original plan, this process was, in principle, to take the form of a sale of management control, potentially supplemented by an initial public offering as a way of broadening the investor base.

Suspension of the Plan to Form and Privatize Distribution Subsidiaries

In September 2003, the Tripartite Commission, which included, among others, representatives from the Government and the leading businesses and labor unions in Korea, established the Joint Study Group on Reforming Electricity Distribution Network to propose a methodology of introducing competition within the industry for distribution of electricity. In June 2004, based on a report published by this Joint Study Group, the Tripartite Commission issued a resolution that recommended halting the plan to form and privatize the distribution subsidiaries, and in lieu thereof, creating independent business divisions within KEPCO, namely, the "strategy business units," as a way of improving operational efficiency and internal competition among the district divisions. This resolution was adopted by the MOTIE in June 2004, and KEPCO subsequently commissioned a third party consultant to conduct a study on implementing plans related to the creation of the strategy business units and solicited comments on the study from various parties, including labor unions and the Government. Based on this study and the related comments, in September 2006, KEPCO established nine strategy business units (which, together with KEPCO's other business units, were subsequently restructured into 14 business units in February 2012) having a separate management structure with limited autonomy and separate financial accounting and performance evaluation criteria. Based on whether the strategy business units successfully achieve their intended goals of improving operational efficiency and internal competition, KEPCO may expand the use of strategy business units.

Introduction of Market-based Public Enterprise System

On August 25, 2010, the Government announced an electricity industry development plan through which the Government aims to increase efficiency through fostering competition and strengthen the autonomy of public companies. Pursuant to this plan, in December 2010, the MOTIE announced guidelines for a cooperative framework between KEPCO and the Generation Subsidiaries, and in January 2011, the five non-nuclear Generation Subsidiaries formed a "joint cooperation unit" and transferred their pumped-storage hydroelectric business units to us. Furthermore, in January 2011, the six Generation Subsidiaries were officially designated as "market-oriented public enterprises," whereupon the president of each such subsidiary is required to enter into a management contract directly with the minister of the MOTIE, performance evaluation of such subsidiaries is conducted by the Public Enterprise Management Evaluation Commission, and the president and the statutory auditor of each such subsidiary are appointed by the President of Korea while the selection of outside directors is subject to approval by the minister of the MOEF. Previously, the president of each such subsidiary entered into a management contract with KEPCO's president, performance evaluation of such subsidiaries was conducted by KEPCO's evaluation committee, and the president and the statutory auditor of each such subsidiary were appointed by, and the selection of outside directors was subject to approval by, KEPCO's president.

POWER PURCHASE

Cost-based Pool System

Since April 2001, the purchase and sale of electricity in Korea is generally required to be made through the KPX, which is a statutory not-for-profit organization established under the Electricity Business Act responsible for setting the price of electricity, handling the trading and collecting relevant data for the electricity market in Korea. The suppliers of electricity in Korea primarily consist of the Generation Subsidiaries, including us, which were spun-off from KEPCO in April 2001, and IPPs. KEPCO distributes electricity purchased through the KPX to end users.

The price of electricity in the Korean electricity market is determined principally based on the cost of generating electricity using a system known as the "cost-based pool" system, under which the Generation Subsidiaries, including us, fully pass through changes in fuel costs to KEPCO in its purchase through KPX of electricity from the Generation Subsidiaries, including us. Under the cost-based pool system, the price of electricity has two principal components, namely the marginal price (representing, in principle, the variable cost of generating electricity) and the capacity price (representing, in principle, the fixed cost of generating electricity).

Marginal Price

The primary purpose of the marginal price is to compensate the generation companies for fuel costs, which represents the principal component of the variable costs of generating electricity. Such marginal price is referred to as the "system marginal price." The concept of marginal price under the cost-based pool system has undergone several changes in recent years in large part due to the sharp fluctuations in fuel prices. For example, prior to December 31, 2006, the marginal price operated on a two-tiered structure, namely, a "base load" marginal price applicable to electricity generated from nuclear fuels and coals, which tend to be less expensive per unit of electricity than electricity generated from LNG, oil and hydroelectric power to which a "non-base load" marginal price applied.

The base load marginal price and the non-base load marginal price were generally set at levels so that electricity generated from cheaper fuels could be utilized first while ensuring a relatively fair rate of return to all generation units. However, when the price of coal rose sharply beginning in the second half of 2006, the pre-existing base load marginal price was abolished and a market cap by the name of "regulated market price" was introduced in its stead for electricity generated from base load fuels, with the regulated market price being set at a level higher than the pre-existing base load marginal price in order to compensate the Generation Subsidiaries for the rapid rise in the price of coal. However, when the price of coal continued to rise sharply above the level originally assumed in setting the regulated market price, this had the effect of undercutting KEPCO's profit margin as the purchaser of electricity from the Generation Subsidiaries, although the Generation Subsidiaries were able to maintain a better margin under the regulated market price regime than under the pre-existing base load marginal price regime. Accordingly, on May 1, 2008, the regulated market price regime was abolished, and the current system of "system marginal price" was introduced in order to set the marginal price in a more flexible way by using the concept of an "adjusted coefficient" tailored to each fuel type.

Under the system marginal price regime currently in effect, the marginal price of electricity at which the Generation Subsidiaries sell electricity to KEPCO is determined using the following formula:

$$\text{Marginal Price} = \text{Variable Cost} + [\text{System Marginal Price} - \text{Variable Cost}] * \text{Adjusted Coefficient}$$

The system marginal price represents, in effect, the marginal price of electricity at a given hour at which the projected demand for electricity and the projected supply of electricity for such hour intersect, as determined by the merit order system, which is a system used by the KPX to allocate which generation units will supply electricity for which hour and at what price. The projected demand for electricity for a given hour is determined by the KPX based on a forecast made one day prior to trading, and such forecast takes into account, among others, historical statistics relating to demand for electricity nationwide by day and by hour, after taking into account, among others, seasonality and peak-hour versus non-peak hour demand analysis. The projected supply of electricity at a given hour is determined as the aggregate of the available capacity of all generation units that have submitted bids to supply electricity for such hour. These bids are submitted to the KPX one day prior to trading.

Under the merit order system, the generation unit with the lowest variable cost of producing electricity among all the generation units that have submitted a bid for a given hour is first awarded a purchase order for electricity up to the available capacity of such unit as indicated in its bid. The generation unit with the next lowest variable cost is then awarded a purchase order up to its available capacity in its bid, and so forth, until the projected demand for electricity for such hour is met. The variable cost of the generation unit that is the last to receive the purchase order for such hour is referred to as the system marginal price, which also represents the most expensive price at which electricity can be supplied at a given hour based on the demand and supply for such hour. Generation units whose variable costs exceed the system marginal price for a given hour do not receive purchase orders to supply electricity for such hour. The variable cost of each generation unit is determined by the Cost Evaluation Committee on a monthly basis and reflected in the following month based on the fuel costs as of two months prior to such determination. The final allocation of electricity supply, however, is further adjusted on the basis of other factors, including the proximity of a generation unit to the geographical area to which power is being supplied, network and fuel constraints and the amount of power loss.

The purpose of the merit order system is to encourage generating units to reduce their electricity generation costs by making their generation process more efficient, sourcing fuels from more cost-effective sources or adopting other cost savings programs. The additional adjustment mechanism is designed to improve the overall cost-efficiency in the distribution and transmission of electricity to the end-users by adjusting for losses arising from the distribution and transmission process.

Under the merit order system, the electricity purchase allocation, the system marginal price and the final allocation adjustment are automatically determined based on an objective formula. The adjusted coefficient, the capacity price and the variable costs are determined in advance of trading by the Cost Evaluation Committee. Accordingly, a supplier of electricity cannot exercise control over the merit order system or its operations to such supplier's strategic advantage.

An adjusted coefficient applies in principle to all generation units operated by the Generation Subsidiaries and the coal-fired generation units operated by IPPs. The adjusted coefficient applicable to the generation units operated by the Generation Subsidiaries is determined based on considerations of, among others, electricity tariff rates, the differential generation costs for different fuel types and the relative fair returns on investment in respect of KEPCO compared to the Generation Subsidiaries. The purpose of the adjusted coefficient here is to prevent electricity trading from resulting in undue imbalances as to the relative financial results among the Generation Subsidiaries as well as between KEPCO (as the purchaser of electricity) and the Generation Subsidiaries (as sellers of electricity). Such imbalances may arise from excessive profit taking by base load generators (on account of their inherently cheaper fuel cost structure compared to non-base load generators) as well as from fluctuations in fuel prices (it being the case that during times of rapid and substantial rises in fuel costs which are not offset by corresponding rises in electricity tariff rates charged by KEPCO to end-users, on a non-consolidated basis, the profitability of KEPCO will decline compared to that of the Generation Subsidiaries since the Generation Subsidiaries are entitled to sell electricity to KEPCO at cost plus a guaranteed margin). In comparison, the adjusted coefficient applicable to the coal-fired generation units operated by IPPs is determined to enable such IPPs to recover the total costs of building and operating such units.

The adjusted coefficient applicable to the Generation Subsidiaries is currently set at the highest level for the marginal price of electricity generated using LNG and oil, followed by coal and nuclear fuel. The differentiated adjusted coefficients reflect the Government's prevailing energy policy objectives and have the effect of setting priorities in the fuel types to be used in electricity generation.

The adjusted coefficient is determined by the Cost Evaluation Committee in principle on an annual basis, although in exceptional cases driven by external or structural factors such as rapid and substantial changes in fuel costs, adjustments to electricity tariff rates or changes in the electricity pricing structure, the adjusted coefficient may be adjusted on a quarterly basis.

Previously, it was contemplated that the vesting contract system would gradually replace the application of the adjusted coefficient. However, since the implementation of the vesting contract system has been suspended indefinitely, it is unlikely to impact the application of the adjusted coefficient in the foreseeable future.

Capacity Price

In addition to payment in respect of the variable cost of generating electricity, the Generation Subsidiaries receive payment in the form of capacity price, the purpose of which is to compensate them for the costs of constructing generation facilities and to provide incentives for new construction. The capacity price is determined annually by the Cost Evaluation Committee based on the construction costs and maintenance costs of a standard generation unit and is paid to each generation company for the amount of available capacity indicated in the bids submitted the day before trading. From time to time, the capacity price is adjusted in ways to soften the impact of changes in the marginal price over time based on the expected rate of return for the Generation Subsidiaries. The reference capacity price and the time-of-the-day capacity coefficient are determined annually before the end of December for the subsequent 12-month period. The reserve capacity factor and the fuel switching factor are determined annually before the end of June for the subsequent 12-month period. Currently, the capacity price is determined using the following formula:

Capacity Price = Reference Capacity Price * Reserve Capacity Factor * Time of the Day Capacity Factor * Fuel Switching Factor

In the year ended December 31, 2020, the average capacity price of our generation units was Won 8.89/kWh.

The reference capacity price refers to the Korean Won amount per kilowatt-hour payable annually for annualized available capacity indicated in the bids submitted the day before trading (provided that such capacity is actually available on the relevant day of trading), and is determined based on the construction costs and maintenance costs of a standard generation unit and related transmission access facilities, and a base rate for loading electricity. Prior to October 2016, the same reference capacity price applied uniformly to all generation units. Since October 2016, the reference capacity price applies differentially to each generation unit depending on the start year of its commercial operation.

The reserve capacity factor relates to the requirement to maintain a standard capacity reserve margin in the range of 15% in order to prevent excessive capacity build-up as well as induce optimal capacity investment at the regional level. The capacity reserve margin is the ratio of peak demand to the total available capacity. Under this system, generation units in a region where available capacity is insufficient to meet demand for electricity, as evidenced by a failure to meet the standard capacity reserve margin, receive an increased capacity price. Conversely, generation units in a region where available capacity exceeds demand for electricity, as evidenced by exceeding the standard capacity reserve margin, receive a reduced capacity price. Since October 2016, the reserve capacity factor also factors in the transmission loss per generation unit in order to favor transmission of electricity from a nearby generation unit.

The time-of-the-day capacity coefficient allows hourly and seasonal adjustments in order to incentivize the Generation Subsidiaries to operate their generation facilities at full capacity during periods of highest demand. For example, the capacity price paid differs depending on whether the relevant hour is an “on-peak” hour, a “mid-peak” hour or an “off-peak” hour (the capacity price being highest for the on-peak hours and lowest for the off-peak hours) and the capacity price paid is highest during the months of January, July and August when electricity usage is highest due to weather conditions.

The fuel switching factor, which was introduced in October 2016 to promote environmental sensitivities to climate change, seeks to encourage reduced carbon emission by penalizing generation units (mostly coal-fired units) for excessive carbon emission.

Other than subject to the aforementioned variations, the same capacity pricing mechanism applies to all generation units regardless of fuel types used.

Vesting Contract System

On May 20, 2014, the Electricity Business Act was amended, with effect from November 21, 2014, to introduce a vesting contract system to determine the price and quantity of electricity to be sold and purchased through the KPX between the purchaser of electricity (currently, KEPCO) and the sellers of electricity (namely, the Generation Subsidiaries (including us) and IPPs). The application of the adjusted coefficient under the cost-based pool system is planned to be gradually replaced by the vesting contract system.

Under the vesting contract system, electricity generators using low-cost base load fuels (such as nuclear, coal, hydro and by-product gas) at a particular generation unit were to be required to enter into a contract with the purchaser of electricity (currently, KEPCO), which would specify, among other things, the quantity of electricity to be generated and sold from such generation unit and the price at which such electricity would be sold, subject to certain adjustments.

The introduction of the vesting contract system was intended principally to prevent excessive profit-taking by producers of electricity using low-cost base load fuels (such as nuclear, coal, hydro and by-product gas) by replacing the adjusted coefficient as the basis for determining the guaranteed return to generation companies, as well as to enhance the stability of electricity supply by requiring long-term contractual arrangements for the purchase and sale of electricity and promote cost savings, productivity enhancements and operational efficiency by providing incentives and penalties depending on the degree to which the generation companies could supply electricity at costs below the contracted electricity prices.

In order to minimize undue shock to the electricity trading market in Korea, the vesting contract system was to be implemented in phases starting with by-product gas-based electricity in 2015. The rollout of the vesting contract system was further studied by a task force consisting of representatives from the Government, the KPX and generation companies. Following such study, the Government announced in June 2016 that, due to changes in the electricity business environment (including an increase in generation capacity relative to peak usage, reduced fuel costs following a decline in oil prices and greater environmental concerns related to coal-fired electricity generation), it will indefinitely suspend any further rollout of the vesting contract system beyond by-product gas-based electricity, and retain the adjusted coefficient-based electricity pricing adjustment mechanism.

RENEWABLE PORTFOLIO STANDARD

In order to expand the utilization of renewable energy resources for generating electrical energy, to reduce greenhouse gas emission and to protect the environment, the Government adopted the RPS in December 2010, under which 10% of all electricity generated by the power generation companies in Korea will be required to be sourced from renewable energy by 2022. Generation companies receive Renewable Energy Certificates ("RECs"), based on a weighted scheme, for energy generated from an eligible renewable energy source, which can be used to satisfy their own RPS requirements or traded on the KPX to other generation companies to satisfy their RPS requirements. Penalties are levied on any generation company with generation capacities of 500 megawatts or more that fails to do so in the prescribed timeline.

THIRD BASIC NATIONAL ENERGY PLAN

On June 4, 2019, the MOTIE adopted the Third Basic National Energy Plan following consultations with representatives from civic groups, the power industry and academia. The Third Basic National Energy Plan, which is a comprehensive plan that covers the entire spectrum of energy industries in Korea, covers the period from 2019 to 2040 (compared to 2013 to 2035 under the Second Basic National Energy Plan) and focuses on the following five key tasks: (i) innovating the structure of energy consumption by strengthening the energy demand management of various sectors such as industrial, building and transportation, and streamlining pricing systems with the aim of improving the efficiency of energy consumption by 38% by 2040 and reducing energy demand by 18.6% by 2040, (ii) transitioning to a clean and safe mix of energy through increasing the share of renewable energy by 30~35% while reducing the share of nuclear and coal energy, (iii) expanding decentralized and participatory energy systems by increasing the share of distributed energy resources (such as renewable energy and fuel cells) in areas with demand and strengthening regional management by expanding the roles and responsibilities of local governments, (iv) bolstering the global competitiveness of Korea's energy industry by fostering future energy industries such as renewable energy, hydrogen and efficiency-enhancing industries, as well as through adding value to existing traditional energy industries, and (v) laying the foundation for conversion to clean and safe energy by improving the electricity, gas and heat market systems and building an energy big data platform to promote the creation of new industries.

NINTH BASIC PLAN RELATING TO THE LONG-TERM SUPPLY AND DEMAND OF ELECTRICITY

In December 2020, the Government released the Ninth Basic Plan which serves as the guideline for stable medium and long-term supply of electric power. The Ninth Basic Plan replaced and superseded the Eighth Basic Plan, which covered the period from 2017 to 2031 and focused on, among other things, (i) increasing efforts to address environmental and safety concerns, including reducing greenhouse gas emission and yellow dust, (ii) decreasing the portion of electricity supplied using nuclear and coal energy sources, (iii) increasing the portion of electricity supplied from renewable energy, in particular solar and wind power and (iv) promoting the replacement of coal with LNG as an energy source by reducing the gap in expenses incurred in using the respective fuel types, for example, by adjusting the consumption tax rates applicable to the respective fuel types.

The objectives of the Ninth Basic Plan include, among other things, (i) changing energy policy to a safe and clean energy mix by reducing coal and nuclear power generation and increasing renewable energy, (ii) preparing implementation measures for further reduction of greenhouse gas, (iii) accelerating investments in renewable energy and expanding infrastructure for the transition to a low-carbon economy/society and (iv) improving the electricity market system to promote fair competition and lay the foundation for expansion of eco-friendly energy. Furthermore, the Ninth Basic Plan includes the following implementation measures: (i) six coal-fired generation plants will be retired by 2022, (ii) 24 other coal-fired generation plants will be retired and converted to LNG fuel use by 2034, (iii) domestic renewable energy generation capacity will be expanded to 77.8 gigawatts by 2034 to meet the target set in the Third Basic National Energy Plan and (iv) the extension of life of eleven nuclear generation units will not be granted and such units will be retired by 2034.

PLAN TO REFORM STATE-OWNED ENTERPRISES IN THE ENERGY AND RESOURCES DEVELOPMENT SECTOR

On June 14, 2016, the Government announced broad plans to overhaul state-owned enterprises in the energy and resources development sector, including KEPCO, in response to reported losses and inefficiencies among state-owned enterprises. The Government aimed to streamline overlapping energy and resources development roles and functions among the state-owned enterprises by divesting from businesses not essential to the core purpose for which a stated-owned enterprise was established, while also encouraging competition by gradually opening up the energy and resources development industry to the private sector. With respect to the electric power industry, the plans call for, among other things, (i) KEPCO's divesture of its overseas businesses to the Generation Subsidiaries, (ii) the designation and specialization among the Generation Subsidiaries on the areas of business to pursue overseas, (iii) the gradual liberalization of the electricity distribution market and (iv) the initial public offering of the Generation Subsidiaries in conjunction with the sale of minority interests (20% to 30%) in such subsidiaries, by 2020. Pursuant to such plans, KEPCO considered a sale in the public market of a minority stake of its shares in the Generation Subsidiaries. However, to our knowledge, the planned sales have been put on hold. In any event, we believe that KEPCO plans to maintain a controlling interest in each of the Generation Subsidiaries.

BUSINESS

OVERVIEW

We were established on April 2, 2001 as a result of a corporate split from KEPCO, pursuant to which KEPCO transferred all of its nuclear and hydroelectric power generation assets and related liabilities to us in accordance with the Act on the Promotion of Restructuring the Electric Power Industry and the Restructuring Plan for the electricity industry in Korea announced by MOTIE. See "*The Korean Electricity Industry – Restructuring of the Electricity Industry in Korea.*" Pursuant to Article 2 of our Articles of Association, we engage in nuclear and hydroelectric power generation and sell all of our generated electricity to KEPCO through the KPX in accordance with Article 31 of the Electricity Business Act of Korea. We are wholly owned by KEPCO and are the only nuclear power generation company in Korea.

Our vision is to become a trusted leader in the global energy industry. Our key strategic priorities are in the following three areas: enhanced safety for our nuclear operations, incremental and selective expansion of overseas businesses and creation of new business opportunities based on technological development. We maintain a "safety first, corruption free" principle for all our operating systems and comprehensively improve our business through technological innovation. We plan to continue to focus on winning mandates for EPC projects as well as explore opportunities to expand into the "build, operate and own" business. We also strive to explore new business areas, such as decommissioning and renewable energy optimization, with a view of exporting such services in the future.

As of December 31, 2020, we owned and operated 24 nuclear power generation units with aggregate installed capacities of 23,250 MW, 53 hydroelectric power generation units (which includes pumped-storage hydro power generation units) with aggregate installed capacities of 5,307 MW, 28 solar generation units with aggregate installed capacities of 43 MW and one wind power generation unit with installed capacity of 1 MW. All of our nuclear power plants supply base load power, and hydroelectric power plants supply electricity during peak hours.

Nuclear power is one of the largest electricity supply sources in Korea. As of December 31, 2020, we owned approximately 22.1% of the total electricity generation capacity in Korea (excluding plants generating electricity primarily for private or emergency use). In 2019 and 2020, we sold 142,949 GW hours and 156,726 GW hours of electricity, respectively, to KEPCO. Nuclear power, all of which is generated by us, accounted for 26.2% and 29.6% of total electricity sold in Korea in 2019 and 2020, respectively, in terms of sales volume. In 2019 and 2020, nuclear power generation accounted for 97.1% and 97.3%, respectively, of the electricity generated by us.

In 2018, 2019 and 2020, our sales were Won 8,955 billion, Won 8,983 billion and Won 10,000 billion, respectively. We recorded loss of Won 102 billion in 2018, profit of Won 247 billion in 2019 and profit of Won 618 billion in 2020. As of December 31, 2020, our total assets amounted to Won 62,284 billion.

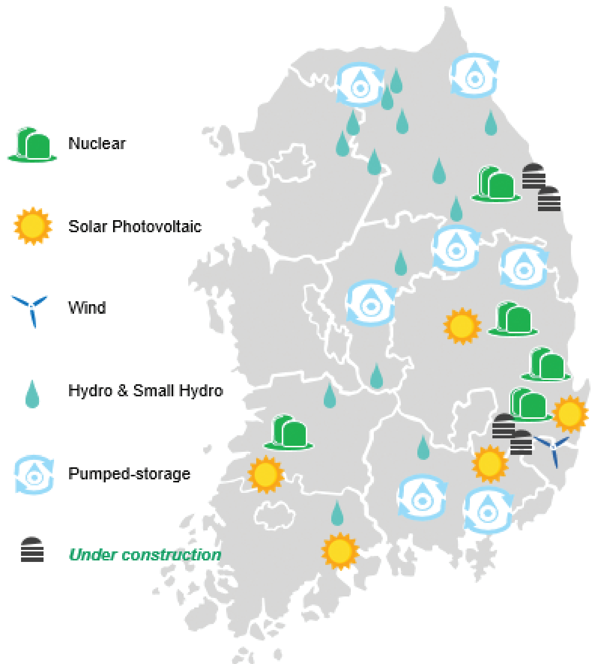
We are a corporation of unlimited duration incorporated with limited liability under the laws of Korea. Our registered office is located at 1655 Bulguk-ro, Munmudaewang-myeon, Gyeongju-si, Gyeongsangbuk-do 38120, Republic of Korea. Our corporate registration number in the commercial registry office in Korea is 120-86-18943.

POWER GENERATION

KEPCO commenced nuclear power generation activities in 1978 when its first nuclear power generation unit, Kori unit #1, began commercial operations. On April 2, 2001, KEPCO transferred all of its nuclear and hydroelectric power generation assets and related liabilities to us.

The following map shows the geographic locations of our power plants as of December 31, 2020.

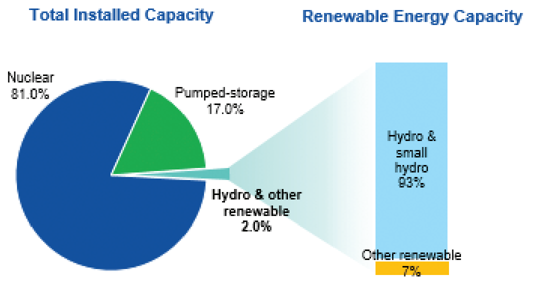
Location of Power Plants and New Energy Projects



Power Plant Classification by Installed Capacity

Type		Unit	Capacity (MW)
Nuclear	Kori #2, 3, 4	3	2,550
	Shin Kori #1~4	4	4,800
	Shin Kori #5, 6	2	under construction
	Wolsong #2, 3, 4	3	2,100
	Shin Wolsong #1, 2	2	2,000
	Hanul #1~6	6	5,900
	Shin Hanul #1, 2	2	under construction
	Hanbit #1~6	6	5,900
	Subtotal	24	23,250
Hydro and small hydro		37	607
Pumped-storage		16	4,700
Other renewables		29	44
Total		106	28,601
Under Construction		4	5,600

* Including KHNP's independent facilities only; ** Kori #1 currently under decommissioning



As of December 31, 2020, we owned and operated (i) 24 nuclear power generation units at five power plant complexes in Korea, located in Kori, Saeul, Wolsong, Hanbit and Hanul, (ii) 53 hydroelectric power generation units (which include 16 pumped-storage hydro power generation units), (iii) 28 solar power generation units and (iv) one wind power generation unit.

The table below sets forth, as of the dates and the periods indicated, the number of units, installed capacity and the average capacity factor for the four types of generation facilities.

	Number of Units as of December 31, 2020	Installed Capacity as of December 31, 2020(1)	Average Capacity Factor in 2020(2)
		(MWs)	(%)
Nuclear	24	23,250	75.30
Hydro	53	5,307	9.40
Solar	28	43	14.77
Wind	1	1	2.21
Total	106	28,601	

Notes:

(1) Installed capacity represents the level of output that may be sustained continuously without significant risk of damage to plant and equipment.

(2) Average capacity factor represents the total number of kWh of electricity generated in the respective period divided by the total number of kWh that would have been generated assuming continuous operation of generation units at installed capacity expressed as a percentage.

The operating life of units of each type without substantial renovation is approximately 30 to 60 years for nuclear and over 40 years for hydroelectric.

Although the Government has called for the gradual reduction of nuclear energy generated nationally from 25.9% in 2019 to 25.0% to 2030 under the Ninth Basic Plan, nuclear power generation continues to play an important component in Korea's power generation mix. While nuclear units are more expensive to construct than other units of comparable capacity, nuclear fuel is less expensive than fossil fuels in terms of marginal costs for producing comparable amounts of energy. However, efficient operation of nuclear units requires that such plants be run continuously at relatively constant energy output levels. As electricity cannot be stored in significant amounts, generation must be varied continuously to match demand. Each day there is a certain level below which demand does not fall. This minimum level of demand throughout the day is known as "base load." Nuclear power generation units operate at base load because design and safety considerations limit the extent to which the plant can vary output. For production at times when demand exceeds the level of continuous demand, reliance is made on units fired by fossil fuel and hydroelectric units, which can be started and shut down more efficiently than nuclear units. Hydroelectric units, along with thermal units fired by LNG and gas turbine internal combustion units, are one of the most efficient types of units for rapid startup and shutdown, and therefore have been used principally to meet short-term surges in demand.

Nuclear

The table below sets forth certain information with respect to the nuclear power generation units we owned as of December 31, 2020.

	Reactor Type[(1)]	Reactor Design[(2)]	Turbine and Generation[(3)]	Commencement of Operations	Capacity Installed	Average Capacity Factor
					(MWs)	(%)
Kori-2	PWR	W	GEC	1983	650	36.7
Kori-3	PWR	W	GEC, Hitachi	1985	950	78.9
Kori 4	PWR	W	GEC, Hitachi	1986	950	81.7
Shin-Kori-1	OPR1000	D, KEPCO E&C, W	D, GE	2011	1,000	90.6
Shin-Kori-2	OPR1000	D, KEPCO E&C, W	D, GE	2012	1,000	92.4
Shin-Kori-3	APR1400	D, KEPCO E&C, W	D, GE	2016	1,400	68.7
Shin-Kori 4	APR1400	D, KEPCO E&C, W	D, GE	2018	1,400	78.5
Wolsong-2	PHWR	AECL, H, K	H, GE	1997	700	74.9
Wolsong-3	PHWR	AECL, H	H, GE	1998	700	63.7
Wolsong-4	PHWR	AECL, H	H, GE	1999	700	78.8
Shin-Wolsong-1	OPR1000	D, KEPCO E&C, W	D, GE	2012	1,000	100.0
Shin-Wolsong-2	OPR1000	D, KEPCO E&C, W	D, GE	2015	1,000	99.9
Hanbit-1	PWR	W	W, D	1986	950	99.5
Hanbit-2	PWR	W	W, D	1987	950	76.3
Hanbit-3	PWR	H, CE, K	H, GE	1995	1,000	9.1
Hanbit-4	PWR	H, CE, K	H, GE	1996	1,000	0.0
Hanbit-5	PWR	D, W, KEPCO E&C	D, GE	2002	1,000	31.0
Hanbit-6	PWR	D, W, KEPCO E&C	D, GE	2002	1,000	100.3
Hanul-1	PWR	F	A	1988	950	78.9
Hanul-2	PWR	F	A	1989	950	88.9
Hanul-3	OPR1000	H, CE, K	H, GE	1998	1,000	100.3
Hanul-4	OPR1000	H, CE, K	H, GE	1999	1,000	85.6
Hanul-5	OPR1000	D, KEPCO E&C, W	D, GE	2004	1,000	100.3
Hanul-6	OPR1000	D, KEPCO E&C, W	D, GE	2005	1,000	75.1
Total installed capacity					23,250	75.3

Notes:

(1) "PWR" means pressurized light water reactor; "PHWR" means pressurized heavy water reactor, "OPR1000" means two-loop 1000 MWe Generation II nuclear reactor, "APR1400" means 1400 MW advanced pressurized water nuclear reactor.

(2) "W" means Westinghouse Electric Company (U.S.A.); "AECL" means Atomic Energy Canada Limited (Canada); "F" means Framatome (France); "H" means Hanjung; "CE" means Combustion Engineering (U.S.A.); "D" means Doosan Heavy Industries; "K" means Korea Atomic Energy Research Institute; "KEPCO E&C" means KEPCO Engineering & Construction.

(3) "GEC" means General Electric Company (U.K.); "P" means Parsons (Canada and U.K.); "W" means Westinghouse Electric Company (U.S.A.); "A" means Alstom (France); "H" means Hanjung; "GE" means General Electric (U.S.A.); "D" means Doosan Heavy Industries; "Hitachi" means Hitachi Ltd. (Japan).

We are currently building four additional nuclear power generation units, consisting of two units at the Shin-Kori site and two units at the Shin-Hanul site, each with a 1,400 megawatt capacity. We expect to complete these units by 2025. In December 2019, our Wolsong unit #1 was permanently shut down. We also announced the abandonment of plans to construct four new nuclear units and our plans to construct two nuclear units, Shin-Hanul units #3 and 4 for which construction permits had already been received, have been suspended until further notice from the Government. Furthermore, the Ninth Basic Plan precludes the extension of the operating lives of eleven nuclear generation units, which will be retired by 2034.

The structure of a nuclear power plant in many aspects resembles that of a conventional thermal power station, since in both cases the heat produced in the boiler (or reactor) is transported by some coolant and used to generate steam. The steam then goes to the blades of a turbine and by rotating them, causes a connected generator to produce electric energy. The steam goes to the condenser, where it condenses, i.e., becomes liquid again. The cooled-down water afterwards returns to the boiler or reactor, or in the case of PWRs to the steam generator.

The key difference between a conventional thermal power station and a nuclear power plant is the method of heat production. In a fossil plant, oil, gas or coal is fired in the boiler, as a result of which the chemical energy of the fuel is converted into heat. In a nuclear power plant, energy that comes from fission reactions is utilized.

Several nuclear power plant types are used for energy generation in the world. The different types are usually classified based on the main features of the reactor applied in them.

At our reactors, we apply two of the most widespread power plant reactor types:

- Light water reactors: both the moderator and coolant are operated with light water (H20). The PWR and boiling water reactors belong to this category. These units use enriched uranium and require a complete shutdown of the power generation unit during a nuclear fuel change.

- Heavy water reactors: both the coolant and moderator are operated with heavy water (D20). The PHWR belongs to this category. These units use non-enriched uranium and do not require a shutdown of the power generation unit during a nuclear fuel change.

As of December 31, 2020, extended fuel cycle operations were in effect for all 24 of our nuclear units. Under extended fuel cycle operations, nuclear units can be run continuously for periods longer than the conventional twelve-month period between shutdowns for refueling and maintenance. The extended fuel cycle period is 18 months.

In 2020, the average shutdown period for fuel replacement and maintenance was 85.9 days per unit of which approximately 124.0 to 173.5 hours were spent on fuel replacement per unit. Our nuclear units experienced an average of 0.13 unplanned shutdowns per unit in 2020.

In the ordinary course of operation, our nuclear units routinely experience damage and wear and tear and are repaired during routine shutdown periods or during unplanned temporary suspensions of operations. No significant damage has occurred in any of our nuclear reactors and no significant nuclear exposure or release incidents have occurred at any of our nuclear facilities since the first nuclear plant commenced operations in 1978.

Nuclear power has a stable and low cost structure that forms the base load of Korea's electricity supply. In 2020, the average nuclear fuel cost, which includes power purchase costs and material costs, was Won 7.69 per kWh.

Hydroelectric

The table below sets forth for the year ended December 31, 2020 certain information regarding each hydroelectric power plant.

Name (Number of Plants)	Classification	Year Built	Installed Capacity	Average Capacity Factor For the Year Ended December 31, 2020
			(MWs)	(%)
Hwacheon (4)	Hydro	1944	108.0	21.2
Chuncheon (2)	Hydro	1965	62.3	20.6
Euiam (2)	Hydro	1967	48.0	27.0
Cheongpyung (4)	Hydro	1943/2011	140.1	19.7
Paldang (4)	Hydro	1972	120.0	30.8
Chilbo (Seomjingang) (3)	Hydro	1945	35.4	26.0
Kangreung (2)	Hydro	1990	82.0	0.0
Gangrim (3)	Small hydro	1978	0.5	22.7
Boseonggang (2)	Small hydro	1935	4.5	49.5
Kwoesan (2)	Small hydro	1957	2.8	33.6
Muju (1)	Small hydro	2003	0.4	22.0
Yangyang (2)	Small hydro	2004	1.4	24.3
Yangyang (1)	Small hydro	2020	0.2	4.1
Sancheong (2)	Small hydro	2010	1.0	35.8
Yecheon (1)	Small hydro	2011	0.9	21.0
Yecheon (1)	Small hydro	2018	0.03	71.5
Topyeong (1)	Small hydro	2011	0.05	9.9
Cheongpeoung (2)	Pumped Storage	1980	400.0	8.4
Samrangjin (2)	Pumped Storage	1985	600.0	1.1
Cheongsong (2)	Pumped Storage	2006	600.0	11.5
Sancheong (2)	Pumped Storage	2001	700.0	12.0
Yangyang (4)	Pumped Storage	2006	1,000.0	10.3
Muju (2)	Pumped Storage	1995	600.0	6.5
Yecheon (2)	Pumped Storage	2011	800.0	4.7
Total			5,307.5	9.4

As of December 31, 2020, we operated 53 hydroelectric power-producing units (which includes pumped-storage power generation units) with total generating capacity of approximately 5,307 MW. The Government-owned Korea Water Resources Corporation assumes full control of multipurpose dams, while we maintain the dams used for power generation.

Existing hydroelectric power plants exploit most of the water resources in Korea available for commercially viable hydroelectric power generation. Consequently, we are working to develop small-size hydro units with capacity of less than 10,000 kW instead of the relatively larger hydro units currently in operation.

Due to its high cost of generation and relative ease in starting up and shutting down the generation units, hydroelectric power generation is reserved for peak periods.

Fuel

All uranium ore concentrates used by us are imported from, and conversion and enrichment of such concentrates are provided by, sources outside Korea and are paid for with currencies other than Won, primarily U.S. dollars.

In order to ensure stable supply, we enter into long-term and medium-term contracts with various suppliers, and supplement such supplies with purchases of fuels on spot markets. In addition, we have entered into definitive agreements to purchase equity interests in uranium mines, a uranium production company and a uranium enrichment plant. In connection with such investments, we have secured long-term supply of uranium pursuant to those and other related agreements. See "*– Overseas Activities.*"

In 2020, we purchased our uranium concentrates requirements under both long-term and spot supply contracts with suppliers in Australia, Canada, France, Germany, Hong Kong, Japan, Kazakhstan, Switzerland, the United Kingdom and Uzbekistan. Under the long-term supply contracts, the purchase prices of uranium concentrates are adjusted annually based on base price and spot market price prevailing at the time of actual delivery. Non-Korean suppliers provide the conversion and enrichment of uranium concentrates and a Korean supplier provide fabrication of fuel assemblies.

The conversion of uranium concentrates is provided by suppliers in Canada, China, France, Hong Kong, Japan, Russia and Switzerland, based on supply contracts with terms typically ranging from one to nine years, while the enrichment of uranium concentrates is provided by suppliers in China, France, Russia, Switzerland and the United Kingdom, based on long-term contracts with terms typically ranging from five to 15 years.

Contract prices for processing of uranium are adjusted annually in accordance with the general rate of inflation with exceptions for certain fixed contract prices. We intend to obtain our uranium requirements in the future, in part, through purchases under long-term and medium-term contracts and, in part, through spot market purchases.

The table below sets forth details of our material nuclear fuel purchase contracts as of December 31, 2020.

Country of Source	Contract Company	Contract Duration	Key Contract Details
Canada	Cameco Corporation	'17-'25	Uranium Concentrate Purchase Contract
United Kingdom	Rio Tinto Uranium Limited	'19-'23	Uranium Concentrate Purchase Contract
Germany	UG	'19-'23	Uranium Concentrate Purchase Contract
France	Orano Mines	'19-'30	Uranium Concentrate Purchase Contract
United Kingdom	Urenco	'16-'25	Uranium Concentrate Purchase Contract
Hong Kong	UG Asia	'18-'22	Uranium Concentrate Purchase Contract
Japan	ITOCHU Corporation	'18-'22	Uranium Concentrate Purchase Contract
Switzerland	Internexco	'20-'24	Uranium Concentrate Purchase Contract
Kazakhstan	Kazaktomprom	'25-'29	Uranium Concentrate Purchase Contract
Uzbekistan	NMMC	'20-'26	Uranium Concentrate Purchase Contract
Australia	BHP Biliton	'25-'29	Uranium Concentrate Purchase Contract

SALES AND PURCHASE OF POWER

Generation Companies' Combined Sales of Electricity

Pursuant to Article 31 of the Electricity Business Act of Korea, we sell all of the electricity we generate to KEPCO through the KPX. KEPCO is currently the only company engaged in the transmission and distribution of electricity in Korea. The results of power trading, as effected through the KPX, for the generation subsidiaries, including us, and IPPs for the years ended December 31, 2018, 2019 and 2020 are as follows:

	For the year ended December 31, 2018				
	Volume[1][2]	Percentage of Total Volume	Sales[1]	Percentage of Total Sales	Unit Price
	(Gigawatt hours)	(%)	(in billions of Won)	(%)	(Won/kWh)
Generation Companies:					
KHNP	131,931	24.6	8,503	17.5	64.45
KOSEP	64,128	11.9	5,441	11.2	84.84
KOMIPO	45,569	8.5	4,238	8.7	93.00
KOWEPO	49,222	9.2	4,765	9.8	96.82
KOSPO	55,525	10.4	5,438	11.2	97.94
EWP	50,697	9.5	4,776	9.8	94.21
Others[3]	139,216	25.9	15,470	31.8	111.12
Total	536,287	100.0	48,631	100.0	90.68

	For the year ended December 31, 2018				
	Volume(1)(2)	Percentage of Total Volume	Sales(1)	Percentage of Total Sales	Unit Price
	(Gigawatt hours)	(%)	(in billions of Won)	(%)	(Won/kWh)
Energy Sources:					
Nuclear	126,883	23.7	7,889	16.2	62.18
Bituminous coal	226,585	42.3	18,793	38.6	82.94
Anthracite coal	2,420	0.5	258	0.5	106.45
Oil	6,834	1.3	1,185	2.4	173.37
LNG-combined cycle	144,039	26.9	17,485	36.0	121.39
Hydro	2,763	0.5	302	0.6	109.36
Pumped storage	3,892	0.7	490	1.0	125.81
Renewables(1)	22,165	4.1	2,161	4.4	97.50
Others	709	0.1	68	0.1	96.25
Total	536,287	100.0	48,631	100.0	90.68

Source: KEPCO.

Notes:

(1) Excludes sale of RECs by generation companies.

(2) Includes volume from CES projects.

(3) Includes, among others, POSCO, OCI Company Ltd., LG Petrochemical Co., Ltd. and Korea Petrochemical IND. Co., Ltd.

	For the year ended December 31, 2019				
	Volume(1)(2)	Percentage of Total Volume	Sales (1)	Percentage of Total Sales	Unit Price
	(Gigawatt hours)	(%)	(in billions of Won)	(%)	(Won/kWh)
Generation Companies:					
KHNP	142,949	27.0	8,608	18.1	60.22
KOSEP	60,361	11.4	5,354	11.2	88.70
KOMIPO	43,342	8.2	4,435	9.3	102.33
KOWEPO	44,178	8.4	4,354	9.1	98.56
KOSPO	48,932	9.2	4,987	10.5	101.91
EWP	48,144	9.1	4,658	9.8	96.75
Others(3)	141,168	26.7	15,290	32.1	108.31
Total	529,075	100.0	47,686	100.0	90.13
Energy Sources:					
Nuclear	138,607	26.2	8,094	17.0	58.39
Bituminous coal	215,012	40.6	18,808	39.4	87.47
Anthracite coal	2,331	0.4	240	0.5	102.85
Oil	4,011	0.8	918	1.9	228.79
LNG combined-cycle	138,655	26.2	16,519	34.6	119.13
Hydro	2,193	0.4	236	0.5	107.83
Pumped storage	3,444	0.7	419	0.9	121.62
Renewables(1)	22,575	4.3	2,242	4.7	99.30
Others	2,247	0.4	211	0.4	94.01
Total	529,075	100.0	47,686	100.0	90.13

Source: KEPCO.

Notes:

(1) Excludes sale of RECs by generation companies.

(2) Includes volume from CES projects.

(3) Includes, among others, POSCO, OCI Company Ltd., LG Petrochemical Co., Ltd. and Korea Petrochemical IND. Co., Ltd.

	For the year ended December 31, 2020				
	Volume[(1)(2)]	Percentage of Total Volume	Sales[(1)]	Percentage of Total Sales	Unit Price
	(Gigawatt hours)	(%)	(in billions of Won)	(%)	(Won/kWh)
Generation Companies:					
KHNP	156,726	30.4	9,554	23.0	60.96
KOSEP	48,677	9.4	4,047	9.7	83.14
KOMIPO	46,265	9.0	4,154	10.0	89.79
KOWEPO	37,684	7.3	3,502	8.4	92.94
KOSPO	41,434	8.0	3,946	9.5	95.23
EWP	43,027	8.4	3,982	9.6	92.56
Others[(3)]	141,390	27.4	12,382	29.8	87.57
Total	515,203	100.0	41,567	100.0	80.68
Energy Sources:					
Nuclear	152,328	29.6	9,093	21.9	59.69
Bituminous coal	185,179	35.9	15,209	36.6	82.13
Anthracite coal	1,876	0.4	153	0.4	81.47
Oil	2,184	0.4	422	1.0	193.12
LNG combined-cycle	140,866	27.3	13,918	33.5	98.81
Hydro	3,156	0.6	258	0.6	81.72
Pumped storage	3,257	0.6	368	0.9	113.07
Renewables[(1)]	20,202	3.9	1,610	3.9	79.70
Others	6,156	1.2	536	1.3	87.03
Total	515,203	100.0	41,567	100.0	80.68

Source: KEPCO.

Notes:

(1) Excludes sale of RECs by generation companies.

(2) Includes volume from CES projects.

(3) Includes, among others, POSCO, OCI Company Ltd., LG Petrochemical Co., Ltd. and Korea Petrochemical IND. Co., Ltd.

Cost-based Pool System

Currently, other than in limited circumstances under the CES and certain exceptional transactions stipulated under the Enforcement Decree of the Electricity Business Act, the purchase and sale of electricity in Korea is required to be made through the KPX. The pricing of electricity in the Korean electricity market is based on the "cost-based pool" system and is determined principally based on the variable cost of generating electricity, adjusted by an adjustment factor that varies depending on fuel sources. See *"The Korean Electricity Industry – Power Purchase – Cost-Based Pool System."*

Demand Trends in Korea

The rapid growth in Korea's economy since the early 1960s has resulted in substantial growth in the demand for electricity. Consumption levels, particularly during periods of peak demand, continue to press the limits of available supply.

According to KEPCO, demand for electricity in Korea grew at a compounded average rate of 1.1% per annum for the five years ended December 31, 2020, and total demand for electricity in Korea decreased by 1.1% in 2019 and 2.2% in 2020, in each case, year on year. The GDP growth rate at chained 2015 year prices was 2.0% in 2019 and 1.0% in 2020, in each case, year on year based on preliminary data from the Bank of Korea.

The table below sets forth, for the periods indicated, the annual rate of growth in Korea's GDP as published by the Bank of Korea and the annual rate of growth in electricity demand (measured in total annual electricity consumption) as published by KEPCO.

	For the year ended December 31,				
	2016	**2017**	**2018**	**2019**	**2020**
Growth in GDP (at chained 2015 year prices)	2.9%	3.2%	2.7%	2.0%	1.0%
Growth (decrease) in electricity consumption	2.8%	2.2%	3.6%	(1.1)%	(2.2)%

Source: KEPCO; Bank of Korea

The demand for electricity varies depending on the season and the time of day. Demand is generally higher during the summer and winter seasons due to the use of air conditioners and heaters, respectively, and during daylight hours due to commercial and industrial activity. Variations in weather conditions may also cause significant variations in demand for electricity.

Demand by Class of Customer

The table below sets forth the consumption of electric power by class of customer for the periods indicated.

	For the year ended December 31,					% of Total
	2016	**2017**	**2018**	**2019**	**2020**	**2020**
	(gigawatt hours)					(%)
Industrial	278,828	285,970	292,999	289,240	278,660	54.7
Public & Service	108,617	111,298	116,934	116,227	113,639	22.3
Residential	68,057	68,544	72,895	72,639	76,303	15.0
Agricultural	16,580	17,251	18,504	18,882	19,029	3.7
Others[(1)]	24,957	24,684	24,818	23,511	21,638	4.2
Total	497,039	507,746	526,149	520,499	509,269	100.0

Source: KEPCO

Note:

(1) Consists of consumption for education, street lighting and overnight power.

The industrial sector represents the largest segment of electricity consumption in Korea. While demand from the industrial sector has generally increased historically as a result of a general increase in industrial production, it decreased by 3.7% to 278,660 gigawatt hours in 2020 compared to 2019, mainly due to a contraction in the Korean manufacturing industries as a result of the ongoing global outbreak of the COVID-19 pandemic.

Demand from the public and service sector has also generally increased historically. The continued expansion of the service sector of the Korean economy has resulted in increased office building construction, office automation and use of air conditioners. Growth in the public and service sector was also attributable to the construction industry and the expansion of the leisure and distribution industries. However, demand from the public and service sector decreased by 2.2% to 113,639 gigawatt hours in 2020 compared to 2019, primarily due to a construction in the Korean economy as a result of the ongoing global outbreak of the COVID-19 pandemic.

Increase in demand from the residential sector in recent years was due primarily to increased use of air conditioners and other electrical appliances. Demand from the residential sector increased by 5.0% to 76,303 gigawatt hours in 2020 compared to 2019, which was mainly attributable to the enlarged home-based workforce combined with an increase in the number of unemployed workers as a result of the ongoing global outbreak of the COVID-19 pandemic.

POWER DEVELOPMENT

In June 2019, the Government announced the Third Basic National Energy Plan, which is a comprehensive plan that covers the entire spectrum of energy industries in Korea from 2019 to 2040. The Third Basic National Energy Plan focuses on the following five key tasks: (i) innovating the structure of energy consumption by strengthening the energy demand management of various sectors such as industrial, building and transportation, and streamlining pricing systems with the aim of improving the efficiency of energy consumption by 38% by 2040 and reducing energy demand by 18.6% by 2040, (ii) transitioning to a clean and safe mix of energy by increasing the share of renewable energy by 30~35% while reducing the share of nuclear and coal energy, (iii) expanding decentralized and participatory energy systems by increasing the share of distributed energy resources (such as renewable energy and fuel cells) in areas with demand and strengthening regional management by expanding the roles and responsibilities of local governments, (iv) bolstering the global competitiveness of Korea's energy industry by fostering future energy industries such as renewable energy, hydrogen and efficiency-enhancing industries, as well as through adding value to existing traditional energy industries, and (v) laying the foundation for conversion to clean and safe energy by improving the electricity, gas and heat market systems and building an energy big data platform to promote the creation of new industries.

In December 2020, the Government announced the Ninth Basic Plan for the period from 2020 to 2034, which focuses on, among other things, (i) changing energy policy to a safe and clean energy mix by reducing coal and nuclear power generation and increasing renewable energy, (ii) preparing implementation measures for further reduction of greenhouse gas, (iii) accelerating investments in renewable energy and expanding infrastructure for the transition to a low-carbon economy/society and (iv) improving the electricity market system to promote fair competition and lay the foundation for expansion of eco-friendly energy. Furthermore, the Ninth Basic Plan includes the following implementation measures: (i) six coal-fired generation plants will be retired by 2022, (ii) 24 other coalfired generation plants will be retired and converted to LNG fuel use by 2034, (iii) domestic renewable energy generation capacity will be expanded to 77.8 gigawatts by 2034 to meet the target set in the Third Basic National Energy Plan and (iv) the extension of life of eleven nuclear generation units will not be granted and such units will be retired by 2034.

In June 2018, we announced the abandonment of plans to construct four new nuclear units, and our plans to construct two new units, Shin-Hanul units #3 and 4 for which construction permits had already been received, have been suspended until further notice from the Government. In December 2019, we shut down Wolsong unit #1 following our examination of the feasibility of its continued operations.

CAPITAL INVESTMENT PROGRAM

According to the Ninth Basic Plan, the ratio of reserve power required to peak power demand at any future point in time is set at 17% from 2020 to 2024, 18% from 2025 to 2028 and 22% from 2029 to 2034, and the total nominal capacity of all generating facilities in Korea in 2034 is expected to be 193 gigawatts, of which nuclear power plants are expected to contribute 10.1%, coal-fired plants 15.0%, LNG plants 30.6%, renewable energy plants 40.3% and other plants 4.0%. In accordance with the objectives of the Ninth Basic Plan, we intend to add new installed capacity, primarily by making investments in renewable energy generation.

The table below sets forth information as to installed capacity of new or expanded nuclear power generation units to be completed by us in each year from 2022 to 2034 and the currently estimated year of completion.

Expected Year of Completion	Number of Units	Name	Type of Units(1)	Installed Capacity Addition
2021	1	Shin-Hanul-1	APR1400	1,400
2022	1	Shin-Hanul-2	APR1400	1,400
2024	1	Shin-Kori-5	APR1400	1,400
2025	1	Shin-Kori-6	APR1400	1,400

Note:

(1) APR1400 means 1400 MW advanced pressurized water nuclear reactor.

Our capital expenditures, which represent the amount of cash used in the acquisitions of land, buildings, structures, machinery, ships, vehicles, fixtures and furniture, tools and intangible assets and increase in construction-in-progress in our statements of cash flows, were Won 2,191 billion in 2018, Won 2,649 billion in 2019 and Won 2,596 billion in 2020, which include amounts used to develop renewable energy sources, such as wind power and solar energy, and we have budgeted Won 2,736 billion, Won 2,579 billion and Won 2,123 billion for capital expenditures (including capitalized interest) for 2021, 2022 and 2023, respectively. The budgeted amounts may vary from the actual amounts of our capital expenditures for a variety of reasons, including changes in the number of units to be constructed and the timing of such construction, changes in rates of exchange between the Won and foreign currencies, changes in interest rates and changes in Government policy.

Under the RPS system adopted in 2012, 10% of all electricity generated by each power generation company in Korea, including us, will be required to be sourced from renewable energy sources by 2022. In order to comply with the RPS system, we are currently constructing solar, wind and fuel cell units, both independently and through joint ventures with others, which are scheduled to be completed between 2021 to 2025 and will add 3,450 MW to our installed capacity.

We are also pursuing other renewable generation projects. The actual number and capacity of generation units we construct and the timing of such construction will depend upon a variety of factors, including demand growth projections, availability and cost of financing, changes in fuel prices and availability of fuel, ability to acquire necessary plant sites, environmental considerations, community opposition and other factors.

The table below sets forth for 2021, 2022, 2023 and 2024, the budgeted amounts of expenditures pursuant to our capital investment program as reported to the MOTIE. Our capital investment program consists of capital expenditures and other expenditures, including expenditures for nuclear fuel, which are recognized as amortization of nuclear fuel in our statements of cash flows. The budgeted amounts may vary from the actual amounts of expenditures for a variety of reasons, including changes in the number of units to be constructed and the timing of such construction, changes in rates of exchange between the Won and foreign currencies, changes in interest rates and other factors.

	For the year ended December 31,			
	2021(1)	2022	2023	2024
	(in billions of Won)			
Construction of new generation facilities(2)	₩ 1,587	₩ 1,512	₩ 839	₩ 558
Maintenance of existing generation facilities	695	716	669	643
Nuclear fuel(3)	1,259	1,328	1,277	1,155
Others(4)	439	368	421	533
Total(5)	₩ 3,980	₩ 3,924	₩ 3,206	₩ 2,889

Notes:

(1) Includes amounts expended through March 31, 2021.

(2) Includes our capital expenditures relating to renewable energy facilities.

(3) Initially categorized as an asset but later reduced for amortization.

(4) Miscellaneous expenditures for investments and maintenance of non-generation and ancillary facilities.

(5) The estimates for our capital expenditures and their allocation to different projects may vary as they are subject to many uncertainties, many of which are beyond our control.

OVERSEAS ACTIVITIES

We are actively engaged in a number of overseas resource development and EPC projects. Our overseas resource development activities help us establish strategic relationships with companies that supply or enrich nuclear fuel, and our EPC projects help us apply our operational experience abroad to add new revenue streams.

Resource Development Projects

In January 2008 and August 2010, we, as part of a consortium of energy companies, entered into agreements with Fission Energy Corp., a uranium exploration company located in Canada, to carry out a joint uranium exploration project in Waterbury Lake, Saskatchewan, Canada. In April 2013, Denison Mines Corp. acquired Fission Energy Corp.'s 60.0% interest in the Waterbury Lake uranium project. We have invested C$15.5 million and currently hold a 33.09% equity interest in the project. Further exploration in Waterbury Lake, which started in January 2014, is in progress.

In June 2009, we and KEPCO entered into a definitive agreement with Denison to purchase 58.0 million shares, or 19.9%, of the share capital of Denison for an aggregate purchase price of C$75.4 million. The Waterbury Lake exploration project is ongoing with Denison as the current operator. In December 2016, as a result of changes in government policy, we purchased KEPCO's equity interest in Denison. As of December 31, 2020, our interest in Denison Mines Corp. was 9.30%. On July 2, 2012, we and KEPCO acquired a 9.40% equity interest in Energy Fuel Inc., a Denver-based uranium producer, from Denison, and we currently hold a 1.31% interest. Under the terms of the agreement, we were entitled to procure 135 metric tons of uranium per annum during the periods from 2010 to 2015 and 2016 to 2020, subject to certain conditions with respect to pricing.

In June 2009, we entered into a definitive agreement with Orano Expansion (formerly known as Areva NC Expansion) and Société d'Enrichissement du Tricastin to purchase a 2.5% equity interest in the Georges Besse II enrichment plant in France for €129 million. Construction of the Georges Besse II project began in 2006 and is designed to include two enrichment units. The plant commenced commercial operations in April 2011 and reached full capacity in 2017. Under the terms of the agreement, we have a right to request enrichment services in case of emergency and we will also receive a *pro rata* portion of the net income generated by the new plant.

In December 2009, we and KEPCO entered into a definitive agreement with Orano Expansion to purchase 15.0% of the share capital of Orano Expansion and 10% of the share capital of Imouraren SA, which is an Orano Expansion-invested mine operating company. In December 2016, as a result of changes in government policy, we purchased KEPCO's equity interest in Orano Expansion. We currently hold a 4.72% equity interest in Orano Expansion and a 3.15% equity interest in Imouraren SA, which holds a 66.65% equity interest in Orano Expansion. We are entitled to procure up to approximately 3.15% of Imouraren SA's annual uranium production in Niger, which is estimated to be 200 metric tons based on Orano Expansion's annual production plan for 36 years starting from its production.

EPC Projects

In December 2009, KEPCO entered into a contract with Emirates Nuclear Energy Corporation (the "**ENEC**"), a state-owned nuclear energy provider of the United Arab Emirates ("**UAE**"), to design and construct four civil nuclear power generation units to be located in Barakah for the UAE's peaceful nuclear energy program (the "**UAE Nuclear Project**"). Under the contract, KEPCO is to perform various duties including, among others, designing and constructing four nuclear power generation units each with a capacity of 1,400 megawatts, supplying nuclear fuel for three fuel cycles including initial loading, with each cycle currently projected to last for approximately 18 months, and providing technical support, training and education related to plant operation. The contract amount for the UAE Nuclear Project is US$18.6 billion, with the term of the contract to last from December 27, 2009 to May 1, 2020. ENEC and KEPCO are currently negotiating the renewal of the terms of the contract, as well as negotiating to adjust the target completion dates, taking into account UAE's power supply and demand conditions.

On March 15, 2010, we entered into a Joint Project Management Agreement with KEPCO, the prime contractor for the UAE Nuclear Project, under which agreement the Joint Project Division was established to provide engineering, procurement and construction services during the construction of the Barakah nuclear power generation units. We and KEPCO own 40% and 60% of the shares of the Joint Project, respectively. Additionally, we undertook to assist the operation of the Barakah nuclear power generation units by setting up and commissioning the units and training the staff at ENEC under a separate operating support services contract entered into in May 2010 with KEPCO. In July 2016, we entered into an operating support services agreement with ENEC to render certain operating support services, such as annually providing a supply of operators and engineers, for the Barakah nuclear power generation units until 2030. The contract amount under OSSA is US$600 million. In June 2019, we also entered into a long term maintenance service agreement with ENEC to render certain maintenance services for the four nuclear power generation units until 2024.

ENVIRONMENT AND COMMUNITY PROGRAMS

The Environment Policy Basic Act and other related legislation and regulations (the "**Environment Acts**"), which are principally administered by the Ministry of Environment, regulate atmospheric emissions, waste water and other emissions from our nuclear, hydro and pumped storage units. We know of no material breach or violation of the requirements of the Environment Acts at any of our plants.

The Act for Supporting the Communities Surrounding Power Plants addresses neighboring community concerns about nuclear power generation units. Pursuant to this Act, we are required to provide financial support for scholarship programs, programs for economic development and promotion of culture and social welfare in communities where we operate our nuclear facilities. We are required to make annual contributions to the affected local communities in (i) an amount equal to Won 0.25 per kWh of electricity generated by our nuclear power generation units during the one-year period before the immediately preceding fiscal year, (ii) an amount equal to Won 0.2 per kWh of electricity generated by our hydroelectric generation units and pumped-storage generation units during the one-year period before the immediately preceding fiscal year, (iii) Won 5 million per thousand kW of hydroelectric generation capacity and (iv) Won 0.5 million per thousand kW of pumped-storage generation capacity. In 2020, we expended Won 43 billion for the Power Plant Regional Support Program and, as of such respective date, the balance of provisions amounted to Won 144 billion.

The Act on the Compensation and Support for Areas Adjacent to Transmission and Substation Facilities, enacted in January 2014 with effect from July 2014, prescribes measures to be taken by power generation or transmission companies with respect to the communities adjacent to transmission and substation facilities. Under this Act, those who own land or houses in the vicinity of transmission lines and substation may claim compensation for damages or compel purchase of such properties by the power generation or transmission companies which are legally obligated in principle to pay for such damages or purchase such properties. In addition, under this Act, residents of communities adjacent to transmission and substation facilities are entitled to subsidies on electricity tariff as well as support for a variety of welfare projects and collective business ventures.

From time to time, we enter into separate arrangements, at significant cost, to undertake various infrastructure and other community improvement projects, such as building schools and parks and providing financial support for the benefit of communities that may be affected by the construction, operation or extension of life of our nuclear plants. In connection with extending the operating lives of Kori unit #1 in 2007 and Wolsong unit #1 in 2015, we entered into arrangements to, among other things, build community facilities in the areas surrounding these units and provide loan assistance to qualifying local residents. We entered into similar arrangements with local communities in connection with the construction of the Shin-Kori and Shin-Hanul generation units.

NUCLEAR SAFETY

We take nuclear safety as our top priority and continue to focus on ensuring the safe and reliable operation of our nuclear power plants. We also focus on enhancing corporate ethics and transparency in the operation of our plants.

We have a corporate code of ethics and are firmly committed to enhancing nuclear safety, developing new technologies and improving transparency. We have also established the "Statement of Safety Policy for Nuclear Power Plants" to ensure the highest level of nuclear safety. Furthermore, we invest approximately 5% of our total annual sales into research and development for the enhancement of nuclear safety and operational performance.

However, our safety programs, even if implemented to the best of our abilities, do not necessarily ensure the safety of our nuclear plants in all aspects.

Safety Inspections after Fukushima Dai-ichi Nuclear Disaster

The nuclear disaster at Fukushima Dai-ichi Nuclear Power Plant following the 9.0 magnitude earthquake and tsunami in north eastern Japan in March 2011 have created heightened concerns regarding the safety of nuclear power facilities. Inspections by the relevant regulatory bodies immediately after the disaster found that our power plants were safe against natural disasters foreseeable to occur in Korea. However, they recommended measures to improve our long-term safety and to enhance our readiness against worst case scenarios.

Following these recommendations, in May 2011, the Ministry of Education, Science and Technology identified 46 projects to improve our safety, including installing additional automatic shutdown systems for earthquakes, extending coastal barriers for seismic waves, procuring mobile power generators and storage batteries, installing passive hydrogen removers at nuclear facilities and improving our radiology emergency medical system. As of December 31, 2020, we have completed implementation of 45 measures and the one remaining measure will be implemented by 2024. In addition, we also developed ten additional supplementary safety measures after analyzing our overseas plants and their current operations and implemented nine of such measures in 2020, with the one remaining measure to be implemented by 2023. The progress of these projects is regularly reported to the Government. In 2018, we completed the implementation of improvement works and enhanced the seismic capability of the core facilities of our nuclear power generation units to withstand up to 7.0 magnitude earthquakes (previous to such improvement works, our nuclear power generation units could withstand up to 6.5 magnitude earthquakes). As for the units under construction (Shin-Kori units #5 and 6 and Shin-Hanul units #1 and 2), the core facilities will be able to withstand magnitude 7.4 earthquakes.

On September 12, 2016, a series of earthquakes including a magnitude 5.8 earthquake hit the city of Gyeongju, where our headquarters and the Wolsong nuclear power plant are located. Although there were no material safety issues, we manually stopped the operations of Wolsong units #1, 2, 3, and 4 according to our safety guidelines. All units resumed their operations on December 5, 2016, with the approval by the NSSC. We continue to implement measures to improve safety by reinforcing seismic capability of our core facilities and performing stress tests across all our nuclear power plants.

Compliance with International Standards

We implement safety measures and controls in the design, fabrication, construction, operation and maintenance of our nuclear power generation units in order to reduce the risk of possible release of radioactive materials. International nuclear plant safety standards are set by the IAEA. Compliance with the standards is generally monitored by the NSSC. We submit a safety assessment report once every quarter to the NSSC and KINS, which is a technical expert organization entrusted by the NSCC to perform regulatory functions such as safety reviews, inspections, and development of regulatory technical standards for the regulation of nuclear power plants and radiation facilities. In addition, the NSSC personnel and the KINS personnel are employed at our operation sites full-time, enabling continuous reporting to the regulatory bodies. In addition, the Nuclear Safety Act and regulations promulgated thereunder ("**Nuclear Safety Acts**") specify safety standards for nuclear power generation units in Korea. Our nuclear units are in compliance in all material respects with the standards of the IAEA and with requirements under Korean law. If we or the NSSC determine safety conditions and measures are inadequate, operation of one or more nuclear units may be suspended temporarily or indefinitely. No material suspension of operation for accidents or other safety reasons (other than periodic or other precautionary inspections) has occurred at any of our nuclear units at any time.

We also maintain a close relationship with international nuclear organizations in order to enhance nuclear safety. In particular, we invite international safety review teams such as the World Association of Nuclear Operators ("**WANO**") Peer Review Team, the IAEA and the Expert Mission Team to our nuclear plants for purposes of meeting international standards for independent review of our facilities. We actively exchange relevant operational information and technical expertise with our peers in other countries. For example, we conducted WANO Pre-Startup Peer Reviews for Shin-Hanul unit #1 in 2020. The recommendations and findings from this event were shared with our other nuclear plants to implement improvements at such plants. In addition, to ensure that our nuclear generation units reflect global safety standards, we applied for the Operational Safety Review Team at the International Atomic Energy Agency to conduct a mission at Shin-Kori units #3 and 4 in the second half of 2022.

Integrated Safety Management and Surveillance Systems

We implement comprehensive programs to monitor, ensure and improve the safety of nuclear power plants. In order to enhance nuclear safety through risk-informed assessment, we conduct probabilistic safety assessments, including for low power-shutdown states, for all our nuclear power plants. In order to systematically verify nuclear safety and identify the potential areas for safety improvements, we perform periodic safety reviews on a 10-year frequency basis for all our operating units. These reviews have been completed for Kori units #1, 2, 3 and 4; Hanbit units #1, 2, 3, 4, 5 and 6; Wolsong units #1, 2, 3 and 4; and Hanul units #1, 2, 3, 4, 5 and 6 once or more. Reviews for Shin-Kori units #1 and 2 are in progress. In order to enhance nuclear safety and plant performance, we have established a maintenance effectiveness monitoring program based on the maintenance rules issued by the United States Nuclear Regulatory Commission, which covers all of our nuclear power plants in commercial operation.

We have developed the Risk Monitoring System for operating nuclear power plants, which is implemented in all of our nuclear power plants. The Risk Monitoring System is intended to help ensure nuclear plant safety. In addition, we have developed and implemented the Severe Accident Management Guidelines and are developing the Severe Accident Management Guidelines for Low Power-Shutdown States in order to manage severe accidents for all of our nuclear power plants.

We currently operate R&D programs to minimize radiation using various methods and to maximize safety related to management of radioactive waste and reduction of such waste materials by developing disposal repository for low and intermediate level radioactive waste. The average level of radiation per unit was 0.36 man-SV, 0.28 man-SV and 0.34 man-SV in 2018, 2019 and 2020, respectively, which were all lower than the global average of 0.49 man-SV, 0.60 man-SV and 0.57 man-SV, respectively. "Man-SV" measures the biological effects of radiation to which a population is collectively exposed. In addition, we have in place a Radiation Emergency Plan in preparation for nuclear accidents and conduct regular preventive exercises and drills.

Nuclear Waste Management

In 2009, the Radioactive Waste Management Act was enacted in order to centralize radioactive waste disposal and management process. Under this legislation, KORAD, a government-owned corporation established under the legislation, has assumed full responsibility for the management of nuclear waste from January 1, 2009, including LILW and spent fuel. We transferred to KORAD all of our assets and liabilities relating to existing and in-construction nuclear waste management facilities in 2008 and 2009. KORAD completed construction of a LILW disposal facility in Gyeongju and government approval for its operations was obtained in December 2014. The construction of a second silo was completed in 2019.

The construction cost of the nuclear waste management facility incurred since 2006 has been reimbursed by KORAD to us. Approximately 21,295 drums of LILW have been transported to the disposal silo for storage. While Government policy for spent fuel storage is still under development, we have been pursuing various projects, such as installing high-density racks in spent fuel pools and building dry storage facilities, to temporarily store spent fuels at our nuclear power plants.

KORAD currently charges Won 15.19 million per drum for the disposal of LILW, Won 13.2 million per fuel assembly for the disposal of spent fuel from pressurized heavy water reactor nuclear power plants, and Won 320 million per fuel assembly for the disposal of spent nuclear fuel from pressurized light water reactor nuclear plants. We are required to make, and have made, payments of the disposal fees incurred after January 1, 2009. With respect to the nuclear waste disposal costs prior to 2009, of which the amount including accrued interests as of December 31, 2020 was Won 2,276 billion, we are required under the Radio Waste Management Act to transfer to KORAD the amount accrued for such reserves over a 15-year period beginning in 2014, after a five-year deferral.

Decommissioning

Decommissioning of a nuclear power generation unit is the process whereby the unit is shut down at the end of its economic life, the fuel is removed and the unit is eventually dismantled. We have adopted a decommissioning strategy under which the last stage of decommissioning would commence up to five to ten years after unit closure. We commenced the decommissioning of Kori unit #1, our first plant, in June 2017 after its operating license, which had been renewed once for a 10-year period in 2007, expired. In December 2019, the NSSC approved the permanent shutdown of Wolsong unit # 1 and we are currently preparing for the decommissioning of such unit. Separately, the Ninth Basic Plan precludes the extension of the operating lives of eleven nuclear generation units and such units will be retired by 2034. We retain full financial and operational responsibility for decommissioning our units.

We have accumulated decommissioning costs as a liability since 1983. The decommissioning costs of nuclear facilities are estimated based on the study by the related committee and defined by the Radioactive-Waste Management Act, which requires us to credit annual appropriations separately. The decommissioning costs are reviewed by MOTIE every two years. The estimated decommissioning costs increased in 2020 based on the 2019 MOTIE guidelines as well as in consideration of overseas cases of decommissioning, inflation rate assumption, changes in the operating environment and other adjustments required in connection with determining decommissioning costs and liabilities. As of December 31, 2020, we have accrued Won 20,074 billion for the cost of dismantling and decontaminating existing nuclear power plants, which consists of dismantling costs of nuclear plants of Won 16,975 billion and dismantling costs of spent fuel and radioactive waste of Won 3,099 billion. As of December 31, 2020, we hold Won 844 billion in beneficiary securities exclusively for the payment of decommissioning costs, which is the estimated cost of decommissioning one nuclear plant, and plan to maintain a similar amount of reserve going forward. For the accounting treatment of decommissioning costs, see *"Management's Discussion and Analysis of Financial Condition and Results of Operations – Critical Accounting Policies – Retirement of Tangible Assets."*

RESEARCH AND DEVELOPMENT

Our Research and Development ("**R&D**") program is centered on safety, including R&D relating to the operation of nuclear facilities, quality inspection technologies of such facilities, preventive repair and maintenance of equipment, evaluation of operating life and maintenance of nuclear facilities, technical developments for improvement in design safety for the APR+ reactor and digital control devices. In the field of nuclear power, our R&D programs are primarily focused on developing technology for enhancing the safety and economy of nuclear plants, such as the "*Life Time Management for Nuclear Power Plan*" project. In the field of hydroelectric power, our R&D efforts are primarily focused on projects to improve operational reliability and automatic control techniques. In 2018, 2019, 2020, we incurred Won 479 billion, Won 484 billion and Won 439 billion, respectively, of ordinary development expenses.

We had approximately 527 employees engaged in R&D activities as of December 31, 2020. In addition, we contribute quarterly payments to the Government for the Nuclear Research & Development Fund an amount equal to Won 1.2 per kWh of power produced.

INSURANCE

Risks of substantial liability arise from the operation of nuclear power generation units and from the use and handling of nuclear fuel and possible radioactive emissions associated with such nuclear fuel. While we carry insurance and are the beneficiary of a Government indemnity with respect to such risks, the amounts and coverage thereof are limited.

As of December 31, 2020, we maintain property damage insurance coverage that covers damage at any of our nuclear plants up to US$1 billion per accident, which includes property insurance coverage for acts of terrorism up to US$300 million and for breakdown of machinery up to US$300 million. In addition, we have construction insurance for Shin-Kori units #5 and 6, and Shin-Hanul units #1 and 2. We also maintain third party nuclear liability insurance for personal injury and property damage caused to third parties for coverage of up to 300 million Special Drawing Rights ("**SDRs**"), which is equivalent to approximately US$436 million as of December 31, 2020 (based on the exchange rate published by the International Monetary Fund), per accident per plant complex, for total coverage of 1.5 billion SDRs. We are also the beneficiary of a Government indemnity for damage claims of up to 300 million SDRs per accident per plant complex, for a total coverage of 1.5 billion SDRs. In addition, we maintain liability insurance related to our hydro and renewable plant facilities and nuclear fuel transportation, as well as directors' and officers' liability insurance. See "*Risk Factors – Risks Relating to Our Business – Our insurance coverage may not be sufficient.*"

Under the Nuclear Damage Compensation Act, we are liable only up to 300 million SDRs, which was equivalent to approximately Won 470 billion as of December 31, 2020, per single accident per plant complex; provided that such limitation will not apply where we intentionally caused the harm or knowingly failed to prevent the harm from occurring. We may receive the Government's support, subject to the approval of the National Assembly, if (i) the damages exceed the insurance coverage amount and (ii) the Government deems such support to be necessary for the purposes of protecting damaged persons and supporting the development of nuclear energy business. The amount of the Government's support to us for such qualifying nuclear incident is 300 million SDRs, which is the limit of our liability, minus any amount covered by insurance.

In March 2021, the National Assembly approved an amendment to the Nuclear Damage Compensation Act that increases the maximum liability of the business operator from 300 million SDRs to 900 million SDRs per nuclear incident, which will become effective six months after the promulgation of the amendment.

COMPETITION

We are the only nuclear power generating operation in Korea. High initial investment costs, national security and safety concerns are an effective barrier for entry for any newcomer in the Korean nuclear industry.

We believe that we do not compete directly with KEPCO's other generation subsidiaries and with independent power generators for the sale of electricity in Korea due to the inherent differences in costs structures between nuclear and non-nuclear generation companies. In general, nuclear generation companies' costs of generating power are lower than that of non-nuclear generation companies. Our overall unit generation costs are generally the lowest among the Generation Subsidiaries, owing to a stable and low cost structure of nuclear power that forms the base load of Korea's electricity supply.

EMPLOYEES

As of December 31, 2020, we had 12,355 regular employees, and, of the total number of employees, approximately 8.3% were office employees and 79.7% were engineers. As of December 31, 2020, approximately 67.3% of our employees were members of the KHNP Workers Union, which negotiates a collective bargaining agreement, which has a term of two years, for its members.

Since our formation on April 2, 2001, our businesses have not been interrupted by any strikes or work stoppages by employees and our relations with our employees have been good. However, we cannot assure that we will not have any strikes or work stoppages or other labor problems in the future.

PROPERTY, PLANT AND EQUIPMENT

Our property consists mainly of power generation equipment and facilities in Korea. See "– *Power Generation*" and "– *Capital Investment Program*" above. As of December 31, 2020, the net book value of our property, plant and equipment was Won 51.5 trillion. No significant amount of our properties is leased.

LEGAL AND REGULATORY PROCEEDINGS

As of December 31, 2020, we are currently involved in various legal proceedings and regulatory matters in connection with our business, including being involved in litigation as a defendant in 88 cases and as a plaintiff in 21 cases. We may from time to time become a party to further legal proceedings or regulatory matters arising in the ordinary course of our business.

We are currently subject to a number of class action lawsuits involving thousands of our current and former employees based on claims for unpaid ordinary wages and retirement benefits. We have set aside a reserve on a consolidated basis in the aggregate amount of Won 19 billion to cover any potential future payments that may result from these and related lawsuits. For a further description, see "*Risk Factors – Risk Relating to Our Business – We may be exposed to potential claims made by current or previous employees for unpaid wages and may also incur increased labor costs as a result of the expansion of the scope of ordinary wages.*"

In December 2020, the Daejeon District Prosecutor's Office commenced investigations on twelve individuals, including five of our employees for, among others, allegedly undervaluing the economic viability of Wolsong unit #1 which led to its early shutdown. The investigation is currently ongoing and the outcome of such investigation remains uncertain. There can be no assurance that the outcome of the ongoing case will not have a material adverse effect on us, our reputation or our business.

In addition, in September 2016, Greenpeace and 559 Korean nationals brought a lawsuit against the NSSC to revoke the permit the NSSC granted to us in relation to the construction of Shin-Kori units #5 and 6. We filed to join the lawsuit as a third party stakeholder in April 2017. In February 2019, the Seoul Administrative Court ruled against the plaintiffs and in January 2021, the Seoul High Court dismissed the appeal by the plaintiffs. This case is currently pending at the Supreme Court of Korea. If the courts were to ultimately rule against the construction of these new nuclear power generation units, we will experience a loss of revenues, which could adversely affect our results of operation and financial condition.

These incidents have had a material adverse effect, and may have a further material adverse effect, on our reputation, business, results of operation, financial condition or the general acceptance of nuclear power, especially if, as a result of these incidents or otherwise, there are findings of other criminal or other illegal or improper activities or if there are additional shutdowns or challenges to constructing new plants that lead to greater social and political concerns over nuclear safety to the effect of impeding our normal operation of nuclear power generation units.

DIRECTORS, AUDIT COMMITTEE AND SENIOR MANAGEMENT

Under our Articles of Association, our board of directors, consisting of not more than fifteen directors, including the president, is vested with the power of management. The directors are classified into two categories: standing directors and non-standing directors. The total number of non-standing directors must be at least a majority of the total number of all directors. Under the Articles of Association, an audit committee is responsible for monitoring our business affairs and accounts. The audit committee must consist of three directors, two of whom must be non-standing directors. At least one of the three directors must also be an accounting or financial expert. Under the Articles of Association, our representative director, who also acts as our president, is appointed by the President of Korea through the following nomination process: the recommendation of two or more candidates by the committee for nomination of directors established within the board of directors pursuant to the revised Articles of Association; the resolution of the Committee for Management of Public Institutions established under Article 8 of the Act on the Management of Public Institutions; the resolution of shareholders at the general meeting; and the nomination of the Minister of Trade, Industry & Energy. The standing directors, other than our president, are appointed by our president following the resolution of shareholders at the general meeting, except that any standing director who is to become a member of the audit committee is appointed by the President of Korea following the nomination of two or more candidates by the committee for nomination of directors, the resolution of the Committee for Management of Public Institutions, the resolution of shareholders and the nomination of the Minister of Economy and Finance. The non-standing directors are appointed by the Minister of Economy and Finance following the nomination of two or more candidates by the committee for nomination of directors, the resolution of the Committee for Management of Public Institutions and the resolution of shareholders. Our president serves as our chief executive officer and represents us and administers our day-to-day business in all matters not specifically designated as responsibilities of the board.

The names, titles, and outside occupations, if any, of our current directors, and the respective dates on which they took office are set forth below.

Name (Age)	Title	Outside Occupation	Position Held Since
Jae Hoon Chung (62).	Standing Director, President and CEO	None	April 5, 2018
Seok Jin Park (62)	Standing Director, Executive Auditor	None	May 15, 2019
Sang Hyung Park (60)	Standing Director, Executive Vice President of the Administration Division and CFO	None	November 26, 2020
Nam Woo Choi (60)	Standing Director, Executive Vice President of the Power Generation Division and CNO	None	May 26, 2020
Yoh Shik Nam (61).	Standing Director, Executive Vice President of the Quality & Safety Division	None	August 19, 2020
Sang Don Kim (60).	Standing Director, Executive Vice President of the Business Growth Division	None	August 14, 2019

Name (Age)	Title	Outside Occupation	Position Held Since
Goang Hee Lee (71)	Non-Standing Director	None	August 12, 2019
Hae Chang Kim (60)	Non-Standing Director	Professor at Kyungsung University	May 10, 2018
Chang Ho Lee (66)	Non-Standing Director	None	August 12, 2019
Yoon Suk Kim (64).	Non-Standing Director	Adjunct Professor at Yonsei University, Head of the Institute for Future Value Strategy	August 12, 2019
Ju Sik Lee (46)	Non-Standing Director	Managing Director of Sunil Accounting & Consulting Firm, Accounting Advisor at Korea Housing-Finance Corporation	August 12, 2019
Hee Kyung Kim (45).	Non-Standing Director	Attorney at Doyoung Law Firm	June 25, 2020
Jee Yoon Lee (57).	Non-Standing Director	Executive Advisor of FleishmanHillard Korea	October 31, 2020

Jae Hoon Chung has served as a Standing Director, President and CEO since April 5, 2018. Mr. Chung received a doctorate degree in Economics from Soonchunhyang University. Mr. Chung previously served as Director General of the MOTIE.

Seok Jin Park has served as a Standing Director and an Executive Auditor since May 15, 2019. Mr. Park received a B.A. in Accounting from Pusan National University. Mr. Park previously served as an auditor for the Board of Audit and Inspection of Korea.

Sang Hyung Park has served as a Standing Director and an Executive Vice President of the Administration Division since November 26, 2020. Mr. Park received a doctorate degree in IT Policy and Management from Soongsil University. Mr. Park previously served as our Head of the Digital Innovation Unit.

Nam Woo Choi has served as a Standing Director and an Executive Vice President of the Power Generation Division since May 26, 2020. Mr. Choi has received a B.A. in Metal Engineering from Sungkyunkwan University. Mr. Choi previously served as our Head of the Power Generation Department.

Yoh Shik Nam has served as a Standing Director and an Executive Vice President of the Quality & Safety since August 19, 2020. Mr. Nam received an M.A. in Radiation and Environmental Protection from the University of Surrey. Mr. Nam previously served as our Head of the Abu Dhabi Office.

Sang Don Kim has served as a Standing Director and an Executive Vice President of the Business Growth Division since August 14, 2019. Mr. Kim received his B.A. in Naval Architecture and Ocean Engineering from Seoul National University. Mr. Kim previously served as our Executive Vice President of the Business Division.

Goang Hee Lee has served as a Non-Standing Director since August 12, 2019. Mr. Lee received an M.A. in Public Administration from Hanyang University.

Hae Chang Kim has served as a Non-Standing Director since May 10, 2018. Mr. Kim received a doctorate degree in Economics from Pusan National University. Mr. Kim also serves as a professor at Kyungsung University.

Chang Ho Lee has served as a Non-Standing Director since August 12, 2019. Mr. Lee received an M.A. in Public Administration from Seoul National University.

Yoon Suk Kim has served as a Non-Standing Director since August 12, 2019. Mr. Kim received a doctorate degree in Electrical Engineering from the University of Oregon. Mr. Kim also serves as an adjunct professor at Yonsei University.

Ju Sik Lee has served as a Non-Standing Director since August 12, 2019. Mr. Lee received an M.A. in Business Administration from Pusan National University. Mr. Lee also serves as the Managing Director of Sunil Accounting & Consulting Firm.

Hee Kyung Kim has served as a Non-Standing Director since June 25, 2020. Ms. Kim received an LL.M. from Konkuk University. Ms. Kim also serves as an attorney at Doyoung Law Firm.

Jee Yoon Lee has served as a Non-Standing Director since October 31, 2020. Ms. Lee received an M.B.A. from CHA University. Ms. Lee also serves the Executive Advisor of FleishmanHillard Korea.

The presence at board meetings of a majority of the board members constitutes a voting quorum and resolutions can be passed by a majority of the board members.

The business address of our directors is 1655 Bulguk-ro, Munmudaewang-myeon, Gyeongju-si, Gyeongsangbuk-do, 38120, Republic of Korea.

COMPENSATION OF DIRECTORS AND EXECUTIVE OFFICERS

For the year ended December 31, 2020, the aggregate amount of remuneration paid and accrued to the directors and executive officers, as a group, was Won 939 million. The aggregate amount set aside or accrued during the year ended December 31, 2020 to provide retirement and severance benefits for directors and executive officers, including the statutory auditor, was Won 48 million.

Board Practices

Under our Articles of Association, the term of office of our directors is two years, except that the term of office for our president is three years. A director whose term of office has expired carries on his or her duties until the successor director is appointed. The term of office for directors may be extended on an annual basis. The president, or the representative director, may not be removed from post except by the President of Korea who has the appointive power under the Act on the Management of Public Institutions.

As permitted by law in Korea, our board currently does not maintain a remuneration committee. Under our Articles of Association, we currently have an audit committee, currently composed of standing member Seok Jin Park and two non-standing members Hae Chang Kim and Ju Sik Lee.

The terms for termination benefits for standing directors, including the president, are determined in accordance with the internal regulations for executive compensation. Standing directors are only eligible for benefits after retirement or upon death following one year of continuous service. The payment amount for retirement benefits is calculated by multiplying (i) the annual base compensation received by the director during the past three months prior to termination divided by three times (ii) the number of years of service.

SHARE OWNERSHIP

The table below sets forth certain information relating to the ownership of our capital stock as of December 31, 2020:

Title of Class	Identity of Person or Group	Shares Owned	Percentage
Common stock	KEPCO	242,442,838	100.0%
Total		242,442,838	100.0%

RELATED PARTY TRANSACTIONS

For our company's sale of electricity to KEPCO through the KPX, see "*Business – Sales and Purchase of Power*."

As of December 31, 2020, we had a 14.28% ownership of the KPX, accounted for using the fair value method, in the amount of Won 32 billion. For transactions and related account balances with related parties, including KEPCO and its subsidiaries, see note 39 to our audited financial statements for the years ended December 31, 2019 and 2020 included herein.

Significant transactions with related parties for the years ended December 31, 2019 and 2020 included the following: (i) sale of electricity and others to KEPCO for Won 9,199 billion and Won 10,241 billion, respectively; (ii) dividend payment to KEPCO of Won 107 billion in the year ended December 31, 2020; and (iii) payment of utility maintenance fee of Won 496 billion and Won 537 billion, respectively, to Korea Plant Service & Engineering Co., Ltd.

In addition, significant receivables and payables arising from related party transactions as of December 31, 2019 and 2020 consisted of receivables and others from KEPCO, which were Won 1,580 billion and Won 1,613 billion, respectively.

TAXATION

The following summary contains a description of certain Korean and U.S. federal income tax consequences of the ownership and disposition of Notes, but it does not purport to be a comprehensive description of all of the tax considerations that may be relevant to a decision to purchase or dispose of Notes. This summary is based on the Korean and U.S. federal income tax laws in force on the date of this Offering Circular (which are subject to change and which changes may have retroactive effect), and does not describe any tax consequences arising under the laws of any state, locality or taxing jurisdiction other than the laws of Korea and the federal income tax laws of the United States.

Prospective purchasers of Notes should consult their own tax advisers as to the Korean, U.S. or other tax consequences of the ownership and disposition of Notes, including the effect of any foreign, state or local tax laws.

KOREAN TAXATION

The taxation of non-resident individuals and non-Korean corporations generally depends on whether they have a "**Permanent Establishment**" (as defined under Korean law and any applicable tax treaty) in Korea to which the relevant Korean source income is attributable or with which such relevant Korean source income is effectively connected. Non-residents without such a Permanent Establishment in Korea ("**Non-Residents**") are taxed in the manner described below. Non-residents with such Permanent Establishment are taxed in accordance with different rules.

Tax on Interest

Interest on the Notes paid to Non-Residents is exempt from income tax and corporation tax (whether payable by withholding or otherwise) pursuant to the Special Tax Treatment Control Law (the "**STTCL**"), subject to the tax consequences with respect to Index Linked Notes set out in the applicable Pricing Supplement, **provided that** the Notes are "foreign currency denominated bonds issued outside of Korea" under the STTCL. The term "foreign currency denominated bonds issued outside of Korea" 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 "Notes Issuance Facility, USCP, Euro CP and Banker's Acceptance, etc." are not treated as "foreign currency denominated bonds."

If not exempt under the STTCL, the rate of income tax or corporation tax applicable to interest or any premium on the Notes, for a Non-Resident, is currently 14%. In addition, a tax surcharge, called a local income tax, is imposed at the rate of 10% of the income or corporation tax (raising the total tax rate to 15.4%).

The tax rates may be reduced or exempted by applicable tax treaty between Korea and the residence country of the recipient of the interest. The relevant tax treaties are discussed below.

In order to obtain the benefit of a tax exemption available under applicable tax treaties, a beneficial owner of the interest should submit to the party liable for withholding an application for an exemption, together with a certificate of the tax residence issued by a competent authority of the beneficial owner's residence country. Subject to certain exceptions, the Korean tax laws also require an overseas investment vehicle (which is defined as an organization established in a foreign jurisdiction that manages funds collected through investment solicitation by way of acquiring, disposing or otherwise investing in proprietary targets and then distributes the outcome of such management to investors) to obtain the application for tax exemption from the beneficial owners together with a certificate of tax residence of the beneficial owner and submit a report of overseas investment vehicle to the party liable for the withholding, together with a detailed statement on the beneficial owner of the income and the obtained application for exemption from the beneficial owner. The party liable for the withholding of the interest is required to submit the application for exemption together with the certificate of tax residence to its district tax office no later than the ninth day of the month following the month in which the interest is paid. However, this requirement does not apply to exemptions under Korean tax law.

Further, in order to obtain the benefit of a reduced rate available under applicable tax treaties, a beneficial owner should submit an application for reduced rate to the party liable for the withholding before the receipt of relevant payment (if there is no change in the contents of such application, it is not required to submit again within three years thereafter), together with a certificate of the non-resident holder's tax residence issued by a competent authority of the non-resident holder's residence country. Subject to certain exceptions, the Korean tax law also requires an overseas investment vehicle to receive the application for entitlement to a preferential tax rate from the beneficial owners and forward a report of overseas investment vehicle to the party liable for the withholding, together with a detailed statement on the beneficial owner of the income. However, this requirement does not apply to exemptions under Korean tax law.

If a Non-Resident holder cannot obtain the benefit of an exempted or reduced rate due to the failure of the timely submission of the above-mentioned application, the Non-Resident holder may be able to get the tax refunded if the application of the claim for reassessment is submitted within five years from the last day of the month in which the withholding occurs.

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

The Korean tax laws currently exclude from Korean taxation gains made by a Non-Resident from the sale of the Notes to another non-resident (other than to the other non-resident's Permanent Establishment in Korea). In addition, capital gains earned by a Non-Resident from the transfer 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.

In the absence of an applicable tax treaty or any other special tax laws eliminating the capital gains tax, the applicable rate of tax is the lower of 11% (including local income tax) of the gross realization proceeds (the "**Gross Realization Proceeds**") and (subject to the production of satisfactory evidence of the acquisition cost and certain direct transfer cost of the relevant Notes) 22% (including local income tax) of the gain made. The gain is calculated as the Gross Realization Proceeds less the acquisition cost and certain direct transfer cost (including taxes, dues and brokerage commissions paid in direct connection with the acquisition and transfer of the Notes). 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 the relevant Korean law for offsetting gains and losses or otherwise aggregating transactions for the purpose of computing the net gain attributable to sales of securities of 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 the tax under an applicable tax treaty, in the absence of the seller producing satisfactory evidence of his or her acquisition cost and certain direct transfer cost in relation to the Notes 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 relevant Korean tax authority no later than the tenth day of the month following the month in which the sale of the relevant Notes occurred. Failure to transmit the withheld tax to the Korean tax authorities in time may technically subject the purchaser or the withholding agent to penalties under Korean tax laws. Accordingly, a Non-Resident who is liable for payment of any Korean tax on gains, either as a seller of Notes, as a purchaser, or the withholding agent who is obliged to withhold such tax, is subject to the Korean tax authorities seeking enforcement through attachment of, or other legal proceedings against, payments due to it from its Korean investments and to enforcement against the assets or revenues of any of the Non-Resident's branch or representative offices in Korea.

In addition, in order to obtain the benefit of a tax exemption available under applicable tax treaties, a beneficial owner should submit to the purchaser or the withholding agent an application for exemption, together with a certificate of the beneficial owner's tax residence issued by a competent authority of the beneficial owner's residence country. Subject to certain exceptions, the Korean tax law also requires an overseas investment vehicle to receive the application for tax exemption from the beneficial owners together with a certificate of tax residence of the beneficial owner and forward a report of overseas investment vehicle to the withholding obligor, together with a detailed statement on the beneficial owner of the income and the obtained application for an exemption from the beneficial owner. The purchaser or the withholding agent is required to submit the application for exemption, together with the certificate of the beneficial owner's tax residence, to its district tax office no later than the ninth day of the month following the month in which sale proceeds are paid. However, this requirement does not apply to exemptions under Korean tax law.

If a Non-Resident holder cannot obtain the benefit of a tax exemption due to the failure of the timely submission of the above-mentioned application, the Non-Resident holder may be able to get the tax refunded if the application of the claim for reassessment is submitted within five years from the last day of the month in which the withholding occurs.

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 or her death he or she was domiciled in Korea or resided in Korea for at least 183 days immediately prior to his death and (b) all property located in Korea which passes on death (irrespective of the domicile of the deceased). Gift tax is imposed upon (a) all gift assets granted to a donee if at the time of the making of the gift the donee was domiciled in Korea or resided in Korea for at least 183 days immediately prior to the donation and (b) all gift assets located in Korea (irrespective of the domicile of the donee). The taxes are imposed if the value of the relevant property is above a certain limit, and the rate varies from 10% to 50% according to the value of the relevant property and the identity of the parties involved. At present, Korea has not entered into any tax treaties regarding its inheritance or gift taxes.

Under the Korean inheritance and gift tax laws, notes issued by Korean corporations are deemed located in Korea irrespective of where they are physically located or by whom they are owned. Consequently, the Korean inheritance and gift taxes will be imposed on transfers of the Notes by inheritance or gift. Prospective purchasers should consult their personal tax advisers 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 Non-Resident 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 on the transfer of 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 United Kingdom and the United States of America under which the rate of withholding tax on interest is reduced, generally to between 5% and 16.5% (13.2% under the treaty with the United States) (including local income tax), and the tax on capital gains is often eliminated (as it is generally under the treaty with the United States).

Each Non-Resident holder should enquire whether he is entitled to the benefit of a tax treaty. It is the responsibility of the party claiming the benefits of a tax treaty in respect of interest payments to file with the Issuer a certificate as to his or her residence. In the absence of sufficient proof, the Issuer must withhold taxes in accordance with the above discussion.

Withholding and Gross-up

As mentioned above, interest 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 Issuer is required by law to make any withholding or deduction for or on account of any Korean taxes, the Issuer has agreed, subject to certain customary exceptions set forth in "Terms and Conditions of the Notes – Taxation," to pay such additional amounts as may be necessary in order that the net amounts received by the Non-Resident holder after such withholding or deduction shall equal the respective amounts received by the Non-Resident holder in the absence of such withholding or deduction.

UNITED STATES FEDERAL INCOME TAXATION

The following is a summary of certain U.S. federal income tax considerations that may be relevant to a holder of a Note. This summary is based on laws, regulations, rulings and decisions now in effect, all of which are subject to change. This summary deals only with beneficial owners of Notes that will hold Notes as capital assets, and does not address particular tax considerations that may be applicable to investors that are subject to special tax rules, such as banks, tax-exempt entities, insurance companies, regulated investment companies, dealers in securities or currencies, traders in securities electing to mark to market, persons that will hold Notes as a position in a "straddle" or conversion transaction, or as part of a "synthetic security" or other integrated financial transaction, entities taxed as partnerships or the partners therein, persons subject to the alternative minimum tax, U.S. expatriates, nonresident alien individuals present in the United States for more than 182 days in a taxable year, or persons that have a "functional currency" other than the U.S. dollar. Any special U.S. federal income tax considerations relevant to a particular issue of Notes, including any Index Linked Notes, will be provided in the applicable Pricing Supplement.

This summary addresses only U.S. federal income tax consequences, and does not address consequences arising under state, local, foreign tax laws or the Medicare tax on net investment income, or under special timing rules prescribed under section 451(b) of the U.S. Internal Revenue Code. Investors should consult their own tax advisers in determining the tax consequences to them of holding Notes under such tax laws, as well as the application to their particular situation of the U.S. federal income tax considerations discussed below.

Because Bearer Notes cannot be offered or sold in connection with their initial distribution to U.S. citizens or residents (or to other persons located in the United States), this summary does not discuss special tax considerations relevant to the ownership and disposal of Bearer Notes by U.S. holders. This summary addresses only Notes that are properly characterized as indebtedness for U.S. federal income tax purposes. Particular tax consequences relating to Notes having a term to maturity of more than 30 years or Dual Currency Notes will be discussed in the applicable Pricing Supplement.

As used herein, a "U.S. holder" is a beneficial owner of a Note that is, for U.S. federal income tax purposes, 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 "non-U.S. holder" is a beneficial owner of a Note that is an individual, corporation, foreign estate, or foreign trust, that is not a U.S. holder.

U.S. Holders

Payments of Interest and Additional Amounts. The gross amount of payments of "qualified stated interest" (as defined below under "– Original Issue Discount") and additional amounts, if any (*i.e.*, without reduction for Korean withholding taxes, determined utilizing the appropriate Korean withholding tax rate applicable to the U.S. holder), but excluding any pre-issuance accrued interest, will be taxable to a U.S. holder as ordinary interest income at the time that such payments are accrued or are received (in accordance with the U.S. holder's method of tax accounting). If payments of this kind 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 U.S. 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 U.S. holder that uses the accrual method of accounting for tax purposes will accrue interest income on the Note in the relevant foreign 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 U.S. holder's taxable year), or, at the accrual basis U.S. 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 this date is within five business days of the last day of the accrual period. A U.S. holder that makes this 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 U.S. 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. Amounts attributable to pre-issuance accrued interest will generally not be includable in income, except to the extent of foreign currency gain or loss attributable to any changes in exchange rates during the period between the date the U.S. Holder acquired the Note and the first Interest Payment Date. This foreign currency gain or loss will be treated as ordinary income or loss but generally will not be treated as an adjustment to interest income received on the Note.

Korean withholding taxes paid at the appropriate rate applicable to the U.S. holder will be treated as foreign income taxes eligible for credit against such U.S. holder's U.S. federal income tax liability, subject to generally applicable limitations and conditions, or, at the election of such U.S. holder, for deduction in computing such U.S. holder's taxable income (provided that the U.S. holder elects to deduct, rather than credit, all foreign income taxes paid or accrued for the relevant taxable year). Interest and additional amounts will constitute income from sources without the United States for U.S. foreign tax credit purposes. The calculation of foreign tax credits and, in the case of a U.S. holder that elects to deduct foreign taxes, the availability of deductions, involves the application of rules that depend on a U.S. holder's particular circumstances. U.S. holders should consult their own tax advisers regarding the availability of foreign tax credits and the treatment of additional amounts.

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 such Notes multiplied by the number of full years to their maturity (the "*de minimis* threshold"), such Notes will be "original issue discount Notes." The difference between the issue price and the stated redemption price at maturity of such Notes will be the "original issue discount" ("OID"). The "issue price" of a Note will be the first price at which a substantial amount of the Notes is sold to the public (*i.e.*, excluding sales of the Notes to underwriters, placement agents, wholesalers, or similar persons). The "stated redemption price at maturity" will include all payments under a Note other than payments of qualified stated interest. The term "qualified stated interest" generally means stated interest that is unconditionally payable in cash or property (other than debt instruments issued by the Issuer) at least annually during the entire term of the Note at a single fixed interest rate or, subject to certain conditions, based on one or more interest indices.

U.S. holders of original issue discount Notes generally will be subject to special tax accounting rules for obligations issued with OID. U.S. 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 U.S. holder of an original issue discount Note, regardless of whether the 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 U.S. 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 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 its yield to maturity (appropriately adjusted to reflect the length of the accrual period) and (b) subtracting from that product the amount (if any) of qualified stated interest 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 the 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 the Note in all prior accrual periods. As a result of this "constant yield" method of including OID in income, the amounts includible in income by a U.S. 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 U.S. 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 the U.S. holder for the Note) under the constant-yield method described above. For Notes purchased at a premium or bearing market discount in the hands of the U.S. holder, the U.S. 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 U.S. 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 U.S. holder's taxable year) or, at the U.S. holder's election (as described above under "– Payments of Interest and Additional Amounts"), 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 that date is within five business days of the last day of the accrual period. Because exchange rates may fluctuate, a U.S. 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 U.S. 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 U.S. 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 U.S. 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 U.S. holder acquires the original issue discount Note at a price greater than its adjusted issue price, the 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 applicable Treasury 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," the 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 U.S. 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 advisers with respect to the 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 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 applicable Treasury Regulations. As a result, the Note would be an original issue discount Note. In that event, among other things, cash-method U.S. holders will be required to accrue stated interest on the Note under the rules for OID described above, and all U.S. holders will be required to accrue OID that would otherwise fall under the *de minimis* threshold.

Purchase, Sale and Retirement of Notes. A U.S. holder's 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 U.S. holder will be the U.S. dollar value of the foreign currency purchase price on the date of purchase. In the case of a Foreign Currency Note that is traded on an established securities market, a cash basis U.S. holder (and, if it so elects, an accrual basis U.S. 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 U.S. holder's 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" above and "Premium and Market Discount" below. The conversion of U.S. dollars to a 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 U.S. holder.

Upon the sale, exchange or retirement of a Note, a U.S. 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 U.S. holder's tax basis in such Note. If a U.S. holder receives a currency other than the U.S. dollar in respect of the sale, exchange or retirement of a Note, the amount realized will be the U.S. dollar value of the Specified Currency received calculated at the exchange rate in effect on the date the instrument is disposed of or retired. In the case of a Foreign Currency Note that is traded on an established securities market, a cash basis U.S. holder, and if it so elects, an accrual basis U.S. holder will determine the U.S. dollar value of the amount realized by translating such amount at the spot rate on the settlement date of the sale. The election available to accrual basis U.S. 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 discussed below with respect to market discount, Short-Term Notes (as defined below) and foreign currency gain or loss, gain or loss recognized by a U.S. holder generally will be long-term capital gain or loss if the U.S. holder has held the Note for more than one year at the time of disposition. Long-term capital gains recognized by an individual holder generally are subject to tax at a lower rate than short-term capital gains or ordinary income. The deduction of capital losses is subject to limitations.

Gain or loss recognized by a U.S. holder on the sale, exchange or retirement of a Foreign Currency Note generally will be treated as ordinary income or loss to the extent that the gain or loss is attributable to changes in exchange rates during the period in which the holder held such Note. This foreign currency gain or loss will not be treated as an adjustment to interest income received on the Notes.

Capital gain or loss recognized by a U.S. holder generally will be U.S.-source gain or loss. Consequently, if any such gain is subject to foreign withholding tax, a U.S. holder may not be able to credit the tax against its U.S. federal income tax liability unless the credit can be applied (subject to the applicable limitations) against tax due on other income treated as derived from foreign sources. U.S. holders should consult their own tax advisers as to the foreign tax credit implications of a disposition of the Notes.

Premium and Market Discount. A U.S. holder of a Note that purchases the Note at a cost greater than its remaining redemption amount will be considered to have purchased the Note at a premium, and may elect to amortize the 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 U.S. holder on or after the first taxable year to which the election applies and may not be revoked without the consent of the IRS. A U.S. holder that elects to amortize the 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 U.S. holder should calculate the amortization of the 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 U.S. 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 the premium is recovered through interest payments on the Note and the exchange rate on the date on which the U.S. holder acquired the Note. With respect to a U.S. holder that does not elect to amortize bond premium, the amount of bond premium will be included in the U.S. holder's tax basis when the Note matures or is disposed of by the U.S. holder. Therefore, a U.S. 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 U.S. 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 U.S. holder. In such case, gain realized by the U.S. 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 the U.S. holder. In addition, the U.S. 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 the 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 U.S. holder in the Specified Currency. The amount includible in income by a U.S. 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 U.S. holder.

A U.S. 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 U.S. 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 U.S. 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.

First, applicable Treasury 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 U.S. holder, under a constant yield method.

Second, a U.S. 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 U.S. 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, the U.S. 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 U.S. holder held the Note. Notwithstanding the foregoing, a cash-basis U.S. 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 U.S. holder elects to accrue OID or acquisition discount, the limitation on the deductibility of interest described above will not apply.

A U.S. holder using the accrual method of tax accounting and certain cash-basis U.S. 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 U.S. 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 U.S. holder, under a constant-yield method based on daily compounding.

Finally, 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 U.S. holders of any Contingent Debt Obligations will be provided in the applicable Pricing Supplement.

Foreign Currency Notes and Reportable Transactions. A U.S. holder that participates in a "reportable transaction" will be required to disclose its participation to the IRS. The scope and application of these rules is not entirely clear. A U.S. holder may be required to treat a foreign currency exchange loss relating to a Foreign Currency Note as a reportable transaction if the loss exceeds $50,000 in a single taxable year if the U.S. holder is an individual or trust, or higher amounts for other U.S. holders. In the event the acquisition, ownership or disposition of a Foreign Currency Note constitutes participation in a "reportable transaction" for purposes of these rules, a U.S. holder will be required to disclose its investment to the IRS, currently on Form 8886. Prospective purchasers should consult their tax advisers regarding the application of these rules to the acquisition, ownership or disposition of Foreign Currency Notes.

Specified Foreign Financial Assets. Individual U.S. 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 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 may include Notes issued in certificated form) 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. U.S. holders that 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 advisers concerning the application of these rules to their investment in the Notes, including the application of the rules to their particular circumstances.

Non-U.S. Holders

Subject to the discussion below under "– Information Reporting and Backup Withholding," payments of interest on the Notes to a non-U.S. holder, and any gain realized on a disposition of the Notes by a non-U.S. holder, generally will be exempt from U.S. federal income taxes, including withholding tax. However, to receive this exemption a non-U.S. holder may be required to satisfy certification requirements, described below under "– Information Reporting and Backup Withholding," to establish that it is not a U.S. holder.

Information Reporting and Backup Withholding

Information returns will be filed with the IRS in connection with payments on the Notes made to, and the proceeds of dispositions of Notes effected by, certain U.S. taxpayers. In addition, certain U.S. taxpayers may be subject to backup withholding in respect of such amounts if they do not provide their taxpayer identification numbers to the person from whom they receive payments. Non-U.S. taxpayers may be required to comply with applicable certification procedures to establish that they are not U.S. taxpayers in order to avoid the application of such information reporting requirements and backup withholding. The amount of any backup withholding from a payment to a U.S. or non-U.S. taxpayer will be allowed as a credit against the holder's U.S. federal income tax liability and may entitle the holder to a refund, provided that the required information is timely furnished to the IRS.

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.

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. 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, the Arranger, any Dealer nor any party to the Agency Agreement will have any responsibility or liability for any aspect of the records relating to, or payments made on account of, beneficial ownership interests in the Notes held through the facilities of any Clearing System or for maintaining, supervising or reviewing any records relating to such beneficial ownership interests. The relevant Pricing Supplement will specify the Clearing System(s) applicable for each Series.

BOOK-ENTRY SYSTEMS

DTC

DTC has advised the 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. DTC is owned by a number of its Direct Participants and by the New York Stock Exchange, Inc., the American Stock Exchange, Inc. and the National Association of Securities Dealers, Inc. 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 U.S. Securities and Exchange Commission. Direct Participants and Indirect Participants with which beneficial owners of DTC Notes ("**Owners**") have accounts with respect to the DTC Notes similarly are required to make book-entry transfers and receive and transmit such payments on behalf of their respective Owners. Accordingly, although Owners who hold DTC Notes through Direct Participants or Indirect Participants will not possess Registered Notes, the Rules, by virtue of the requirements described above, provide a mechanism by which Direct Participants will receive payments and will be able to transfer their interest in respect of the DTC Notes.

Purchases of DTC Notes under the DTC system must be made by or through Direct Participants, which will receive a credit for the DTC Notes on DTC's records. The ownership interest of each actual purchaser of each DTC Note ("**Beneficial Owner**") is in turn to be recorded on the Direct and

Indirect Participant's records. Beneficial Owners will not receive written confirmation from DTC of their purchase, but Beneficial Owners are expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owner entered into the transaction. Transfers of ownership interests in the DTC Notes are to be accomplished by entries made on the books of Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in DTC Notes, except in the event that use of the book-entry system for the DTC Notes is discontinued.

To facilitate subsequent transfers, all DTC Notes deposited by 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 world-wide financial institutions, including underwriters, securities brokers and dealers, banks, trust companies and clearing corporations. Indirect access to Euroclear and Clearstream is available to other institutions that clear through or maintain a custodial relationship with an account holder of either system.

Book-entry Ownership of and Payments in Respect of DTC Notes

The Issuer 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 is 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 Fiscal 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 Fiscal 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.

SUBSCRIPTION AND SALE AND TRANSFER AND SELLING RESTRICTIONS

The Dealers have, in an amended and restated program agreement dated May 26, 2015 as amended by the first amendment dated July 12, 2018 and the second amendment dated April 15, 2021 (as amended, restated and supplemented, the "Program Agreement"), agreed with the Issuer a basis upon which they or any of them may from time to time agree to purchase or procure purchasers for 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 in connection with the establishment of the Program and the issue of Notes under the Program and to indemnify the Dealers against certain liabilities incurred by them in connection therewith.

In order to facilitate the offering of any Tranche of the Notes, certain persons participating in the offering of the Tranche may, to the extent permitted by applicable laws and regulations, engage in transactions that stabilize, maintain or otherwise affect the market price of the relevant Notes during and after the offering of the Tranche. Specifically, such persons may over allot or create a short position in the Notes for their own account by selling more Notes than have been sold to them by the Issuer. Such persons may also elect to cover any such short position by purchasing Notes in the open market. In addition, such persons may stabilize or maintain the price of the Notes by bidding for or purchasing Notes in the open market and may impose penalty bids, under which selling concessions allowed to syndicate members or other broker-dealers participating in the offering of the Notes are reclaimed if Notes previously distributed in the offering are repurchased in connection with stabilization transactions or otherwise. The effect of these transactions may be to stabilize or maintain the market price of the Notes at a level above that which might otherwise prevail in the open market. The imposition of a penalty bid may also affect the price of the Notes to the extent that it discourages resales thereof. No representation is made as to the magnitude or effect of any such stabilizing or other transactions. Such transactions, if commenced, may be discontinued at any time. Stabilization activities are subject to certain prescribed time limits in certain jurisdictions.

CERTAIN RELATIONSHIPS

The Dealers and certain affiliates of the Dealers may have performed banking and advisory services (which may include securities trading, commercial and investment banking, financial advice, investment management, principal investment, hedging, financing and brokerage activities) for the Issuer from time to time for which they have received customary fees and expenses. The Dealers and certain of their affiliates may, from time to time, engage in transactions with and perform services for the Issuer in the ordinary course of their business. In the ordinary course of their various business activities, the Dealers and their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investments and securities activities may involve securities and instruments of the Issuer.

The Dealers or certain of their respective affiliates may purchase the Notes and be allocated Notes for asset management and/or proprietary purposes and not with a view to distribution. The Dealers and/or their affiliates may purchase 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 respective 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).

TRANSFER RESTRICTIONS UNDER U.S. SECURITIES LAW

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):

(i) that either: (a) it is a QIB, purchasing (or holding) the Notes for its own account or for the account of one or more QIBs and it is aware that any sale to it is being made in reliance on Rule 144A or (b) it is an Institutional Accredited Investor, that, prior to its purchase of the Notes has delivered to the Registrar an IAI Investment Letter in the form as set forth below or (c) it is outside the United States and is not a U.S. person;

(ii) that the Notes have not been and will not be registered under the Securities Act or any other applicable U.S. state securities laws and may not be offered or sold within the United States or to, or for the account or benefit of, U.S. persons except as set forth below;

(iii) that, unless it holds an interest in a Regulation S Global Note and either is a person located outside the United States or is not a U.S. person, if in the future it decides to resell, pledge or otherwise transfer the Notes or any beneficial interests in the Notes, it will do so, prior to the date which is one year after the later of the last Issue Date for the Series and the last date on which the Issuer or an affiliate of the Issuer was the owner of such Notes, only (a) to the Issuer or any affiliate thereof, (b) inside the United States to a person whom the seller reasonably believes is a QIB purchasing for its own account or for the account of a QIB in a transaction meeting the requirements of Rule 144A, (c) outside the United States in compliance with Rule 903 or Rule 904 under the Securities Act, (d) pursuant to the exemption from registration provided by Rule 144 under the Securities Act (if available) or (e) pursuant to an effective registration statement under the Securities Act, in each case in accordance with all applicable U.S. state securities laws;

(iv) it will, and will require each subsequent holder to, notify any purchaser of the Notes from it of the resale restrictions referred to in paragraph (iii) above, if then applicable;

(v) that Notes initially offered in the United States to QIBs will be represented by one or more Rule 144A Global Notes, that Notes offered to Institutional Accredited Investors will be in the form of Definitive IAI Registered Notes and that Notes offered outside the United States in reliance on Regulation S will be represented by one or more Regulation S Global Notes;

(vi) that the Notes, other than the Regulation S Global Notes, will bear a legend to the following effect unless otherwise agreed to by the 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 AS SET FORTH IN THE FOLLOWING SENTENCE. BY ITS ACQUISITION HEREOF, THE HOLDER (A) REPRESENTS THAT (1) IT IS A "QUALIFIED INSTITUTIONAL BUYER" (AS DEFINED IN RULE 144A UNDER THE SECURITIES ACT) PURCHASING THE SECURITIES FOR ITS OWN ACCOUNT OR FOR THE ACCOUNT OF ONE OR MORE QUALIFIED INSTITUTIONAL BUYERS OR (2) IT IS AN INSTITUTIONAL "ACCREDITED INVESTOR" (AS DEFINED IN RULE 501(A)(1), (2), (3) OR (7) UNDER THE SECURITIES ACT) (AN "INSTITUTIONAL ACCREDITED INVESTOR"); (B) AGREES THAT IT WILL NOT RESELL OR OTHERWISE TRANSFER THE SECURITIES EXCEPT IN ACCORDANCE WITH THE AGENCY AGREEMENT AND, PRIOR TO THE DATE WHICH IS ONE YEAR AFTER THE LATER OF THE LAST ISSUE DATE FOR THE SERIES AND THE LAST DATE ON WHICH THE ISSUER OR AN AFFILIATE OF THE ISSUER WAS THE OWNER OF SUCH SECURITIES OTHER THAN (1) TO THE ISSUER OR ANY AFFILIATE THEREOF, (2) INSIDE THE UNITED STATES TO A PERSON WHOM THE SELLER REASONABLY BELIEVES IS A QUALIFIED INSTITUTIONAL BUYER WITHIN THE MEANING OF RULE 144A UNDER THE SECURITIES ACT PURCHASING FOR ITS OWN ACCOUNT OR FOR THE ACCOUNT OF A QUALIFIED INSTITUTIONAL BUYER IN A TRANSACTION MEETING THE REQUIREMENTS OF RULE 144A, (3) OUTSIDE THE UNITED STATES IN COMPLIANCE WITH RULE 903 OR RULE 904 UNDER THE SECURITIES ACT, (4) PURSUANT TO THE EXEMPTION FROM REGISTRATION PROVIDED BY RULE 144 UNDER THE SECURITIES ACT (IF AVAILABLE) OR (5) PURSUANT TO AN EFFECTIVE REGISTRATION STATEMENT UNDER THE SECURITIES ACT, IN EACH CASE IN ACCORDANCE WITH ALL APPLICABLE SECURITIES LAWS OF THE STATES OF THE UNITED STATES AND ANY OTHER JURISDICTION; AND (C) IT AGREES THAT IT WILL DELIVER TO EACH PERSON TO WHOM 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).";

(vii) if it is outside the United States and is not a U.S. person, that if it should resell or otherwise transfer the Notes prior to the expiration of the distribution compliance period (defined as 40 days after the later of the commencement of the offering and the closing date with respect to the original issuance of the Notes), it will do so only (a)(i) outside the United States in compliance with Rule 903 or Rule 904 under the Securities Act or (ii) to a QIB in compliance with Rule 144A and (b) in accordance with all applicable U.S. state securities laws; and it acknowledges that the Regulation S Global Notes will bear a legend to the following effect unless otherwise agreed to by the Issuer:

"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 A PART."; and

(viii) 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:

(i) that the Institutional Accredited Investor has received a copy of this Offering Circular and such other information as it deems necessary in order to make its investment decision;

(ii) that the Institutional Accredited Investor understands that any subsequent transfer of the Notes is subject to certain restrictions and conditions set forth in this Offering Circular and the Notes (including those set out above) and that it agrees to be bound by, and not to resell, pledge or otherwise transfer the Notes except in compliance with, such restrictions and conditions and the Securities Act;

(iii) that, in the normal course of its business, the Institutional Accredited Investor invests in or purchases securities similar to the Notes;

(iv) that the Institutional Accredited Investor is an Institutional Accredited Investor within the meaning of Rules 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;

(v) that the Institutional Accredited Investor is acquiring the Notes purchased by it for its own account or for one or more accounts (each of which is an Institutional Accredited Investor) as to each of which it exercises sole investment discretion and not with a view to any distribution of the Notes, subject, nevertheless, to the understanding that the disposition of its property shall at all times be and remain within its control; and

(vi) that, in the event that the Institutional Accredited Investor purchases Notes, it will acquire Notes having a minimum purchase price of at least US$500,000 (or the approximate equivalent in another Specified Currency).

No sale of Legended Notes in the United States to any one purchaser will be for less than US$200,000 (or its foreign currency equivalent) principal amount or, in the case of sales to Institutional Accredited Investors, US$500,000 (or its foreign currency equivalent) principal amount and no Legended Note will be issued in connection with such a sale in a smaller principal amount. If the purchaser is a non-bank fiduciary acting on behalf of others, each person for whom it is acting must purchase at least US$200,000 (or its foreign currency equivalent) or, in the case of sales to Institutional Accredited Investors, US$500,000 (or its foreign currency equivalent) principal amount of Registered Notes.

TRANSFER RESTRICTIONS UNDER KOREAN LAWS AND REGULATIONS

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

THE NOTES HAVE NOT BEEN REGISTERED UNDER FSCMA. ACCORDINGLY, THE NOTES MAY NOT BE OFFERED, SOLD OR DELIVERED, DIRECTLY OR INDIRECTLY, IN KOREA OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, ANY RESIDENT OF KOREA (AS SUCH TERM IS DEFINED UNDER THE FOREIGN EXCHANGE TRANSACTIONS ACT OF KOREA AND ITS ENFORCEMENT DECREE) OR TO OTHERS FOR RE-OFFERING OR RESALE DIRECTLY OR INDIRECTLY IN KOREA OR TO, OR FOR THE ACCOUNT OR BENEFIT OF, ANY RESIDENT OF KOREA, EXCEPT AS OTHERWISE PERMITTED UNDER APPLICABLE KOREAN LAWS AND REGULATIONS.

IN ADDITION, DURING THE FIRST YEAR AFTER THE ISSUANCE OF THE NOTES, THE NOTES MAY NOT BE TRANSFERRED TO ANY RESIDENT OF KOREA OTHER THAN A KOREAN QIB WHO IS REGISTERED WITH THE KOFIA AS A KOREAN QIB, PROVIDED THAT (A) THE NOTES ARE DENOMINATED, AND THE PRINCIPAL AND INTEREST PAYMENTS THEREUNDER ARE MADE, IN A CURRENCY OTHER THAN KOREAN WON, (B) THE AMOUNT OF THE NOTES ACQUIRED BY SUCH KOREAN QIBS IN THE PRIMARY MARKET IS LIMITED TO NO MORE THAN 20% OF THE AGGREGATE ISSUE AMOUNT OF THE NOTES, (C) THE NOTES ARE LISTED ON ONE OF THE MAJOR OVERSEAS SECURITIES MARKETS

DESIGNATED BY THE FINANCIAL SUPERVISORY SERVICE OF KOREA, OR CERTAIN PROCEDURES, SUCH AS REGISTRATION OR REPORT WITH A FOREIGN FINANCIAL INVESTMENT REGULATOR, HAVE BEEN COMPLETED FOR OFFERING OF THE NOTES IN A MAJOR OVERSEAS SECURITIES MARKET, (D) THE ONE-YEAR RESTRICTION ON OFFERING, DELIVERING OR SELLING OF NOTES TO A KOREAN RESIDENT OTHER THAN A KOREAN QIB IS EXPRESSLY STATED IN THE NOTES, THE RELEVANT UNDERWRITING AGREEMENT, SUBSCRIPTION AGREEMENT, AND THE OFFERING CIRCULAR AND (E) THE ISSUER AND THE DEALERS SHALL INDIVIDUALLY OR COLLECTIVELY KEEP THE EVIDENCE OF FULFILLMENT OF CONDITIONS (A) THROUGH (D) ABOVE AFTER HAVING TAKEN NECESSARY ACTIONS THEREFOR.

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 (i) to QIBs in reliance on Rule 144A, (ii) to Institutional Accredited Investors, that, prior to their purchase of the Notes have furnished an IAI Investment Letter and (iii) in accordance with Regulation S under the Securities Act.

Notes in bearer form (other than Notes with a maturity of 365 days or less including unilateral rollovers and extensions) will be issued in accordance with the provisions of United States Treasury Regulations Section 1.163-5(c)(2)(i)(D) (the "**D Rules**"), or in accordance with the provisions of United States Treasury Regulations Section 1.163-5(c)(2)(i)(C) (the "**C Rules**"), as specified in the applicable Pricing Supplement.

In respect of Notes issued in accordance with the D Rules, each Dealer has represented and agreed that:

(i) except to the extent permitted under the D Rules, (x) it has not offered or sold, and during the restricted period will not offer or sell, Notes to a person who is within the United States or its possessions or to a United States person, and (y) such Dealer has not delivered and will not deliver within the United States or its possessions definitive Notes in bearer form that are sold during the restricted period;

(ii) it has and throughout the restricted period will have in effect procedures reasonably designed to ensure that its employees or agents who are directly engaged in selling Notes in bearer form are aware that such Notes may not be offered or sold during the restricted period to a person who is within the United States or its possessions or to a United States person, except as permitted by the D Rules;

(iii) if such Dealer is a United States person, it has represented that it is acquiring the Notes in bearer form for purposes of resale in connection with their original issuance and if such Dealer retains Notes for its own account, it will only do so in accordance with the requirements of United States Treasury Regulations Section 1.163-5(c)(2)(i)(D)(6);

(iv) with respect to each affiliate that acquires from such Dealer Notes in bearer form for the purposes of offering or selling such Notes during the restricted period, such Dealer either (x) repeats and confirms the representations and agreements contained in sub-clauses (i), (ii) and (iii) on such affiliate's behalf or (y) agrees that it will obtain from such affiliate for the benefit of the Issuer the representations and agreements contained in sub-causes (i), (ii) and (iii); and

(v) such Dealer will obtain for the benefit of the Issuer the representations and agreements contained in sub-clauses (i), (ii), (iii) and (iv) from any person other than its affiliate with whom it enters into a written contract, as defined in United States Treasury Regulations Section 1.163-5(c)(2)(i)(D)(4), for the offer and sale during the restricted period of Notes.

Terms used in the above paragraph have the meanings given to them by the Code and regulations thereunder, including the D Rules.

In respect of Notes issued in accordance with the C Rules, Notes in bearer form must be issued and delivered outside the United States and its possessions in connection with their original issuance. In relation to such tranche, each Dealer has represented and agreed that it has not offered, sold or delivered and will not offer, sell or deliver, directly or indirectly, Notes in bearer form within the United States or its possessions in connection with their original issuance. Further, each Dealer has represented and agreed in connection with the original issuance of Notes, that it has not communicated, and will not communicate, directly or indirectly, with a prospective purchaser if either of them is within the United States or its possessions and will not otherwise involve its U.S. office in the offer or sale of Notes in bearer form. Terms used in this paragraph have the meaning given to them by the Code and regulations thereunder, including the C Rules.

Notes issued pursuant to the D Rules and any receipts or coupons appertaining thereto will bear the following legend: "Any United States person who holds this obligation will be subject to limitations under the United States income tax laws, including the limitation provided in Sections 165(j) and 1287(a) of the Internal Revenue Code."

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 and agreed that it will not offer, sell or deliver such Regulation S 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 that is not participating in the offering may violate the registration requirements of 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 which may be purchased by a QIB pursuant to Rule 144A is US$200,000 (or the approximate equivalent thereof in any other currency).

Each issuance of Index Linked, Commodity Linked or Currency Linked Notes may 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.

To the extent the Dealers intend to make any offers or sales of the Notes in the United States, or to nationals or residents of the United States, they will do so only through one or more registered broker-dealers in compliance with applicable securities laws and regulations, as well as with applicable laws of the various states.

European Economic Area

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

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

Unless the final terms (or the 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 the Pricing Supplement, as the case may be) in relation thereto to any retail investor in the EEA. For the purposes of this provision: (a) the expression "**retail investor**" means a person who is one (or more) of the following: (i) a retail client as defined in point (11) of Article 4(1) of MiFID II; (ii) a customer within the meaning of Directive (EU) 2016/97 (the "**Insurance Distribution Directive**"), where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (iii) not a qualified investor as defined in the Prospectus Regulation; and (b) the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes.

If the final terms (or the Pricing Supplement, as the case may be) in respect of any Notes specifies the "Prohibition of sales to EEA retail investors" as "Not Applicable", in relation to each Member State of the EEA, each Dealer has represented and agreed, and each further Dealer appointed under the Program will be required to represent and agree, that it has not made and will not make an offer of Notes which are the subject of the offering contemplated by this Offering Circular, as completed by the final terms in relation thereto, to the public in that Member State except that it may make an offer of such Notes to the public in that Member State:

(a) if the final terms in relation to the Notes specify that an offer of those Notes may be made other than pursuant to Article 1(4) of the Prospectus Regulation in that Member State (a "**Non-exempt Offer**"), following the date of publication of a prospectus in relation to such Notes which has been approved by the competent authority in that Member State or, where appropriate, approved in another Member State and notified to the competent authority in that Member State, provided that any such prospectus has subsequently been completed by the final terms contemplating such Non-exempt Offer, in accordance with the Prospectus Regulation in the period beginning and ending on the dates specified in such prospectus or final terms, as applicable, and the Issuer has consented in writing to its use for the purpose of that Non-exempt Offer;

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

(c) subject to any other restriction and obtaining the prior consent of the relevant Dealer or Dealers nominated by the Issuer for any such offer, at any time to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Regulation); or

(d) at any time in any other circumstances falling within Article 1(4) of the Prospectus Regulation;

provided that no such offer of Notes referred to in (b) to (d) above shall require the Issuer or any Dealer to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation.

For the purposes of this provision, the expression an "**offer of Notes to the public**" in relation to any Notes in any Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes, and the expression "**Prospectus Regulation**" means Regulation (EU) 2017/1129.

The EEA selling restrictions described above are in addition to any other applicable selling restriction set out below.

United Kingdom

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

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

Unless the final terms (or the Pricing Supplement, as the case may be) in respect of any Series of Notes specifies "Prohibition of Sales to UK Retail Investors" as "Not Applicable", each Dealer has represented and agreed, and each further Dealer appointed under the Program will be required to represent and agree, that it has not offered, sold or otherwise made available and will not offer, sell or otherwise make available any Notes which are the subject of the offering contemplated by this Offering Circular as completed by the final terms (or the Pricing Supplement, as the case may be) in relation thereto to any retail investor in the UK. For the purposes of this provision: (a) the expression "retail investor" means a person who is one (or more) of the following: (i) a retail client as defined in point (8) of Article 2 of Regulation (EU) No 2017/565 as it forms part of domestic law by virtue of the EUWA; (ii) a customer within the meaning of the FSMA and any rules or regulations made under the FSMA to implement the Insurance Distribution Directive, where that customer would not qualify as a professional client as defined in point (8) of Article 2(1) of Regulation (EU) No 600/2014 as it forms part of domestic law by virtue of the EUWA; or (iii) not a qualified investor as defined in Article 2 of the UK Prospectus Regulation; and (b) the expression "offer" includes the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes.

If the final terms (or the Pricing Supplement, as the case may be) in respect of any Notes specifies the "Prohibition of sales to UK retail investors" as "Not Applicable", in relation to the UK, each Dealer has represented and agreed, and each further Dealer appointed under the Program will be required to represent and agree, that it has not made and will not make an offer of Notes which are the subject of the offering contemplated by this Offering Circular, as completed by the final terms in relation thereto, to the public in the UK except that it may make an offer of such Notes to the public in the UK:

(a) if the final terms in relation to the Notes specify that an offer of those Notes may be made other than pursuant to section 86 of the FSMA (a "**Public Offer**"), following the date of publication of a prospectus in relation to such Notes which either (i) has been approved by the Financial Conduct Authority, or (ii) is to be treated as if it had been approved by the Financial Conduct Authority in accordance with the transitional provision in Regulation 74 of the Prospectus (Amendment etc.) (EU Exit) Regulations 2019, provided that any such prospectus has subsequently been completed by the final terms contemplating such Public Offer, in the period beginning and ending on the dates specified in such prospectus or final terms, as applicable, and the Issuer has consented in writing to its use for the purpose of that Public Offer;

(b) at any time to any legal entity which is a qualified investor as defined in Article 2 of the UK Prospectus Regulation;

(c) at any time to fewer than 150 natural or legal persons (other than qualified investors as defined in Article 2 of the UK Prospectus Regulation) in the UK subject to obtaining the prior consent of the relevant Dealer or Dealers nominated by the Issuer for any such offer; or

(d) at any time in any other circumstances falling within section 86 of the FSMA;

provided that no such offer of Notes referred to in (b) to (d) above shall require the Issuer or any Dealer to publish a prospectus pursuant to section 85 of the FSMA or supplement a prospectus pursuant to Article 23 of the UK Prospectus Regulation.

For the purposes of this provision, the expression an "offer of Notes to the public" in relation to any Notes means the communication in any form and by any means of sufficient information on the terms of the offer and the Notes to be offered so as to enable an investor to decide to purchase or subscribe for the Notes, and the expression "UK Prospectus Regulation" means Regulation (EU) 2017/1129 as it forms part of domestic law by virtue of the EUWA.

Each Dealer has represented, warranted and agreed, and each further Dealer appointed under the Program will be required to represent, warrant and agree that:

(a) in relation to any Notes having a maturity of less than one year, (i) it is a person whose ordinary activities involve it in acquiring, holding, managing or disposing of investments (as principal or agent) for the purposes of its business and (ii) it has not offered or sold and will not offer or sell any Notes other than to persons whose ordinary activities involve them in acquiring, holding, managing or disposing of investments (as principal or as agent) for the purposes of their businesses or who it is reasonable to expect will acquire, hold, manage or dispose of investments (as principal or agent) for the purposes of their businesses where the issue of the Notes would otherwise constitute a contravention of Section 19 of the FSMA by the Issuer; and

(b) it has only communicated or caused to be communicated and will only communicate or cause to be communicated an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the FSMA) received by it in connection with the issue or sale of any Notes in circumstances in which Section 21(1) of the FSMA would not, if the Issuer was not an authorised person, apply to the Issuer; and

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

The UK selling restrictions described above are in addition to any other applicable selling restriction set out below.

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, the Company nor 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, and investors in the Notes will not benefit from protection or supervision by such authority.

Japan

The Notes have not been and will not be registered under the Financial Instruments and Exchange Act of Japan (Act No. 25 of 1948, as amended, the "**Financial Instruments and Exchange Act**"). Accordingly, each Initial Purchaser has represented and agreed that it has not, directly or indirectly, offered or sold and will not, directly or indirectly, offer or sell any Notes in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan) or to others for re-offering or re-sale, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Act and other relevant laws and regulations of Japan.

Singapore

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.

Hong Kong

Each Dealer has represented, warranted and agreed that:

(i) it has not offered or sold and will not offer or sell in Hong Kong, by means of any document, any Notes (except for Notes which are a "**structured product**" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong) ("**SFO**") other than (i) to "professional investors" as defined in 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 "**Companies Ordinance**") or which do not constitute an offer to the public within the meaning of the Companies Ordinance; and

(ii) it has not issued or had in its possession for the purposes of issue, and will not issue or have in its possession for the purposes of issue, whether in Hong Kong or elsewhere, any advertisement, invitation or document relating to the Notes, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to Notes which are or are intended to be disposed of only to persons outside Hong Kong or only to "**professional investors**" as defined in the SFO and any rules made under the SFO.

Korea

Each Dealer has represented and agreed and each Dealer further appointed under the Program will be required to represent and agree, that the Notes have not been and will not be offered, delivered or sold directly or indirectly in Korea or to any resident of Korea or to others for re-offering or resale directly or indirectly in Korea or to any resident of Korea (as defined in the Foreign Exchange Transactions Act of Korea and the regulations thereunder) except as otherwise permitted under applicable Korean laws and regulations.

In addition, each Dealer has confirmed and each Dealer further appointed under the Program will be required to confirm, that (i) during the first year after the issuance of the Notes, the Notes may not be transferred to any resident of Korea other than a Korean QIB who is registered with KOFIA as a Korean QIB, provided that (a) the Notes are denominated, and the principal and interest payments thereunder are made, in a currency other than Korean won, (b) the amount of the Notes acquired by such Korean QIBs in the primary market is limited to no more than 20% of the aggregate issue amount of the Notes, (c) the Notes are listed on one of the major overseas securities markets designated by the Financial Supervisory Service of Korea, or certain procedures, such as registration or report with a foreign financial investment regulator, have been completed for offering of the Notes in a major overseas securities market, (d) the one-year restriction on offering, delivering or selling of Notes to a Korean resident other than a Korean QIB is expressly stated in the Notes, the relevant underwriting agreement, subscription agreement, and the offering circular and (e) the Issuer and the Dealers shall individually or collectively keep the evidence of fulfillment of conditions (a) through (d) above after having taken necessary actions therefor.

Each Dealer has undertaken and each Dealer further appointed under the Program will be required to undertake to use commercially reasonable best measures as a Dealer in the ordinary course of its business so that any securities dealer to which it sells the Notes confirms that it is purchasing such Notes as principal and agrees with such Dealer that it will comply with the restrictions described above.

GENERAL

None of the Dealers represents that Notes may at any time lawfully be sold in compliance with any applicable registration or other requirements in any jurisdiction, or pursuant to any exemption available thereunder, or assumes any responsibility for facilitating such sale.

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

GENERAL INFORMATION

AUTHORIZATION

The establishment of the Program has been duly authorized by a resolution of the Board of Directors of the Issuer dated April 29, 2008. Each issue of Notes under the Program is to be authorized by the Board of Directors of the Issuer at the time of issue.

LISTING OF NOTES ON THE SGX-ST

Approval in-principle has been received from the SGX-ST in connection with the Program and application will be made for the listing and quotation of Notes that may be issued under the Program, which Notes are agreed, at or prior to the time of issue thereof, to be so listed on the SGX-ST. Such permission will be granted when such Notes have been admitted for listing and quotation on the SGX-ST. For so long as any Notes are listed on the SGX-ST and the rules of the SGX-ST so require, such Notes, if traded on the SGX-ST, will be traded in a minimum board lot size of S$200,000 (or its equivalent in foreign currencies).

DOCUMENTS AVAILABLE

From the date hereof and so long as Notes are capable of being issued under the Program, copies of the following documents will, when published, be available from the registered office of the Issuer and from the specified office of the Paying Agent for the time being in London:

(i) the Articles of Association (together with English translations) of the Issuer;

(ii) the audited consolidated financial statements of the Issuer in respect of the financial years ended December 31, 2018, 2019 and 2020;

(iii) the most recently published audited consolidated annual financial statements of the Issuer and the most recently published consolidated interim financial statements of the Issuer;

(iv) the Program Agreement, the Agency Agreement, the forms of the Global Notes, the Notes in definitive form, the Receipts, the Coupons and the Talons;

(v) a copy of this Offering Circular;

(vi) any future offering circulars, prospectuses, information memoranda and supplements including Pricing Supplements (except 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 Issuer and 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; and

(vii) in the case of each issue of listed Notes subscribed pursuant to a subscription agreement, the subscription agreement (or equivalent document).

CLEARING SYSTEMS

The Notes in bearer form have been accepted for clearance through Euroclear and Clearstream. The appropriate Common Code and ISIN for each Tranche of Bearer Notes allocated by Euroclear and Clearstream will be specified in the applicable Pricing Supplement. In addition, the Issuer may make an application for any Notes in registered form to be accepted for trading in book-entry form by DTC. The CUSIP and/or CINS numbers (if any) for each Tranche of Registered Notes, together with the relevant ISIN and Common Code, 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.

INDEPENDENT AUDITORS

Our consolidated financial statements as of and for the year ended December 31, 2018 included in this Offering Circular, have been audited by KPMG Samjong Accounting Corp., independent auditors, as stated in their report appearing herein, which contains an emphasis-of-matter paragraph regarding the basis of preparation that relates to K-IFRS where accounting provisions have not been specified under the Government Accounting Standards.

Our consolidated financial statements as of and for the years ended December 31, 2019 and 2020 included in this Offering Circular, have been audited by Ernst & Young Han Young, independent auditors, as stated in their reports appearing herein.

INFORMATION RELATING TO THE FISCAL AGENT

The Fiscal Agent is Citicorp International Limited ("**CIL**"). CIL was incorporated as a company with limited liability in Hong Kong under the Companies Ordinance on October 23, 1970 with company number 21829. It is a wholly-owned subsidiary of Citigroup Inc., a U.S. registered bank holding company.

CIL is a restricted license bank and registered institution subject to regulation and supervision by the Hong Kong Monetary Authority and Securities and Futures Commission. The registered office of CIL is 39/F Champion Tower, 3 Garden Road, Central, Hong Kong.

A copy of CIL's Memorandum and Articles of Association, as amended from time to time, together with copies of the most recent financial statements and annual report of CIL will be available for inspection at its principal place of business located at 39/F Champion Tower, Citibank Plaza, 3 Garden Road, Central, Hong Kong (Attention: Agency & Trust).

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

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Independent auditor's report

The Shareholder and Board of Directors
Korea Hydro & Nuclear Power Co., Ltd.

Opinion

We have audited the consolidated financial statements of Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries (the "Group"), which comprise the consolidated statements of financial position as of December 31, 2020 and December 31, 2019, and the consolidated statements of comprehensive income, consolidated statements of changes in equity and consolidated statements of cash flows for the years then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2020 and December 31, 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.

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 of the Republic of Korea that are relevant to our audit of the consolidated financial statements, and we have fulfilled our other ethical responsibilities in accordance with the ethical requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Emphasis of matter

We draw attention to Note 2 to the consolidated financial statements, which describes that the Group has prepared the Group's consolidated financial statements in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions. Pursuant to its Article 2-5, the Group applies 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. There are no accounts of which accounting treatment is materially different compared to KIFRS in order for the Group to be in full compliance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions. Our opinion is not modified in respect of this matter.

Responsibilities of management and those charged with governance for the consolidated financial statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions, and for such internal control as management determines is necessary to enable the preparation of the consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's responsibilities for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with KGAAS will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with KGAAS, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

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We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Ernst & Young Han Young

March 11, 2021

This audit report is effective as of March 11, 2021, the independent auditor's report date. Accordingly, certain subsequent events or circumstances, which may have occurred during the period from the date of the independent auditor's report to the time this report is used. Such events and circumstances could significantly affect the accompanying consolidated financial statements and may result in modifications to this report.

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of financial position
as of December 31, 2020 and 2019
(Korean won in millions)

	Notes		2020		2019
Assets					
Current assets:					
Cash and cash equivalents	5,37	₩	316,072	₩	34,916
Current financial assets, net	6,9,37		402,101		245,495
Trade and other receivables, net	7,37		1,382,498		1,302,267
Inventories	10		5,111,674		4,827,523
Income tax receivables			1		718
Current non-financial assets	11		114,668		129,420
Non-current assets held for sale	13,34		-		23,002
Total current assets			7,327,014		6,563,341
Non-current assets:					
Non-current financial assets, net	6,8,9,37		1,167,684		1,216,125
Non-current trade and other receivables, net	7,37		49,795		50,023
Property, plant and equipment, net	13,15,19,22		51,501,703		49,961,204
Intangible assets, net	14,15,22		136,550		123,367
Investments in associates and joint ventures	12		180,923		122,873
Deferred tax assets	33		1,488,615		1,242,010
Non-current non-financial assets	11		432,102		463,779
Total non-current assets			54,957,372		53,179,381
Total assets		₩	**62,284,386**	₩	**59,742,722**

(Continued)

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of financial position
as of December 31, 2020 and 2019 (cont'd)
(Korean won in millions)

	Notes		2020		2019
Liabilities					
Current liabilities:					
Trade and other payables	17,19,37	₩	1,157,933	₩	1,037,572
Current financial liabilities, net	6,16,18,37		1,512,327		728,260
Income tax payable	33		268,465		204,284
Current non-financial liabilities	23		101,605		59,118
Current provisions	21		962,583		825,404
Total current liabilities			4,002,913		2,854,638
Non-current liabilities:					
Non-current trade and other payables	17,19,37		2,442,577		2,536,913
Non-current financial liabilities, net	6,16,18,37		9,698,563		9,734,782
Non-current non-financial liabilities	23		5,065		5,065
Employee benefit obligation	20		280,584		321,216
Non-current provisions	21		19,648,709		18,624,231
Total non-current liabilities			32,075,498		31,222,207
Total liabilities		₩	**36,078,411**	₩	**34,076,845**
Equity					
Share capital	24	₩	10,704,515	₩	10,704,515
Retained earnings	25		15,518,793		14,972,697
Other components of equity	26		(44,466)		(39,900)
Equity attributable to owners of the parent			26,178,842		25,637,312
Non-controlling interests			27,133		28,565
Total equity			**26,205,975**		**25,665,877**
Total liabilities and equity		₩	**62,284,386**	₩	**59,742,722**

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

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of comprehensive income
for the years ended December 31, 2020 and 2019
(Korean won in millions)

	Notes		2020		2019
Sales	4,27	₩	9,999,713	₩	8,982,626
Cost of sales	35		8,467,070		7,976,250
Gross profit			**1,532,643**		**1,006,376**
Selling and administrative expenses	28,35		216,809		223,316
Operating profit			**1,315,834**		**783,060**
Other income	29		61,394		44,773
Other expenses	29		172,730		177,868
Other gains (losses), net	30		(55,589)		11,448
Finance income	6,31,37		260,528		266,383
Finance expenses	6,32,37		638,765		647,525
Loss on investments in associates and joint ventures, net	12		(4,636)		(6,436)
Profit before income tax			**766,036**		**273,835**
Income tax expense	33		148,094		27,289
Profit for the year		₩	**617,942**	₩	**246,546**
Other comprehensive income (net of tax):					
Other comprehensive income not to be reclassified to profit or loss in subsequent periods:	33				
Remeasurement gain on defined benefit plans	20	₩	30,569	₩	34,184
Share of loss of associates and joint ventures			(1)		(28)
Loss on valuation of financial assets at fair value through other comprehensive income	8,26		(2,763)		(885)
Other comprehensive income to be reclassified to profit or loss in subsequent periods:					
Gain (loss) from translation of foreign operations	26		(998)		2,085
Share of other comprehensive income (loss) of associates and joint venture	12,26		(770)		1,505
Other comprehensive gain, net of tax			26,037		36,861
Total comprehensive income, net of tax		₩	**643,979**	₩	**283,407**
Profit (loss) for the year attributable to:					
Owners of the parent		₩	622,218	₩	274,860
Non-controlling interests			(4,276)		(28,314)
		₩	617,942	₩	246,546
Total comprehensive income (loss) for the year attributable to:					
Owners of the parent		₩	648,245	₩	311,734
Non-controlling interests			(4,266)		(28,327)
		₩	643,979	₩	283,407
Earnings per share in Korean won:					
Basic earnings per share	36	₩	2,566	₩	1,134

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

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of changes in equity
for the years ended December 31, 2020 and 2019
(Korean won in millions)

	Share capital	Retained earnings	Other components of equity	Equity attributable to the owners of the parent	Non-controlling interest	Total equity
As of January 1, 2019	**₩ 10,704,515**	**₩ 14,663,667**	**₩ (42,605)**	**₩ 25,325,577**	**₩ 56,871**	**₩ 25,382,448**
Total comprehensive income (loss)						
Profit (loss) for the year	-	274,861	-	274,861	(28,313)	246,548
Items that will not to be reclassified to profit or loss in subsequent periods:						
Remeasurement gain (loss) on defined benefit plans	-	34,197	-	34,197	(13)	34,184
Share of loss of associates and joint ventures, net of tax	-	(28)	-	(28)	-	(28)
Loss on valuation of financial assets at fair value through OCI	-	-	(885)	(885)	-	(885)
Items that may be reclassified to profit or loss in subsequent periods:						
Gain from translation of foreign operations	-	-	2,085	2,085	-	2,085
Share of other comprehensive loss of associates and joint ventures	-	-	1,504	1,504	-	1,504
Transactions with owners of the parent recognized directly in equity:						
Paid-in capital increase of subsidiaries	-	-	-	-	21	21
As of December 31, 2019	**₩ 10,704,515**	**₩ 14,972,697**	**₩ (39,901)**	**₩ 25,637,311**	**₩ 28,566**	**₩ 25,665,877**
As of January 1, 2020	**₩ 10,704,515**	**₩ 14,972,697**	**₩ (39,900)**	**₩ 25,637,312**	**₩ 28,565**	**₩ 25,665,877**
Total comprehensive income (loss)						
Profit (loss) for the year	-	622,218	-	622,218	(4,276)	617,942
Items that will not to be reclassified to profit or loss in subsequent periods:						
Remeasurement gain on defined benefit plans	-	30,563	-	30,563	6	30,569
Share of loss of associates and joint ventures, net of tax	-	(1)	-	(1)	-	(1)
Loss on valuation of financial assets at fair value through OCI	-	-	(2,763)	(2,763)	-	(2,763)
Items that may be reclassified to profit or loss in subsequent periods:						
Gain (loss) from translation of foreign operations	-	-	(1,002)	(1,002)	4	(998)
Share of other comprehensive loss of associates and joint ventures	-	-	(770)	(770)	-	(770)
Transactions with owners of the parent recognized directly in equity:						
Paid-in capital increase of subsidiaries	-	-	-	-	19	19
Changes in consolidation scope	-	-	-	-	2,815	2,815
Dividends	-	(106,675)	-	(106,675)	-	(106,675)
Others	-	(9)	(31)	(40)	-	(40)
As of December 31, 2020	**₩ 10,704,515**	**₩ 15,518,793**	**₩ (44,466)**	**₩ 26,178,842**	**₩ 27,133**	**₩ 26,205,975**

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

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2020 and 2019
(Korean won in millions)

	2020	2019
Operating activities		
Profit for the year	₩ 617,942	₩ 246,548
Adjustments for:		
Income tax expense	148,094	27,289
Depreciation of property, plant and equipment	2,346,537	2,182,320
Amortization of nuclear fuel	1,206,193	1,077,979
Amortization of intangible assets	30,653	27,284
Depreciation of idle assets	6,604	6,542
Impairment losses on property, plant and equipment	-	3,819
Retirement benefit expense	94,234	132,390
Provision for other allowance for doubtful accounts	-	49,252
Loss on investments in associates and joint ventures, net	4,637	6,436
Loss on disposal of property, plant and equipment	78,179	17,294
Loss on disposal of intangible assets	-	773
Loss from inventory obsolescence	28	56
Loss on disposals of inventories	34,865	7,467
Provision for greenhouse gas emission	927	-
Provisions for decommissioning costs	216,747	449,326
Provisions for litigation	11,730	10
Other provisions	178,353	9,063
Provisions for employee benefits	283,295	214,215
Interest expense	513,195	519,291
Loss on sale of financial assets	-	1,612
Loss on valuation of financial assets at fair value through profit or loss	515	1,513
Loss on valuation of derivative instruments	101,150	-
Loss on transactions of derivative instruments	11,386	2,193
Loss on foreign currency translation	15,783	108,077
Loss on foreign currency transactions	-	15,870
Loss from lease cancellation	-	14
Miscellaneous non-operating losses	2	81,304
Gain on disposals of property, plant and equipment	(4,428)	(2,114)
Gain on disposals of inventories	-	(106)
Gain on valuation of inventories	(9)	-
Reversal of impairment loss on inventories	(2,203)	-
Reversal of impairment loss on property, plant and equipment	-	(16,692)
Gain on assets contributed	-	(115)
Interest income	(24,988)	(37,605)
Dividend income	(5,269)	(7,390)
Gain on sale of financial assets	(484)	(1,212)
Gain on valuation of financial assets at fair value through profit or loss	(5,037)	(4,113)
Gain on valuation of derivative instruments	(13,107)	(169,279)
Gain on transactions of derivative instruments	(26,878)	(44,503)
Gain on foreign currency translation	(186,128)	(3,805)
Reversal of provisions for litigation	(25)	(480)
Gain from lease cancellation	(6)	(20)
Gain on disposals of non-current assets held for sale	(4,457)	-
	₩ 5,010,088	₩ 4,653,955

(Continued)

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2020 and 2019 (cont'd)
(Korean won in millions)

	2020	2019
Changes in operating assets and liabilities:		
Current trade receivables	₩ (112,985)	₩ (100,006)
Current other receivables	(5,099)	(42,464)
Current accrued income	(11,987)	128,301
Current advanced payments	(24,777)	(1,570)
Current prepaid expenses	19,705	45,976
Contract assets	2,151	15,193
Other current non-financial assets	(4,345)	(2,322)
Inventories	(1,372,804)	(1,447,233)
Current trade payables	112,629	23,140
Current other payables	(292,553)	(232,775)
Current accrued expenses	(388,787)	(388,701)
Current leasehold deposits received	(3)	(24)
Current other deposits received	(3,188)	899
Current withholdings	5,738	(2,919)
Current advance received	1,243	143
Non-current other payables	21,984	(13,898)
Other current non-financial liabilities	35,391	(72,963)
Other non-current non-financial assets	115	-
Provisions for power plant regional support program	(42,935)	(48,390)
Provisions for employee benefits	(247,548)	(218,226)
Provisions for litigation	(9,389)	-
Provisions for decommissioning cost of nuclear plants	(47,734)	(33,658)
Provisions for disposal of low and intermediate-level radioactive waste	(67,048)	(6,479)
Provisions for others	(2,018)	-
Non-current employee benefit obligation	(170)	(9)
Payment of retirement benefits	(30,548)	(22,691)
Changes in plan assets	(72,251)	(89,590)
	(2,537,213)	(2,510,266)
Interest received	20,752	33,765
Interest paid	(346,921)	(344,305)
Dividends received	2,545	975
Income tax paid	(340,403)	(245,416)
Net cash flows provided by operating activities	**₩ 2,426,790**	**₩ 1,835,256**

(Continued)

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2020 and 2019 (cont'd)
(Korean won in millions)

		2020		2019
Investing activities				
Acquisition of current financial asset at fair value through profit or loss	₩	(1,661,157)	₩	(35,731)
Proceeds from disposal of current financial assets at fair value through profit or loss		1,530,077		251,903
Acquisition of short-term financial assets		(22,002)		(92,000)
Proceeds from disposal of short-term financial instruments		20,000		80,239
Acquisition of short-term loans		(61,500)		(66,485)
Collection of short-term loans		61,878		66,768
Increase in current guarantee deposits		(132,852)		(128,000)
Collection of current guarantee deposits		131,186		135,656
Acquisition of non-current financial assets at fair value through profit or loss		(324,273)		(235,604)
Proceeds from disposal of non-current financial assets at fair value through profit or loss		295,960		212,849
Acquisition of non-current financial assets at fair value through other comprehensive income		(3,400)		-
Acquistion of long-term financial assets		(37,818)		(94,842)
Proceeds from disposal of long-term financial instruments		30,088		90,274
Increase in long-term loans		(15,317)		(10,634)
Collection of long-term loans		13,880		9,198
Increase in long-term guarantee deposits		(34,102)		(40,948)
Collection of long-term guarantee deposits		54,580		62,526
Payment of non-current advanced payments		(137,051)		(133,292)
Acquisition of investments in associates and joint ventures		(67,481)		(20,062)
Proceeds from disposal of investments in associates and joint ventures		99		-
Proceeds from disposal of non-current assets held for sale		27,459		-
Acquisition of land		(9,339)		-
Proceeds from disposal of land		6,118		2,060
Acquisition of buildings		(2,976)		(32)
Proceeds from disposal of buildings		995		1,849
Acquisition of structures		(6)		(5)
Proceeds from disposal of structures		-		494
Acquisition of machinery		(17,115)		(4,594)
Proceeds from disposal of vehicles		61		38
Acquisition of vehicles		(1,068)		(1,711)
Proceeds from disposal of fixtures and furniture		11		-
Acquisition of fixtures and furniture		(46,533)		(33,684)
Proceeds from disposal of tools		7		1
Acquisition of tools		(5,211)		(9,547)
Acquisition of construction-in-progress		(2,481,690)		(2,567,985)
Acquisition of intangible assets		(32,375)		(30,965)
Net cash flows due to changes in consolidation scope		2,239		-
Net cash flows used in investing activities	₩	**(2,918,628)**	₩	**(2,592,266)**

(Continued)

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2020 and 2019 (cont'd)
(Korean won in millions)

		2020		2019
Financing activities				
Proceeds from short-term borrowings	₩	1,147,751	₩	321,338
Repayment of short-term borrowings		(1,017,750)		(111,338)
Repayment of current portion of long-term borrowings		(18,253)		(17,477)
Repayment of current portion of long-term bonds		(500,000)		(641,300)
Proceeds from bonds issuance		1,116,881		1,098,344
Proceeds from long-term borrowings		166,800		-
Dividends paid		(106,675)		-
Settlement of derivative instruments		15,296		57,626
Decrease in lease liabilities		(31,050)		(26,277)
Paid-in capital increase of subsidiaries		19		21
Net cash flows provided by financing activities		**773,019**		**680,937**
Net foreign exchange difference		**(25)**		**25**
Net increase (decrease) in cash and cash equivalents		**281,156**		**(76,048)**
Cash and cash equivalents at the beginning of year		**34,916**		**110,964**
Cash and cash equivalents at the end of year	₩	**316,072**	₩	**34,916**

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

1. General information of the Company

1.1 The parent company

Korea Hydro & Nuclear Power Co., Ltd. ("KHNP" or the "Company") was incorporated on April 2, 2001 through the spin-off of the power generation division of Korea Electric Power Corporation ("KEPCO") in accordance with the Act on Promotion of Restructuring the Electric Power Industry. As of December 31, 2020, KHNP owns and operates 24 nuclear generating units (23,250MW), 36 hydroelectric generating units (607MW), 16 pumped-storage facilities (4,700MW) and 32 new renewable energy generating units (48MW). As of December 31, 2020, KHNP's generation capacity is 28,605MW.

As of December 31, 2020, KEPCO holds 100% of KHNP's outstanding shares.

1.2 Consolidated subsidiaries

Details of consolidated subsidiaries as of December 31, 2020 and 2019 are as follows:

			Percentage of ownership	
Company	Key operating activities	Location	December 31, 2020	December 31, 2019
KHNP Canada Energy Ltd.	Overseas Investment	Canada	100.00%	100.00%
Gyeonggi Green Energy Co., Ltd.	Electricity and heat generation	Korea	62.01%	62.01%
Korea Imouraren Uranium Investment Corp.	Overseas Investment	France	100.00%	100.00%
Korea Waterbury Uranium Limited Partnership	Overseas Investment	Canada	70.00%	70.00%
Incheon Fuel Cell Co., Ltd.	Electricity and heat generation	Korea	60.00%	60.00%
First Keepers Co., Ltd.	Facility management	Korea	100.00%	100.00%
Secutec Co., Ltd.	Facility security	Korea	100.00%	100.00%
KHNP USA LLC(*)	Overseas Investment	USA	100.00%	-
Energy Innovation Growth Fund 1 (*)	Investment Trust	Korea	67.42%	-

(*) This entity is newly included as a subsidiary of the Group due to new investments during the year ended December 31, 2020.

1. General information of the Company (cont'd)

1.2 Consolidated subsidiaries (cont'd)

Summarized financial information of subsidiaries as of December 31, 2020 and for the years ended is as follows (Korean won in millions):

Company	Assets	Liabilities	Revenue	Net income (loss)
KHNP Canada Energy Ltd.	₩ 63,794	₩ 26	₩ -	₩ (7)
Gyeonggi Green Energy Co., Ltd.	265,768	240,366	64,660	(9,968)
Korea Imouraren Uranium Investment Corp.	13,955	123	-	(675)
Korea Waterbury Uranium Limited Partnership	20,908	165	-	(76)
Incheon Fuel Cell Co., Ltd.	192,184	170,976	-	(979)
First Keepers Co., Ltd.	13,981	12,234	68,538	2,994
Secutec Co., Ltd.	11,473	9,771	62,256	1,609
KHNP USA LLC	464	23	229	119
Energy Innovation Growth Fund 1	8,412	1	25	(201)

Significant restrictions related to subsidiaries are as follows:

	Significant Restrictions in Details
Gyeonggi Green Energy Co., Ltd.	Acquisition or disposal of assets by more than ₩35 billion, change in the capacity of cogeneration units (except for the change due to performance Improvement of equipment or maintenance) will require unanimous consent of all directors.
Incheon Fuel Cell Co., Ltd.	Acquisition or disposal of assets by more than ₩20 billion, change in the capacity of cogeneration units (except for the change due to performance improvement of equipment or maintenance) will require unanimous consent of all directors.

2. Basis of preparation

2.1 Statement of compliance

The consolidated financial statements of Korea Hydro & Nuclear Power Co., Ltd. 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 pursuant to the *Act on the Management of Public Institutions* and the Decree on Accounting for Public Corporations and Quasi-governmental Institutions. In compliance with Article 2, Paragraph 5 of the regulations above, for those matters not specified in the regulations and standard above, the consolidated financial statements of the Group have been prepared in accordance with Korean International Financial Reporting Standards ("KIFRS"), a standard adopted in accordance with International Financial Reporting Standards by the Korean Accounting Standards Board. There are no important matters that have been applied differently from KIFRS under the Regulation.

The consolidated financial statements were authorized for issue by the Board of Directors on February 08, 2021, which will be submitted for approval to the shareholders' meeting to be held on March 26, 2021.

2.2 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 are measured at fair value
- ✓ Financial assets at fair value through other comprehensive income are measured at fair value
- ✓ Financial assets at fair value through profit or loss are measured at fair value
- ✓ Liabilities for defined benefit plans are recognized at the net of the total present value of defined benefit obligations less the fair value of plan assets

2.3 Functional and presentation currency

The financial statements of the Group are prepared in functional currency of the respective operation. These consolidated financial statements are presented in Korean won, which is the Group's functional currency and the currency of the primary economic environment in which the Group operates.

2.4 Use of estimates and judgments

The preparation of the consolidated financial statements in conformity with KIFRS requires management to make estimates and assumptions based on management's best judgment that affect the application of accounting policies and the reported amounts of assets, liabilities, income and expenses. At the end of the reporting period, if estimates and assumptions based on management's best judgment differ from the actual environment, actual results may differ from these estimates.

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.

The followings are the key assumptions concerning the future, and other key sources of estimation uncertainty at the end of the reporting period, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year.

(i) Early shutdown of Wolsong unit 1 nuclear power plant and changes in new nuclear power plants construction

The 30-year designed life of Wolsong unit 1 nuclear power plant of the Group had expired on November 20, 2012. On February 27, 2015, however, approval from the Nuclear Safety and Security Commission (NSSC) was received to continue its operation until November 20, 2022.

2.4 Use of estimates and judgments (cont'd)

According to the Eighth Basic Plan for Electricity Supply and Demand announced by the Ministry of Trade, Industry and Energy, Wolsong unit 1 nuclear power plant was excluded from the supply facility and decided on the closing time during the first half of 2018. On June 15, 2018, the board of directors of the Company has decided to shut down the Wolsong unit 1 assessing comprehensively the feasibility of continuing operation, such as economic efficiency and regional acceptance. On December 24, 2019, the Nuclear Safety and Security Commission (NSSC) deliberated and voted on a proposed change in the operation of the Wolsong unit 1, and finalized the change in operation (permanent suspension).

In addition, the board of directors of the Company has also decided to discontinue the construction of Cheonji unit 1 and 2 and Daejin unit 1 and 2 pursuant to the follow-up measures of government policy. For this reason, the Group recognized impairment loss and other expenses, as of December 31, 2018.Among the new nuclear power plants under construction as of December 31, 2020, Shin-Hanul unit 3 and 4, which were approved for power generation business, are not included in the decision to suspend construction approved by the board of directors of the Company. However, considering the decision to shut down Wolsong unit 1 and suspended construction of Cheonji unit 1 and 2 and Daejin unit 1 and 2, it is highly likely that the construction of Shin-Hanul unit 3 and 4 will be suspended according to the government's policy. For this reason, the Group recognized impairment loss, as of December 31, 2018 as the Group believes that there was a significant change in its operating environment as of the date of the board of directors' decision.

The Korean government plans to refund to the Group for reasonable expenditures incurred in relation to the phase-out of nuclear power plants in accordance with the energy transformation policy established by Korean government. In doing so, the Korean government is considering to use available resources including utilizing relevant funds to make the refund. Also, Korean government plans to establish relevant legal basis of providing refund including basis, procedures, etc.

As of December 31, 2020, there is no indication that the impairment loss of the above-mentioned property, plant and equipment is no longer present or may have been reduced.

(ii) Useful lives of property, plant and equipment, estimation on provision for decommissioning costs

The Group reviews the estimated useful lives of property, plant and equipment at the end of each annual reporting period. Management's judgments could affect the determination of estimated economic useful lives.

The Group is required to record a liability for the dismantling (demolition) of nuclear power plants and disposal of spent fuel and low and intermediate radioactive wastes. The Group records the present value of estimated decommissioning costs as a liability in the period in which the Group incurs a legal obligation associated with the retirement of long-lived assets that result from acquisition, construction, development and/or normal use of the assets. When there is a possibility that resources may be leaked to fulfill the obligation, and the amount required to fulfill the obligation can be estimated reliably, it is recognized as a liability. The measurement of such liability is subject to change based on change in estimated cash flow, inflation rate, discount rate, and passage of time.

(iii) Income tax expense

The Group recognized current and deferred income tax based on the best estimate for the income tax effects expected to be borne as a result of business activities up to the end of the reporting period. Actual future tax liability may not be consistent with the recognized assets and liabilities and this difference may affect current and deferred tax assets and liabilities at the time the final tax effect is finalized.

2.4 Use of estimates and judgments (cont'd)

(iv) Valuations of financial instruments at fair values

When measuring the fair value of an asset or a liability, the Group uses inputs that are not based on observable market data. Information about the assumptions made in measuring fair values and sensitivity analysis on the fair value of financial instruments are included in Note 38. The management believes that methods and assumptions in measuring the fair value of an asset or a liability are appropriate.

(v) Defined benefit liabilities

The Group offers its employees defined benefit plans. The cost of providing benefits is determined using the Projected Unit Credit Method, with actuarial valuations being carried out at the end of each reporting period. For actuarial valuations, certain inputs such as discount rates and future salary increases are estimated. Defined benefit plans contain significant uncertainness in estimations due to its long-term nature.

2.5 Changes in accounting policies

The Group applied the standards and amendments effective for the fiscal year beginning on or after January 1, 2020. The Group has not early adopted standards, interpretations and amendments that have been issued but are not yet effective.

(i) Amendments to KIFRS 1103– 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 clarifies that a business can exist without including all of the inputs and processes needed to create outputs.

These amendments had no significant impact on the consolidated financial statements of the Group, but may impact future periods should the Group enter into any business combinations.

(ii) Amendments to KIFRS 1107, KIFRS 1109, KIFRS 1039 - Interest Rate Benchmark Reform

The amendments to KIFRS 1109 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 had no significant impact on the consolidated financial statements of the Group.

(iii) 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 significant impact on the consolidated financial statements of the Group.

2.5 Changes in accounting policies (cont'd)

(iv) **Conceptual Framework for Financial Reporting issued on March 29, 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 KASB 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 significant impact on the consolidated financial statements of the Group.

2.6 Presentation of Financial statements

The Group subdivides and prepares the accounts presented in the consolidated financial statements in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions.

3. Significant Accounting Policies

The significant accounting policies applied by the Group in preparation of these 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 those as disclosed in note 2.5.

3.1 Basis of consolidation

(i) Business combinations

The Group accounts for business combinations using the acquisition method when control is transferred to the Group except for acquisitions from entites or business under common control.

The consideration transferred in the acquisition is generally measured at fair value, as are the identifiable net assets acquired. Any goodwill that arises is tested annually for impairment. Any gain on a bargain purchase is recognized in profit or loss immediately. Transaction costs are expensed income or loss in the period in which costs is incurred and service is provided, except if related to issue debt or equity securities are recognized in accordance with KIFRS 1032, 'Financial Instruments: Presentation' and KIFRS 1039, *Financial Instruments: Recognition and Measurement*.

The consideration transferred does not include amounts related to the settlement of pre-existing relationships. Such amounts are generally recognized in profit or loss.

Any contingent consideration is measured at fair value at the date of acquisition. If the contingent consideration is classified as equity, then it is not remeasured and settlement is accounted for within equity. Otherwise, subsequent changes in the fair value of the contingent consideration are recognized in profit or loss.

If share-based payment awards (replacement awards) are required to be exchanged for awards held by the acquiree's employees (acquiree's awards), then all or a portion of the amount of the acquirer's replacement awards is included in measuring the consideration transferred in the business combination. Replacement awards, which is part of the consideration transferred to the acquiree, and remuneration for service after business combination are determined based on the market-based measure of the replacement awards compared with the market-based measure of the acquiree's awards and the extent to which the replacement awards relate to pre-combination service.

(ii) 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 subsidiary that do not result in a loss of control are accounted for as equity transactions.

(iii) Subsidiaries

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to, or has rights to, variable returns f`rom 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 that control commences until the date that control ceases.

(iv) 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.

3. Significant Accounting Policies (cont'd)

3.1 Basis of consolidation (cont'd)

(v) Interests in equity-accounted investees

The Group's interests in equity-accounted investees comprise interests in associates and joint ventures.

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 joint ventures are accounted for using the equity method. They are recognized initially 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 other comprehensive income of equity-accounted investees, until the date on which significant influence or joint control ceases.

(vi) 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.

(vii) Acquisitions from entities under common control

The assets and liabilities acquired under business combinations under common control are recognized at the carrying amounts recognized previously in the consolidated financial statements of the ultimate parent. The difference between consideration transferred and carrying amounts of net assets acquired is recognized as part of other capital adjustmnents.

3.2 Revenue from contracts with customers

The Group recognizes revenue by applying 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 performance obligation is satisfied).

Identify the performance obligations in the contract
The Group identifies the power supply in the power exchange under the Power Market Operating Rules as a single performance obligation as a series of distinct goods or services. In addition to power supply, the Group carries out other projects such as revenue from overseas projects through contracts with customers and identifies performance obligations that are distinct from each contract.

Variable consideration
If the consideration in a contract includes a variable amount, the transaction price consists of fixed and variable consideration. The Group estimates an amount of variable consideration by using the expected value method that the Group expects to better predict the amount of consideration to which it will be entitled, and includes in the transaction price some or all of an amount of variable consideration only to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is subsequently resolved.. The consideration received or expected to be received which the Group does not expect to obtain rights for are recognized as a refund liability.

3. Significant Accounting Policies (cont'd)

3.2 Revenue from contracts with customers (cont'd)

Allocate the transaction price to the performance obligations in the contract
The Group allocates the transaction price based on the relative stand-alone selling price to the various performance obligations identified in a single contract.

Performance obligations satisfied over time
The Group provides power over time. The Group recognized revenue by dividing the performance of the performance obligation according to the progress rate calculated on a reasonable basis.

3.3 Leases

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

(i) As a lessee

At commencement or on modification of a contract that contains a lease component, the Group allocates the consideration in the contract to each lease component on the basis of its relative stand-alone prices. However, for the leases of property the Group has elected not to separate non-lease components and account for the lease and non-lease components as a single lease component.

The Group recognizes a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the end of the lease term, unless the lease transfers ownership of the underlying asset to the Group by the end of the lease term or the cost of the right-of-use asset reflects that the Group will exercise a purchase option. In that case the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of property and equipment. In addition, the right-of-use asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Group's incremental borrowing rate. Generally, the Group uses its incremental borrowing rate as the discount rate. The Group adjusts interest rates from various external financial information to reflect the terms of the lease and the characteristics of the lease asset and calculates the incremental borrowing rate.

3. Significant Accounting Policies (cont'd)

3.3 Leases (cont'd)

Lease payments included in the measurement of the lease liability comprise the following:
- Fixed payments, including in-substance fixed payments;
- Variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date;
- Amounts expected to be payable under a residual value guarantee; and
- The exercise price under a purchase option that the Group is reasonably certain to exercise, lease payments in an optional renewal period if the Group is reasonably certain to exercise an extension option, and penalties for early termination of a lease unless the Group is reasonably certain not to terminate early.

The lease liability is measured at amortized cost using the effective interest method. It is remeasured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the Group's estimate of the amount expected to be payable under a residual value guarantee, if the Group changes its assessment of whether it will exercise a purchase, extension or termination option or if there is a revised in-substance fixed lease payment.

When the lease liability is remeasured in this way, a corresponding adjustment is made to the carrying amount of the right-of-use asset or it is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

The Group presents right-of-use assets that do not meet the definition of investment property separately from the other assets in 'property, plant and equipment' in the consolidated statement of financial position, and lease liabilities in 'trade and other payables' in the statement of financial position.

The Group has elected not to recognize right-of-use assets and lease liabilities for leases of low-value assets and short-term leases. The Group recognizes the lease fee associated with such a lease as an expense in accordance with the straight-line method over the lease term.

(ii) As a lessor

At inception or on modification of a contract that contains a lease component, the Group allocates the consideration in the contract to each lease component on the basis of their relative stand-alone prices.

When the Group acts as a lessor, it determines at lease inception whether each lease is a finance lease or an operating lease.

To classify each lease, the Group makes an overall assessment of whether the lease transfers substantially all of the risks and rewards incidental to ownership of the underlying asset. If this is the case, then the lease is a finance lease; if not, then it is an operating lease. As part of this assessment, the Group considers certain indicators such as whether the lease is for the major part of the economic life of the asset.

When the Group is an intermediate lessor, it accounts for its interests in the head lease and the sub-lease separately. It assesses the lease classification of a sub-lease with reference to the right-of-use asset arising from the head lease, not with reference to the underlying asset. If a head lease is a short-term lease to which the Group applies the exemption described above, then it classified the sub-lease as an operating lease.

If an arrangement contains lease and non-lease components, then the Group applies KIFRS 1115 to allocate the consideration in the contract.

The Group applies the derecognition and impairment requirements in KIFRS 1119 to the net investment in the lease. The Group further regularly reviews estimated unguaranteed residual values used in calculating the gross investment in the lease.

3. Significant Accounting Policies (cont'd)

3.4 Foreign currencies

(i) Foreign currency transaction

Transactions in foreign currencies are translated to the respective functional currencies of 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 at historical costs are retranslated to the functional currency at the exchange rate at the dates of the transactions.

Both the foreign currency differences arising at the time of settlement of monetary items and the foreign currency differences arising from the conversion of monetary items are recognized in profit or loss. If gains or losses arising from non-monetary items are recognized in other comprehensive income, the exchange rate fluctuation effects included in the gains and losses are also recognized in other comprehensive income, and if they are recognized in profit or loss, the exchange rate fluctuation effect is also recognized in profit or loss.

(ii) Overseas business establishment

If the functional currency of a foreign operation is different from the presentation currency of the Group, the management performance and financial status are converted into the presentation currency according to the following methods. If the functional currency of a foreign operation is not the currency of the hyperinflationary economy, the assets and liabilities in the statement of financial position (including the comparative statement of financial position) are converted to the closing exchange rate at the end of the relevant reporting period, and the income and expenses of the statement of comprehensive income (including the comparative statement of comprehensive income) are converted to the exchange rate at the date of the transaction, and the foreign exchange differences arising from the currency are recognized in other comprehensive income.

The fair value adjustment for the carrying amount of goodwill and assets and liabilities arising from the acquisition of a foreign operation is regarded as assets and liabilities of a foreign operation and is presented in the functional currency of a foreign operation, and the closing exchange rate is applied to the Won along with other assets and liabilities of a foreign operation.

When disposing of a foreign operation, the accumulated foreign exchange differences related to a foreign operation recognized as a separate capital item from other comprehensive income are reclassified from equity to profit or loss at the time of recognition of the foreign operation's disposal gains or losses. When a subsidiary, including a foreign operation, is partially disposed of, its proportionate share of the accumulated foreign exchange differences recognized in other comprehensive income is reverted to the non-controlling interest of the foreign operation, and in other cases, only its proportionate share is reclassified to profit or loss among the accumulated foreign exchange differences recognized in other comprehensive income when the foreign operation is partially disposed of.

3. Significant Accounting Policies (cont'd)

3.5 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.

3.6 Government grants

Government grants are not recognized unless there is reasonable assurance that the Group will comply with the grant's conditions and that the grant will be received.

Government grants whose primary condition is that the Group purchase, construct or otherwise acquire long-term assets are deducted in calculating the carrying amount of the asset. The grant is recognized in profit or loss over the life of a depreciable asset as a reduction to depreciation expense.

Government grants which are intended to compensate the Group for expenses incurred are recognized as other income (government grants) in profit or loss over the periods in which the Group recognizes the related costs as 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 income or loss in the period in which they become receivable.

3. Significant Accounting Policies (cont'd)

3.7 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 as profit or loss.

(ii) Other long-term employee benefits

Other long-term employee benefits include employee benefits that are settled beyond 12 months after the end of the period in which the employees render the related service, and are calculated at the present value of the amount of future benefit that employees have earned in return for their service in the current and prior periods, less the fair value of any related assets. Remeasurements are recognized in profit or loss in the period in which they arise.

(iii) Retirement benefits: Defined contribution plans

When an employee has rendered service to the Group during a period, the contributions owed to the defined contribution plan in exchange for the service is recognized in profit or loss unless it is included in the cost of the asset. The Group recognizes the contribution payable to a defined contribution plan in exchange for that service as an accrued expense, after deducting any contributions already paid. If the contributions already paid exceed 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.

(iv) Retirement benefits: Defined benefit plans

The Group's net obligation in respect of defined benefit plans is calculated separately for each plan by estimating the amount of future benefit that employees have earned in the current and prior periods, discounting that amount and deducting the fair value of any plan assets.

The calculation is performed annually by an independent actuary using the projected unit credit method. Any asset resulting from this calculation is limited to unrecognized actuarial losses and past service cost, plus the present value of available refunds and reductions in future contributions to the plan.

Remeasurements 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.

3. Significant Accounting Policies (cont'd)

3.8 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.

The interest and fines related to income taxes are applied to KIFRS 1012 Income Taxes if they are determined to income tax and applied to KIFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets* if they are not.

(i) Current income tax

Current income tax is the expected income 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 of future periods, and non-taxable or non-deductible items from the accounting profit.

(ii) Deferred tax

The measurement of deferred tax liabilities and deferred tax assets reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period to recover or settle the carrying amount of its assets and liabilities. 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. The Group recognizes a deferred tax asset for all deductible temporary differences arising from investments in subsidiaries and associates, 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 is reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow the benefit of part or all of that deferred tax asset to be utilized.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the period when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period. The measurement of deferred tax liabilities and deferred tax assets reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period to recover or settle the carrying amount of its assets and liabilities.

Deferred tax assets and liabilities are offset only if there is a legally enforceable right to offset the related current income tax liabilities and assets, and they relate to income taxes levied by the same tax authority and they intend to settle current income tax liabilities and assets on a net basis.

3. Significant Accounting Policies (cont'd)

3.9 Property, plant and equipment

Property, plant and equipment are initially measured at cost. 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, when the Group has an obligation to remove the asset or restore the site, an estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

Subsequent to initial recognition, an item of property, plant and equipment shall be carried at its cost less any accumulated depreciation and any accumulated impairment losses.

Property, plant and equipment, except for land, are depreciated over estimated useful lives that appropriately reflect the pattern in which the asset's future economic benefits are expected to be consumed, either on a straight-line basis or on a Unit-of-production basis.

A component that is significant compared to the total cost of property, plant and equipment is depreciated over its separate useful life.

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.

The estimated useful lives and depreciation methods of the Group's property, plant and equipment are as follows:

	Method	Useful lives (years)
Buildings	Straight-line	8 ~ 32
Structures	Straight-line	8 ~ 50
Machinery	Straight-line	6 ~ 32
Vehicles	Straight-line	4
Right of Use	Straight-line	1 ~ 65
Asset retirement costs of nuclear power plants	Straight-line	30, 40, 60
Asset retirement costs of spent fuel	Unit-of-production	-
Loaded nuclear fuel	Unit-of-production	-
Loaded heavy water	Straight-line	30
Others	Straight-line	4 ~ 9

The estimated residual value, useful lives and the depreciation method are reviewed at least at the end of eac h reporting period and, if expectations differ from previous estimates, the changes are accounted for as changes in accounting estimates.

3. Significant Accounting Policies (cont'd)

3.10 Intangible assets

Intangible assets are measured initially at cost and, subsequently, are carried at cost less accumulated amortization and accumulated impairment losses.

Amortization of intangible assets except for goodwill is calculated on a straight-line basis over the estimated useful lives of intangible assets from the date that they are available for use. The residual value of intangible assets is zero. However, as there are no foreseeable limits to the periods over which some of other intangible assets are expected to be available for use, this intangible asset is determined as having an indefinite useful life and not amortized.

The estimated useful lives and amortization methods of the Group's intangible assets with finite useful lives are as follows:

	Method	Useful lives (years)
Software	Straight-line	4
Industrial rights	Straight-line	5, 10
Development cost	Straight-line	5
Loading and unloading facilities rights	Straight-line	20
Others	Straight-line	5 ~ 50

Amortization periods and the amortization methods for intangible assets with finite useful lives are reviewed at the end of each reporting period. The useful lives of intangible assets that are not being amortized are reviewed at the end of each reporting period to determine whether events and circumstances continue to support indefinite useful life assessments for those assets. Changes are accounted for as changes in accounting estimates.

(i) Research and development

Expenditures on research activities, undertaken with the prospect of gaining new scientific or technical knowledge and understanding, are recognized in profit or loss as incurred. Development expenditures are capitalized only if development costs can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable, and the Group intends to and has sufficient resources to complete development and to use or sell the asset. Other development expenditures are recognized in profit or loss as incurred.

On the other hand, the cost of development recognized as an asset is directly deducted from the acquisition cost by applying the cost model, and the accumulated amortization and accumulated impairment losses are amortized over the expected duration of economic benefits from the time the development is completed to be used and calculated as cost of sales. The Group conducts an annual impairment test for the development cost recognized as an asset during the development period.

(ii) Subsequent expenditures

Subsequent expenditures are capitalized only when they increase the future economic benefits embodied in the specific asset to which they relate. All other expenditures, including expenditures on internally generated goodwill and brands, are recognized in profit or loss as incurred.

3. Significant Accounting Policies (cont'd)

3.11 Impairment of non-financial assets

The carrying amounts of the Group's non-financial assets, other than assets arising from construction contracts, 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. Goodwill and intangible assets 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.

Management estimates the recoverable amount of an individual asset. If it is impossible to measure the individual recoverable amount of an asset, then management estimates the recoverable amount of cash-generating unit ("CGU"). 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. 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 Group determined that individual operating entities are CGUs. The value-in-use is estimated by applying a pre-tax discount rate that reflects 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.

An impairment loss is recognized in profit or loss if the carrying amount of an asset or a CGU exceeds its recoverable amount.

3.12 Inventories

The cost of inventories is based on the weighted average principle, and includes expenditures for acquiring the inventories, conversion costs and other costs incurred in bringing them to their existing location and condition.

Inventories are measured at the lower of cost and net realizable value. 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 is recognized as a reduction in the amount of inventories recognized as a cost of goods sold in the period in which the reversal occurs.

3.13 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.

When 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 separate 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.

A provision is used only for expenditures for which the provision was originally recognized.

3. Significant Accounting Policies (cont'd)

3.13 Provisions (cont'd)

- Provision for decommissioning costs of nuclear power plants

The Group recognizes provisions for the estimated cost of removing, dismantling, or restoring the site to its original state after the end of economic use of the nuclear power plant.

- Provision for disposal of spent nuclear fuel

Under the Radioactive Waste Management Act, the Group is levied to pay the spent nuclear fuel fund for the management of spent nuclear fuel. The Group recognizes the provision at the present value of the payments.

- Provision for low and intermediate radioactive wastes

Under the Radioactive Waste Management Act, the Group recognizes the provision for the disposal of low and intermediate radioactive wastes in best estimate of the expenditure required to settle the present obligation.

- Provisions for power plant regional support program

Power plant regional support programs consist of scholarship programs to local students, local economy support programs, local culture support programs, environment development programs, and local welfare programs. The Group recognizes the provision in relation to power plant regional support program at the estimated cash outflows as required by related laws and regulations.

3.14 Cash and cash equivalents

Cash and cash equivalents comprise cash balances and call deposits with maturities of three months or less from the acquisition date that are subject to an insignificant risk of changes in their fair value, and are used by the Group in the management of its short-term commitments. Equity investments are excluded from 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.

3.15 Non-derivative financial assets

(i) Recognition and Initial measurement

Trade receivable and issued debt securities are initially recognized at the time of issue. Other financial assets or financial liabilities are recognized becomes a party to the contractual provisions of the instrument.

With the exception of trade receivables that do not contain a significant financing component, the Group initially measures a financial asset at its fair value. Upon initial recognition, financial assets and financial liabilities are measured at their fair value plus, in the case of a financial asset or financial liabilities not at fair value through profit or loss, transaction costs that are directly attributable to the asset's acquisition or issuance.

3. Significant Accounting Policies (cont'd)

3.15 Non-derivative financial assets (cont'd)

(ii) Classification and subsequent measurement

Financial assets are classified, at initial recognition, as subsequently measured at amortized cost, fair value through other comprehensive income (OCI), and fair value through profit or loss.

Financial assets are not reclassified unless there is a change in business model, and if there is a change in business model, all financial assets are reclassified at the beginning of the subsequent reporting period.

The Group measures financial assets at amortized cost if both of the following conditions are met:

- The financial asset is held within a business model with the objective to hold financial assets in order to collect contractual cash flows, and
- The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding

The Group measures debt instruments at fair value through OCI if both of the following conditions are met:

- The financial asset is held within a business model with the objective of both holding to collect contractual cash flows and selling, and
- The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding

Upon initial recognition, the Group can elect to classify irrevocably its equity investments as equity instruments designated at fair value through OCI when they meet the definition of equity under KIFRS 1032 Financial Instruments: *Presentation and are not held for trading*. The classification is determined on an instrument-by-instrument basis.

Financial assets not measured at amortized cost or fair value through other comprehensive income are measured fair value through profit or loss. These financial assets include derivative assets. Financial assets initially measured at amortized cost or fair value through other comprehensive income; may be designated at fair value through profit or loss on initial recognition if doing so eliminates, or significantly reduces, an accounting mismatch. But once classification is designated, it cannot be subsequently changed. The classification is determined on an instrument-by-instrument basis.

The Group assesses the level of a portfolio of financial assets in a way that best reflects how the business model is managed. Accordingly, the Group considers the following information:

- The stated policies and objectives of the portfolio and the operation of those policies in practice. These include whether management's strategy focuses on earning contractual interest income, maintaining a particular interest rate profile, matching the duration of the financial assets to the duration of any related liabilities of expected cash outflows or realizing cash flows through the sale of the assets;
- How the performance of the portfolio is evaluated and reported to the Group's management;
- The risk that affect the performance of the business model (and the financial assets held within that business model) and how those risks are managed;
- The frequency, volume and timing of sales of financial assets in prior periods, the reasons for such sales and expectations about future sales activity.

A portfolio of financial assets that meets the definition of short-term trading or whose performance is evaluated on a fair value basis is measured at fair value through profit or loss. The principal is defined as the fair value at the initial recognition of the financial assets. Interest is comprised of time value of money, value for the credit risk associated with principal and other costs such as basic financing risks and costs.

3. Significant Accounting Policies (cont'd)

3.15 Non-derivative financial assets (cont'd)

When assessing whether contractual cash flows consist solely of payments for principal and interest, the Group takes into account contractual terms. If the financial assets include contractual terms that change the timing or amount of cash flows in the contract, it is necessary to determine whether the cash flows that may occur during the period of the financial assets consist solely of principal payments.

The Group consider the followings:

- Conditions that change the amount or timing of cash flows
- Provision to adjust contractual nominal interest rate, including variable interest rate characteristics
- Characteristics of repayment and maturity extension.

The amount of the repayment represents the interest on the principal and remaining balance, and if it includes reasonable additional compensation for the early settlement of the contract, early repayment characteristics are consistent with the conditions under which principal and interest that paid on a particular day.

In addition financial assets acquired at a significantly discount or additional premium, the amount of repayments consists substantially of contractual principal and interest amounts, and the characteristics of fair value at initial recognition is insignificant, the Group determined that these conditions are satisfied.

(iii) Derecognition of financial assets

The Group derecognizes non-derivative financial assets when the contractual rights to the cash flows from the financial asset expire, or the Group transfers the rights to receive the contractual cash flows on the financial asset in a transaction in which substantially all the risks and rewards of ownership of the financial asset are transferred. Any interest in a transferred financial asset that is created or retained by the Group is recognized as a separate asset or liability.

If the Group retains substantially all the risks and rewards of ownership of the transferred financial assets, the Group continues to recognize the transferred financial assets and recognizes financial liabilities for the consideration received.

(iv) Offsetting a financial asset and a financial liability

Financial assets and financial liabilities are offset and the net amount is presented in the consolidated statement of financial position only when the Group currently has a legally enforceable right to offset the recognized amounts, and there is the intention to settle on a net basis or to realize the asset and settle the liability simultaneously.

3.16 Non-derivative financial liabilities

The Group classified non-derivative financial liabilities into financial liabilities at fair value through profit or loss or as other financial liabilities in accordance with the substance of the contractual arrangement and the definition of financial liabilities. The Group recognized financial liabilities in the consolidated statement of financial position when the Group becomes a party to the contractual provisions of the instruments.

3. Significant Accounting Policies (cont'd)

3.16 Non-derivative financial liabilities (cont'd)

(i) Financial liabilities at fair value through profit or loss

Financial liabilities are classified as at financial liabilities at fair value through profit or loss when the financial liability is either held for trading or it is designated as financial liabilities at fair value through profit or loss. Financial liabilities at fair value through profit or loss are measured at fair value, and changes therein are recognized in profit or loss. Upon initial recognition, transaction costs are recognized in profit or loss when incurred.

(ii) Other financial liabilities

Non-derivative financial liabilities other than financial liabilities at fair value through profit or loss are classified as other financial liabilities. At the date of initial recognition, other financial liabilities are measured at fair value minus transaction costs that are directly attributable to the acquisition. Subsequent to initial recognition, other financial liabilities are measured at amortized cost using the effective interest method, with interest expense recognized on an effective yield basis.

(iii) Elimination of financial liabilities

The Group eliminates financial liabilities only when the contractual obligation of the financial liability is fulfilled, canceled or expires. When the contractual terms of a financial liability change and the cash flows change substantially, the Group eliminates the existing liabilities and recognizes the new financial liabilities as fair value based on the new contract.

The difference between the book value and the value paid (including transferred non-cash assets and liabilities incurred) when removing financial liabilities is recognized as the profit and loss for the period.

3.17 Derivative financial instruments

Derivatives are initially recognized at fair value. Subsequent to initial recognition, derivatives are measured at fair value, and changes therein are accounted for as described below.

(i) Hedge accounting

The Group holds forward exchange contracts, interest rate swaps, currency swaps and other derivative contracts to manage interest rate risk and foreign exchange risk. The Group designated derivatives 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 instrument and the hedged item, along with its risk management objectives and its strategy for undertaking various hedge transactions, together with the methods that will be used to assess the effectiveness in offsetting changes in fair values or cash flows of the hedged item.

(ii) Other derivative financial instruments

Changes in the fair value of other derivative financial instrument not designated as a hedging instrument are recognized immediately in profit or loss.

3. Significant Accounting Policies (cont'd)

3.18 Emission rights

The Group accounts for greenhouse gases emission right and the relevant liability as below pursuant to the Act on Allocation and Trading of Greenhouse Gas Emission.

(i) Greenhouse gases emission right

Greenhouse gases emission right consists of emission allowances which are allocated from the government free of charge or purchased from the market. The cost includes any directly attributable costs incurred during the normal course of business.

Emission rights held for the purpose of performing the obligation is classified as intangible asset and the portion to be submitted to the government within one year from the end of the reporting period is classified as current assets. Emission rights classified as intangible asset is initially measured at cost and after initial recognition, are carried at cost less accumulated impairment losses.
The Group derecognizes an emission right asset when the emission allowance is unusable, disposed or submitted to government in which the future economic benefits are no longer expected to be probable.

(ii) Emission liability

Emission liability is a present obligation of submitting emission rights to the government with regard to emission of greenhouse gas. Emission liability is recognized when it is probable that outflows of resources will be required to settle the obligation and the costs required to perform the obligation are reliably estimable. Emission liability is an amount of estimated obligations for emission rights to be submitted to the government for the performing period. The emission liability is measured based on the expected quantity of emission for the performing period in excess of emission allowance in possession and the unit price for such emission rights in the market at the end of the reporting period. The Group derecognizes an emission liability when the emission allowance is submitted to government.

3.19 Impairment of financial assets

The Group recognizes loss allowance for expected credit losses on the following assets.

- Amortized cost of a financial asset
- Financial liability measured at fair value through other comprehensive income
- Contract assets as defined in KIFRS 1115

The Group measures loss allowance for expected credit losses, except for the following financial assets measured at the expected credit loss of 12 months.

- Debt securities whose credit is determined to be at low risk at the end of the reporting period
- Other debt securities and bank deposits that do not have a significant increase in credit risk (i.e. default risk arising over the expected life of the financial asset)

The Group has chosen to measure the loss allowance at an amount equal to lifetime expected credit losses for the trade receivables, contract assets and lease receivables that contain a significant financing component.
When determining whether the credit risk of a financial asset has significantly increased since the initial recognition and when estimating expected credit losses, the Group considers information that can be used and reasonably supported, without undue cost or effort. This includes qualitative and quantitative information and analysis based on past experience and known credit ratings of the Group, including future-oriented information.

The Group assumes that the credit risk of a financial asset is significantly increased when past due days exceeds 30 days.

The Group considers a default on the financial asset if:

- If the debtor does not engage in any activity with the Group and is not likely to fully fulfill the credit obligations to the Group

3. Significant Accounting Policies (cont'd)

3.19 Impairment of financial assets (cont'd)

The Group considers the credit risk to be low if the credit risk rating of the debt securities is at the level understood internationally by the definition of "investment grade".

Lifetime ECL is resulted from all possible default events over the expected life. A financial 12-month ECLs is resulted from possible default events within the 12 months after the reporting date (Or if the expected life of the instrument is less than 12 months).

The longest period to consider when measuring expected credit losses is the longest term for which the Group is exposed to credit risk.

(i) Measurement of expected credit loss

Expected credit loss is a probability weighted estimate of credit loss. Credit loss is measured as the present value of all cash deficiency (i.e. the difference between all contract cash flows that are expected to be paid and all contract cash flows that are expected to be received). Expected credit losses are discounted at the effective interest rate of the financial asset.

(ii) Credit-impaired financial assets

At the end of each reporting period, the Group assesses the financial assets measured at amortized cost and other comprehensive income - whether the creditworthiness of the debt securities measured at fair value has been impaired. If there is more than one event that adversely affects the estimated future cash flows of a financial asset, the financial asset is impaired.

The evidence that the credit of a financial asset is impaired includes the following observable information:

- Significant financial difficulties of issuer or borrower
- Breach of contract, such as default or delinquency over 90 days
- Inevitable mitigation of initial borrowing conditions for economic or contractual reasons related to the borrower's financial difficulties
- Possibility of bankruptcy of borrowers or other possibility of financial restructuring
- Due to financial difficulties, the active market for the financial assets is extinguished

(iii) Presentation of provision for credit loss on statement of financial position

The allowance for losses on financial assets measured at amortized cost is deducted from the carrying amount of the asset.

The allowance for losses on debt securities measured at fair value through other comprehensive income is recognized in other comprehensive income instead of reducing the carrying amount of the asset.

(iv) Write-off

If there is no reasonable expectation of recovery of all or part of the contract cash flows of a financial asset, the asset is derecognized. For individual customers, the Group derecognizes the carrying amount if the financial asset is overdue for more than 180 days based on historical experience with the recovery of similar assets and assesses whether there is a reasonable expectation of recovery for the enterprise customer, evaluate timing and amount separately. The Group does not expect that proceeds recovered will be significant. However, derecognized financial assets can be subject to collection activities in accordance with the collection procedure of the amount due to the Group.

3. Significant Accounting Policies (cont'd)

3.20 Equity capital

Ordinary shares are classified as equity. Incremental costs directly attributable to the issuance of ordinary shares and share options are recognized as a deduction from equity, net of any tax effects.

3.21 Finance income and finance costs

Finance income comprises interest income on funds invested (including financial assets measured at fair value through other comprehensive income), dividend income, gains on the disposal of financial assets measured at fair value through other comprehensive income, changes in the fair value of financial assets at fair value through profit or loss, and gains on hedging instruments that are recognized in profit or loss. Interest income is recognized as it accrues in profit or loss, using the effective interest method. Dividend income is recognized in profit or loss on the date when the Group's right to receive payment is established, which in the case of quoted securities is the ex-dividend date.

Finance costs comprise interest expense on borrowings, unwinding of the discount on provisions, dividends on preference shares classified as liabilities, changes in the fair value of financial assets at fair value through profit or loss, impairment losses recognized on financial assets, and losses on hedging instruments that are recognized in profit or loss. Borrowing costs that are not directly attributable to the acquisition, construction or production of a qualifying asset are recognized in profit or loss using the effective interest method.

3.22 Earnings per share

The Group presents basic earnings per share data for its ordinary shares. Basic earnings per share is calculated by dividing the profit or loss attributable to ordinary shareholder of the Company by the weighted average number of ordinary shares outstanding during the period, adjusted for own shares held.

3.23 Non-current assets held for sale

Non-current assets, or disposal groups comprising assets and liabilities, that are expected to be recovered primarily through sale rather than through continuing use, are classified as held for sale. In order to be classified as held for sale, the asset (or disposal group) must be available for immediate sale in its present condition and its sale must be highly probable. The assets or disposal group that are classified as non-current assets held for sale are measured at the lower of their carrying amount and fair value less cost to sell. The Group recognizes an impairment loss for any initial or subsequent write-down of an asset (or disposal group) to fair value less costs to sell, and a gain for any subsequent increase in fair value less costs to sell, up to the cumulative impairment loss previously recognized in accordance with KIFRS No. 1036, 'Impairment of Assets'.

In the case where a situation that was previously considered unlikely occurred during the first year and non-current assets that were previously scheduled to be sold were not sold until the end of the period, the period of sale is extended if necessary measures are taken during the first year to respond to the change in circumstances and active attempts to sell them to reasonable prices under the changed circumstances.

3. Significant Accounting Policies (cont'd)

3.24 Standards issued but not yet effective

The following new standards and amendments to existing standards have been published for annual periods beginning after January 1, 2020, and the Group has not early adopted them.

(i) Amendments to KIFRS 1001: Classification of Liabilities as Current or Non-current
The amendments to paragraphs 69 to 76 of KIFRS 1001 clarify the following requirements for classifying liabilities as current or non-current.

- What is meant by a right to defer settlement
- That a right to defer must exist at the end of the reporting period
- That classification is unaffected by the likelihood that an entity will exercise its deferral right
- That terms of a liability that only if an embedded derivative in a convertible liability is itself an equity instrument do not affect its classification

The amendments are effective for annual reporting periods beginning on or after January 1, 2023 and must be applied retrospectively. The Group is currently assessing the impact the amendments will have on current practice and whether existing loan agreements may require renegotiation.

(ii) Reference to the Conceptual Framework – Amendments to KIFRS 1103
The amendments are intended to replace a reference to the Framework for the Preparation and Presentation of Financial Statements, issued in 1989, with a reference to the Conceptual Framework for Financial Reporting issued in March 2018 without significantly changing its requirements. The Board also added an exception to the recognition principle of KIFRS 1103 to avoid the issue of potential 'day 2' gains or losses arising for liabilities and contingent liabilities that would be within the scope of KIFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets* or KIFRS 2121 *Levies*, if incurred separately. At the same time, the Board decided to clarify existing guidance in K IFRS 1103 for contingent assets that would not be affected by replacing the reference to the Framework for the Preparation and Presentation of Financial Statements. The amendments are effective for annual reporting periods beginning on or after January 1, 2022 and apply prospectively.

(iii) Property, Plant and Equipment: Proceeds before Intended Use – Amendments to KIFRS 1016
The amendments are intended to prohibits entities deducting from the cost of an item of property, plant and equipment, any proceeds from selling items produced while bringing that asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Instead, an entity recognizes the proceeds from selling such items, and the costs of producing those items, in profit or loss.
The amendment is effective for annual reporting periods beginning on or after January 1, 2022 and must be applied retrospectively to items of property, plant and equipment made available for use on or after the beginning of the earliest period presented when the entity first applies the amendment. The amendments are not expected to have a material impact on the Group.

3. Significant Accounting Policies (cont'd)

3.25 Standards issued but not yet effective (cont'd)

(iv) Onerous Contracts – Costs of Fulfilling a Contract – Amendments to KIFRS 1037
The amendments specify which costs an entity needs to include when assessing whether a contract is onerous or loss-making. The amendments apply a "directly related cost approach". The costs that relate directly to a contract to provide goods or services include both incremental costs and an allocation of costs directly related to contract activities. General and administrative costs do not relate directly to a contract and are excluded unless they are explicitly chargeable to the counterparty under the contract.
The amendments are effective for annual reporting periods beginning on or after January 1, 2022. The Group will apply these amendments to contracts for which it has not yet fulfilled all its obligations at the beginning of the annual reporting period in which it first applies the amendments.

(v) KIFRS 1101 First-time Adoption of International Financial Reporting Standards – Subsidiary as a first-time adopter
The amendment permits a subsidiary that elects to apply paragraph D16(a) of KIFRS 1101 to measure cumulative translation differences using the amounts reported by the parent, based on the parent's date of transition to KIFRS. This amendment is also applied to an associate or joint venture that elects to apply paragraph D16(a) of KIFRS 1101.
The amendment is effective for annual reporting periods beginning on or after January 1, 2022 with earlier adoption permitted.

(vi) KIFRS 1109 Financial Instruments – Fees in the '10 per cent' test for derecognition of financial liabilities
The amendment clarifies the fees that an entity includes when assessing whether the terms of a new or modified financial liability are substantially different from the terms of the original financial liability. These fees include only those paid or received between the borrower and the lender, including fees paid or received by either the borrower or lender on the other's behalf. An entity applies the amendment to financial liabilities that are modified or exchanged on or after the beginning of the annual reporting period in which the entity first applies the amendment.
The amendment is effective for annual reporting periods beginning on or after January 1, 2022 with earlier adoption permitted. The Group will apply the amendments to financial liabilities that are modified or exchanged on or after the beginning of the annual reporting period in which the entity first applies the amendment.
The amendments are not expected to have a material impact on the Group.

(vii) COVID-19-Related Rent Concessions (Amendment to KIFRS 1116)
The amendments eased the application of lessee's lease modification accounting in KIFRS 1116 for rent concessions as a direct consequence of the COVID-19 pandemic.
As a practical expedient, a lessee may elect not to assess whether a rent concession related to the COVID-19 pandemic is a lease modification. A lessee that makes this election shall account for any change in lease payments resulting from the rent concession the same way it would account for the change applying this Standard if the change were not a lease modification. The amendment is effective for annual reporting periods beginning on or after June 1, 2020 with earlier adoption permitted. The amendments are not expected to have a material impact on the Group.

4. Segment information

The Group's segments are determined based on components of the Group that are engaged in revenue generating activities and for which discrete financial information is available that is regularly reported to the Chief Operating Decision Maker ("CODM") for the purpose of resource allocation and assessment of performance. Under KIFRS 1108 *Operating Segments*, the Group's segment consists of electric power generation (nuclear power and others) and other business responsible for overseas. The price of transactions between reportable segments is determined based on the market transaction price applied to independent third-party transactions. Each segment is the basis for reporting the Group's primary segment information and the accounting policies for each reportable segment are the same as those described in the summary of significant accounting policies.

The following table presents revenue and operating profit from the reportable segments for the years ended December 31, 2020 and 2019 (Korean won in millions):

	December 31, 2020			
	Electric power generation	Others	Consolidation adjustments	Consolidated totals
Revenue from external customers	₩ 9,999,388	₩ 325	₩ -	₩ 9,999,713
Intersegment revenue	4,212	130,723	(134,935)	-
Segment revenue	₩ 10,003,600	₩ 131,048	₩ (134,935)	₩ 9,999,713
Segment operating profit (loss)	1,336,534	4,838	(25,538)	1,315,834
Other income (expenses), net	(114,231)	(753)	3,649	(111,335)
Other profit (loss), net	(55,595)	29	(23)	(55,589)
Finance income	261,363	30	(865)	260,528
Finance costs	638,701	67	(3)	638,765
Gain (loss) on investments in associates and joint ventures, net	-	-	(4,637)	(4,637)
Income tax expense (benefit)	152,677	314	(4,897)	148,094

	December 31, 2019			
	Electric power generation	Others	Consolidation adjustments	Consolidated totals
Revenue from external customers	₩ 8,982,533	₩ 94	₩ -	₩ 8,982,627
Intersegment revenue	256	27	(283)	-
Segment revenue	₩ 8,982,789	₩ 121	₩ (283)	₩ 8,982,627
Segment operating profit (loss)	785,860	(2,887)	88	783,061
Other income (expenses), net	(83,739)	(49,351)	(5)	(133,095)
Other profit (loss), net	11,424	24	-	11,448
Finance income	266,389	13	(19)	266,383
Finance costs	647,524	19	(18)	647,525
Gain (loss) on investments in associates and joint ventures, net	(73,508)	-	67,072	(6,436)
Income tax expense (benefit)	27,299	-	(10)	27,289

For the years ended December 31, 2020 and 2019, depreciation and amortization expenses for electric power generation projects (nuclear power and others) are ₩3,582,667 million and ₩3,287,618 million, respectively, and depreciation and amortization expenses for other business segments amount to ₩ 800 million and ₩ 49 million, respectively.

4. Segment information (cont'd)

Details of assets and liabilities by operating segments as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020			
	Electric power generation	Others	Consolidation adjustments	Consolidated totals
Total assets	₩ 62,317,705	₩ 132,987	₩ (166,306)	₩ 62,284,386
Total liabilities	36,063,808	22,344	(7,741)	36,078,411

	December 31, 2019			
	Electric power generation	Others	Consolidation adjustments	Consolidated totals
Total assets	₩ 59,787,314	₩ 82,743	₩ (127,335)	₩ 59,742,722
Total liabilities	34,076,828	3,351	(3,334)	34,076,845

The Group is headquartered in Korea, with substantially all of its assets located in Korea and substantially all of its revenue is generated domestically.

For the years ended December 31, 2020 and 2019, the Group recognized total revenues of W9,999,713 million and W8,982,627 million, respectively. Also, the Group recognized total revenues from KEPCO, the Group's largest customer, of ₩9,857,571 million and ₩8,880,264 million, respectively. There is no single other customer that accounts for more than 10% of the consolidated sales for 2020 and 2019.

5. Cash and cash equivalents

Cash and cash equivalents as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Cash equivalents	₩ 2,074	₩ 3,505
Short-term instruments classified as cash equivalents	313,998	31,411
	₩ 316,072	₩ 34,916

Restricted cash and cash equivalents as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Short-term instruments classified as cash equivalents	₩ 6,694	₩ 12,781

6. Financial assets at fair value through profit or loss

Financial assets at fair value through profit or loss as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	Current	Non-current(*)	Current	Non-current
Financial assets designated as at fair value through profit or loss:				
Financial assets designated as at fair value through profit or loss(*)	₩ -	204,726	₩ -	₩ 150,916
Financial assets at fair value through profit or loss:				
Derivative assets	18,274	30,794	-	120,133
Beneficiary certificate(*)	-	149,777	-	155,449
Other(*)	160,600	222,978	29,520	235,604
Subtotal	178,874	403,549	29,520	511,186
Total	₩ 178,874	608,275	₩ 29,520	₩ 662,102

(*) As of December 31, 2020, the Group invested ₩577,481 million in financial assets exclusively for payment of decommissioning costs of nuclear power plants. These are financial assets that cannot be used for any other purposes with a restricted access period exceeding 12 months subsequent to December 31, 2020. Therefore, these assets have been categorized as non-current assets.

6. Financial assets at fair value through profit or loss (cont'd)

Details of derivative instruments as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	Current	Non-current	Current	Non-current
Derivative assets:				
Foreign currency forwards	₩ 18,274	₩ -	₩ -	₩ 43,931
Foreign currency swaps	-	30,794	-	76,202
	18,274	30,794	-	120,133
Derivative liabilities:				
Foreign currency forwards	462	-	196	-
Foreign currency swaps	-	23,801	-	7,286
	₩ 462	₩ 23,801	₩ 196	₩ 7,286

Details of foreign currency forwards contracts as of December 31, 2020 are as follows (Korean won in millions, USD in thousands, KRW/USD)

	Counterparty	Period	Amount of contract				Contractual foreign exchange rate
			Pay		Receive		
Held for trading (*)	Hana Bank	2014.04.10~2021.07.12	KRW	55,120	USD	52,000	1,060.00
	Hana Bank	2014.04.28~2021.07.12	KRW	50,784	USD	48,000	1,058.00
	Bank of America	2014.04.29~2021.07.12	KRW	105,400	USD	100,000	1,054.00
	Hana Bank	2014.05.09~2021.07.12	KRW	104,600	USD	100,000	1,046.00
	Hana Bank	2017.12.22~2021.07.12	KRW	105,079	USD	100,000	1,050.79
	Korea Development Bank	2017.12.27~2021.07.12	KRW	104,849	USD	100,000	1,048.49
	Shinhan Bank	2020.11.25~2021.01.29	KRW	895	USD	809	1,106.50
	Woori Bank	2020.12.28~2021.01.28	KRW	53,371	USD	48,790	1,093.88
	Shinhan Bank	2020.12.29~2021.01.25	KRW	27,776	USD	25,379	1,094.44

(*) The Group contracted derivative financial instruments for the purpose of hedging risk but classified them as derivative financial instruments held for trading, since those derivatives do not meet the applicable requirements of applying hedge accounting under KIFRS 1109 *Financial Instruments*.

6. Financial assets at fair value through profit or loss (cont'd)

Details of foreign currency swap contracts as of December 31, 2020 are as follows (Korean won in millions, USD, HKD, CHF in thousands, KRW/USD, KRW/HKD, KRW/CHF):

	Counterparty	Period	Amount of contract		Interest rate of contract		Contractual foreign exchange rate
			Pay	Receive	Pay	Receive	
Held for trading (*)	Citibank	2012.09.12~2022.09.19	KRW 112,930	USD 100,000	2.79%	3.00%	1,129.30
	JP Morgan	2012.09.12~2022.09.19	KRW 112,930	USD 100,000	2.79%	3.00%	1,129.30
	Bank of America	2012.09.12~2022.09.19	KRW 112,930	USD 100,000	2.79%	3.00%	1,129.30
	Shinhan Bank	2016.12.21~2022.09.19	KRW 112,930	USD 100,000	2.79%	3.00%	1,129.30
	Hana Bank	2012.10.26~2022.09.19	KRW 111,770	USD 100,000	2.87%	3.00%	1,117.70
	Standard Chartered	2012.10.26~2022.09.19	KRW 111,770	USD 100,000	2.89%	3.00%	1,117.70
	HSBC	2012.11.01~2022.09.19	KRW 111,770	USD 100,000	2.89%	3.00%	1,117.70
	Deutsche Bank	2012.12.28~2022.09.19	KRW 55,885	USD 50,000	2.79%	3.00%	1,117.70
	Nomura Financial Investment (Korea) Co., Ltd.	2015.06.15~2025.06.15	KRW 111,190	USD 100,000	2.60%	3.25%	1,111.90
	Korea Development Bank	2015.06.15~2025.06.15	KRW 111,190	USD 100,000	2.62%	3.25%	1,111.90
	Woori Bank	2015.06.15~2025.06.15	KRW 55,595	USD 50,000	2.62%	3.25%	1,111.90
	Hana Bank	2015.06.15~2025.06.15	KRW 55,595	USD 50,000	2.62%	3.25%	1,111.90
	Woori Bank	2017.07.25~2027.07.25	KRW 111,610	USD 100,000	2.25%	3.13%	1,116.10
	Korea Development Bank	2017.07.25~2027.07.25	KRW 111,610	USD 100,000	2.31%	3.13%	1,116.10
	Hana Bank	2017.07.25~2027.07.25	KRW 111,610	USD 100,000	2.31%	3.13%	1,116.10
	Korea Development Bank	2018.04.03~2028.03.13	KRW 108,600	HKD 800,000	2.69%	3.35%	135.75
	Shinhan Bank	2018.04.03~2028.03.13	KRW 115,387	HKD 850,000	2.66%	3.35%	135.75
	Korea Development Bank	2018.07.25~2023.07.25	KRW 170,280	USD 150,000	2.15%	3.75%	1,135.20
	Woori Bank	2018.07.25~2023.07.25	KRW 170,280	USD 150,000	2.18%	3.75%	1,135.20
	Hana Bank	2018.07.25~2023.07.25	KRW 113,520	USD 100,000	2.17%	3.75%	1,135.20
	Shinhan Bank	2018.07.25~2023.07.25	KRW 227,040	USD 200,000	2.17%	3.75%	1,135.20
	Citibank	2019.07.19~2024.07.19	KRW 239,956	CHF 200,000	1.44%	0.00%	1,199.78
	Korea Development Bank	2019.07.19~2027.07.19	KRW 119,978	CHF 100,000	1.43%	0.05%	1,199.78

(*) The Group contracted derivative financial instruments for the purpose of hedging risk but classified them as derivative financial instruments held for trading, since those derivatives do not meet the applicable requirements of applying hedge accounting under KIFRS 1109 *Financial Instruments* .

6. Financial assets at fair value through profit or loss (cont'd)

Gain (loss) on valuation and transaction of derivatives (not designated as in hedging relationships) for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	Gain (loss) on valuation		Gain (loss) on transaction	
	2020	2019	2020	2019
Currency forwards	₩ (26,120)	₩ 31,130	₩ (2,521)	₩ 1,130
Currency swaps	(61,923)	138,149	18,013	41,180
	₩ (88,043)	₩ 169,279	₩ 15,492	₩ 42,310

7. Trade and other receivables

Trade and other receivables as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020				December 31, 2019			
	Gross amount	Allowance for doubtful accounts	Amortization of present value discount	Carrying amount	Gross amount	Allowance for doubtful accounts	Amortization of present value discount	Carrying amount
Current assets:								
Trade receivables	₩ 1,196,755	₩ -	₩ -	₩ 1,196,755	₩ 1,087,325	₩ -	₩ -	₩ 1,087,325
Other receivables	189,164	(3,185)	(237)	185,742	218,597	(3,185)	(470)	214,942
	1,385,919	(3,185)	(237)	1,382,497	1,305,922	(3,185)	(470)	1,302,267
Non-current assets:								
Other receivables	50,322		(526)	49,796	50,925	-	(902)	50,023
	₩ 1,436,241	₩ (3,185)	₩ (763)	₩ 1,432,293	₩ 1,356,847	₩ (3,185)	₩ (1,372)	₩ 1,352,290

Other receivables as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020				December 31, 2019			
	Gross amount	Allowance for doubtful accounts	Amortization of present value discount	Carrying amount	Gross amount	Allowance for doubtful accounts	Amortization of present value discount	Carrying amount
Current assets:								
Non-trade receivables	₩ 92,371	₩ (3,185)	₩ -	₩ 89,186	₩ 80,721	₩ (3,185)	₩ -	₩ 77,536
Accrued income	51,634	-	-	51,634	74,618	-	-	74,618
Guarantee deposits	42,017	-	(237)	41,780	60,227	-	(470)	59,757
Other current receivables	3,142	-	-	3,142	3,031	-	-	3,031
	189,164	(3,185)	(237)	185,742	218,597	(3,185)	(470)	214,942
Non-current assets:								
Guarantee deposits	50,322	-	(526)	49,796	50,925	-	(902)	50,023
	₩ 239,486	₩ (3,185)	₩ (763)	₩ 235,538	₩ 269,522	₩ (3,185)	₩ (1,372)	₩ 264,965

Trade and other receivables are measured at amortized cost. For electricity sales revenue, the average trade receivables turnover is 2 business days from the date of the revenues generated. Interest is charged on trade receivables after 2 business days from due date based on interest rates of overdue open market loans.

7. Trade and other receivables (cont'd)

Aging analysis of the trade receivables as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Receivables (not overdue, not impaired)	₩ 1,196,755	₩ 1,087,325
Receivables (overdue, not impaired)	-	-
Receivables (other)	-	-
	1,196,755	1,087,325
Less: allowance for doubtful accounts	-	-
Less: present value discount	-	-
	₩ 1,196,755	₩ 1,087,325

Aging analysis of other receivables as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Receivables (not overdue, not impaired)	₩ 236,301	₩ 266,337
Receivables (overdue, not impaired)	-	-
Receivables (other)	3,185	3,185
0~60 days	-	-
60~90 days	-	-
90~120 days	-	-
120~365 days	-	-
Over 365 days	3,185	3,185
	239,486	269,522
Less: allowance for doubtful accounts	(3,185)	(3,185)
Less: present value discount	(763)	(1,372)
	₩ 235,538	₩ 264,965

Changes in the allowance for doubtful accounts for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020		2019	
	Trade receivables	Other Receivables	Trade receivables	Other receivables
Beginning balance	₩ -	₩ 3,185	₩ -	₩ 3,185
Bad debt expenses	-	-	-	51
Write-offs	-	-	-	(51)
Ending balance	₩ -	₩ 3,185	₩ -	₩ 3,185

8. Financial assets at fair value through other comprehensive income

Changes in financial assets at fair value through other comprehensive income for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020						
	January 1	Acquisitions	Disposals	Gain (loss) on valuation	Impairment losses	Others	December 31
Equity securities:							
Listed equity securities	₩ 31,828	₩ -	₩ -	₩ 19,843	₩ -	₩ (1,793)	₩ 49,878
Unlisted equity securities	199,996	-	-	(23,903)	-	7,400	183,493
	₩ 231,824	₩ -	₩ -	₩ (4,060)	₩ -	₩ 5,607	₩ 233,371
Non-current financial assets at fair value through other comprehensive income	₩ 231,824	₩ -	₩ -	₩ (4,060)	₩ -	₩ 5,607	₩ 233,371

	2019						
	January 1	Acquisitions	Disposals	Gain (loss) on valuation	Impairment losses	Others	December 31
Equity securities:							
Listed equity securities	₩ 35,861	₩ -	₩ -	₩ (6,864)	₩ -	₩ 2,831	₩ 31,828
Unlisted equity securities	194,103	-	-	5,893	-	-	199,996
	₩ 229,964	₩ -	₩ -	₩ (971)	₩ -	₩ 2,831	₩ 231,824
Non-current financial assets at fair value through other comprehensive income	₩ 229,964	₩ -	₩ -	₩ (971)	₩ -	₩ 2,831	₩ 231,824

8. Financial assets at fair value through other comprehensive income (cont'd)

Details of financial assets at fair value through other comprehensive income as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020				
	Shares	Ownership	Acquisition cost	Carrying amount	Fair value
Listed securities:					
Fission Uranium Corp.	700,000	0.14%	₩ 325	₩ 233	₩ 233
Denison Mines Corp.	58,248,500	9.30%	36,799	41,751	41,751
Fission 3.0 Corp.	75,000	0.05%	36	6	6
Energy Fuel Inc.	1,711,814	1.31%	3,414	7,888	7,888
			40,574	49,878	49,878
Unlisted securities:					
Korea Power Exchange(*1)	-	14.28%	18,263	31,935	31,935
SET Holding(*1)	1,100,220	2.50%	229,255	143,765	143,765
HeeMang Sunlight Power Co., Ltd.(*2)	78,600	8.33%	393	393	393
SGC Green Power Co., Ltd.(*2)	580,000	5.00%	2,900	2,900	2,900
Ihsung CNI Co., Ltd.(*2)	13,526	18.22%	3,000	3,000	3,000
H robotics Co., Ltd(*2)	9,192	4.55%	1,000	1,000	1,000
Goodtcells Co., Ltd(*2)	11,364	0.34%	500	500	500
			255,311	183,493	183,493
			₩ 295,885	₩ 233,371	₩ 233,371

(*1) The Group has estimated the fair value by using the discounted cash flow method and has recognized the difference between its fair value and book value as gain or loss on valuation of financial assets at fair value through other comprehensive income for the year ended December 31, 2020.

(*2) This financial asset at fair value through other comprehensive income does not have a quoted market price in an active market, and its fair value cannot be reliably measured, therefore it is measured at cost.

8. Financial assets at fair value through other comprehensive income (cont'd)

	December 31, 2019				
	Shares	Ownership	Acquisition cost	Carrying amount	Fair value
Listed securities:					
Fission Uranium Corp.	700,000	0.14%	₩ 325	₩ 174	₩ 174
Denison Mines Corp.	58,248,500	9.87%	36,799	27,885	27,885
Fission 3.0 Corp.	75,000	0.05%	36	5	5
Energy Fuel Inc.	1,711,814	1.79%	3,414	3,764	3,764
			40,574	31,828	31,828
Unlisted securities:					
Korea Power Exchange(*1)	-	14.28%	18,263	32,738	32,738
SET Holding(*1)	1,100,220	2.50%	229,255	166,865	166,865
HeeMang Sunlight Power Co., Ltd.(*2)	78,600	8.33%	393	393	393
			247,911	199,996	199,996
			₩ 288,485	₩ 231,824	₩ 231,824

(*1) The Group has estimated the fair value by using the discounted cash flow method and has recognized the difference between its fair value and book value as gain or loss on valuation of financial assets at fair value through other comprehensive income for the year ended December 31, 2019.

(*2) This financial asset at fair value through other comprehensive income does not have a quoted market price in an active market, and its fair value cannot be reliably measured, therefore it is measured at cost.

9. Other financial assets

Other financial assets as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	Current	Non-current	Current	Non-current
Financial instruments	₩ 212,159	₩ 258,656	₩ 210,626	₩ 250,463
Loans	11,068	67,382	5,349	71,735
	₩ 223,227	₩ 326,038	₩ 215,975	₩ 322,198

Details of financial instruments as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	Current	Non-current(*)	Current	Non-current
Time deposit	₩ 2,159	₩ 138,656	₩ 626	₩ 100,463
Others	210,000	120,000	210,000	150,000
	₩ 212,159	₩ 258,656	₩ 210,626	₩ 250,463

(*) As of December 31, 2020, the Group set aside ₩258,282 million for decommissioning costs for nuclear power plants. These funds are financial assets that cannot be used for any other purposes with a restricted access period exceeding 12 months subsequent to December 31, 2020. Therefore, these assets have been categorized as non-current assets.

9. Other financial assets (cont'd)

Detail of loans as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	Current	Non-current	Current	Non-current
Loans for tuition(*1)	₩ 6,745	₩ 68,889	₩ 4,375	₩ 73,725
Loans for housing(*2)	598	4,958	737	4,476
Other loans(*3)	3,816	-	320	320
Less: present value discount	(91)	(6,465)	(83)	(6,786)
	₩ 11,068	₩ 67,382	₩ 5,349	₩ 71,735

(*1) The annual interest rate on loans for tuition is 0%, under a condition for installment repayment for seven years with a three-year grace period.
(*2) The annual interest rate on loans for housing is 0% to 3.11%, under the condition of a 15 to 20-year installment repayment.
(*3) The annual interest rate on other loans is 0% to 4.60%, under a condition for installment repayment for 5 years with a 5-year grace period.

Details of loans as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020			
	Par value	Present value discount	Allowance for bad debts	Carrying amount
Loans for tuition	₩ 75,634	₩ (6,556)	₩ -	₩ 69,078
Loans for housing	5,556	-	-	5,556
Other loans	3,816	-	-	3,816
	₩ 85,006	₩ (6,556)	₩ -	₩ 78,450

	December 31, 2019			
	Par value	Present value discount	Allowance for bad debts	Carrying amount
Loans for tuition	₩ 78,100	₩ (6,849)	₩ -	₩ 71,251
Loans for housing	5,213	-	-	5,213
Other loans	640	(20)	-	620
	₩ 83,953	₩ (6,869)	₩ -	₩ 77,084

10. Inventories

Inventories as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020			December 31, 2019		
	Acquisition cost	Valuation allowance	Carrying amount	Acquisition cost	Valuation allowance	Carrying amount
Raw materials	₩ 2,993,063	₩ -	₩ 2,993,063	₩ 2,924,522	₩ -	₩ 2,924,522
Supplies	1,828,611	-	1,828,611	1,647,320	-	1,647,320
Inventories-in-transit	290,000	-	290,000	255,681	-	255,681
	₩ 5,111,674	₩ -	₩ 5,111,674	₩ 4,827,523	₩ -	₩ 4,827,523

11. Non-financial assets

Non-financial assets as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	Current	Non-current	Current	Non-current
Advanced payments	₩ 34,421	₩ 410,101	₩ 10,363	₩ 442,748
Prepaid expenses	50,180	8,294	73,285	7,742
Others(*)	30,067	13,707	45,772	13,289
	₩ 114,668	₩ 432,102	₩ 129,420	₩ 463,779

(*) The Group recognizes an impairment loss of ₩49,201 million as there is objective evidence of impairment on rights of Orano Expansion's equity.

12. Investments in associates and joint ventures

Investments in associates and joint ventures as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020					
Company	Key operating activities	Location	Reporting Date	Ownership	Acquisition cost	Carrying amount
<Associates>						
Korea Offshore Wind Power Co., Ltd.(*1)	Offshore wind resources development	Korea	Dec. 31	12.50%	₩ 26,600	₩ 20,884
Noeul Green Energy Co., Ltd.	Electricity and heat generation	Korea	Dec. 31	29.00%	1,740	4,197
Busan Green Energy Co., Ltd.	Electricity and heat generation	Korea	Dec. 31	29.00%	5,243	8,778
Korea Nuclear Partners Co., Ltd.	Electric material agency	Korea	Dec. 31	28.98%	537	200
KEPCO Solar Co., Ltd. (Ex-Solar School Plant Co., Ltd.) (*1,6)	Photovoltaic power generation electricity resources development	Korea	Dec. 31	8.38%	16,750	17,365
KEPCO Energy Solution Co., Ltd.(*1)	Energy-efficient equipment investment services business	Korea	Dec. 31	8.33%	25,000	25,808
Gwangyang Green Energy Co., Ltd.	Biomass generation	Korea	Dec. 31	20.00%	2,000	925
Hanhwa Solar Power Private equity investment trust	Investment trust	Korea	Dec. 31	49.00%	7,300	7,325
Godeok Clean Energy Co., Ltd.(*2)	Electricity and heat generation	Korea	Dec. 31	61.00%	1,830	960
Bigeum Resident Solar Power Generation Co., Ltd. (*5)	Photovoltaic power generation	Korea	Dec. 31	29.90%	1	-
Jeju Solarone Co., Ltd. (*1,5)	Photovoltaic power generation electricity resources development	Korea	Dec. 31	10.00%	161	160
					87,162	86,602
<Joint ventures>						
Waterbury Lake Uranium Limited Partnership(*3)	Uranium resources development	Canada	Dec. 31	33.10%	20,753	19,796
Cheongsong Noraesan Wind Power Co., Ltd.	Wind power generation	Korea	Dec. 31	29.01%	3,200	3,453
Saemangeum Solar Power Co., Ltd.(*4)	Solar power generation	Korea	Dec. 31	81.00%	26,399	24,292
KAS INVESTMENT I LLC (*5,7)	Overseas Investment	USA	Oct. 7	29.89%	23,437	23,437
KAS INVESTMENT II LLC (*5,7)	Overseas Investment	USA	Oct. 7	29.89%	23,343	23,343
					97,132	94,321
					₩ 184,294	₩ 180,923

(*1) Although the Group holds less than 20% equity interest in the investee, the investee has been classified as an investment in associates, as the Group determines that it could exercise significant influence over the investee.
(*2) Although the Group holds 61% equity interest in the investee, it has no control because it has a decision-making right of less than 50%. But the investee has been classified as an investment in associates, as the Group determines that it could exercise significant influence through participation in the board of directors over the investee.
(*3) The acquisition cost is the book value at the time of the change in the consolidation scope. The initial acquisition cost of the Waterbury Lake Uranium Limited Partnership held by the Korea Waterbury Uranium Limited Partnership was ₩26,602 million.
(*4) The Group's voting right over the investee is 81% based on the shareholders' agreement and it does not have sole control of the decision-making body for the relevant activities. Therefore, the investee has been classified as an investment in joint ventures.
(*5) This entity is newly included as associates and joint ventures of the Group due to new investments during the year ended December 31, 2020.
(*6) During the year ended December 31, 2020, Solar School Plant Co., Ltd. was renamed as KEPCO Solar Co., Ltd.
(*7) The final settlement of the joint venture's financial statements was not completed before the Group's financial statements date, so the financial statements of October 7, the date of establishment, were used.

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

Company	December 31, 2019					
	Key operating activities	Location	Reporting Date	Owner-ship	Acquisition cost	Carrying amount
<Associates>						
Korea Offshore Wind Power Co., Ltd.(*1)	Offshore wind resources development	Korea	Dec. 31	12.50%	₩ 26,600	₩ 21,081
Noeul Green Energy Co., Ltd.	Electricity and heat generation	Korea	Dec. 31	29.00%	1,740	6,611
Busan Green Energy Co., Ltd.	Electricity and heat generation	Korea	Dec. 31	29.00%	5,243	10,636
Korea Nuclear Partners Co., Ltd.	Electric material agency	Korea	Dec. 31	29.00%	290	-
Solar School Plant Co., Ltd. (*1)	Photovoltaic power generation electricity resources development	Korea	Dec. 31	8.38%	16,750	17,207
KEPCO Energy Solution Co., Ltd.(*1)	Energy-efficient equipment investment services business	Korea	Dec. 31	8.33%	25,000	25,504
Gwangyang Green Energy Co., Ltd.	Biomass generation	Korea	Dec. 31	20.00%	2,000	948
Hanhwa Solar Power Private equity investment trust(*5)	Investment trust	Korea	Dec. 31	49.00%	7,105	7,126
Godeok Clean Energy Co., Ltd.(*2,5)	Electricity and heat generation	Korea	Dec. 31	61.00%	1,830	1,830
					86,558	90,943
<Joint ventures>						
Waterbury Lake Uranium Limited Partnership(*3)	Uranium resources development	Canada	Dec. 31	33.41%	20,753	20,562
Cheongsong Noraesan Wind Power Co., Ltd.	Wind power generation	Korea	Dec. 31	29.01%	3,200	3,044
Saemangeum Solar Power Co., Ltd.(*4,5)	Solar power generation	Korea	Dec. 31	81.00%	10,000	8,324
					33,953	31,930
					₩ 120,511	₩ 122,873

(*1) Although the Group holds less than 20% equity interest in the investee, the investee has been classified as an investment in associates, as the Group determines that it could exercise significant influence over the investee.
(*2) Although the Group holds 61% equity interest in the investee, it has no control because it has a decision-making right of less than 50%. But the investee has been classified as an investment in associates, as the Group determines that it could exercise significant influence through participation in the board of directors over the investee.
(*3) The acquisition cost is the book value at the time of the change in the consolidation scope. The initial acquisition cost of the Waterbury Lake Uranium Limited Partnership held by the Korea Waterbury Uranium Limited Partnership was ₩26,602 million.
(*4) The Group's voting right over the investee is 81% based on the shareholders' agreement and it does not have sole control of the decision-making body for the relevant activities. Therefore, the investee has been classified as an investment in joint ventures.
(*5) This entity is newly included as a joint venture of the Group due to new investments during the year ended December 31, 2019.

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

Changes in investments in associates and joint ventures for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020						
	January 1	Acquisition	Share of profit (loss)	Changes in equity	Disposals	Others	December 31
<Associates>							
Korea Offshore Wind Power Co., Ltd.	₩ 21,081	₩ -	₩ (197)	₩ -	₩ -	₩ -	₩ 20,884
Noeul Green Energy Co., Ltd.	6,611	-	(2,414)	-	-	-	4,197
Busan Green Energy Co., Ltd.	10,636	-	(1,860)	-	-	2	8,778
Korea Nuclear Partners Co., Ltd.	-	247	(43)	-	-	(4)	200
KEPCO Solar Co., Ltd. (Ex-Solar School Plant Co., Ltd.)	17,207	-	158	-	-	-	17,365
KEPCO Energy Solution Co., Ltd.	25,504	-	307	-	-	(3)	25,808
Gwangyang Green Energy Co., Ltd.	948	-	(23)	-	-	-	925
Hanhwa Solar Power Private equity investment trust	7,126	294	296	-	(99)	(292)	7,325
Godeok Clean Energy Co., Ltd.	1,830	-	(844)	-	-	(26)	960
Bigeum Resident Solar Power Generation Co., Ltd.	-	1	(1)	-	-	-	-
Jeju Solarone Co., Ltd.	-	161	-	-	-	(1)	160
Energy Innovation Growth Fund 1 (*)	-	3600	2	-	-	(3,602)	-
	90,943	4,303	(4,619)	-	(99)	(3,926)	86,602
<Joint ventures>							
Waterbury Lake Uranium Limited Partnership	20,562	-	4	(770)	-	-	19,796
Cheongsong Noraesan Wind Power Co., Ltd.	3,044	-	409	-	-	-	3,453
Saemangeum Solar Power Co., Ltd.	8,324	16,399	(431)	-	-	-	24,292
KAS INVESTMENT I LLC	-	23,437	-	-	-	-	23,437
KAS INVESTMENT II LLC	-	23,343	-	-	-	-	23,343
	31,930	63,179	(18)	(770)	-	-	94,321
	₩ 122,873	₩ 67,482	₩ (4,637)	₩ (770)	₩ (99)	₩ (3,926)	₩ 180,923

(*) Energy Innovation Growth Fund 1 has been replaced by a subsidiary from the investment in associates.

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

	2019						
	January 1	Acquisition	Share of profit (loss)	Changes in equity	Disposals	Others	December 31
<Associates>							
Korea Offshore Wind Power Co., Ltd.	₩ 22,467	₩ -	₩ (1,386)	₩ -	₩ -	₩ -	₩ 21,081
Noeul Green Energy Co., Ltd.	8,016	-	(1,395)	-	-	(10)	6,611
Busan Green Energy Co., Ltd.	12,537	-	(1,885)	-	-	(16)	10,636
Korea Nuclear Partners Co., Ltd.	175	-	(175)	-	-	-	-
Solar School Plant Co., Ltd.	16,994	-	214	-	-	(1)	17,207
KEPCO Energy Solution Co., Ltd.	25,271	-	234	-	-	(1)	25,504
Gwangyang Green Energy Co., Ltd.	1,206	-	(258)	-	-	-	948
Hanhwa Solar Power Private equity investment trust	-	7,105	21	-	-	-	7,126
Godeok Clean Energy Co., Ltd.	-	1,830	-	-	-	-	1,830
	86,666	8,935	(4,630)	-	-	(28)	90,943
<Joint ventures>							
Waterbury Lake Uranium Limited Partnership	19,032	-	22	1,508	-	-	20,562
Cheongsong Noraesan Wind Power Co., Ltd.	2,073	1,127	(152)	(4)	-	-	3,044
Saemangeum Solar Power Co., Ltd.	-	10,000	(1,676)	-	-	-	8,324
	21,105	11,127	(1,806)	1,504	-	-	31,930
	₩ 107,771	₩ 20,062	₩ (6,436)	₩ 1,504	₩ -	₩ (28)	₩ 122,873

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

The summary financial information of investments accounted for using the equity method as of December 31, 2020 and 2019 and for the years ended 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020			
	Total assets	Total liabilities	Revenue	Net profit (loss)
<Associates>				
Korea Offshore Wind Power Co., Ltd.	₩ 354,643	₩ 187,576	₩ 26,838	₩ 98
Noeul Green Energy Co., Ltd.	116,929	102,457	27,486	(8,303)
Busan Green Energy Co., Ltd.	170,261	139,995	40,241	(6,422)
Korea Nuclear Partners Co., Ltd.	1,350	105	1,062	(150)
KEPCO Solar Co., Ltd. (Ex-Solar School Plant Co., Ltd.)	230,290	22,946	3,933	1,887
KEPCO Energy Solution Co., Ltd.	313,791	4,101	5,585	3,685
Gwangyang Green Energy Co., Ltd.	28,634	24,095	-	(113)
Hanhwa Solar Power Private equity investment trust	15,157	206	634	603
Godeok Clean Energy Co., Ltd.	1,640	65	-	(1,382)
Bigeum Resident Solar Power Generation Co., Ltd.	11,164	11,551	-	(309)
Jeju Solarone Co., Ltd.	1,608	14	-	(4)
<Joint ventures>				
Waterbury Lake Uranium Limited Partnership	59,885	77	-	-
Cheongsong Noraesan Wind Power Co., Ltd.	55,460	43,771	7,411	2,039
Saemangeum Solar Power Co., Ltd.	34,363	4,180	-	(532)
KAS INVESTMENT I LLC	78,410	-	-	-
KAS INVESTMENT II LLC	78,096	-	-	-

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

	December 31, 2019			
	Total assets	Total liabilities	Revenue	Net profit (loss)
<Associates>				
Korea Offshore Wind Power Co., Ltd.	₩ 283,774	₩ 115,128	₩ -	₩ (11,090)
Noeul Green Energy Co., Ltd.	137,370	114,578	36,435	(4,810)
Busan Green Energy Co., Ltd.	173,537	136,857	52,256	(6,496)
Korea Nuclear Partners Co., Ltd.	928	375	1,441	(50)
Solar School Plant Co., Ltd.	208,730	3,269	1,962	2,553
KEPCO Energy Solution Co., Ltd.	308,188	2,142	2,843	2,805
Gwangyang Green Energy Co., Ltd.	28,816	24,164	-	(1,007)
Hanhwa Solar Power Private equity investment trust	14,559	15	59	44
Godeok Clean Energy Co., Ltd.	3,000	-	-	-
<Joint ventures>				
Waterbury Lake Uranium Limited Partnership	61,548	4	-	-
Cheongsong Noraesan Wind Power Co., Ltd.	51,247	40,969	-	(549)
Saemangeum Solar Power Co., Ltd.	13,740	3,270	-	(1,875)

13. Property, plant and equipment

Property, plant and equipment as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020				
	Acquisition cost	Government grants	Accumulated depreciation	Accumulated impairment losses	Carrying amount
Land	₩ 2,651,211	₩ -	₩ -	₩ -	₩ 2,651,211
Buildings	8,216,677	(542)	(3,393,668)	(1,896)	4,820,571
Structures	4,766,505	(8,882)	(2,298,060)	(360)	2,459,203
Machineries	25,920,881	(8,878)	(12,054,717)	(386,807)	13,470,479
Ships	1,647	-	(1,393)	-	254
Vehicles	70,810	(47)	(48,525)	-	22,238
Fixtures and furniture	551,430	(162)	(446,147)	(36)	105,085
Tools	465,580	(152)	(388,362)	(6)	77,060
Construction-in-progress	15,999,833	-	-	(154,729)	15,845,104
Right-of-use assets	2,413,381	-	(490,919)	-	1,922,462
Asset retirement costs	12,035,896	-	(4,507,004)	(146,423)	7,382,469
Others	14,330,335	-	(11,584,768)	-	2,745,567
	₩ 87,424,186	₩ (18,663)	₩ (35,213,563)	₩ (690,257)	₩ 51,501,703

	December 31, 2019				
	Acquisition cost	Government grants	Accumulated depreciation	Accumulated impairment losses	Carrying amount
Land	₩ 2,633,130	₩ -	₩ -	₩ -	₩ 2,633,130
Buildings	8,091,275	(603)	(3,082,141)	(1,896)	5,006,635
Structures	4,702,636	(9,473)	(2,128,509)	(360)	2,564,294
Machineries	25,540,726	(10,833)	(11,059,601)	(386,807)	14,083,485
Ships	1,444	-	(1,244)	-	200
Vehicles	55,503	(105)	(39,910)	-	15,488
Fixtures and furniture	497,837	(178)	(402,760)	(36)	94,863
Tools	416,515	(338)	(356,344)	(7)	59,826
Construction-in-progress	13,949,399	-	-	(154,729)	13,794,670
Right-of-use assets	2,169,766	-	(390,988)	-	1,778,778
Asset retirement costs	11,443,100	-	(3,985,450)	(146,422)	7,311,228
Others	13,275,414	-	(10,656,807)	-	2,618,607
	₩ 82,776,745	₩ (21,530)	₩ (32,103,754)	₩ (690,257)	₩ 49,961,204

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

Changes in property, plant and equipment for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020					
	January 1	Acquisitions/ Capitalization	Disposals	Depreciation	Others	December 31
Land	₩ 2,633,130	₩ 9,339	₩ (2,393)	₩ -	₩ 11,135	₩ 2,651,211
Buildings	5,007,238	2,976	(7,661)	(324,496)	143,057	4,821,114
(Government grants)	(603)	-	-	60	-	(543)
Structures	2,573,768	6	(536)	(169,172)	64,019	2,468,085
(Government grants)	(9,474)	-	-	592	-	(8,882)
Machineries	14,094,318	102,546	(67,444)	(1,143,684)	493,621	13,479,357
(Government grants)	(10,833)	-	-	1,955	-	(8,878)
Ships	200	-	-	(106)	160	254
Vehicles	15,592	1,095	(7)	(9,645)	15,250	22,285
(Government grants)	(104)	-	-	83	(26)	(47)
Fixtures and Furniture	95,040	46,595	(28)	(51,637)	15,275	105,245
(Government grants)	(177)	-	-	80	(63)	(160)
Tools	60,165	5,217	(144)	(39,744)	51,717	77,211
(Government grants)	(339)	-	-	192	(4)	(151)
Construction-in-progress(*1)	13,794,670	2,481,690	-	-	(431,256)	15,845,104
Right-of-use assets	1,778,778	27,742	(2,010)	(100,967)	218,919	1,922,462
Asset retirement costs	7,311,228	-	(177)	(809,209)	880,627	7,382,469
Others(*2)	2,618,607	-	(583)	(928,431)	1,055,974	2,745,567
	₩ 49,961,204	₩ 2,677,206	₩ (80,983)	₩ (3,574,129)	₩ 2,518,405	₩ 51,501,703

(*1) Other increases or decreases in construction-in-progress include ₩332,893 million in borrowing cost capitalization.
(*2) Other increases or decreases in others are the amount replaced by the stored nuclear fuel in the inventory.

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

	2019							
	January 1	Changes in accounting standards	Acquisitions/ Capitalization	Disposals	Depreciation	Impairment losses(*1)	Others	December 31
Land(*2)	₩ 2,598,422	₩ -	₩ -	₩ (710)	₩ -	₩ -	₩ 35,418	₩ 2,633,130
Buildings	4,654,533	-	32	(5,555)	(313,365)	-	671,593	5,007,238
(Government grants)	(362)	-	-	-	59	-	(300)	(603)
Structures	2,664,279	-	5	(755)	(169,606)	-	79,845	2,573,768
(Government grants)	(10,066)	-	-	-	592	-	-	(9,474)
Machineries	12,471,993	-	4,595	(12,515)	(1,160,336)	-	2,790,581	14,094,318
(Government grants)	(12,922)	-	-	-	2,089	-	-	(10,833)
Ships	299	-	-	-	(99)	-	-	200
Vehicles	7,426	-	1,711	-	(6,303)	-	12,758	15,592
(Government grants)	(182)	-	-	-	81	-	(3)	(104)
Fixtures and furniture	106,445	-	33,684	(70)	(57,697)	-	12,678	95,040
(Government grants)	(180)	-	-	-	84	-	(81)	(177)
Tools	69,685	-	9,548	(17)	(32,957)	-	13,906	60,165
(Government grants)	(527)	-	-	-	197	-	(9)	(339)
Construction-in-progress(*3)	14,538,979	-	2,567,985	-	-	12,874	(3,325,168)	13,794,670
Finance lease Assets	676,981	(676,981)	-	-	-	-	-	-
Right-of-use assets	-	818,652	23,157	(773)	(88,860)	-	1,026,602	1,778,778
Asset retirement costs	5,515,550	-	-	-	(629,990)	-	2,425,668	7,311,228
Others(*4)	2,328,103	-	-	-	(838,870)	-	1,129,374	2,618,607
	₩ 45,608,456	₩ 141,671	₩ 2,640,717	₩ (20,395)	₩ (3,294,981)	₩ 12,874	₩ 4,872,862	₩ 49,961,204

(*1) The impairment losses of property, plant and equipment primarily resulted from Wolsong unit 1 (₩1,808 million), Shin-Hanul units 3 and 4 (₩2,011 million) and reversal of impairment loss in relation to Wolsong unit 1 ₩16,693 million.
(*2) ₩23,002 million transferred to assets held for sale during the year ended December 31, 2019.
(*3) Other increases or decreases in construction-in-progress include ₩324,459 million in borrowing cost capitalization.
(*4) Other increases or decreases in others are the amount replaced by the stored nuclear fuel in the inventory.

14. Intangible assets

Intangible assets as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020				
	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment losses	Carrying amount
Computer software	₩ 119,087	₩ (126)	₩ (85,481)	₩ -	₩ 33,480
Industrial rights	2,742	-	(2,055)	-	687
Development cost	172,001	(11)	(151,708)	-	20,282
Intangible assets under development	28,704	-	-	-	28,704
Land use rights	2,706	-	(1,347)	-	1,359
Goodwill	176	-	-	-	176
Others					
Loading and unloading facilities rights	26,282	-	(5,926)	-	20,356
Dam use rights	6,274	-	(1,901)	-	4,373
Memberships	1,158	-	-	(359)	799
Others	56,063	-	(29,729)	-	26,334
	₩ 415,193	₩ (137)	₩ (278,147)	₩ (359)	₩ 136,550

	December 31, 2019				
	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment losses	Carrying amount
Computer software	₩ 102,623	₩ (190)	₩ (69,906)	₩ -	₩ 32,527
Industrial rights	2,358	-	(1,805)	-	553
Development cost	170,551	(15)	(140,950)	-	29,586
Intangible assets under development	13,007	-	-	-	13,007
Land use rights	2,706	-	(1,088)	-	1,618
Others					
Loading and unloading facilities rights	26,283	-	(4,613)	-	21,670
Dam use rights	6,274	-	(1,756)	-	4,518
Memberships	1,158	-	-	(359)	799
Others	45,841	-	(26,752)	-	19,089
	₩ 370,801	₩ (205)	₩ (246,870)	₩ (359)	₩ 123,367

14. Intangible assets (cont'd)

Changes in intangible assets for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020						
	January 1	Acquisition/ Capitalization	Disposal	Amortization	Impairment losses	Others	December 31
Computer software	₩ 32,717	₩ 6,554	₩ -	₩ (15,582)	₩ -	₩ 9,917	₩ 33,606
(government grants)	(190)	-	-	64	-	-	(126)
Industrial rights	553	-	-	(250)	-	384	687
Development cost	29,601	-	-	(10,758)	-	1,450	20,293
(government grants)	(15)	-	-	4	-	-	(11)
Intangible assets under development	13,007	25,821	-	-	-	(10,124)	28,704
Land use rights	1,618	-	-	(259)	-	-	1,359
Goodwill	-		-	-	-	176	176
Others							
Loading and unloading facilities rights	21,670	-	-	(1,314)	-	-	20,356
Dam use rights	4,518	-	-	(145)	-	-	4,373
Memberships	799	-	-	-	-	-	799
Others	19,089	-	-	(2,976)	-	10,221	26,334
	₩ 123,367	₩ 32,375	₩ -	₩ (31,216)	₩ -	₩ 12,024	₩ 136,550

	2019						
	January 1	Acquisition/ Capitalization	Disposal	Amortization	Impairment losses	Others	December 31
Computer software	₩ 23,912	₩ 16,372	₩ -	₩ (13,195)	₩ -	₩ 5,628	₩ 32,717
(government grants)	(276)	-	-	98	-	(12)	(190)
Industrial rights	779	-	-	(226)	-	-	553
Development cost	33,089	-	-	(11,290)	-	7,802	29,601
(government grants)	(20)	-	-	5	-	-	(15)
Intangible assets under development	8,150	14,593	-	-	-	(9,736)	13,007
Land use rights	1,876	-	-	(258)	-	-	1,618
Others							
Loading and unloading facilities rights	22,984	-	-	(1,314)	-	-	21,670
Dam use rights	4,663	-	-	(145)	-	-	4,518
Memberships	799	-	-	-	-	-	799
Others	19,618	-	-	(2,580)	-	2,051	19,089
	₩ 115,574	₩ 30,965	₩ -	₩ (28,905)	₩ -	₩ 5,733	₩ 123,367

15. Borrowing costs

Borrowing costs capitalized for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Amount of capitalization:		
Construction-in-progress	₩ 343,431	₩ 346,992
Intangible assets under development and others	332,893	324,459
	₩ 10,538	₩ 22,533
Capitalization ratio	3.16%	3.43%

16. Financial liabilities at fair value through profit or loss

Financial liabilities at fair value through profit or loss as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	Current	Non-current	Current	Non-current
Held for trading				
Derivative instruments	₩ 462	₩ 23,801	₩ 196	₩ 7,286

17. Trade and other payables

Trade and other payables as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	Current	Non-current	Current	Non-current
Trade payables	₩ 260,003	₩ -	₩ 146,052	₩ -
Other payables(*)	494,643	2,294,074	491,055	2,398,333
Accrued expenses	379,161	-	373,570	-
Leasehold deposits received	1,486	-	1,489	-
Other deposits received	1,995	-	5,183	-
Lease liabilities	20,645	148,503	20,223	138,580
	₩ 1,157,933	₩ 2,442,577	₩ 1,037,572	₩ 2,536,913

(*) ₩2,275,851 million and ₩2,453,365 million are other payables related to fuel management charges spent as of December 31, 2020 and 2019, respectively, which are to be paid out in installments over a 15-year period from 2014.

18. Borrowings and bonds

Borrowings as of December 31, 2020 and 2019 are as follows (Korean won in millions):

		December 31, 2020		December 31, 2019
Current liabilities:				
Short-term borrowings	₩	340,000	₩	210,000
Current portion of long-term borrowings		19,063		18,253
Current portion of bonds		1,154,000		500,000
Less: discount on bonds		(1,198)		(189)
		1,511,865		728,064
Non-current liabilities:				
Long-term borrowings		295,654		147,917
Bonds		9,403,477		9,610,555
Add: premium on bonds		1,366		1,696
Less: discount on bonds		(25,734)		(32,672)
		9,674,763		9,727,496
	₩	11,186,628	₩	10,455,560

Short-term borrowings as of December 31, 2020 and 2019 are as follows (Korean won in millions):

Financial institution	Type	Rate	Interest rate	Maturity		December 31, 2020		December 31, 2019
Korea Development Bank	Overdraft	Fixed	1.98%	2020.01.13	₩	-	₩	100,000
Nonghyup Bank	Overdraft	Fixed	2.17%	2020.01.07		-		100,000
Kookmin Bank	Overdraft	Fixed	2.41%	2020.01.07		-		10,000
KB SECURITIES Co., Ltd.	Short-term Bond	Fixed	1.35%	2021.01.22		50,000		-
NH INVESTMENT & SECURITIES Co., Ltd.	Short-term Bond	Fixed	1.35%	2021.01.22		50,000		-
Kyobo Securities Co., Ltd.	Short-term Bond	Fixed	1.35%	2021.01.22		30,000		-
DB Financial Investment Co., Ltd.	Short-term Bond	Fixed	1.35%	2021.01.22		10,000		-
Nonghyup Bank	Overdraft	Fixed	1.42%	2021.01.07		100,000		-
Korea Development Bank	Overdraft	Fixed	1.53%	2021.01.07		100,000		-
					₩	340,000	₩	210,000

18. Borrowings and bonds (cont'd)

Long-term borrowings as of December 31, 2020 and 2019 are as follows (Korean won in millions):

Financial institution	Type	Rate	Interest rate	Maturity	December 31, 2020	December 31, 2029
Korea Energy Agency	Resource development loan	Floating	Treasury notes (3M)-2.25%	2024.09.15	₩ 676	₩ 856
Korea Energy Agency	Resource development loan	Floating	Treasury notes (3M)-2.25%	2025.03.15	2,400	2,966
Korea Energy Agency	Resource development loan	Floating	Treasury notes (3M)-2.25%	2025.12.15	905	1,086
Korea Energy Agency	Resource development loan	Floating	Treasury notes (3M)-2.25%	-	4,445	4,445
Samsung Life Insurance Co., Ltd.	Facility loan	Fixed	4.60%	2028.06.24	11,089	12,465
Samsung Fire & Marine Insurance Co., Ltd.	Facility loan	Fixed	4.60%	2028.06.24	19,405	21,815
KB Insurance Co., Ltd.	Facility loan	Fixed	4.60%	2028.06.24	18,296	20,568
Hyundai Marine & Fire Insurance Co., Ltd.	Facility loan	Fixed	4.60%	2028.06.24	16,632	18,698
DB Insurance Co., Ltd.	Facility loan	Fixed	4.60%	2028.06.24	11,088	12,466
Hana Bank	Facility loan	Fixed	4.60%	2028.06.24	11,088	12,466
Korea Development Bank	Facility loan	Fixed	4.60%	2028.06.24	24,173	27,175
Samsung Life Insurance Co., Ltd.	Facility loan	Floating	Corporate bonds+1.1%	2028.06.24	11,088	12,466
Shinhan Bank	Facility loan	Floating	Corporate bonds+1.1%	2028.06.24	16,632	18,698
Kookmin Bank	Facility loan	Floating	91-Day CDs + 1.79%	2031.06.30	30,186	-
Korean Federation of Community Credit Cooperatives	Facility loan	Fixed	3.60%	2031.06.30	21,133	-
KB life Insurance Co., Ltd.	Facility loan	Fixed	3.60%	2031.06.30	16,902	-
Samsung Fire & Marine Insurance Co., Ltd.	Facility loan	Fixed	3.60%	2031.06.30	16,902	-
Energy Infra Asset Management Co., Ltd.	Facility loan	Fixed	3.60%	2031.06.30	12,377	-
Energy Infra Asset Management Co., Ltd.	Facility loan	Fixed	6.00%	2037.03.31	34,500	-
KB Asset Management Co., Ltd.	Facility loan	Fixed	6.00%	2037.03.31	34,800	-
					314,717	166,170
	Less: current portion				(19,063)	(18,253)
					₩ 295,654	147,917

18. Borrowings and bonds (cont'd)

Bonds in Korean won as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	Issue	Maturity	Rate	Interest rate	December 31, 2020	December 31, 2019
Corporate bond #9-1	2009.10.16	2024.10.16	Fixed	5.72%	30,000	30,000
Corporate bond #9-2	2009.10.16	2029.10.16	Fixed	5.74%	70,000	70,000
Corporate bond #11	2009.11.06	2029.11.06	Fixed	5.84%	100,000	100,000
Corporate bond #14	2010.04.20	2020.04.20	Fixed	-	-	100,000
Corporate bond #17-1	2010.12.10	2020.12.10	Fixed	-	-	80,000
Corporate bond #17-2	2010.12.10	2040.12.10	Fixed	5.06%	100,000	100,000
Corporate bond #26-1	2011.03.25	2021.03.25	Fixed	4.66%	100,000	100,000
Corporate bond #26-2	2011.03.25	2031.03.25	Fixed	4.89%	100,000	100,000
Corporate bond #27-2	2011.04.15	2021.04.15	Fixed	4.68%	100,000	100,000
Corporate bond #27-3	2011.04.15	2031.04.15	Fixed	4.88%	100,000	100,000
Corporate bond #28	2011.07.01	2026.07.01	Fixed	4.56%	100,000	100,000
Corporate bond #29-2	2011.12.08	2021.12.08	Fixed	4.04%	100,000	100,000
Corporate bond #29-3	2011.12.08	2031.12.08	Fixed	4.26%	100,000	100,000
Corporate bond #30-2	2012.01.19	2022.01.19	Fixed	4.04%	120,000	120,000
Corporate bond #30-3	2012.01.19	2032.01.19	Fixed	4.24%	50,000	50,000
Corporate bond #31-2	2012.03.20	2022.03.20	Fixed	4.15%	100,000	100,000
Corporate bond #31-3	2012.03.20	2032.03.20	Fixed	4.32%	150,000	150,000
Corporate bond #32-2	2012.04.26	2022.04.26	Fixed	3.97%	90,000	90,000
Corporate bond #32-3	2012.04.26	2032.04.26	Fixed	4.14%	130,000	130,000
Corporate bond #33-1	2012.05.18	2022.05.18	Fixed	3.82%	100,000	100,000
Corporate bond #33-2	2012.05.18	2032.05.18	Fixed	4.01%	100,000	100,000
Corporate bond #34-1	2012.07.13	2022.07.13	Fixed	3.54%	90,000	90,000
Corporate bond #34-2	2012.07.13	2032.07.13	Fixed	3.71%	100,000	100,000
Corporate bond #35-2	2013.01.18	2023.01.18	Fixed	3.15%	90,000	90,000
Corporate bond #35-3	2013.01.18	2033.01.18	Fixed	3.32%	100,000	100,000
Corporate bond #36-2	2013.03.28	2023.03.28	Fixed	2.98%	100,000	100,000
Corporate bond #36-3	2013.03.28	2033.03.28	Fixed	3.19%	100,000	100,000
Corporate bond #37-2	2013.04.26	2023.04.26	Fixed	2.93%	100,000	100,000
Corporate bond #37-3	2013.04.26	2033.04.26	Fixed	3.12%	120,000	120,000
Corporate bond #38-2	2013.07.19	2023.07.19	Fixed	3.62%	100,000	100,000
Corporate bond #38-3	2013.07.19	2033.07.19	Fixed	3.88%	90,000	90,000
Corporate bond #39-2	2013.10.18	2023.10.18	Fixed	3.71%	90,000	90,000
Corporate bond #40-2	2013.11.22	2023.11.22	Fixed	3.92%	140,000	140,000
Corporate bond #41-2	2014.01.17	2024.01.17	Fixed	3.86%	130,000	130,000
Corporate bond #42-2	2014.04.25	2024.04.25	Fixed	3.68%	100,000	100,000
Corporate bond #42-3	2014.04.25	2034.04.25	Fixed	3.89%	100,000	100,000
Corporate bond #43-2	2014.12.18	2024.12.18	Fixed	2.80%	220,000	220,000
Corporate bond #43-3	2014.12.18	2034.12.18	Fixed	3.07%	90,000	90,000
Corporate bond #44-1	2015.06.29	2020.06.29	Fixed	-	-	60,000
Corporate bond #44-2	2015.06.29	2025.06.29	Fixed	2.70%	40,000	40,000
Corporate bond #44-3	2015.06.29	2035.06.29	Fixed	2.94%	150,000	150,000
Corporate bond #45-1	2017.04.27	2020.04.27	Fixed	-	-	140,000
Corporate bond #45-2	2017.04.27	2027.04.27	Fixed	2.44%	50,000	50,000
Corporate bond #45-3	2017.04.27	2037.04.27	Fixed	2.60%	110,000	110,000

21. Borrowings and bonds (cont'd)

	Issue	Maturity	Rate	Interest rate	December 31, 2020	December 31, 2019
Corporate bond #46-1	2017.09.18	2020.09.18	Fixed	-	₩ -	₩ 70,000
Corporate bond #46-2	2017.09.18	2027.09.18	Fixed	2.37%	80,000	80,000
Corporate bond #46-3	2017.09.18	2047.09.18	Fixed	2.41%	150,000	150,000
Corporate bond #47-1	2017.10.17	2020.10.17	Fixed	-	-	50,000
Corporate bond #47-2	2017.10.17	2027.10.17	Fixed	2.50%	70,000	70,000
Corporate bond #47-3	2017.10.17	2047.10.17	Fixed	2.47%	80,000	80,000
Corporate bond #48-1	2018.03.13	2021.03.13	Fixed	2.40%	160,000	160,000
Corporate bond #48-2	2018.03.13	2023.03.13	Fixed	2.70%	20,000	20,000
Corporate bond #48-3	2018.03.13	2028.03.13	Fixed	2.86%	30,000	30,000
Corporate bond #48-4	2018.03.13	2048.03.13	Fixed	2.94%	90,000	90,000
Corporate bond #49-1	2018.05.11	2021.05.11	Fixed	2.37%	70,000	70,000
Corporate bond #49-2	2018.05.11	2038.05.11	Fixed	2.90%	170,000	170,000
Corporate bond #49-3	2018.05.11	2048.05.11	Fixed	2.88%	60,000	60,000
Corporate bond #50-1	2018.06.05	2021.06.05	Fixed	2.30%	30,000	30,000
Corporate bond #50-2	2018.06.05	2038.06.05	Fixed	2.84%	200,000	200,000
Corporate bond #50-3	2018.06.05	2048.06.05	Fixed	2.81%	70,000	70,000
Corporate bond #51-1	2018.10.26	2021.10.26	Fixed	2.01%	50,000	50,000
Corporate bond #51-2	2018.10.26	2048.10.26	Fixed	2.25%	50,000	50,000
Corporate bond #52-1	2019.06.05	2024.06.05	Fixed	1.74%	40,000	40,000
Corporate bond #52-2	2019.06.05	2039.06.05	Fixed	1.81%	120,000	120,000
Corporate bond #52-3	2019.06.05	2049.06.05	Fixed	1.82%	140,000	140,000
Corporate bond #53-1	2019.10.16	2024.10.16	Fixed	1.53%	60,000	60,000
Corporate bond #53-2	2019.10.16	2039.10.16	Fixed	1.59%	100,000	100,000
Corporate bond #53-3	2019.10.16	2049.10.16	Fixed	1.58%	90,000	90,000
Corporate bond #54-1	2019.11.27	2022.11.27	Fixed	1.60%	50,000	50,000
Corporate bond #54-2	2019.11.27	2039.11.27	Fixed	1.76%	70,000	70,000
Corporate bond #54-3	2019.11.27	2049.11.27	Fixed	1.70%	70,000	70,000
Corporate bond #55-1	2020.04.02	2040.04.02	Fixed	1.80%	50,000	-
Corporate bond #55-2	2020.04.02	2050.04.02	Fixed	1.80%	50,000	-
Corporate bond #56-1	2020.04.28	2025.04.28	Fixed	1.62%	60,000	-
Corporate bond #56-2	2020.04.28	2040.04.28	Fixed	1.81%	90,000	-
Corporate bond #56-3	2020.04.28	2050.04.28	Fixed	1.83%	150,000	-
Corporate bond #57-1	2020.05.25	2025.05.25	Fixed	1.38%	100,000	-
Corporate bond #57-2	2020.05.25	2040.05.25	Fixed	1.57%	70,000	-
Corporate bond #57-3	2020.05.25	2050.05.25	Fixed	1.59%	80,000	-
Corporate bond #58-1	2020.06.15	2025.06.15	Fixed	1.34%	80,000	-
Corporate bond #58-2	2020.06.15	2040.06.15	Fixed	1.63%	70,000	-
Corporate bond #58-3	2020.06.15	2050.06.15	Fixed	1.66%	100,000	-
Corporate bond #59-1	2020.11.23	2025.11.23	Fixed	1.47%	60,000	-
Corporate bond #59-2	2020.11.23	2040.11.23	Fixed	1.80%	70,000	-
Corporate bond #59-3	2020.11.23	2050.11.23	Fixed	1.78%	90,000	-
					7,290,000	6,670,000
	Less: discount on bonds				(12,884)	(11,542)
	Less: current portion				(609,834)	(499,811)
					₩ 6,667,282	₩ 6,158,647

18. Borrowings and bonds (cont'd)

Foreign bonds as of December 31, 2020 and 2019 are as follows (Korean won in millions, USD, HKD, CHF in thousands):

	Issue	Maturity	Rate	Interest rate	December 31, 2020 Foreign currency		December 31, 2020 Won equivalents	December 31, 2019 Foreign currency		December 31, 2019 Won equivalents
Global bond #3	2011.07.13	2021.07.13	Fixed	4.75%	USD	500,000	₩ 544,000	USD	500,000	₩ 578,900
Global bond #4	2012.09.19	2022.09.19	Fixed	3.00%	USD	750,000	816,000	USD	750,000	868,350
Global bond #7	2015.06.15	2025.06.15	Fixed	3.25%	USD	300,000	326,400	USD	300,000	347,340
Global bond #8	2017.07.25	2027.07.25	Fixed	3.13%	USD	300,000	326,400	USD	300,000	347,340
Global bond #9	2018.07.25	2023.07.25	Fixed	3.75%	USD	600,000	652,800	USD	600,000	694,680
Foreign FRN 1	2018.03.13	2028.03.13	Fixed	3.35%	HKD	1,650,000	231,578	HKD	1,650,000	245,289
Swiss franc bond#1	2019.07.19	2024.07.19	Fixed	0.00%	CHF	200,000	246,866	CHF	200,000	239,104
Swiss franc bond #2	2019.07.19	2027.07.19	Fixed	0.05%	CHF	100,000	123,433	CHF	100,000	119,552
							3,267,477			3,440,555
Add: premium on bonds							(14,048)			1,696
Less: discount on bonds							1,366			(21,319)
Less: current portion							(542,968)			-
							₩ 2,711,827			₩ 3,420,932

As of December 31, 2020 and 2019, the plans to repay the borrowings and bonds payables are as follows (Korean won in millions):

	December 31, 2020 Borrowings	Bonds	Total
Within 1 year	₩ 359,063	₩ 1,154,000	₩ 1,513,063
Within 1 ~ 5 years	147,399	4,152,066	4,299,465
Afterward	148,255	5,251,411	5,399,666
	₩ 654,717	₩ 10,557,477	₩ 11,212,194

	December 31, 2019 Borrowings	Bonds	Total
Within 1 year	₩ 228,252	₩ 500,000	₩ 728,252
Within 1 ~ 5 years	81,462	4,761,034	4,842,496
Afterward	66,456	4,849,521	4,915,977
	₩ 376,170	₩ 10,110,555	₩ 10,486,725

19. Leases

The amount of right-of-use assets for the year ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	2020		
	Acquisition cost	Accumulated depreciation	Carrying amount
Land	₩ 14,949	₩ (792)	₩ 14,157
Buildings	42,666	(31,411)	11,255
Structures	2,190,147	(436,329)	1,753,818
Vehicles	7,639	(5,012)	2,627
Machinery	20,578	(6,938)	13,640
Other right-of-use assets	137,402	(10,437)	126,965
	₩ 2,413,381	₩ (490,919)	₩ 1,922,462

	2019		
	Acquisition cost	Accumulated depreciation	Carrying amount
Land	₩ 13,018	₩ (363)	₩ 12,655
Buildings	29,429	(14,429)	15,000
Structures	1,985,549	(366,831)	1,618,718
Vehicles	4,331	(1,783)	2,548
Machinery	19,878	(2,738)	17,140
Other right-of-use assets	117,561	(4,844)	112,717
	₩ 2,169,766	₩ (390,988)	₩ 1,778,778

Change in right-of-use assets for the year ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	2020					
	January 1	Increase	Decrease	Depreciation	Others	December 31
Land	₩ 12,655	₩ 270	₩ -	₩ (429)	₩ 1,661	₩ 14,157
Buildings	15,000	12,490	(39)	(16,983)	787	11,255
Structures	1,618,718	-	(1,971)	(70,536)	207,607	1,753,818
Vehicles	2,548	2,814	-	(3,229)	494	2,627
Machinery	17,140	139	-	(4,197)	558	13,640
Other right-of-use assets	112,717	12,029	-	(5,593)	7,812	126,965
	₩ 1,778,778	₩ 27,742	₩ (2,010)	₩ (100,967)	₩ 218,919	₩ 1,922,462

	2019						
	January 1	Accounting Policy Change Effect	Increase	Decrease	Depreciation	Others	December 31
Land	₩ -	₩ 10,337	₩ 605	₩ -	₩ (363)	₩ 2,076	₩ 12,655
Buildings	-	25,711	3,867	-	(14,429)	(149)	15,000
Structures(*)	-	676,981	-	(773)	(64,701)	1,007,211	1,618,718
Vehicles	-	1,969	2,362	-	(1,783)	-	2,548
Machinery	-	3,838	15,970	-	(2,740)	72	17,140
Other right-of-use assets	-	99,817	353	-	(4,844)	17,391	112,717
	₩ -	₩ 818,653	₩ 23,157	₩ (773)	₩ (88,860)	₩ 1,026,601	₩ 1,778,778

(*) The structures of ₩ 676,981 million was replaced by a right-of-use asset from a financial lease asset due to a change in accounting standards.

19. Leases (cont'd)

The amount of lease liabilities for the year ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	Minimum lease payments	Present value of minimum lease payments	Minimum lease payments	Present value of minimum lease payments
Within 1 year	₩ 20,854	₩ 20,645	₩ 20,413	₩ 20,223
Within 1 ~ 5 years	42,647	41,926	48,354	44,736
Afterward	162,041	106,577	145,645	93,845
	₩ 225,542	₩ 169,148	₩ 214,412	₩ 158,804

Change in the liabilities related to lease contracts for the year ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	2020					
	January 1	Increase	Decrease	Depreciation	Others	December 31
Lease liabilities	₩ 158,804	₩ 27,016	₩ (31,053)	₩ 3,472	₩ 10,909	₩ 169,148

	2019						
	January 1	Accounting Policy Change Effect	Increase	Decrease	Depreciation	Others	December 31
Lease liabilities	₩ -	₩ 139,593	₩ 22,316	₩ (26,276)	₩ 3,370	₩ 19,801	₩ 158,804

The amount recognized in profit or loss by the Group in relation to the lease for the year ended December 31, 2020 and 2019 is as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Depreciation of right-of-use assets	₩ 100,539	₩ 88,574
Interest on lease liabilities	3,472	3,370
Expenses relating to short-term leases	598	10,074
Expenses relating to leases of low-value assets	927	774
Translation loss on lease liabilities	-	423
Translation gain on lease liabilities	(377)	(5)
Loss from lease cancellation	-	14
Gain from lease cancellation	(6)	(20)
	₩ 105,153	₩ 103,204

20. Retirement benefit obligations

20.1 Defined contribution plans

For the years ended December 31, 2020 and 2019, retirement benefit expenses of ₩34,509 million and ₩34,537 million, respectively, were recognized in the consolidated statements of comprehensive income and represent contribution amounts paid to retirement benefit plans in accordance with a ratio defined in retirement benefit plans. All the contribution amounts for the years ended December 31, 2020 have been paid.

Costs related to the defined contribution plans for the years ended December 31, 2020 and 2019 were recognized in profit or loss and others as follows (Korean won in millions):

	2020	2019
Cost of sales	₩ 23,599	₩ 23,196
Selling and administrative expenses	1,330	1,369
Others (construction-in-progress, etc.)	9,580	9,972
	₩ 34,509	₩ 34,537

The principal assumptions as of December 31, 2020 and 2019 are as follows:

	2020	2019
Discount rate	1.91% ~ 3.43%	1.95% ~ 2.72%
Future salary and benefit increase	2.00% ~ 5.95%	2.00% ~ 5.95%

Details of the Group's expense relating to its retirement benefit obligations for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Current service cost	₩ 99,013	₩ 93,689
Past service cost	-	49,830
Interest cost	16,172	18,355
Expected return on plan assets	(10,693)	(9,911)
Transfer to others(*)	(25,419)	(35,816)
	₩ 79,073	₩ 116,147

(*) It is replaced by ordinary development expense and others (₩15,161 million) and construction-in-progress (₩10,258 million) for the year ended December 31, 2020.

20. Retirement benefit obligations (cont'd)

20.2 Defined benefit plans

Costs related to the defined benefit plans recognized in profit or loss for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Cost of goods sold	₩	74,588	₩	108,925
Selling and administrative expenses		4,485		7,222
	₩	79,073	₩	116,147

The amounts recognized in the consolidated statements of financial position related to retirement benefit obligations as of December 31, 2020 and 2019 are as follows (Korean won in millions):

		December 31, 2020		December 31, 2019
Present value of defined benefit obligations	₩	875,575	₩	833,435
Fair value of plan assets		(596,538)		(513,937)
Net defined benefit liability	₩	279,037	₩	319,498

Changes in present value of retirement benefit obligations for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Beginning balance	₩	833,435	₩	743,258
Current service cost		99,013		93,689
Interest expense		16,172		18,355
Remeasurement		(42,497)		(49,006)
Actual payments		(30,548)		(22,691)
Past service cost		-		49,830
Ending balance	₩	875,575	₩	833,435

20. Retirement benefit obligations (cont'd)

Changes in fair value of plan assets for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Beginning balance	₩	513,937	₩	416,280
Expected return on plan assets		10,693		9,911
Remeasurement		(342)		(1,844)
Contribution from the employer		94,158		100,000
Actual payments		(21,908)		(10,410)
Ending balance	₩	596,538	₩	513,937

In addition, accumulated remeasurement gain amounting to ₩29,329 million and remeasurement loss amounting to ₩1,273 million was recognized in accumulated other comprehensive income as of December 31, 2020 and 2019.

Types of plan assets and fair value of plan assets as of December 31, 2020 and 2019 are as follows (Korean won in millions):

		December 31, 2020		December 31, 2019
Equity instruments	₩	249,575	₩	185,881
Liability instruments		56,126		48,521
Bank deposits		95,733		24,248
Others		195,104		255,287
	₩	596,538	₩	513,937

Actual return on plan assets for the years ended December 31, 2020 and 2019 are ₩10,350 million and ₩8,067 million, respectively.

Remeasurement recognized in other comprehensive income for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Actuarial gains and losses arising from changes in demographic assumptions	₩	-	₩	(101,826)
Actuarial gain or loss arising from changes in financial assumptions		(4,080)		1,800
Experience adjustments		(38,417)		51,020
Return on plan assets		342		1,844
	₩	(42,155)	₩	(47,162)

The amounts recognized in the consolidated statements of financial position related to employee benefits obligations other than retirement benefit obligation as of December 31, 2020 and 2019 are as follows (Korean won in millions):

		December 31, 2020		December 31, 2019
Other employee benefit obligation				
Long-term employee paid annual leave	₩	1,547	₩	1,717

21. Provisions

Provisions as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	Current	Non-current	Current	Non-current
Provisions for employee benefits	₩ 230,002	₩ -	₩ 189,426	₩ -
Provisions for litigation	-	17,135	-	5,430
Provisions for decommissioning cost	532,315	19,541,462	477,844	18,618,802
Nuclear plants	-	16,974,884	-	15,994,039
Fuel spent	487,529	866,472	401,741	953,539
Radioactive waste	44,786	1,700,106	76,103	1,671,224
Others	200,265	90,112	158,134	-
Provisions for power plant regional support program	144,272	-	140,133	-
Provisions for renewable energy portfolio standard	-	-	-	-
Others	55,066	90,112	18,001	-
Provisions for greenhouse gas emission	927	-	-	-
	₩ 962,582	₩ 19,648,709	₩ 825,404	₩ 18,624,232

Changes in provisions for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020						
	January 1	Accrual	Transfer	Payment	Reversal	Others	December 31
Provisions for employee benefits	₩ 189,426	₩ 288,195	₩ -	₩ (247,619)	₩ -	₩ -	₩ 230,002
Provisions for litigation	5,430	21,119	-	(9,389)	(25)	-	17,135
Provisions for decommissioning cost	19,096,646	1,097,374	390,459	(510,702)	-	-	20,073,777
Nuclear plants	15,994,039	638,120	390,459	(47,734)	-	-	16,974,884
Fuel spent	1,355,280	394,642	-	(395,921)	-	-	1,354,001
Radioactive waste	1,747,327	64,612	-	(67,047)	-	-	1,744,892
Others	158,134	567,296	461	(435,514)	-	-	290,377
Provisions for power plant regional support program	140,133	47,074	-	(42,935)	-	-	144,272
Provisions for renewable energy portfolio standard	-	390,538	-	(390,538)	-	-	-
Others	18,001	128,757	461	(2,041)	-	-	145,178
Provisions for greenhouse gas emission	-	927	-	-	-	-	927
	₩ 19,449,636	₩ 1,973,984	₩ 390,920	₩ (1,203,224)	₩ (25)	₩ -	₩ 20,611,291

	2019						
	January 1	Accrual	Transfer	Payment	Reversal	Others	December 31
Provisions for employee benefits	₩ 193,367	₩ 214,285	₩ -	₩ (218,226)	₩ -	₩ -	₩ 189,426
Provisions for litigation	5,900	-	10	-	(480)	-	5,430
Provisions for decommissioning cost	16,239,571	2,875,354	397,960	(416,547)	-	308	19,096,646
Nuclear plants	13,388,134	2,241,602	397,960	(33,657)	-	-	15,994,039
Fuel spent	1,291,354	440,029	-	(376,103)	-	-	1,355,280
Radioactive waste	1,560,083	193,723	-	(6,787)	-	308	1,747,327
Others	216,472	261,705	-	(329,557)	-	9,514	158,134
Provisions for power plant regional support program	137,668	41,341	-	(48,390)	-	9,514	140,133
Provisions for renewable energy portfolio standard	78,804	202,363	-	(281,167)	-	-	-
Others	-	18,001	-	-	-	-	18,001
	₩ 16,655,310	₩ 3,351,344	₩ 397,970	₩ (964,330)	₩ (480)	₩ 9,822	₩ 19,449,636

Estimates of discount rates, inflation, etc. used by management to calculate the provision of decommissioning, restoration and cleanup costs are listed in Note 38.

22. Government grants

Government grants as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Property, plant and equipment		
Buildings	₩ 542	₩ 603
Structures	8,882	9,474
Machineries	8,878	10,833
Vehicles	47	104
Fixtures and furniture	162	177
Tools	152	339
	18,663	21,530
Intangible assets		
Computer software	126	190
Development costs	11	15
	137	205
	₩ 18,800	₩ 21,735

Changes in government grants for the years ended December 31, 2020 and for 2019 are as follows (Korean won in millions):

	2020			
	January 1	Depreciation/ Amortization	Others	December 31
Property, plant and equipment:				
Buildings	₩ 603	₩ (61)	₩ -	₩ 542
Structures	9,474	(592)	-	8,882
Machineries	10,833	(1,955)	-	8,878
Vehicles	104	(83)	26	47
Fixtures and furniture	177	(79)	64	162
Tools	339	(192)	5	152
	21,530	(2,962)	95	18,663
Intangible assets:				
Computer software	190	(64)	-	126
Development costs	15	(4)	-	11
	205	(68)	-	137
	₩ 21,735	₩ (3,030)	₩ 95	₩ 18,800

22. Government grants (cont'd)

	2019			
	January 1	Depreciation/ Amortization	Others	December 31
Property, plant and equipment:				
Buildings	₩ 362	₩ (59)	₩ 300	₩ 603
Structures	10,066	(592)	-	9,474
Machineries	12,922	(2,089)	-	10,833
Vehicles	182	(81)	3	104
Fixtures and furniture	180	(84)	81	177
Tools	527	(197)	9	339
	24,239	(3,102)	393	21,530
Intangible assets:				
Computer software	276	(98)	12	190
Development costs	20	(5)	-	15
	296	(103)	12	205
	₩ 24,535	₩ (3,205)	₩ 405	₩ 21,735

23. Non-financial liabilities

Non-financial liabilities as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	Current	Non-current	Current	Non-current
Advance received	₩ 2	₩ -	₩ 2	₩ -
Unearned revenue	1,614	-	371	-
Withholdings	46,593	-	39,253	-
Others	53,396	5,065	19,492	5,065
	₩ 101,605	₩ 5,065	₩ 59,118	₩ 5,065

24. Share capital

Share capital as of December 31, 2020 and 2019 are as follows (Korean won in millions, except for number of shares and par value per share):

	Number of shares authorized	Number of shares issued	Par value per share	December 31, 2020	December 31, 2019
Common Stocks	500,000,000	242,442,838	₩ 5,000	₩ 1,212,214	₩ 1,212,214

Number of shares issued as of December 31, 2020 and 2019 are as follows:

	December 31, 2020	December 31, 2019
Number of shares issued	242,442,838	242,442,838

Share premium as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Paid-in capital in excess of par value	₩ 9,492,301	₩ 9,492,301

25. Retained earnings and dividends

Retained earnings as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Legal reserve(*)	₩ 606,107	₩ 606,107
Voluntary reserves	10,125,036	9,925,704
Unappropriated retained earnings	4,787,650	4,440,886
	₩ 15,518,793	₩ 14,972,697

(*) The Korean Commercial Code requires the Company to appropriate a legal reserve in an amount equal to at least 10% of cash dividends for each accounting period until the reserve equals 50% of capital stock. The legal reserve may be used to reduce a deficit or may be transferred to common stock in connection with a free issue of shares.

25. Retained earnings and dividends (cont'd)

Details of voluntary reserves as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Reserve for business expansion	₩ 5,053,715	₩ 5,053,715
Others(*)	5,071,321	4,871,989
	₩ 10,125,036	₩ 9,925,704

(*) Prior to 2002, the Company appropriated certain tax-deductible benefits as reserve for business stabilization, for offsetting future deficit in accordance with the relevant tax laws. Due to the amendment of such tax laws on December 11, 2002, the reserve is no longer required. However, the Company continues to maintain such reserve on a voluntary basis.

Changes in retained earnings for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Beginning balance	₩ 14,972,697	₩ 14,663,667
Profit for the period attributable to owners of the parent	622,218	274,861
Dividends paid	(106,675)	-
Changes in retained earnings of equity method investees	(1)	(28)
Remeasurements of the defined benefit plan, net of tax	30,563	34,197
Other	(9)	-
Ending balance	₩ 15,518,793	₩ 14,972,697

Dividends paid for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions, except for number of share and dividends for share):

	2020				
	Number of shares issued	Treasury stocks	Number of dividend shares	Dividends for share	Dividends
Common stock	242,442,838	-	242,442,838	₩ 440	₩ 106,675

	2019				
	Number of shares issued	Treasury stocks	Number of dividend shares	Dividends for share	Dividends
Common stock	242,442,838	-	242,442,838	₩ -	₩ -

25. Retained earnings and dividends (cont'd)

Changes in remeasurements of the defined benefit plans for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Beginning balance	₩	(1,281)	₩	(35,477)
Changes during the year		42,149		47,173
Tax effect		(11,586)		(12,977)
Ending balance	₩	29,282	₩	(1,281)

Statements of appropriation of retained earnings for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020	2019
I. Retained earnings before appropriations			
Unappropriated retained earnings carried forward from the prior year	₩	4,145,503	4,111,285
Net income		647,641	306,007
Remeasurements of the defined benefit plan , net of tax		30,552	34,218
Others		-	-
		4,823,696	4,451,510
II. Transfer from voluntary reserves			
Reserves for business expansion		-	-
		-	-
III. Total (I + II)		4,823,696	4,451,510
IV. Appropriation of retained earnings			
Dividends		279,779	106,675
Sinking fund reverses		367,862	199,332
		647,641	306,007
V. Unappropriated retained earnings to be carried over to the subsequent year (III – IV)	₩	4,176,055	4,145,503

The above statement of appropriation of retained earnings is based on the separate financial statements of the parent company.

26. Other components of equity

Other components of equity as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Accumulated other comprehensive loss	₩ (44,133)	₩ (39,598)
Other capital adjustments	(333)	(302)
	₩ (44,466)	₩ (39,900)

Changes in accumulated other comprehensive income (loss) for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020			
	Gain (loss) on valuation of fair value through other comprehensive income	Share of other comprehensive income (loss) of associates and joint ventures	Gain (loss) from translation of foreign operations	Total
Beginning balance	₩ (41,067)	₩ (508)	₩ 1,977	₩ (39,598)
Change during the period	(4,060)	(770)	(1,397)	(6,227)
Tax effect	1,297	-	395	1,692
Ending balance	₩ (43,830)	₩ (1,278)	₩ 975	₩ (44,133)

	2019			
	Gain (loss) on valuation of fair value through other comprehensive income	Share of other comprehensive income (loss) of associates and joint ventures	Gain (loss) from translation of foreign operations	Total
Beginning balance	₩ (40,183)	₩ (2,012)	₩ (108)	₩ (42,303)
Change during the period	(971)	1,504	2,895	3,428
Tax effect	87	-	(810)	(723)
Ending balance	₩ (41,067)	₩ (508)	₩ 1,977	₩ (39,598)

Other capital adjustments as of December 31, 2020 and 2019 are as follows (Korea won in millions):

	December 31, 2020	December 31, 2019
Changes from paid-in capital increase of subsidiaries	₩ (333)	₩ (302)

27. Revenue

Revenue for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020		2019	
	Domestic	Overseas	Domestic	Overseas
Sales of electric power	₩ 9,620,983	₩ -	₩ 8,546,311	₩ -
Service revenue	281,698	97,007	345,576	90,740
Other	25	-	-	-
	₩ 9,902,706	₩ 97,007	₩ 8,891,887	₩ 90,740

28. Selling and administrative expenses

Selling and administrative expenses for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Salaries	₩	53,689	₩	48,697
Retirement benefits		5,815		8,590
Other employee benefits		10,061		9,967
Insurance expenses		937		901
Depreciation of property, plant and equipment		41,304		45,547
Amortization of intangible assets		13,299		12,089
Commission		37,224		42,414
Advertisement		8,588		9,075
Training		85		100
Vehicles		107		143
Publication expenses		465		380
Business expenses		162		142
Rent		7,910		10,720
Communication		606		515
Taxes and dues		2,036		1,543
Supplies expenses		665		730
Utilities		1,356		1,284
Repairs		10,590		11,777
Ordinary development expenses		3,217		1,196
Travel expenses		840		1,159
Clothing expenses		125		172
Labor welfare fund contribution		261		-
Subscription		200		82
Others		17,267		16,093
	₩	216,809	₩	223,316

Details of others of selling and administrative expenses for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Other wage	₩	12,295	₩	11,419
Compliance costs		62		78
Award costs		441		168
Registration fees		278		270
Litigation costs		2,939		2,698
Meeting costs		1,252		1,460
	₩	17,267	₩	16,093

29. Other income and expenses

Details of other income for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Gain from assets contributed	₩	-	₩	115
Reparations		37,407		16,106
Rental income		4,603		5,708
Others		19,384		22,844
	₩	61,394	₩	44,773

Details of others in other income for the years ended December 31, 2020 and 2019 are as follows:

		2020		2019
Grants of development of vocational skills	₩	284	₩	1,247
Gain on settlement of the grants		2,150		3,294
Rent management fee		2,785		153
Trustee training and technical support income		3,568		1,920
Contract deposit recovered from termination of contract		314		436
Others		10,283		15,794
	₩	19,384	₩	22,844

Details of other expense for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Depreciation of idle assets	₩	6,604	₩	6,542
Other bad debt expenses		-		49,252
Donations		156,510		18,843
Others		9,616		103,231
	₩	172,730	₩	177,868

29. Other income and expenses (cont'd)

Details of others in other expense for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Operating cost of the sports center	₩	5,101	₩	5,234
Perform technical support costs		242		67
Loss on settlement of research and development grants		720		554
Maintenance expenses related to the idle assets		46		50
Surcharge on taxes and dues		253		-
Others		3,254		97,326
	₩	9,616	₩	103,231

30. Other gains and losses

Other gains and losses for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		December 31, 2020		December 31, 2019
Gain on disposals of property plant and equipment	₩	4,428	₩	2,114
Reversal of impairment loss on property, plant and equipment		-		16,692
Gain on disposals of intangible assets		-		-
Gain on foreign currency translations-unrealized(*)		1,372		1,831
Gain on foreign currency transactions-realized(*)		13,723		13,924
Gain on insurance transactions		40,665		13,211
Others		11,976		3,086
Loss on disposals of property, plant and equipment		(78,179)		(17,294)
Loss on disposals of intangible assets		-		(773)
Loss on impairment of property, plant and equipment		-		(3,819)
Loss on foreign currency translations-unrealized(*)		(3,264)		(1,088)
Loss on foreign currency transactions-realized(*)		(11,416)		(8,899)
Others		(34,894)		(7,537)
	₩	(55,589)	₩	11,448

(*) Gain (loss) on foreign currency translations-unrealized and foreign currency transactions-realized arising from operating activities.

30. Other gains and losses (cont'd)

Details of other of other gains for the years ended December 31, 2020 and 2019 are as follows:

		2020		2019
Gain on valuation of inventories	₩	9	₩	-
Gain on disposal of inventories		-		105
Gain on reversal of inventories		2,203		-
Gain on disposal of waste		5,288		2,935
Gain from lease cancellation		6		-
Gain on disposals of non-current assets held for sale		4,457		-
Others		13		46
	₩	11,976	₩	3,086

Details of other of other losses for the years ended December 31, 2020 and 2019 are as follows:

		2020		2019
Loss on inventory obsolescence	₩	(28)	₩	(56)
Loss on disposal of inventories		(34,866)		(7,466)
Others		-		(15)
	₩	(34,894)	₩	(7,537)

31. Finance income

Finance income for the years ended December 31, 2020 and 2019 are as follows:

		2020		2019
Interest income	₩	24,988	₩	37,606
Dividend income		5,269		7,390
Gain on disposals of financial instruments assets		484		1,212
Gain on valuation of financial assets at fair value through profit or loss		5,037		4,113
Gain on valuation of derivative financial instruments		13,107		169,279
Gain on transactions of derivative financial instruments		26,878		44,503
Gain on foreign currency translation-unrealized(*)		184,756		1,974
Gain on foreign currency transactions-realized(*)		8		307
	₩	260,527	₩	266,384

(*) Gain on foreign currency translation-unrealized and foreign currency transactions-realized arising from financing activities.

Details of interest income included in finance income for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Cash and cash equivalents	₩	263	₩	3,431
Financial assets at fair value through profit or loss		10,861		19,835
Financial instruments		10,294		10,837
Loans		1,486		1,431
Trade accounts and other receivables		2,084		2,072
	₩	24,988	₩	37,606

32. Finance expenses

Finance expenses for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Interest expense	₩	513,195	₩	519,291
Loss on disposals of financial instruments assets		-		1,612
Loss on valuation of financial assets at fair value through profit or loss		515		1,513
Loss on valuation of derivative financial instruments		101,150		-
Loss on transactions of derivative financial instruments		11,386		2,193
Loss on foreign currency translation-unrealized(*)		12,519		106,988
Loss on foreign currency transactions-realized(*)		-		15,927
	₩	638,765	₩	647,524

(*) Loss on foreign currency translation-unrealized and foreign currency transactions-realized arising from financing activities.

Details of interest expenses included in finance expenses for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Short-term borrowings	₩	1,460	₩	19
Long-term borrowings		13,411		7,336
Bonds		340,363		343,570
Other financial liabilities(*)		501,392		515,358
		856,626		866,283
Less: capitalization of borrowing costs		(343,431)		(346,992)
	₩	513,195	₩	519,291

(*) Interest expenses related to post-processing and recovery provisions of nuclear power plants are included.

33. Income tax expense

The components of income tax expense for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		2020		2019
Current income tax expense:	₩	394,699	₩	223,094
Current income tax		405,135		302,204
Adjustment due to changes in estimates related to past		(542)		(65,410)
Income tax credited directly to equity		(9,894)		(13,700)
Deferred tax expense:		(246,605)		(195,805)
Changes in temporary differences		(246,334)		(195,805)
Changes in tax loss carryforwards		(271)		-
Income tax expense	₩	148,094	₩	27,289

The income taxes calculated using the statutory tax rates differs from the actual amount for the years ended December 31, 2020 and 2019 for the following reasons (Korean won in millions):

		2020		2019
Profit before income tax	₩	766,036	₩	273,837
Tax effect at the rate of 27.5%		210,660		75,305
Adjustments:				
Effect of applying gradual tax rate		(10,362)		(10,373)
Non-taxable income		(149)		(15)
Non-deductible expense		871		615
Tax credits and deduction		(40,569)		(28,779)
Effect from recognizing deferred tax liabilities not recognized before		2,203		31,389
Others		(14,018)		24,557
		(62,024)		17,394
Adjustment for prior years		(542)		(65,410)
Income tax expense	₩	148,094	₩	27,289
Effective tax rate		19.33%		9.97%

(*) The effective tax rate for the years ended December 31, 2019 has not been calculated as it is negative.

33. Income tax expense (cont'd)

Tax item recognized in other comprehensive income (loss) for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Income tax credited directly to equity		
Tax items in other comprehensive income		
gain on valuation of financial assets at FVOCI	₩ 1,297	₩ 87
Remeasurements of the defined benefit plan	(11,586)	(12,977)
Loss (gain) on foreign currency translation differences of foreign operations	395	(810)
	₩ (9,894)	₩ (13,700)

Details of the deferred tax assets (liabilities) as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020			
	Beginning balance	Amounts recognized in profit (loss) for the year	Amounts recognized in cumulative other comprehensive income (loss)	Ending balance
Deferred tax by temporary difference				
Long-term employee benefits	₩ 146,768	₩ 51,736	₩ (11,586)	₩ 186,918
Property, plant and equipment, net	(4,014,528)	(374,993)	-	(4,389,521)
Intangible assets	233	(54)	-	179
Financial assets at fair value through profit or loss	(3)	-	-	(3)
Financial assets at fair value through other comprehensive income	15,057	705	1,297	17,059
Provision	5,084,003	573,905	-	5,657,908
Accrued income	(1,456)	(768)	-	(2,224)
Advanced depreciation provision	(3,807)	(145)	-	(3,952)
Tax loss carryforwards	303	271	-	574
Others	15,440	5,842	395	21,677
	₩ 1,242,010	₩ 256,499	₩ (9,894)	₩ 1,488,615

33. Income tax expense (cont'd)

	2019			
	Beginning balance	Amounts recognized in profit (loss) for the year	Amounts recognized in cumulative other comprehensive income (loss)	Ending balance
Deferred tax by temporary difference				
Long-term employee benefits	₩ 160,129	₩ (384)	₩ (12,977)	₩ 146,768
Property, plant and equipment, net	(3,736,508)	(278,020)	-	(4,014,528)
Intangible assets	(2,486)	2,719	-	233
Financial assets at fair value through profit or loss	(3)	-	-	(3)
Financial assets at fair value through other comprehensive income	14,784	186	87	15,057
Provision	4,590,640	493,363	-	5,084,003
Accrued income	(1,544)	88	-	(1,456)
Advanced depreciation provision	-	(3,807)	-	(3,807)
Tax loss carryforwards	-	303	-	303
Others	21,193	(4,943)	(810)	15,440
	₩ 1,046,205	₩ 209,505	₩ (13,700)	₩ 1,242,010

Deferred tax assets as of December 31, 2020 and 2019 are as follows (Korean won in million):

	December 31, 2020	December 31, 2019
Deferred tax assets	₩ 1,488,615	₩ 1,242,010

The deductible temporary difference not recognized as deferred tax assets is ₩ 331,665 million as of December 31, 2020.

34. Non-current assets held for sale

Property, plant and equipment classified as non-current assets held for sale as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Property, plant and equipment	₩ -	₩ 23,002

The Group had classified land for which it has entered into a sales contract from property, plant and equipment to non-current assets held for sale for the year ended December 31, 2019. The Group sold the land during the year ended December 31, 2020.

35. Expenses classified by nature

Expenses classified by nature for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020		
	Selling and administrative expenses	Cost of sales	Total
Raw materials used	₩ -	₩ 513,375	₩ 513,375
Salaries	53,689	943,993	997,682
Retirement benefits	5,815	98,187	104,002
Other employee benefits	10,061	124,897	134,958
Insurance expenses	937	38,485	39,422
Depreciation of property, plant and equipment	41,304	2,276,000	2,317,304
Amortization of nuclear fuel	-	1,206,193	1,206,193
Amortization of intangible assets	13,299	6,535	19,834
Commission	37,224	178,801	216,025
Provisions for decommissioning cost	-	216,747	216,747
Other provisions	-	55,138	55,138
Advertisement	8,588	3,157	11,745
Training	85	781	866
Vehicles	107	515	622
Publication expenses	465	524	989
Business expenses	162	649	811
Rent	7,910	92,991	100,901
Communication	606	2,736	3,342
Freight expenses	-	122	122
Taxes and dues	2,036	304,410	306,446
Supplies expenses	665	4,613	5,278
Utilities	1,356	6,007	7,363
Repairs	10,590	1,494,507	1,505,097
Ordinary development expenses	3,217	435,777	438,994
Travel expenses	840	3,802	4,642
Clothing expenses	125	1,515	1,640
Research and analysis expenses	-	987	987
Labor welfare fund contribution	261	4,691	4,952
Subscription	200	11,410	11,610
Others	17,267	439,525	456,792
	₩ 216,809	₩ 8,467,070	₩ 8,683,879

35. Expenses classified by nature (cont'd)

	2019		
	Selling and administrative expenses	Cost of sales	Total
Raw materials used	₩ -	₩ 607,833	₩ 607,833
Salaries	48,697	755,040	803,737
Retirement benefits	8,590	132,121	140,711
Other employee benefits	9,967	105,567	115,534
Insurance expenses	901	42,211	43,112
Depreciation of property, plant and equipment	45,547	2,111,249	2,156,796
Amortization of nuclear fuel	-	1,077,979	1,077,979
Amortization of intangible assets	12,089	5,079	17,168
Commission	42,414	198,544	240,958
Provisions for decommissioning cost	-	449,326	449,326
Other provisions	-	5,596	5,596
Advertisement	9,075	3,151	12,226
Training	100	1,462	1,562
Vehicles	143	404	547
Publication expenses	380	573	953
Business expenses	142	855	997
Rent	10,720	88,152	98,872
Communication	515	4,172	4,687
Freight expenses	-	131	131
Taxes and dues	1,543	276,938	278,481
Supplies expenses	730	1,875	2,605
Utilities	1,284	5,853	7,137
Repairs	11,777	1,199,315	1,211,092
Ordinary development expenses	1,196	483,221	484,417
Travel expenses	1,159	5,460	6,619
Clothing expenses	172	2,000	2,172
Research and analysis expenses	-	992	992
Subscription	82	10,756	10,838
Others	16,093	400,395	416,488
	₩ 223,316	₩ 7,976,250	₩ 8,199,566

36. Earnings per share

Basic earnings per share for the years ended December 31, 2020 and 2019 are as follow (Korean won):

		December 31, 2020		December 31, 2019
Basic earnings per share	₩	2,566	₩	1,134

Profit for the year attributable to owners of the parent and weighted average number of common shares outstanding for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

		December 31, 2020		December 31, 2019
Profit for the year attributable to owners of the parent	₩	622,218	₩	274,861
Weighted average number of common stock		242,442,838		242,442,838

37. Categories of financial instruments

Details of categories of financial assets as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020			
	Financial assets at fair value through profit or loss	Financial assets at amortized cost	Financial assets at fair value through other comprehensive income	Total
Current financial assets:				
Cash and cash equivalents	₩ -	₩ 316,072	₩ -	₩ 316,072
Current financial assets				
Financial assets at fair value through profit or loss	160,600	-	-	160,600
Loans	-	11,068	-	11,068
Short-term financial instruments	-	212,159	-	212,159
Derivative assets	18,274	-	-	18,274
	178,874	223,227	-	402,101
Trade and other receivables	-	1,382,497	-	1,382,497
Subtotal	178,874	1,921,796	-	2,100,670
Non-current financial assets:				
Non-current financial assets				
Financial assets at fair value through profit or loss	577,481	-	-	577,481
Financial assets at fair value through other comprehensive income	-	-	233,371	233,371
Loans	-	67,382	-	67,382
Long-term financial instruments	-	258,656	-	258,656
Derivative assets	30,794	-	-	30,794
	608,275	326,038	233,371	1,167,684
Trade and other receivables	-	49,796	-	49,796
Subtotal	608,275	375,834	233,371	1,217,480
Total	₩ 787,149	₩ 2,297,630	₩ 233,371	₩ 3,318,150

37 Categories of financial instruments (cont'd)

	December 31, 2019			
	Financial assets at fair value through profit or loss	Financial assets at amortized cost	Financial assets at fair value through other comprehensive income	Total
Current financial assets:				
Cash and cash equivalents	₩ -	₩ 34,916	₩ -	₩ 34,916
Current financial assets				
Financial assets at fair value through profit or loss	29,520	-	-	29,520
Loans	-	5,349	-	5,349
Short-term financial instruments	-	210,626	-	210,626
	29,520	215,975	-	245,495
Trade and other receivables	-	1,302,267	-	1,302,267
Subtotal	29,520	1,553,158	-	1,582,678
Non-current financial assets:				
Non-current financial assets				
Financial assets at fair value through profit or loss	541,969	-	-	541,969
Financial assets at fair value through other comprehensive income	-	-	231,825	231,825
Loans	-	71,735	-	71,735
Long-term financial instruments	-	250,463	-	250,463
Derivative assets	120,133	-	-	120,133
	662,102	322,198	231,825	1,216,125
Trade and other receivables	-	50,023	-	50,023
Subtotal	662,102	372,221	231,825	1,266,148
Total	₩ 691,622	₩ 1,925,379	₩ 231,825	₩ 2,848,826

37. Categories of financial instruments (cont'd)

Details of categories of financial liabilities as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		
	Financial liabilities at fair value through profit or loss	Financial liabilities at amortized cost	Total
Current financial liabilities:			
Current financial liabilities			
Short-term borrowings	₩ -	₩ 340,000	₩ 340,000
Current portion of long-term borrowings	-	19,063	19,063
Bonds	-	1,152,802	1,152,802
Derivative liabilities	462	-	462
	462	1,511,865	1,512,327
Trade and other payables	-	1,157,933	1,157,933
Subtotal	462	2,669,798	2,670,260
Non-current financial liabilities:			
Non-current financial liabilities			
Long-term borrowings	-	295,654	295,654
Bonds	-	9,379,109	9,379,109
Derivative liabilities	23,801	-	23,801
	23,801	9,674,763	9,698,564
Trade and other payables	-	2,442,577	2,442,577
Subtotal	23,801	12,117,340	12,141,141
Total	₩ 24,263	₩ 14,787,138	₩ 14,811,401

	December 31, 2019		
	Financial liabilities at fair value through profit or loss	Financial liabilities at amortized cost	Total
Current financial liabilities:			
Current financial liabilities			
Short-term borrowings	₩ -	₩ 210,000	₩ 210,000
Current portion of long-term borrowings	-	18,253	18,253
Bonds	-	499,811	499,811
Derivative liabilities	196	-	196
	196	728,064	728,260
Trade and other payables	-	1,037,572	1,037,572
Subtotal	196	1,765,636	1,765,832
Non-current financial liabilities:			
Non-current financial liabilities			
Long-term borrowings	-	147,917	147,917
Bonds	-	9,579,579	9,579,579
Derivative liabilities	7,286	-	7,286
	7,286	9,727,496	9,734,782
Trade and other payables	-	2,536,913	2,536,913
Subtotal	7,286	12,264,409	12,271,695
Total	₩ 7,482	₩ 14,030,045	₩ 14,037,527

37. Categories of financial instruments (cont'd)

Gain (loss) by categories of financial instruments for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

Categories	Description	2020	2019
Financial assets at amortized cost	Cash and cash equivalents-interest income	₩ 263	₩ 3,431
	Financial instruments-interest income	10,294	10,837
	Loans-interest income	1,486	1,431
	Trade and other receivables - interest income	2,084	2,072
	Gain (loss) on fluctuation of exchange rate in foreign currency, net	900	(11,247)
Financial assets at fair value through profit or loss	Financial assets at fair value through profit or loss-valuation income	4,733	2,600
	Financial assets at fair value through profit or loss-interest income	10,861	19,835
	Gain (loss) on sale of financial assets, net	4,522	(400)
	Gain (loss) on valuation of derivative instruments, net	(71,065)	103,005
	Gain on transactions of derivative instruments, net	26,878	43,628
	Dividend income	484	6,984
Financial assets at fair value through other comprehensive income	Loss on valuation of fair value through other comprehensive income (before tax), net	(4,060)	(971)
	Dividend income	535	405
Financial liabilities measured at fair value through profit or loss	Gain (loss) on valuation of derivative instruments, net	(16,978)	66,274
	Loss on transactions of derivative instruments, net	(11,386)	(1,318)
Financial liabilities at amortized cost	Gain (loss) on fluctuation of exchange rate in foreign currency, net	171,760	(103,619)
	Interest expense	(122,277)	(121,331)

38. Risk management

38.1 Capital risk management

The Group manages its capital to ensure that entities in the Group will be able to continue while maximizing the return to shareholder through the optimization of the debt and equity balance. The management of the Group regularly reviews the capital structure and maintains the optimal capital structure through short- and long-term capital borrowing and bond issuance.

The capital structure of the Group consists of net debt (offset by cash and bank balances) and equity. The Group's overall capital risk management strategy remains consistent with prior year.

Details of the Group's capital risk management items as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Total borrowings	₩ 11,186,628	₩ 10,455,560
Cash and cash equivalents, etc.(*)	528,231	245,543
Net borrowings	10,658,397	10,210,017
Total shareholder`s equity	₩ 26,205,975	₩ 25,665,877
Ratio of net borrowings to total shareholder's equity	40.67%	39.78 %

(*) It consists of cash and cash equivalents and short-term financial instruments.

38.2 Financial risk management

The Group is exposed to various risks related to its financial instruments, such as, market risk (currency risk, interest rate risk, price risk) and credit risk. The goal of financial risk management is to reduce and eliminate the financial risks to acceptable levels by identifying sources of potential risks to the Group's financial performance.

The Group uses derivative financial instruments to hedge certain risk exposures. The Group's overall financial risk management strategy remains consistent with prior year.

38.2.1 Risk management policy

The Group's management is responsible for the establishment and supervision of the financial risk management system. The management established a risk management committee to develop and supervise the risk management policy of the Group. The committee regularly reports on its activities to the management.The Group is equipped with policies and procedures to control financial risks at the entity level. The Group continuously monitors the compliance with policies and procedures of risk management.

The Group's risk management policy is designed to identify and analyze the risks facing the Group, establish appropriate risk limits and controls, and ensure that the risks do not exceed the limits. Risk management policies and systems are regularly reviewed to reflect market conditions and changes in the activities of the Group.

38. Risk management (cont'd)

38.2.2 Credit risk

Credit risk is the risk of finance loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations. Exposure to the risk is mainly arises from the Group's loan activities, as well as from derivatives and debt securities. There are also credit risks arising from financial guarantees and unused loan agreements. For banks and financial institutions, the credit risk from them is limited as the Group makes transactions with reputable financial instituions. For general accounts, the Group evalutates the customer's credit based on the customer's financial position, past experience, and other factors.

Credit risk management

The Group uses publicly available information and its own internal data related to trade receivables, to rate its major customers and to measure the credit risk that a counter party will default on a contractual obligation. As the majority of the Group's trade receivables are due from governmental entities (i.e. KEPCO and others), the Group does not have significant credit risk exposure. Regarding its debt securities, the Group continuously monitors credit ratings issued by credit agencies, and the Group's working capital (i.e. cash) is deposited at financial institutions with a high credit rating.

Impairment & allowance account

In accordance with the Group's policies, individual financial assets above the materiality amount are regularly reviewed. The allowance for individually reviewed trade receivable shall be determined by evaluating the loss incurred as of the end of the reporting period, which applies to all material trade receivable. For such assessment, the Group considers the amount of collateral obtained (including the recoverability) for the individual financial assets and the expected recoverable amounts.

The Group maximum exposure to credit risk as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Cash and cash equivalents	₩ 316,072	₩ 34,916
Financial instruments	470,815	461,089
Financial assets at fair value through profit or loss	738,081	571,489
Derivative assets	49,068	120,133
Loans	78,450	77,084
Trade and other receivables	1,432,293	1,352,290

There were no financial assets (current or non-current) acquired or received as a result of exercise of rights to collaterals received or additionally obtained to adjust credit limits.

38. Risk Management (cont'd)

38.2.3 Market risk

Market risk is the risk that the Group's fair value of the financial instruments or future cashflows are effected by the changes in the market. Market risk consists of interest rate risk, currency risk and other price risk.

38.2.4 Sensitivity analysis

Major liabilities with uncertanties in underlying assumptions

(i) Defined benefit obligation

Changes in the Group's defined benefit obligation due to changes in underlying assumptions as of December 31, 2020 and 2019 are as follows:

Assumption	Accounts	2020		2019	
		1% increase	1% decrease	1% increase	1% decrease
Future salary increase rate	Defined benefit obligation	₩ 107,180	₩ (91,734)	₩ 104,646	₩ (89,459)
Discount rate	Defined benefit obligation	(95,710)	114,669	(93,255)	111,917

(ii) Provision for decommissioning cost

Details of underlying assumptions used to estimate provision for decommissioning cost as of December 31, 2020 and 2019 are as follows (Korean won in millions):

Accounts	Assumptions	December 31, 2020	December 31, 2019
Nuclear plants	Inflation rate	1.07%	1.10%
	Discount rate	2.20%	2.43%
Fuel spent	Inflation rate	2.93%	2.93%
	Discount rate	4.49%	4.49%

The following is a sensitivity analysis of provision for decommissioning cost assuming 0.1% increase or decrease in the underlying assumptions as of December 31, 2020 and 2019 (Korean won in millions):

	December 31, 2020		December 31, 2019	
	0.1% increase	0.1% decrease	0.1% increase	0.1% decrease
Discount rate:				
Nuclear plants	₩ (326,926)	₩ 336,928	₩ (316,184)	₩ 325,828
Fuel spent	(51,558)	53,571	(51,607)	53,621
Inflation rate:				
Nuclear plants	357,676	(347,450)	346,082	(336,182)
Fuel spent	54,345	(52,375)	54,396	(52,424)

38. Risk Management (cont'd)

38.2.4 Sensitivity analysis (cont'd)

Management judgment effected by uncertainties in underlying assumptions

(i) Foreign currency risk

The carrying amounts of the Group's foreign currency denominated monetary assets and monetary liabilities, excluding the Group's foreign subsidiary, as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020						
	AED	USD	EUR	HKD	CHF	Others (*)	Total
Assets:							
Cash and cash equivalents	₩ 1,293	₩ 384	₩ 248	₩ -	₩ -	₩ 216	₩ 2,141
Trade and other receivables	-	100,808	138	-	-	128	101,074
Loans	-	-	68	-	-	-	68
Total assets denominated in foreign currency	1,293	101,192	454	-	-	344	103,283
Liabilities:							
Trade and other payables	4,448	171,847	107,971	409	56	6,979	291,710
Bonds	-	2,652,623	-	231,426	370,746	-	3,254,795
Total liabilities denominated in foreign currency	4,448	2,824,470	107,971	231,835	370,802	6,979	3,546,505
Net exposure	₩ (3,155)	₩ (2,723,278)	₩ (107,517)	₩ (231,835)	₩ (370,802)	₩ (6,635)	₩ (3,443,222)

(*) Others include CAD, JPY, CZK, GBP, PHP and EGP.

	December 31, 2019						
	AED	USD	EUR	HKD	CHF	Others (*)	Total
Assets:							
Cash and cash equivalents	₩ 2,258	₩ -	₩ 177	₩ -	₩ -	₩ 225	₩ 2,660
Trade and other receivables	-	90,568	-	-	-	-	90,568
Loans	-	-	118	-	-	-	118
Total assets denominated in foreign currency	2,258	90,568	295	-	-	225	93,346
Liabilities:							
Trade and other payables	10,824	67,781	75,288	-	329	4,304	158,526
Bonds	-	2,816,593	-	245,113	359,226	-	3,420,932
Total liabilities denominated in foreign currency	10,824	2,884,374	75,288	245,113	359,555	4,304	3,579,458
Net exposure	₩ (8,566)	₩ (2,793,806)	₩ (74,993)	₩ (245,113)	₩ (359,555)	₩ (4,079)	₩ (3,486,112)

(*) Others include CAD, JPY, CZK, PHP and GBP.

38. Risk Management (cont'd)

38.2.4 Sensitivity analysis (cont'd)

Currency exchange rates as of December 31, 2020 and 2019 are as follows (Korean won in each currency):

	2020		2019	
	Average exchange rate	Ending exchange rate	Average exchange rate	Ending exchange rate
USD	1,180.05	1,088.00	1,165.65	1,157.80
EUR	1,345.99	1,338.24	1,304.81	1,297.43
JPY	11.051	10.543	1,069.76	1,063.47
GBP	1,513.05	1,482.40	1,487.83	1,518.69
CAD	879.91	853.30	878.54	886.56
CHF	1,257.34	1,234.33	1,173.43	1,195.52
HKD	152.14	140.35	148.78	148.66
PHP	23.78	22.66	22.52	22.80
CZK	50.90	51.04	50.84	51.05
AED	321.27	296.20	317.35	315.21
EGP	74.60	69.17	-	-

A sensitivity analysis on the Group's profit for the period assuming 10% increase or decrease in currency exchange rates as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020		2019	
	10% increase	10% decrease	10% increase	10% decrease
Increase (decrease) of profit for the period	(344,322)	344,322	(348,611)	348,611
Increase (decrease) of shareholder`s equity	(344,322)	344,322	(348,611)	348,611

Sensitivity analysis above is conducted for monetary assets and liabilities denominated in foreign currencies other than functional currency as of December 31, 2020 and 2019.

(ii) Interest rate risk

The Group is exposed to interest rate risk due to its borrowing with floating interest rates. An 1% increase or decrease is used when reporting interest rate risk internally to key management personnel and represents management's assessment of the reasonably possible change in interest rates.

The Group's floating-rate long-term borrowings and bonds as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020	December 31, 2019
Long-term borrowings (including current portion)	₩ 69,938	₩ 40,517

38. Risk management (cont'd)

38.2.4 Sensitivity analysis (cont'd)

A sensitivity analysis on the Group's long-term borrowings and bonds assuming 1% increase or decrease in interest rates as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	1% points increase	1% points decrease	1% points increase	1% points decrease
Increase (decrease) of profit for the period	(699)	699	(405)	405
Increase (decrease) of shareholder`s equity	(699)	699	(405)	405

To manage its interest rate risks, the Group in addition to maintaining an appropriate mix of fixed and floating rate borrowings, has entered into certain interest rate swap agreements.

38.2.5 Liquidity risk

The Group has established an appropriate liquidity risk management framework for the management of the Group's short, medium and long-term funding and liquidity management requirements. The Group manages liquidity risk by maintaining adequate reserves, banking facilities and reserve borrowing facilities, by continuously monitoring forecast and actual cash flows, and by matching the maturity profiles of financial assets and liabilities.

In addition, the Group has established credit lines on its trade finance and bank overdrafts, and through payment guarantees it has received, it maintains an adequate credit (borrowing) facility. In addition, in case of major construction investment, the Group has the ability to use reserve cash or utilize long-term borrowings.

Details of remaining maturities of the Group's non-derivative financial liabilities based on agreement terms are as follows. The amount disclosed below represents the undiscounted cash flows the Group is obligated to pay in the future on the earliest repayment date:

Remaining maturities of the Group's non-derivative financial liabilities are as follows (Korean won in millions):

	2020				
	Under 1 year	1~2 years	2~5 years	Over 5 years	Total
Borrowings and bonds	₩ 1,834,379	₩ 1,675,776	₩ 3,478,700	₩ 6,925,437	₩ 13,914,292
Trade and other payables	1,148,040	319,827	932,341	1,255,032	3,655,240
	₩ 2,982,419	₩ 1,995,603	₩ 4,411,041	₩ 8,180,469	₩ 17,569,532

	2019				
	Under 1 year	1~2 years	2~5 years	Over 5 years	Total
Borrowings and bonds	₩ 1,063,385	₩ 1,519,449	₩ 4,271,971	₩ 6,372,221	₩ 13,227,026
Trade and other payables	1,037,761	312,023	1,003,704	1,276,601	3,630,089
	₩ 2,101,146	₩ 1,831,472	₩ 5,275,675	₩ 7,648,822	₩ 16,857,115

38. Risk management (cont'd)

38.2.5 Liquidity risk (cont'd)

As the Group manages its liquidity based on its net asset and net liability balances, the Group's liquidity risk management analysis includes its non-derivative financial assets.

Details of the Group's expected holding period of its non-derivative financial assets as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020				
	Under 1 year	1~5 years	Over 5 years	(*)	Total
Cash and cash equivalents	₩ 316,072	₩ -	₩ -	₩ -	₩ 316,072
Financial assets at fair value through profit or loss	160,600	-	-	577,481	738,081
Financial instruments	212,159	-	-	258,656	470,815
Financial assets at fair value through other comprehensive income	-	-	-	233,371	233,371
Loans	11,159	24,368	49,479	-	85,006
Trade and other receivables	1,382,735	50,323	-	-	1,433,058
	₩ 2,082,725	₩ 74,691	₩ 49,479	₩ 1,069,508	₩ 3,276,403

	December 31, 2019				
	Under 1 year	1~5 years	Over 5 years	(*)	Total
Cash and cash equivalents	₩ 34,916	₩ -	₩ -	₩ -	₩ 34,916
Financial assets at fair value through profit or loss	29,520	-	-	541,969	571,489
Financial instruments	210,625	-	-	250,464	461,089
Financial assets at fair value through other comprehensive income	-	-	-	231,825	231,825
Loans	5,433	5,477	73,044	-	83,954
Trade and other receivables	1,302,737	50,925	-	-	1,353,662
	₩ 1,583,231	₩ 56,402	₩ 73,044	₩ 1,024,258	₩ 2,736,935

(*) Maturity period cannot be reasonably estimated.

Remaining maturities of Group's derivative financial liabilities as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020				
	Under 1 year	1~2 years	2~5 years	Over 5 years	Total
Cash inflow	₩ 106,060	₩ 837,909	₩ -	₩ -	₩ 943,969
Cash outflow	(105,769)	(862,463)	-	-	(968,232)
	₩ 291	₩ (24,554)	₩ -	₩ -	₩ (24,263)

	December 31, 2019				
	Under 1 year	1~2 years	2~5 years	Over 5 years	Total
Cash inflow	₩ 86,670	₩ 60	₩ 244,293	₩ 122,064	₩ 453,087
Cash outflow	(92,009)	(5,190)	(246,497)	(116,873)	(460,569)
	₩ (5,339)	₩ (5,130)	₩ (2,204)	₩ 5,191	₩ (7,482)

38. Risk management (cont'd)

38.3 Fair value estimate

The fair value of the Group's actively-traded financial instruments (i.e. financial assets at fair value through profit or loss and financial assets at fair value through other comprehensive income) is the based on the traded market-price as of the reporting period end. The fair value of Group's financial assets is determined by the closing purchase price disclosed at the end of the reporting

The fair values of financial instruments where no active market exists or where quoted prices are not otherwise available are determined by using valuation techniques. Valuation techniques include using recent arm's length market transactions between knowledgeable, willing parties, if available, reference to the current fair value of another instrument that is substantially the same, discounted cash flow analysis and option pricing models. If there is a valuation technique commonly used by market participants to price the instrument and that technique has been demonstrated to provide reliable estimates of prices obtained in actual market transactions, the Group uses that technique.

For trade receivable and payable, the Group considers the carrying value, net of impairment, as fair value. While for disclosure purposes, the fair value of non-current financial liabilities is estimated by discounting a financial instruments with similar contractual cashflows based on the effective interest method.

38.3.1 Fair value and carrying amount

The fair value of financial assets and financial liabilities as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	Carrying amount	Fair value	Carrying amount	Fair value
Financial assets at fair value:				
Financial assets at fair value through other comprehensive income	₩ 233,371	₩ 233,371	₩ 231,825	₩ 231,825
Financial assets at fair value through profit or loss	738,081	738,081	571,489	571,489
Derivative financial instruments held for trading	49,068	49,068	120,133	120,133
	₩ 1,020,520	₩ 1,020,520	₩ 923,447	₩ 923,447
Financial assets at amortized cost:				
Loans	₩ 78,450	₩ 78,450	₩ 77,084	₩ 77,084
Trade and other receivables	1,432,293	1,432,293	1,352,290	1,352,290
Cash and cash equivalents	316,072	316,072	34,916	34,916
Financial instruments	470,815	470,815	461,089	461,089
	₩ 2,297,630	₩ 2,297,630	₩ 1,925,379	₩ 1,925,379
Financial liabilities at fair value:				
Derivative financial instruments held for trading	₩ 24,263	₩ 24,263	₩ 7,482	₩ 7,482
Financial liabilities at amortized cost:				
Unsecured bonds	₩ 10,531,911	₩ 11,667,723	₩ 10,079,390	₩ 11,168,718
Short-term borrowings	340,000	340,000	210,000	210,000
Long-term borrowings	314,717	314,717	166,170	166,170
Trade and other payables	3,600,510	3,600,510	3,574,485	3,574,485
	₩ 14,787,138	₩ 15,922,950	₩ 14,030,045	₩ 15,119,373

38. Risk management (cont'd)

38.3.2 Interest rates used in calculating fair values

Interest rates used to discount expected cash flows were determined by adding credit spreads to government bond yields at the end of the reporting period.

38.3.3 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.

	Useful life
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.
Level 3	Inputs that are not based on observable market data.

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

	December 31, 2020			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value:				
Financial assets at fair value through profit or loss	₩ -	₩ 738,081	₩ -	₩ 738,081
Financial assets at fair value through other comprehensive income	49,878	-	183,493	233,371
Derivative financial instruments held for trading	-	49,068	-	49,068
Financial liabilities at fair value:				
Derivative liabilities	-	24,263	-	24,263

	December 31, 2019			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value:				
Financial assets at fair value through profit or loss	₩ -	₩ 571,489	₩ -	₩ 571,489
Financial assets at fair value through other comprehensive income	31,829	-	199,996	231,825
Derivative financial instruments held for trading	-	120,133	-	120,133
Financial liabilities at fair value:				
Derivative liabilities	-	7,482	-	7,482

The fair value of financial assets at fair value through other comprehensive income traded in the market is determined by the closing purchase price disclosed at the end of the reporting period, and the fair value of financial assets at fair value through other comprehensive income without marketability is determined by the fair value evaluation results from external assessment institutions. Financial assets measured at level 3 in the fair value hierarchy as of the end of the current term include investments in SET Holding and Korea Electric Power Exchange as described in Note 8. They were measured by estimating future cash flows in consideration of expected operating income and cost structure, and then were discounted by the weighted average capital costs considering capital structure, etc. In addition, the Group measured the fair value of the derivative using a cash flow discount model that reflected credit risk and used the inputs (credit risk, interest rate, and exchange rate) considering the key economic indicators and economic environment of the derivative to be assessed.

38. Risk management (cont'd)

38.3.3 Fair value hierarchy (cont'd)

Changes in financial assets at fair value through other comprehensive income for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020				
	Beginning balance	Acquisition (Disposal)	Measurement of fair values	Others	Ending balance
Financial assets at fair value through other comprehensive income	₩ 231,825	₩ 7,400	₩ (4,060)	₩ (1,794)	₩ 233,371

	2019				
	Beginning balance	Acquisition (Disposal)	Measurement of fair values	Others	Ending balance
Financial assets at fair value through other comprehensive income	₩ 229,964	₩ -	₩ (971)	₩ 2,832	₩ 231,825

39. Related party disclosures

Details of related parties as of December 31, 2020 are as follows:

Relationship	Related party
Parent company	Korea Electric Power Corporation
Subsidiaries	KHNP Canada Energy Ltd.
	Gyeonggi Green Energy Co., Ltd.
	Korea Imouraren Uranium Investment Corp.
	Korea Waterbury Uranium Limited Partnership
	Incheon Fuel Cell Co., Ltd.
	First Keepers Co., Ltd.
	Secutec Co., Ltd.
	KHNP USA LLC
	Energy Innovation Growth Fund 1
Associates	Korea Offshore Wind Power Co., Ltd.
	Noeul Green Energy Co., Ltd.
	Busan Green Energy Co., Ltd.
	Korea Nuclear Partners Co., Ltd.
	KEPCO Solar Co., Ltd. (Ex-Solar School Plant Co., Ltd.)
	KEPCO Energy Solution Co., Ltd.
	Gwangyang Green Energy Co., Ltd.
	Hanhwa Solar Power Private equity investment trust
	Godeok Clean Energy Co., Ltd.
	Jeju Solarone Co., Ltd.
	Bigeum Resident Solar Power Generation Co., Ltd.
Joint ventures	Waterbury Lake Uranium Limited Partnership
	Cheongsong Noraesan Wind Power Co., Ltd.
	Saemangeum Solar Power Co., Ltd.
	KAS INVESTMENT I LLC
	KAS INVESTMENT II LLC
Other related parties	Korea Midland Power Co., Ltd.
	Korea East-West Power Co., Ltd.
	Korea South-East Power Co., Ltd.
	Korea Western Power Co., Ltd.
	Korea Southern Power Co., Ltd.
	KEPCO Engineering & Construction Inc.
	KEPCO Plant Service & Engineering Co., Ltd.
	KEPCO Nuclear Fuel Co., Ltd.
	KEPCO Knowledge, Data & Network Co., Ltd.
	Korea Power Exchange
	YTN Co., Ltd.
	Korea Development Bank
	HeeMang Sunlight Power Co., Ltd.
	Korea Gas Corporation
	Energy Infra Asset Management Co., Ltd.
	Nawah Energy Company and others.

39. Related party disclosures (cont'd)

The transactions with related parties for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

Related party	Transaction	Sales and others 2020	Sales and others 2019	Purchases and others 2020	Purchases and others 2019
Korea Electric Power Corporation	Sales of electricity and others	₩ 10,240,565	₩ 9,199,363	₩ 744,309	₩ 637,688
	Dividend paid	-	-	106,675	-
Busan Green Energy Co., Ltd.	REC Purchases	-	-	18,678	13,811
Noeul Green Energy Co., Ltd.	REC Purchases.	-	-	10,634	22,767
Korea Offshore Wind Power Co., Ltd.	Service income	194	238	-	-
Saemangeum Solar Power Co., Ltd.	Service income	2,846	2,230	-	-
KEPCO Energy Solution Co., Ltd.	Service income	148	147	-	-
Gwangyang Green Energy Co., Ltd.	Service income	20	118	-	-
Hanhwa Solar Power Private equity investment trust	Dividend income	291	-	-	-
KEPCO Solar Co., Ltd. (Ex-Solar School Plant Co., Ltd.)	Service income	117	132	-	-
Bigeum Resident Solar Power Generation Co., Ltd.	Interest income	84	-	-	-
Korea South-East Power Co., Ltd.	Other sales, etc.	-	17	-	-
Korea East-West Power Co., Ltd.	REC income /Commission fees	462	-	-	56
Korea Western Power Co., Ltd.	Other sales /Commission fees	-	25	91	-
Korea Southern Power Co., Ltd.	Other income	-	3	-	-
KEPCO Plant Service & Engineering Co., Ltd.	Other income/ Cost of construction services, etc.	4,992	4,111	536,602	495,985
KEPCO Engineering & Construction Inc.	Other income/ Cost of technique services, etc.	58	17,102	217,439	244,391
KEPCO Knowledge, Data & Network Co., Ltd.	Information and communication consigned service costs, etc.	-	-	49,122	45,978
KEPCO Nuclear Fuel Co., Ltd.	Consignment education income/ Nuclear power plant fuel purchase, etc.	812	798	294,203	309,738
Korea Power Exchange	Commission fees, etc.	-	-	15,996	14,688
Korea Development Bank	Interest income /Interest expenses	29	244	1,288	1,491
YTN Co., Ltd.	Advertisement expenses	-	-	118	98
Nawah Energy Company	Service income	96,354	90,434	-	-
Energy Infra Asset Management Co., Ltd.	Interest expense	-	-	1,740	-
		₩ 10,346,972	₩ 9,314,962	₩ 1,996,895	₩ 1,786,691

39. Related party disclosures (cont'd)

Receivables and payables arising from related party transactions as of December 31, 2020 and 2019 are as follows (Korean won in millions):

		Trade receivable and others		Trade payable and others	
Related party	Transaction	2020	2019	2020	2019
Korea Electric Power Corporation	Trade receivables	₩ 1,141,409	₩ 1,049,511	₩ -	₩ -
	Other receivables, and others	471,985	530,855	-	-
	Other payables and others	-	-	128,851	52,666
Saemangeum Solar Power Co., Ltd.	Other receivables	3,141	2,197	-	-
Gwangyang Green Energy Co., Ltd.	Other receivables	1,356	1,334	-	-
KEPCO Solar Co., Ltd. (Ex-Solar School Plant Co., Ltd.)	Other receivables	2	39	-	-
KEPCO Energy Solution Co., Ltd.	Other receivables	36	44	-	-
Noeul Green Energy Co., Ltd.	Other receivables	969	-	-	-
	Other payables	-	-	-	1,855
Busan Green Energy Co., Ltd.	Other receivables	13,946	-	-	-
	Other payables	-	-	-	606
Korea Offshore Wind Power Co., Ltd.	Other receivables	-	177	-	-
Bigeum Resident Solar Power Generation Co., Ltd.	Loan	3,500	-	-	-
Korea Western Power Co., Ltd.	Other payables	-	-	100	-
Korea East-West Power Co., Ltd.	Other receivables	113	-	-	-
	Other payables	-	-	-	61
KEPCO Plant Service & Engineering Co., Ltd.	Other receivables and others	21	17	-	-
	Other payables and others	-	-	49,322	11,360
KEPCO Engineering & Construction Inc.	Other receivables	-	15,969	-	-
	Other payables and others	-	-	6,176	6,594
KEPCO Knowledge, Data & Network Co., Ltd.	Other payables and others	-	-	2,044	3,587
KEPCO Nuclear Fuel Co., Ltd.	Trade payables	-	-	57,911	4,737
Korea Power Exchange	Other payables and others	-	-	1,073	1,105
Korea Development Bank	Advanced payment	906	1,026	-	-
	Long and short-term borrowings	-	-	124,173	127,175
	Other payables	-	-	21	24
Nawah Energy Company	Trade receivables	49,280	37,677	-	-
Energy Infra Asset Management Co., Ltd.	Borrowings	-	-	46,877	-
		₩ 1,686,664	₩ 1,638,846	₩ 416,548	₩ 209,769

39. Related party disclosures (cont'd)

Financial transactions with related parties for the year ended December 31, 2020 and 2019 are as follows: (Korean won in millions)

(i) Loans and capital investments

	2020						
		Transaction				Cash	
	Company name	Borrowings		Repayments		contribution	
Associates	Jeju Solarone Co., Ltd.	₩	-	₩	-	₩	161
	Bigeum Resident Solar Power Generation Co., Ltd.		3,500		-		1
	Korea Nuclear Partners Co., Ltd.		-		-		247
	Hanhwa Solar Power Private equity investment trust		-		-		294
Joint ventures	Saemangeum Solar Power Co., Ltd.		-		-		16,399
	KAS INVESTMENT I LLC		-		-		23,437
	KAS INVESTMENT II LLC		-		-		23,343
		₩	3,500	₩	-	₩	63,882

	2019						
		Transaction				Cash	
	Company name	Borrowings		Repayments		contribution	
Associates	Hanhwa Solar Power Private equity investment trust	₩	-	₩	-	₩	7,105
	Godeok Clean Energy Co., Ltd.		-		-		1,830
Joint ventures	Cheongsong Noraesan Wind Power Co., Ltd.		-		-		1,127
	Saemangeum Solar Power Co., Ltd.		-		-		10,000
		₩	-	₩	-	₩	20,062

(ii) Borrowings

	2020											
	Company name	Type	January 1		Borrowings		Repayments		Others		December 31	
Others	Korea Development Bank (*1,2)	Facility loan	₩	27,175	₩	-	₩	(3,002)	₩	-	₩	24,173
		Operating loan		100,000		100,000		(100,000)		-		100,000
	Energy Infra Asset Management Co., Ltd. (*1,2)	Facility loan		-		46,877		-		-		46,877
			₩	127,175	₩	146,877	₩	(103,002)	₩	-	₩	171,050

(*1) Details of collaterals pledged for related parties are described in Note 41.
(*2) The interest expense recognized by the loan transaction with the related parties is ₩3,028 million.

	2019											
	Company name	Type	January 1		Borrowings		Repayments		Others		December 31	
Others	Korea Development Bank(*)	Facility loan	₩	30,043	₩	-	₩	(2,868)	₩	-	₩	27,175
		Operating loan		-		130,200		(30,200)		-		100,000
			₩	30,043	₩	130,200	₩	(33,068)	₩	-	₩	127,175

(*) Details of collaterals pledged for related parties are described in Note 41.

39. Related party disclosures (cont'd)

Compensations to key executives of the Company for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Salaries	₩ 939	₩ 939
Retirement benefits	48	37
	₩ 987	₩ 976

Details of collateral provided to related parties as of December 31, 2020 are as follows (Korean won in millions):

Provided by	Provided to	Assets pledged(*1)	Credit limit	Financial institution
Korea Hydro & Nuclear Power Co., Ltd.	Korea Offshore Wind Power Co., Ltd.	Korea Offshore Wind Power Co., Ltd. Shares	₩ 20,884	Woori Bank and others
	Noeul Green Energy Co., Ltd.	Noeul Green Energy Co., Ltd. Shares	4,197	Hana Bank and others
	Busan Green Energy Co., Ltd.	Busan Green Energy Co., Ltd. Shares	8,778	Shinhan Bank and others
	Cheongsong Noraesan Wind Power Co., Ltd.	Cheongsong Noraesan Wind Power Co., Ltd. Shares	3,453	Woori Bank and others

(*1) As of December 31, 2020, the entire shares in related associates held by the Group are pledged as collateral to the financial institutions.

Details of derivatives transactions with related parties as of December 31, 2020 are as follows: (USD, HKD, CHF in thousands, Korean won in millions, KRW/USD, KRW/HKD, KRW/CHF)

			Contract amount		Contract interest rate per annum		
	Counter party (*)	Contract year	Pay	Receive	Pay	Receive	Contract exchange rate
Currency swap	Korea Development Bank	2015.06.15~ 2025.06.15	KRW 111,190	USD 100,000	2.62%	3.25%	₩ 1,111.90
		2017.07.25~ 2027.07.25	KRW 111,610	USD 100,000	2.31%	3.13%	1,116.10
		2018.04.03~ 2028.03.13	KRW 108,600	HKD 800,000	2.69%	3.35%	135.75
		2018.07.25~ 2023.07.25	KRW 170,280	USD 150,000	2.15%	3.75%	1,135.20
		2019.07.19~ 2027.07.19	KRW 119,978	CHF 100,000	1.43%	0.05%	1,199.78
Currency forward	Korea Development Bank	2017.12.27~ 2021.07.12	KRW 104,849	USD 100,000	-	-	1,048.49

(*) The derivative transaction recognized a derivative valuation gain of ₩ 5,097 million and a derivative valuation loss of ₩ 16,893 million. It also recognized derivative transaction gains of ₩ 6,637 million and derivative transaction losses of ₩ 1,681 million.

40. Supplementary cash flow information

Significant non-cash transactions for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020	2019
Transfer of long-term borrowings and bonds to current portion	₩ 1,171,988	₩ 640,228
Transfer of provisions for expenses of postprocessing, restoration, purification to current portion	54,471	477,844
Transfer of construction-in-progress to property, plant and equipment	431,255	3,261,888
Recognition of assets retirement costs based on provision for restoration	880,628	2,425,668
Transfer of spent fuel management charges to accrued expenses	395,921	376,103
Transfer of inventories to storage of nuclear power fuel	1,055,974	1,129,374
Transfer of long-term advance payments to right-of-use assets	207,947	1,007,212

Changes in liabilities arising from financing activities for the years ended December 31, 2020 and 2019 are as follows (Korean won in millions):

	2020						
		Cash flow		Non-cash change			
	January 1	Decrease	Increase	Acquisition	Exchange rate fluctuation	Others	December 31
Current portion of lease liabilities	₩ 20,223	₩ (31,050)	₩ -	₩ -	₩ -	₩ 31,472	₩ 20,645
Lease liabilities	138,581	-	-	38,354	(377)	(28,055)	148,503
Short-term borrowings	210,000	(1,017,750)	1,147,750	-	-	-	340,000
Current portion of long-term borrowings	18,253	(18,253)	-	-	-	19,063	19,063
Long-term borrowings	147,917	-	166,800	-	-	(19,063)	295,654
Current portion of bonds	499,811	(500,000)	-	-	66	1,152,925	1,152,802
Bonds	9,579,579	-	1,116,881	-	(172,303)	(1,145,048)	9,379,109
Dividends payable	-	(106,684)	-	-	-	106,684	-
Derivative financial instruments	(112,652)	(11,582)	26,878	-	-	72,550	(24,806)
	₩10,501,712	₩(1,685,319)	₩ 2,458,309	₩ 38,354	₩ (172,614)	₩ 190,528	₩ 11,330,970

40. Supplementary cash flow information (cont'd)

	2019						
		Cash flow		Non-cash change			
	January 1	Decrease	Increase	Acquisition	Exchange rate fluctuation	Others	December 31
Current portion of lease liabilities	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 20,223	₩ 20,223
Lease liabilities	-	(26,268)	-	184,605	418	(20,174)	138,581
Short-term borrowings	-	(111,338)	321,338	-	-	-	210,000
Current portion of long-term borrowings	174,295	(17,477)	-	-	-	(138,565)	18,253
Long-term borrowings	9,353	-	-	-	-	138,564	147,917
Current portion of bonds	624,925	(641,300)	-	-	15,870	500,316	499,811
Bonds	8,868,800	-	1,098,344	-	105,014	(492,579)	9,579,579
Derivative financial instruments	41,311	(2,193)	59,819	-	-	(211,589)	(122,652)
	₩ 9,718,684	₩ (798,576)	₩ 1,479,501	₩ 184,605	₩ 121,302	₩ (203,804)	₩ 10,501,712

41. Commitment and contingencies

Ongoing litigations as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	Litigations in progress	Litigation value	Litigations in progress	Litigation value
Pending lawsuits (*)	88 cases	₩ 101,954	85 cases	₩ 124,620

(*) Details of ongoing litigations as of December 31, 2020 are as follows (Korean won in millions):

Court	Plaintiff	Defendant	Contents	Litigation cost	Progress situation
Seoul High Court	Individuals	Company	2 Wages(*)	₩ 35,920	The second trial
Supreme Court and others	Individuals		3 Wages(*)	1,258	The third trial / The first trial
Daegu District Court	Individuals		Wage(*)	225	The first trial
Daegu District Court	Individuals		Wage(*)	60	The first trial
Daegu District Court	Individuals		2 Wages(*)	270	The first trial
Daegu District Court and others	Individuals		7 Wages(*)	23,991	The first trial
Seoul Central District Court	Individuals		1 Retirement pension	11,730	The first trial
Seoul High Court	S&TC and others		1 Cancellation of vendor's contract	2,391	The second trial
Seoul High Court and others	Individuals		70 cases, including compensation for damages	26,109	Lawsuit pending

(*) As of December 31, 2020, the Group has a total of 16 ordinary wage-related lawsuits pending at the Seoul High Court and others. On February 3, 2017, 2 cases received their first trial and on December 31, 2017 1 case was in the second trial, and some of the plaintiffs won. The Group has paid the liability related to ordinary wages in 2017 and determines that the contingent liability associated with this case will not be significant.

41. Commitment and contingencies (cont'd)

The Group has reserved ₩17,135 million of legal action provisions for current ongoing litigations. Although the final results cannot be predicted for case other than cases in which the legal action provisions are established, management expects that the outcome of the lawsuit will not have a significant impact on the Group's operations or financial status.

A group of plaintiffs (consisting of 2,166 individuals) filed a lawsuit against Nuclear Safety and Security Commission ("NSSC") regarding NSSC's approval on May 18, 2015 of extending the operation of Wolsong Unit 1 nuclear power plant. The NSSC won the case after the appeal was dismissed. Also, Greenpeace and others filed an administrative litigation against NSSC requesting cancellation of the construction permit of Shin-Kori Units 5 and 6, and the plaintiffs lost in the litigation based on the court trial on February 14, 2019. In response, the plaintiff filed an appeal on March 18, 2019, but on January 8, 2021, the plaintiff was rejected and lost the case. In response, the plaintiff filed an appeal and is currently undergoing a third trial at the Supreme Court. The Group is participating in these litigations as a stakeholder with the permission of the Court.

The Group determined that there is no present obligation regarding the payment of the periodic pre-work for main facilities by a particular client in relation to the Shin-Hanul Units 3 and 4 as of December 31, 2020. In addition, the Group determines that the probability of winning a lawsuit in the future is higher than that of losing it. Furthermore, the Group cannot reliably estimate the amount required to meet the obligations as of December 31, 2020.

As of December 31, 2020, the Group was sued by 3,910 people for "Implementation of contributions to retirement pension and claims for severance pay" and is in the process of the first trial and the Group has recognized a provision for litigation of ₩11,730 million.

41. Commitment and contingencies (cont'd)

Lines of credit provided by financial institutions as of December 31, 2020 are as follows (Korean won in millions, USD, EUR in thousands):

Description	Financial institution	Currency	Guarantee limit	Outstanding amount
Commitments on Bank-overdraft	Woori Bank	KRW	50,000	-
	Nonghyup Bank	KRW	100,000	100,000
	Hana Bank	KRW	50,000	-
	Kookmin Bank	KRW	100,000	-
	Korea Development Bank	KRW	100,000	100,000
Trade finance	Mistui Sumitomo Bank	USD	100,000	-
	BNP Paribas	USD	150,000	-
	The Export-Import Bank of Korea	USD	100,000	-
	Singapore Development Bank	USD	150,000	-
	Societe Generale	USD	100,000	-
	Standard Chartered	USD	150,000	-
Certification of payment on L/C	Nonghyup Bank	USD	50,000	2,085
Certification of performance guarantee on contract	National Bank of Pakistan	USD	302	302
	Seoul Guarantee Insurance Company	USD	138	138
	Hana Bank	EUR	100	100
Loan limit	Korea Development Bank	KRW	251,600	139,491
	Kookmin Bank	KRW	230,800	166,800
	Woori Bank	KRW	6,600	-
	Industrial Bank of Korea	KRW	3,000	-
Certification of bidding	KEB Hana Bank	EUR	2	2
Limit amount available for card	Nonghyup Card Co., Ltd.	KRW	13,004	2,549
	Woori Card Co., Ltd.	KRW	4,100	2,828
Others	Industrial Bank of Korea	KRW	20,240	240
	Shinhan Bank	KRW	10,000	-
	Hana Bank	KRW	61,000	-
	Nonghyup Bank	KRW	50,000	-
	Woori Bank	KRW	10,000	-
	Nonghyup Bank	USD	20,000	-
	Seoul Guarantee Insurance Company	USD	207	207

41. Commitment and contingencies (cont'd)

The Group voluntarily suspended operations of the Gangneung hydroelectric generating plant, with a carrying amount of ₩69,532 million as of December 31, 2020, to improve the quality of water used in generating electricity. The expenses related to the suspension of operations of ₩46 million and depreciation on the utility plant amounting to ₩6,604 million are charged to other expenses for the year ended December 31, 2020. Regarding the improvement of water quality, the results of damages compensation for the local residents cannot be reasonably estimated, and the Group is under negotiations with Gangneung City and related stakeholders to restart the Gangneung hydroelectric generating plant as of December 31, 2020.

Major contracts related to constructions:

Agreements for the purchase of property, plant and equipment as of December 31, 2020 and 2019 are as follows (Korean won in millions)

	December 31, 2020	December 31, 2019
Agreements for the purchase of property, plant and equipment(*)	₩ 25,642,120	₩ 24,430,487

(*) The above amount is the total business standard amount of the construction work.

Contractual amounts for power plants either completed or not executed as of December 31, 2020 and 2019 are as follows (Korean won in millions):

	December 31, 2020		December 31, 2019	
	Contractual amounts	Remaining balance	Contractual amounts	Remaining balance
Construction of Shin-Kori units (#3,4)(*)	₩ 7,573,098	₩ -	₩ 7,498,951	₩ -
Construction of Shin-Kori units (#5,6)	8,625,387	3,256,117	8,625,387	4,479,956
Construction of Shin-Hanul units (#1,2)	9,443,635	160,512	8,306,149	-
	₩ 25,642,120	₩ 3,416,629	₩ 24,430,487	₩ 4,479,956

(*) Construction of Shin-Kori units (#3,4) was completed during the year ended December 31, 2019.

The Group has various purchase commitments for uranium, and the details of the major contracts as of December 31, 2020 are as follows:

	Contract Year	Quantity
Concentrate	2020~2030	32,435 Ton U3O8
Transformation	2020~2030	18,088 Ton U
Enrichment	2020~2030	17,667 Ton SWU
Fabrication (light-water reactor)	2019~2020	756 Ton U
Fabrication (heavy-water reactor)	2019~2020	401 Ton U
Fabrication (initial core)	2009~2024	415 Ton U

41. Commitment and contingencies (cont'd)

Details of collateral provided by the Group for long-term borrowings as of December 31, 2020 are as follows (Korean won in millions):

	Type	Loan amounts		Loan limit		Maximum amount guaranteed		Financial institution
Long-term borrowings (*1)	Facility loan	₩	139,490	₩	251,600	₩	327,080	Korea Development Bank and others
Long-term borrowings (*2)	Facility loan		166,800		230,800		276,960	Kookmin Bank and others
		₩	306,290	₩	482,400	₩	604,760	

(*1) As of December 31, 2020, all shares of Gyeonggi Green Energy Co., Ltd., one of the Group's subsidiaries, were provided as collateral related to the long-term borrowings above from shareholders including the Group. Additionally, pledge for transfer of rights of long-term borrowings, pledge for insurance claims, pledged for plants and other pledges were established.
(*2) As of December 31, 2020, all shares of Incheon Fuel Cell Co., Ltd., one of the Group's subsidiaries, were provided as collateral related to the long-term borrowings above from shareholders including the Group. Additionally, pledge for transfer of rights of long-term borrowings, pledge for insurance claims, pledged for plants and other pledges were established.

Uncertainties relating to COVID19

In order to prevent the spread of COVID-19, various prevention and control measures including restrictions on movement are being implemented worldwide, and as a result, the global economy is widely affected. In addition, the government has announced various support measures to cope with the impact of COVID-19.

The effect of COVID 19 and the effect of the government support measures on future impairment of inventories, property, plant and equipment and intangible assets, recognition of provisions and the feasibility of deferred tax assets cannot be reasonably estimated as of December 31, 2020. Accordingly, such impact has not been reflected in the consolidated financial statements.

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Independent auditor's report

The Shareholder and Board of Directors
Korea Hydro & Nuclear Power Co., Ltd.

Opinion

We have audited the consolidated financial statements of Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries (the "Group"), which comprise the consolidated statement of financial position as of December 31, 2019, and the consolidated statement of comprehensive income (loss), consolidated statement of changes in equity and consolidated statement of cash flows for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2019, and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions.

Emphasis of matter

We draw attention to Note 2 of the consolidated financial statements. As described in Note 2 to the consolidated financial statements, the Group's consolidated financial statements were prepared in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions. Pursuant to its Article 2-5, 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. There are no significant accounting treatments which are different compared to KIFRS in order for the Group to be in full compliance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions. Our opinion is not modified in respect of this matter.

Other matter

The consolidated financial statements of the Group for the year ended December 31, 2018, were audited by KPMG Samjong Accounting Corp., whose report dated March 6, 2019 expressed an unqualified opinion thereon.

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 of the Republic of Korea that are relevant to our audit of the consolidated financial statements, and we have fulfilled our other ethical responsibilities in accordance with the ethical requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

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Responsibilities of management and those charged with governance for the consolidated financial statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions, and for such internal control as management determines is necessary to enable the preparation of the consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditor's responsibilities for the audit of the consolidated financial statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with KGAAS will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with KGAAS, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

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We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Ernst & Young Han Young

March 16, 2020

This audit report is effective as of March 16, 2020, the independent auditor's report date. Accordingly, certain subsequent events or circumstances, which 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.

KPMG SAMJONG

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Independent Auditors' Report

The Board of Directors and Shareholder
Korea Hydro & Nuclear Power Co., Ltd.:

Opinion

We have audited the accompanying consolidated financial statements of Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries (the "Group"), which comprise the consolidated statement of financial position as of December 31, 2018, the consolidated statements of comprehensive income, changes in equity and cash flows for the year then ended, and notes, comprising significant accounting policies and other explanatory information.

In our opinion, the consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as at December 31, 2018 and of its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions.

Basis for Opinion

We conducted our audit in accordance with Korean Standards on Auditing (KSAs). Our responsibilities under those standards are further described in the Auditors' 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.

Emphasis of Matter

Without qualifying our opinion, we draw attention to the following matter. As explained in Note 2 to the consolidated financial statements, for those matters not specified in the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions, the accompanying consolidated financial statements have been prepared in accordance with Korean International Financial Reporting Standards.

Other Matter

The procedures and practices utilized in the Republic of Korea to audit such consolidated financial statements may differ from those generally accepted and applied in other countries.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

Auditors' 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 auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with KSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with KSAs, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the 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 in the preparation of the consolidated financial statements 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 auditors' 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 auditors' report. However, future events or conditions may cause the Group to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

/s/ KPMG Samjong Accounting Corp.

Seoul, Korea
March 6, 2019

This report is effective as of March 6, 2019, the audit report date. Certain subsequent events or circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that the above audit report has not been updated to reflect the impact of such subsequent events or circumstances, if any.

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of financial position
as of December 31, 2019 and 2018

(Korean won in millions)

	Notes	2019	2018
Assets			
Current assets:			
Cash and cash equivalents	5,6	₩ 34,916	₩ 110,964
Current financial assets, net	5,7,10	245,495	469,970
Trade and other receivables, net	5,8	1,302,267	1,367,854
Inventories	11	4,827,523	4,517,082
Current tax assets		718	-
Current non-financial assets	12	129,420	171,832
Non-current assets held for sale	14, 42	23,002	-
Total current assets		6,563,341	6,637,702
Non-current assets:			
Non-current financial assets, net	5,7,9,10	1,216,125	1,075,912
Non-current trade and other receivables, net	5,8	50,023	78,625
Property, plant and equipment, net	14,15,18,22	49,961,204	45,608,457
Intangible assets, net	15,17,18	123,367	115,574
Investments in associates and joint ventures	13	122,873	107,771
Deferred tax assets	35	1,242,010	1,046,205
Non-current non-financial assets	12	463,779	1,365,216
Total non-current assets		53,179,381	49,397,760
Total assets		**₩ 59,742,722**	**₩ 56,035,462**

(Continued)

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of financial position
as of December 31, 2019 and 2018 (cont'd)
(Korean won in millions)

	Notes		2019		2018
Liabilities					
Current liabilities:					
Trade and other payables	2,5,20,22	₩	1,037,572	₩	982,852
Current financial liabilities, net	5,7,21		728,260		799,220
Current tax liabilities			204,283		212,893
Current non-financial liabilities	25		59,118		134,858
Current provisions	24		825,404		409,839
Total current liabilities			2,854,637		2,539,662
Non-current liabilities:					
Non-current trade and other payables	2,5,20,22		2,536,913		2,582,330
Non-current financial liabilities, net	5,7,21		9,734,782		8,951,712
Non-current non-financial liabilities	25		5,065		5,065
Employee benefit obligations	23		321,216		328,774
Non-current provisions	24		18,624,232		16,245,471
Total non-current liabilities			31,222,208		28,113,352
Total liabilities		₩	**34,076,845**	₩	**30,653,014**
Equity					
Contributed capital	26	₩	10,704,515	₩	10,704,515
Retained earnings	27		14,972,697		14,663,667
Other components of equity	28		(39,901)		(42,605)
Equity attributable to owners of the parent			25,637,311		25,325,577
Non-controlling interests			28,566		56,871
Total equity			**25,665,877**		**25,382,448**
Total liabilities and equity		₩	**59,742,722**	₩	**56,035,462**

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

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of comprehensive income (loss)
for the years ended December 31, 2019 and 2018
(Korean won in millions, except for basic earnings (loss) per share)

	Notes		2019		2018
Sales	4,16,29	₩	8,982,627	₩	8,955,158
Cost of sales	16,36		7,976,250		7,598,033
Gross profit			**1,006,377**		**1,357,125**
Selling and administrative expenses	30,36		223,316		211,510
Operating profit			**783,061**		**1,145,615**
Other income	31		44,773		53,617
Other expenses	31		177,868		170,302
Other profit (loss), net	32		11,448		(718,718)
Finance income	5,7,33		266,383		133,463
Finance costs	5,7,34		647,525		662,006
Gain (loss) on investments in associates and joint ventures	13		(6,436)		9,520
Profit (loss) before income tax			**273,836**		**(208,811)**
Income tax expense (benefit)	35		27,288		(106,818)
Profit (loss) for the year		₩	**246,548**	₩	**(101,993)**
Other comprehensive income (loss), net of tax:					
Items that will not be reclassified to profit or loss in subsequent periods:	23				
Remeasurement of defined benefit plans		₩	34,184	₩	(24,151)
Share of other comprehensive income (loss) of associates and joint ventures			(28)		373
Loss on valuation of financial assets at fair value through OCI			(885)		(7,236)
Items that may be reclassified to profit or loss in subsequent periods:	28				
Gain on translation of foreign operations			2,085		453
Share of other comprehensive income (loss) of associates and joint venture			1,504		(745)
Other comprehensive income (loss), net of tax			36,860		(31,306)
Total comprehensive income (loss), net of tax		₩	**283,408**	₩	**(133,299)**
Profit (loss) for the year attributable to:					
Owners of the parent		₩	274,861	₩	(111,435)
Non-controlling interests			(28,313)		9,442
		₩	246,548	₩	(101,993)
Total comprehensive income (loss) for the year attributable to:					
Owners of the parent		₩	311,735	₩	(142,735)
Non-controlling interests			(28,327)		9,436
		₩	283,408	₩	(133,299)
Earnings (loss) per share in Korean won:					
Basic earnings (loss) per share	37	₩	1,134	₩	(460)

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

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of changes in equity
for the years ended December 31, 2019 and 2018
(Korean won in millions)

	Contributed capital	Retained earnings	Other components of equity	Equity attributable to the owners of the parent	Non-controlling interests	Total equity
As of January 1, 2018	₩ **10,704,515**	₩ **15,084,381**	₩ **(39,553)**	₩ **25,749,343**	₩ **37,891**	₩ **25,787,234**
Adjustment on initial application of KIFRS 1109, net of tax	-	(4,529)	4,529	-	-	-
Adjustment on initial application of KIFRS 1115, net of tax	-	256	-	256	157	413
Revised equity as of January 1, 2018	₩ **10,704,515**	₩ **15,080,108**	₩ **(35,024)**	₩ **25,749,599**	₩ **38,048**	₩ **25,787,647**
Total comprehensive income (loss)						
Profit (loss) for the year	-	(111,435)	-	(111,435)	9,442	(101,993)
Items that will not be reclassified to profit or loss in subsequent periods:						
Remeasurement of defined benefit plans	-	(24,145)	-	(24,145)	(5)	(24,150)
Share of other comprehensive income of associates and joint ventures	-	373	-	373	-	373
Loss on valuation of financial assets at fair value through OCI	-	-	(7,237)	(7,237)	-	(7,237)
Items that may be reclassified to profit or loss in subsequent periods:						
Gain on translation of foreign operations	-	-	454	454	-	454
Share of other comprehensive loss of associates and joint ventures	-	-	(745)	(745)	-	(745)
Transactions with owners of the parent recognized directly to equity:						
Changes in scope of consolidation	-	-	(53)	(53)	9,386	9,333
Dividends	-	(281,234)	-	(281,234)	-	(281,234)
As of December 31, 2018	₩ **10,704,515**	₩ **14,663,667**	₩ **(42,605)**	₩ **25,325,577**	₩ **56,871**	₩ **25,382,448**
As of January 1, 2019	₩ **10,704,515**	₩ **14,663,667**	₩ **(42,605)**	₩ **25,325,577**	₩ **56,871**	₩ **25,382,448**
Total comprehensive income (loss)						
Profit (loss) for the year	-	274,861	-	274,861	(28,313)	246,548
Items that will not be reclassified to profit or loss in subsequent periods:						
Remeasurement of defined benefit plans	-	34,197	-	34,197	(13)	34,184
Loss on valuation of financial assets at fair value through OCI	-	-	(885)	(885)	-	(885)
Share of other comprehensive income of associates and joint ventures	-	(28)	-	(28)	-	(28)
Items that may be reclassified to profit or loss in subsequent periods:						
Gain on translation of foreign operations	-	-	2,085	2,085	-	2,085
Share of other comprehensive income of associates and joint ventures	-	-	1,504	1,504	-	1,504
Transactions with owners of the parent recognized directly to equity:						
Paid-in capital increase of subsidiaries	-	-	-	-	21	21
As of December 31, 2019	₩ **10,704,515**	₩ **14,972,697**	₩ **(39,901)**	₩ **25,637,311**	₩ **28,566**	₩ **25,665,877**

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

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2019 and 2018
(Korean won in millions)

		2019		2018
Operating activities				
Profit (loss) for the year	₩	246,548	₩	(101,993)
Non-cash adjustments to reconcile profit (loss) for the year to net cash flows provided by operating activities				
Income tax expense (benefit)		27,289		(106,818)
Depreciation		2,182,317		2,131,749
Amortization of nuclear fuel		1,077,979		956,290
Amortization of intangible assets		27,284		14,271
Depreciation of idle assets		6,542		6,547
Impairment loss on property, plant and equipment		3,819		703,131
Retirement benefits		132,390		76,537
Other bad debt expenses		49,252		87,024
Loss (gain) on investments in associates and joint venture		6,436		(9,520)
Loss on disposal of property, plant and equipment		17,294		25,363
Loss on disposal of intangible assets		773		9
Write-offs of property, plant and equipment		-		38,886
Loss from inventory obsolescence		56		53
Loss on disposal of inventories		7,467		898
Provisions for decomissioning cost		449,326		261,868
Provisions for litigation		10		490
Other provisions		9,063		41,621
Provisions for employee benefits		214,215		231,858
Interest expenses		519,291		511,180
Loss on disposal of financial assets		1,612		-
Loss on valuation of financial assets at fair value through profit or loss		1,513		3,181
Loss on valuation of derivative instruments		-		14,472
Loss on transactions of derivative instruments		2,193		1,218
Loss on foreign currency translation		108,077		112,926
Loss on foreign currency transactions		15,870		-
Loss on termination of leases		14		-
Miscellaneous loss and other expenses		81,304		1
Gain on disposals of property, plant and equipment		(2,114)		(7,660)
Gain on disposals of intangible assets		-		(12)
Gain on disposals of inventories		(105)		(113)
Gain on assets contributed		(115)		-
Interest income		(37,605)		(30,571)
Dividend income		(7,390)		(2,119)
Gain on disposal of financial assets		(1,212)		(1,829)
Gain on valuation of financial assets at fair value through profit or loss		(4,113)		(8,422)
Gain on valuation of derivative instruments		(169,279)		(44,356)
Gain on transactions of derivative instruments		(44,503)		(33,805)
Gain on foreign currency translation		(3,805)		(11,574)
Gain on termination of leases		(20)		-
Reversal of provision for greenhouse gas emission		-		(15,645)
Reversal of provisions for litigation		(480)		(25)
Reversal of impairment loss on property, plant and equipment		(16,692)		-
	₩	4,653,953	₩	4,947,104

(Continued)

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2019 and 2018 (cont'd)
(Korean won in millions)

		2019		2018
Changes in operating assets and liabilities:				
Short-term trade receivables	₩	(100,005)	₩	(106,956)
Short-term other receivables		(42,464)		5,357
Short-term accrued income		128,301		(47,754)
Short-term advanced payments		(1,570)		(331)
Short-term prepaid expenses		45,976		(19,520)
Contract assets		15,193		-
Other current non-financial assets		(2,322)		13,123
Inventories		(1,447,233)		(1,238,221)
Short-term trade payables		23,140		14,599
Short-term other payables		(232,775)		(291,135)
Short-term accrued expenses		(388,701)		(381,936)
Short-term leasehold deposits received		(24)		139
Short-term other deposits received		899		1,297
Short-term advances received		-		(1,454)
Short-term withholdings		(2,919)		(1,327)
Short-term unearned revenue		143		13
Long-term other payables		(13,898)		(43,647)
Other current non-financial liabilities		(72,963)		6,798
Provision for employee benefits		(218,226)		(195,400)
Provision for power plant regional support program		(48,390)		(71,978)
Provision for decommissioning cost of nuclear plants		(33,658)		(30,410)
Other non-current non-financial assets		-		2,377
Provision for decommissioning cost of disposal of low and intermediate-level radioactive waste		(6,479)		(66,178)
Long-term other employee benefits		(9)		(208)
Payment of retirement benefits		(22,691)		(19,348)
Increase in plan assets		(89,590)		(88,879)
		(2,510,265)		(2,560,979)
Interest received		33,766		25,915
Interest paid		(344,305)		(326,376)
Dividends received		975		524
Income taxes paid		(245,416)		(82,496)
Net cash provided by operating activities	₩	**1,835,256**	₩	**1,901,699**

(Continued)

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2019 and 2018 (cont'd)
(Korean won in millions)

		2019		2018
Investing activities				
Decrease in short-term financial instruments	₩	80,239	₩	145,023
Increase in short-term financial instruments		(92,000)		(15,000)
Decrease in short-term loans		66,768		352
Increase in short-term loans		(66,485)		-
Decrease in short-term guarantee deposits		135,656		124,000
Increase in short-term guarantee deposits		(128,000)		(124,000)
Decrease in long-term financial instruments		90,274		375,107
Increase in long-term financial instruments		(94,842)		(283,769)
Increase in current financial assets at fair value through profit or loss		(35,731)		(245,692)
Decrease in current financial assets at fair value through profit or loss		251,903		-
Increase in non-current financial assets at fair value through profit or loss		(235,604)		(242,979)
Decrease in non-current financial assets at fair value through profit or loss		212,849		63,623
Decrease in long-term guarantee deposits		62,526		58,705
Increase in long-term guarantee deposits		(40,948)		(60,875)
Decrease in long-term loans		9,198		7,433
Increase in long-term loans		(10,634)		(10,623)
Increase in long-term advanced payments		(133,292)		(48,553)
Acquisition of investments in associates and joint ventures		(20,062)		(2,073)
Proceeds from disposal of land		2,060		6,711
Acquisition of land		-		(23)
Proceeds from disposal of buildings		1,849		2,565
Acquisition of buildings		(32)		(64)
Proceeds from disposal of structures		494		2,472
Acquisition of structures		(5)		-
Proceeds from disposal of machinery		-		6,256
Acquisition of machinery		(4,594)		(5,414)
Proceeds from disposal of ships		-		79
Proceeds from disposal of vehicles		38		120
Acquisition of vehicles		(1,711)		(634)
Proceeds from disposal of fixtures and furniture		-		7
Acquisition of fixtures and furniture		(33,684)		(26,955)
Proceeds from disposal of tools and equipment		1		-
Acquisition of tools and equipment		(9,548)		(1,177)
Increase in construction-in-progress		(2,567,985)		(2,141,467)
Acquisition of intangible assets		(30,965)		(15,527)
Proceeds from disposal of intangible assets		-		13
Proceeds from disposal of non-current assets held for sale		-		1,400
Decrease in other non-current non-financial assets		-		1,039
Net cash used in investing activities	₩	**(2,592,267)**	₩	**(2,429,920)**

(Continued)

Korea Hydro & Nuclear Power Co., Ltd. and its subsidiaries
Consolidated statements of cash flows
for the years ended December 31, 2019 and 2018 (cont'd)
(Korean won in millions)

		2019		2018
Financing activities				
Proceeds from short-term borrowings	₩	321,338	₩	402,576
Repayment of short-term borrowings		(111,338)		(402,576)
Repayment of current portion of long-term borrowings		(17,477)		(16,737)
Repayment of current portion of bonds		(641,300)		(1,107,120)
Issuance of bonds		1,098,344		1,895,189
Dividends paid		-		(281,234)
Settlement of derivative instruments		57,626		22,890
Paid-in capital increase of subsidiaries		21		9,333
Decrease in lease liabilities		(26,276)		-
Net cash provided by financing activities		**680,938**		**522,321**
Effects of exchange rate changes on cash and cash equivalents		**25**		**(310)**
Net decrease in cash and cash equivalents		**(76,048)**		**(6,210)**
Cash and cash equivalents at the beginning of the year		**110,964**		**117,174**
Cash and cash equivalents at the end of the year	₩	**34,916**	₩	**110,964**

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

1. General information of the Company

1.1 The controlling company

Korea Hydro & Nuclear Power Co., Ltd. ("KHNP" or the "Company") was incorporated on April 2, 2001 through the spin-off of the power generation division of Korea Electric Power Corporation ("KEPCO") in accordance with the Act on Promotion of Restructuring the Electric Power Industry. As of December 31, 2019, KHNP owns and operates 24 nuclear generating units, 36 hydroelectric generating units, 16 pumped-storage facilities and 22 new renewable energy generating units. As of December 31, 2019, KHNP's total generation capacity is 28,590MW.

As of December 31, 2019, KEPCO wholly owned KHNP's outstanding shares.

1.2 Consolidated subsidiaries

Details of investments in subsidiaries as of December 31, 2019 and 2018 are as follows:

			Percentage of ownership	
Company name	Key operating activities	Location	2019	2018
KHNP Canada Energy Ltd.	Uranium resources development	Canada	100.00%	100.00%
Gyeonggi Green Energy Co., Ltd.	Electricity and heat generation	Korea	62.01%	62.01%
Korea Imouraren Uranium Investment Corp.	Uranium resources development	France	100.00%	100.00%
Korea Waterbury Uranium Limited Partnership	Uranium resources development	Canada	70.00%	70.00%
Incheon Fuel Cell Co., Ltd.	Electricity and heat generation	Korea	60.00%	60.00%
First Keepers Co., Ltd. (*)	Facility management	Korea	100.00%	-
Secutec Co., Ltd. (*)	Facility security	Korea	100.00%	-

(*) This entity is newly included in the subsidiary of the Group due to new investments for the year ended December 31, 2019.

Summarized financial information of subsidiaries as of December 31, 2019 and for the year ended is as follows (Korean won in millions):

Company name	Assets	Liabilities	Sales	Net loss
KHNP Canada Energy Ltd.	₩ 45,791	₩ 43	₩ -	₩ (10)
Gyeonggi Green Energy Co., Ltd.	194,425	159,078	13,717	(73,394)
Korea Imouraren Uranium Investment Corp.	14,173	111	-	(49,297)
Korea Waterbury Uranium Limited Partnership	20,906	167	-	(77)
Incheon Fuel Cell Co., Ltd.	22,669	475	-	(1,010)
First Keepers Co., Ltd.	1,552	2,800	121	(2,239)
Secutec Co., Ltd.	322	229	-	(597)

Significant restrictions related to subsidiaries are as follows:

Company name	Significant restrictions in details
Gyeonggi Green Energy Co., Ltd.	Acquisition or disposal of assets by more than ₩35 billion, change in the capacity of cogeneration units (except for the change due to performance improvement of equipment or maintenance) will require unanimous consent of all directors.
Incheon Fuel Cell Co., Ltd.	Acquisition or disposal of assets by more than ₩20 billion, change in the capacity of cogeneration units (except for the change due to performance improvement of equipment or maintenance) will require unanimous consent of all directors.

2. Basis of preparation

2.1 Statement of compliance

The consolidated financial statements of Korea Hydro & Nuclear Power Co., Ltd. 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 pursuant to the *Act on the Management of Public Institutions* and the Decree on Accounting for Public Corporations and Quasi-governmental Institutions. In compliance with Article 2, Paragraph 5 of the regulations above, for those matters not specified in the regulations and standard above, the consolidated financial statements of the Group have been prepared in accordance with Korean International Financial Reporting Standards ("KIFRS"), a standard adopted in accordance with International Financial Reporting Standards by the Korean Accounting Standards Board. There are no significant matters that have been applied differently from KIFRS under the Regulation.

The consolidated financial statements of the Group were approved at the Board of Directors' meeting held on February 11, 2020, which will be finally approval at the shareholder's meeting to be held on March 27, 2020.

The Group has initially applied KIFRS 1116 'Leases' from January 1, 2019. The effects of changes in accounting policy is described in Note 2.5.

2.2 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 are measured at fair value
- ✓ Financial assets at fair value through other comprehensive income are measured at fair value
- ✓ Financial assets at fair value through profit or loss are measured at fair value
- ✓ Liabilities for defined benefit plans are recognized at the net of the total present value of defined benefit obligations less the fair value of plan assets

2.3 Functional and presentation currency

The consolidated financial statements of the Group are prepared in functional currency of the respective operation. These consolidated financial statements are presented in Korean won, which is the Controlling Company's functional currency and the currency of the primary economic environment in which the Group operates.

2.4 Use of estimates and judgments

The preparation of the consolidated financial statements in conformity with KIFRS 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.

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.

The followings are the key assumptions concerning the future, and other key sources of estimation uncertainty at the end of the reporting period, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year.

(i) Early shutdown of Wolsong unit 1 nuclear power plant and changes in new nuclear power plants construction

The 30-year designed life of Wolsong unit 1 nuclear power plant of the Group had expired on November 20, 2012. On February 27, 2015, however, approval from the Nuclear Safety and Security Commission (NSSC) was received to continue its operation until November 20, 2022.

2.4 Use of estimates and judgments (cont'd)

According to the Eighth Basic Plan for Electricity Supply and Demand announced by the Ministry of Trade, Industry and Energy in 2017, Wolsong unit 1 nuclear power plant was expected to go through a comprehensive evaluation for the feasibility of continuous operation including economic efficiency and acceptability of household and community in 2018 in order to decide whether to shut down early. On June 15, 2018, the Board of Directors of the Company has decided to shut down the Wolsong unit 1 considering the amounts of accumulated deficit and low economic efficiency due to the unoptimistic utilization rate. On December 24th, 2019, the Nuclear Safety and Security Commission (NSSC) deliberated and voted on a proposed change in the operation of the Wolsong unit 1 and finalized the change in operation (permanent suspension).

In addition, the Board of Directors of the Company has also decided to discontinue the construction of Cheonji unit 1 and 2 and Daejin unit 1 and 2 pursuant to the government policy. For this reason, the Group recognized impairment loss and other expenses as described in Note 14, for the year ended December 31, 2018.

Among the new nuclear power plants under construction as of December 31, 2019, Shin-Hanul unit 3 and 4, which were approved for power generation business, are not included in the decision to suspend construction approved by the Board of Directors of the Company. However, considering the decision to shut down Wolsong unit 1 and suspended construction of Cheonji unit 1 and 2 and Daejin unit 1 and 2, it is highly likely that the construction of Shin-Hanul unit 3 and 4 will be suspended according to the government's policy. For this reason, the Group recognized impairment loss as described in Note 14, for the year ended December 31, 2018 as the Group believes that there was a significant change in its operating environment as of the date of the Board of Directors' decision.

The Korean government plans to refund to the Group for reasonable expenditures incurred in relation to the phase-out of nuclear power plants in accordance with the energy transformation policy established by the Korean government. In doing so, the Korean government is considering to use available resource including utilizing relevant fund to make the refund. Also, Korean government plans to establish relevant legal basis of providing refund including utilizing available resource.

(ii) Useful lives of property, plant and equipment, estimation on provision for decommissioning costs

The Group reviews the estimated useful lives of property, plant and equipment at the end of each annual reporting period. Management's assumptions could affect the determination of estimated economic useful lives.

The Group records the present value of estimated decommissioning costs as a liability in the period in which the Group incurs a legal obligation associated with the retirement of long-lived assets that result from acquisition, construction, development and/or normal use of the assets. The Group is required to record a liability for the dismantling (demolition) of nuclear power plants and disposal of spent fuel and low and intermediate radioactive wastes. The measurement of such liability is subject to change based on change in estimated cash flow, inflation rate, discount rate, and expected timing of decommissioning.

(iii) Deferred tax

The Group recognizes deferred tax assets and liabilities based on the differences between the financial statement carrying amounts and the tax bases of assets and liabilities of each consolidated taxpaying entity. However, the amount of deferred tax assets may be different if the Group does not realize estimated future taxable income during the carry forward periods.

(iv) Valuations of financial instruments at fair values

When measuring the fair value of an asset or a liability, the Group uses inputs that are not based on observable market data. Information about the assumptions made in measuring fair values and sensitivity analysis on the fair value of financial instruments are included in Note 38. The management believes that methods and assumptions in measuring the fair value of an asset or a liability are appropriate.

2.4 Use of estimates and judgments (cont'd)

(v) Defined benefit liabilities

The Group offers its employees defined benefit plans. The cost of providing benefits is determined using the Projected Unit Credit Method, with actuarial valuations being carried out at the end of each reporting period. For actuarial valuations, certain inputs such as discount rates and future salary increases are estimated. Defined benefit plans contain significant uncertainness in estimations due to its long-term nature.

2.5 Changes in accounting policies

The Group applied KIFRS 1116 *Leases* for the first time. The nature and effect of the changes as a result of adoption of this new accounting standard is described below.

Several other amendments and interpretations apply for the first time in 2019, but do not have an impact on the consolidated financial statements of the Group.

(i) KIFRS 1116 *Leases*

KIFRS 1116 supersedes KIFRS 1017 *Leases*, KIFRS 2104 *Determining whether an Arrangement contains a Lease*, KIFRS 2015 *Operating Leases-Incentives* and KIFRS 2027 *Evaluating the Substance of Transactions* Involving *the Legal Form of a Lease*. This standard sets out the principles of recognition, measurement, presentation and disclosure of leases and requires the lessees to account for most leases under single on-balance sheet model.

Lessor accounting under KIFRS 1116 is substantially unchanged from KIFRS 1017. Lessors will continue to classify leases as either operating or finance leases using similar principles as in KIFRS 1017. Therefore, KIFRS 1116 has no effect on lease contracts in which the Group is the lessor.

The Group adopted KIFRS 1116 using the modified retrospective method of adoption, with the date of initial application of January 1, 2019. Under this method, the cumulative effect of adopting KIFRS 1116 is reflected at the date of initial application. The Group also elected to use the recognition exemptions for lease contracts that, at the commencement date, have a lease term of 12 months or less and do not contain a purchase option ('short-term leases'), and lease contracts for which the underlying asset is of low value ('low-value assets').

The effect of the first application of KIFRS 1116 on the consolidated statement of financial position as of January 1, 2019 is as follows (Korean won in millions):

		Increase (decrease)
Assets		
Property, plant, and equipment	₩	141,673
Prepaid expenses		(2,080)
Total assets	₩	139,593
Liabilities		
Trade and other payables	₩	139,593
Total liabilities		139,593
Total equity	₩	-

2.5 Changes in accounting policies (cont'd)

Effects of the initial adoption of KIFRS 1116

Before adopting KIFRS 1116, the Group classified each lease as a finance lease or an operating lease on the basis of the lease agreement date that the Group is a lessee. Leases that transfer substantially all of the risks and rewards of ownership to the Group were classified as finance leases and other leases were classified as operating leases. In the case of a finance lease, the present value of the minimum lease payments measured at the inception of the lease and the fair value of the leased asset were recognized as finance lease assets and liabilities at the commencement of the lease term, respectively. The minimum lease payments paid are apportioned between finance costs and repayment of the lease liability. The lease payments were recognized as an expense in the consolidated statement of comprehensive income (loss) on a straight-line basis over the lease term. Lease payments that were or were not paid were recognized as advanced payments or other unpaid bills, respectively. As a result of applying KIFRS 1116, the Group applies a single recognition and measurement method for all leases in which the Group is the lessee, except for short-term leases and leases of low-value assets. This standard provides guidance on specific transition requirements and practical expedients applied by the Group.

- Leases classified by finance leases previously

For leases previously classified as a finance lease, the carrying amount of the right-of-use asset and lease liability as of the date of initial application is the carrying amount of the leased asset and lease liability measured in accordance with KIFRS 1017 just before the initial date. The Group shall account for that lease by applying this standard from the date of initial application.

- Leases classified by operating leases previously

The Group recognized the right-of-use asset and the lease liability to a lease that was previously classified as an operating lease, except for short-term leases and leases of low-value assets. Right-of-use assets for most leases were discounted at the lessee's incremental borrowing rate as of the date of initial application, and in some leases, the right-of-use assets were recognized based on the amount equal to the lease liabilities, adjusted for any related prepaid and accrued lease payments previously recognized. The lease liability was measured as the present value of the remaining lease payments at an incremental borrowing rate as of the date of initial application.

The practical expedients applied by the Group are as follows:

- Used a single discount rate to a portfolio of leases with reasonably similar characteristics
- Relied on its assessment of whether leases are onerous immediately before the date of initial application
- Applied the short-term leases exemptions to leases with lease term that ends within 12 months at the date of initial application
- Excluded the initial direct costs from the measurement of the right-of-use asset at the date of initial application
- Used hindsight in determining the lease term of a lease contract that includes the option of extension or termination

Lease liabilities as of January 1, 2019 and adjustment details of operating leases as of December 31, 2018 are as follow (Korean won in millions):

		Amount
Operating lease commitments as of December 31, 2018	₩	202,131
Weighted average incremental borrowing rate as of 1 January 1, 2019		2.13%
Discounted operating lease commitments as of January 1, 2019		145,030
Less:		
Commitments relating to short-term leases		4,177
Commitments relating to leases of low-value assets		1,260
Lease liabilities as of January 1, 2019	₩	139,593

2.5 Changes in accounting policies (cont'd)

(ii) KIFRS 2123 *Uncertainty over Income Tax Treatment*

The addresses the accounting for income taxes when tax treatments involve uncertainty that affects the application of KIFRS 1012 and does not apply to taxes or levies outside the scope of KIFRS 1012, nor does it specifically include requirements relating to interest and penalties associated with uncertain tax treatments. The Interpretation specifically addresses the following:

- Whether an entity considers uncertain tax treatments separately
- The assumptions an entity makes about the examination of tax treatments by taxation authorities
- How an entity determines taxable profit (tax loss), tax bases, unused tax losses, unused tax credits and tax rates
- How an entity considers changes in facts and circumstances

The Group has to determine whether to consider each uncertain tax treatment separately or together with one or more other uncertain tax treatments. The approach that better predicts the resolution of the uncertainty should be followed. The interpretation has no effect on the Group's consolidated financial statements.

(iii) Amendments to KIFRS 1109: Prepayment Features with Negative Compensation

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

(iv) Amendments to KIFRS 1019: Plan Amendment, Curtailment or Settlement

The amendments to KIFRS 1019 address the accounting when a plan amendment, curtailment or settlement occurs during a reporting period. The amendments specify that when a plan amendment, curtailment or settlement occurs during the annual reporting period, an entity is required to:

- Determine current service cost for the remainder of the period after the plan amendment, curtailment or settlement, using the actuarial assumptions used to remeasure the net defined benefit liability (asset) reflecting the benefits offered under the plan and the plan assets after that event
- Determine net interest for the remainder of the period after the plan amendment, curtailment or settlement using: the net defined benefit liability (asset) reflecting the benefits offered under the plan and the plan assets after that event; and the discount rate used to remeasure that net defined benefit liability (asset).

The amendments have no effect on the Group's consolidated financial statements as the Group does not have any amendments, curtailments or settlements to defined benefit plans for the year ended December 31, 2019.

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

The amendments clarify that an entity applies KIFRS 1109 to long-term interests in an associate or joint venture to which the equity method is not applied but that, in substance, form part of the net investment in the associate or joint venture (long-term interests). This clarification is relevant because it implies that the expected credit loss model in KIFRS 1109 applies to such long-term interests.

The amendments also clarified that, in applying KIFRS 1109, an entity does not take account of any losses of the associate or joint venture, or any impairment losses on the net investment, recognized as adjustments to the net investment in the associate or joint venture that arise from applying KIFRS 1028 *Investments in Associates and Joint Ventures*. These amendments had no impact on the Group's consolidated financial statements.

2.5 Changes in accounting policies (cont'd)

(vi) 2015-2017 Annual Improvements 2015-2017 Cycle

➢ **KIFRS 1103 *Business Combinations***

The amendments clarify that, when an entity obtains control of a business that is a joint operation, it applies the requirements for a business combination achieved in stages, including remeasuring previously held interests in the assets and liabilities of the joint operation at fair value. In doing so, the acquirer remeasures its entire previously held interest in the joint operation. An entity applies those amendments to business combinations for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after January 1, 2019, with early application permitted. These amendments will apply on future business combinations of the Group. The improvement has no effect on the Group's consolidated financial statements, as the Group did not obtain control of a business that is a joint operation for the year ended December 31, 2019.

➢ **KIFRS 1111 *Joint Arrangements***

A party that participates in, but does not have joint control of, a joint operation might obtain joint control of the joint operation in which the activity of the joint operation constitutes a business as defined in KIFRS 1103. The amendments clarify that the previously held interests in that joint operation are not remeasured. An entity applies those amendments to transactions in which it obtains joint control on or after the beginning of the first annual reporting period beginning on or after January 1, 2019, with early application permitted. The amendments have no effect on the Group's consolidated financial statements.

➢ **KIFRS 1012 *Income Taxes***

The amendments clarify that the income tax consequences of dividends are linked more directly to past transactions or events that generated distributable profits than to distributions to owners. Therefore, an entity recognizes the income tax consequences of dividends in profit or loss, other comprehensive income or equity according to where the entity originally recognized those past transactions or events. An entity applies those amendments for annual reporting periods beginning on or after January 1, 2019, with early application is permitted. When an entity first applies those amendments, it applies them to the income tax consequences of dividends recognized on or after the beginning of the earliest comparative period Since the Group's current practice is in line with these amendments, the amendments have no effect on the Group's consolidated financial statements.

➢ **KIFRS 1023 *Borrowing Costs***

The amendments clarify that an entity treats as part of general borrowings any borrowing originally made to develop a qualifying asset when substantially all of the activities necessary to prepare that asset for its intended use or sale are complete. An entity applies those amendments to borrowing costs incurred on or after the beginning of the annual reporting period in which the entity first applies those amendments. An entity applies those amendments for annual reporting periods beginning on or after January 1, 2019, with early application permitted. Since the Group's current practice is in line with these amendments, the amendments have no effect on the Group's consolidated financial statements.

2.6 Presentation of financial statements

The Group subdivides the accounts presented in the consolidated financial statements in accordance with the Rules for Accounting Affairs of Public Corporations and Quasi-governmental Institutions.

3. Significant accounting policies

The significant accounting policies applied by the Group in preparation of these 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 those as disclosed in Note 2.5.

3.1 Basis of consolidation

(i) Business combinations

The Group accounts for business combinations using the acquisition method when control is transferred to the Group except for acquisitions from entites or business under common control.

The consideration transferred in the acquisition is generally measured at fair value, as are the identifiable net assets acquired. Any goodwill that arises is tested annually for impairment. Any gain on a bargain purchase is recognized in profit or loss immediately. Transaction costs are expensed income or loss as incurred, except if related to issue debt or equity securities are recognized in accordance with KIFRS 1032, 'Financial Instruments: Presentation' and KIFRS 1039, 'Financial Instruments: Recognition and Measurement'.

The consideration transferred does not include amounts related to the settlement of pre-existing relationships. Such amounts are generally recognized in profit or loss.

Any contingent consideration is measured at fair value at the date of acquisition. If the contingent consideration is classified as equity, then it is not remeasured and settlement is accounted for within equity. Otherwise, subsequent changes in the fair value of the contingent consideration are recognized in profit or loss.

If share-based payment awards (replacement awards) are required to be exchanged for awards held by the acquiree's employees (acquiree's awards), then all or a portion of the amount of the acquirer's replacement awards is included in measuring the consideration transferred in the business combination. This determination is based on the market-based measure of the replacement awards compared with the market-based measure of the acquiree's awards and the extent to which the replacement awards relate to pre-combination service.

(ii) 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 subsidiary that do not result in a loss of control are accounted for as equity transactions.

(iii) 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 that control commences until the date that control ceases.

(iv) 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.

3. Significant Accounting Policies (cont'd)

3.1 Basis of consolidation (cont'd)

(v) Interests in equity-accounted investees

The Group's interests in equity-accounted investees comprise interests in associates and joint ventures.

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 joint ventures are accounted for using the equity method. They are recognized initially 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 other comprehensive income of equity-accounted investees, until the date on which significant influence or joint control ceases.

(vi) 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.

(vii) Acquisitions from entities under common control

The assets and liabilities acquired under business combinations under common control are recognized at the carrying amounts recognized previously in the consolidated financial statements of the ultimate parent. The difference between consideration transferred and carrying amounts of net assets acquired is recognized as part of other capital adjustmnents.

3.2 Revenue from contracts with customers

The Group has initially applied KIFRS 1115 'Revenue from Contracts with Customers' from January 1, 2018. The group recognizes revenue by applying 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).

Identification of the performance obligations in the contract
The Group identifies the power supply in the power exchange under the Power Market Operating Rules as a single performance obligation as a series of distinct goods or services. In addition to power supply, the Group carries out other projects such as profits from overseas projects through contracts with customers and identifies performance obligations that are distinct from each contract.

Variable consideration
If the contract with the customer includes a variable amount, the transaction price consists of fixed and variable consideration, and the transaction price is estimated at one of the expected or most likely amounts. The variable price shall be included in the transaction price only to the extent that it is highly probable that a significant portion of the cumulative revenue recognition amount will not be reversed (returned) when the uncertainty is subsequently resolved. The amount of money that the entity does not expect to have rights from the consideration received or received by the entity shall be counted as a refund liability.

3. Significant Accounting Policies (cont'd)

3.2 Revenue from contracts with customers (cont'd)

Allocation of the transaction price to the performance obligations in the contract
The Group allocates the transaction price based on the relative stand-alone selling price to the various performance obligations identified in a single contract.

Performance obligations satisfied over time
The Group provides power over time. The Group recognized revenue by dividing the performance of the performance obligation according to the progress rate calculated on a reasonable basis.

3.3 Leases

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

Accounting policies applied on or after January 1, 2019

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

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

(i) The Group as a lessee

At commencement or on modification of a contract that contains a lease component, the Group allocates the consideration in the contract to each lease component on the basis of its relative stand-alone prices. However, for the leases of property, the Group has elected not to separate non-lease components and to account for the lease and non-lease components as a single lease component.

The Group recognizes a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the end of the lease term, unless the lease transfers ownership of the underlying asset to the Group by the end of the lease term or the cost of the right-of-use asset reflects that the Group will exercise a purchase option. In that case the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of property, plant and equipment. In addition, the right-of-use asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the Group's incremental borrowing rate. Generally, the Group uses its incremental borrowing rate as the discount rate. The Group adjusts interest rates from various external financial information to reflect the terms of the lease and the characteristics of the leased asset and calculates the incremental borrowing rate.

3. Significant accounting policies (cont'd)

3.3 Leases (cont'd)

Lease payments included in the measurement of the lease liability comprise the following:
- Fixed payments, including in-substance fixed payments;
- Variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date;
- Amounts expected to be payable under a residual value guarantee; and
- The exercise price under a purchase option that the Group is reasonably certain to exercise, lease payments in an optional renewal period if the Group is reasonably certain to exercise an extension option, and penalties for early termination of a lease unless the Group is reasonably certain not to terminate early.

The lease liability is measured at amortized cost using the effective interest method. It is remeasured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the Group's estimate of the amount expected to be payable under a residual value guarantee, if the Group changes its assessment of whether it will exercise a purchase, extension or termination option or if there is a revised in-substance fixed lease payment.

When the lease liability is remeasured in this way, a corresponding adjustment is made to the carrying amount of the right-of-use asset or it is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

The Group presents right-of-use assets that do not meet the definition of investment property separately from the other assets in the consolidated statement of financial position, and lease liabilities in 'trade and other payables' in the consolidated statement of financial position.

The Group has elected not to recognize right-of-use assets and lease liabilities for leases of low-value assets and short-term leases.

(ii) The Group as a lessor

At inception or on modification of a contract that contains a lease component, the Group allocates the consideration in the contract to each lease component on the basis of their relative stand-alone prices. When the Group acts as a lessor, it determines at lease inception whether each lease is a finance lease or an operating lease.

To classify each lease, the Group makes an overall assessment of whether the lease transfers substantially all of the risks and rewards incidental to ownership of the underlying asset. If this is the case, then the lease is a finance lease; if not, then it is an operating lease. As part of this assessment, the Group considers certain indicators such as whether the lease is for the major part of the economic life of the asset.

When the Group is an intermediate lessor, it accounts for its interests in the head lease and the sub-lease separately. It assesses the lease classification of a sub-lease with reference to the right-of-use asset arising from the head lease, not with reference to the underlying asset. If a head lease is a short-term lease to which the Group applies the exemption described above, then it classified the sub-lease as an operating lease.

If an arrangement contains lease and non-lease components, then the Group applies KIFRS 1115 to allocate the consideration in the contract. The Group applies the derecognition and impairment requirements in KIFRS 1109 to the net investment in the lease.

3. Significant Accounting Policies (cont'd)

3.3 Leases (cont'd)

Accounting policies applied before January 1, 2019
For contracts entered into before January 1, 2019, the Group determined whether the arrangement was or contained a lease based on the assessment of whether:
- Fulfilment of the arrangement was dependent on the use of a specific asset or assets; and
- The arrangement had conveyed a right to use the asset. An arrangement conveyed the right to use the asset if one of the following was met:
· The purchaser had the ability or right to operate the asset while obtaining or controlling more than an insignificant amount of the output;
· The purchaser had the ability or right to control physical access to the asset while obtaining or controlling more than an insignificant amount of the output; or
· Facts and circumstances indicated that it was remote that other parties would take more than an insignificant amount of the output, and the price per unit was neither fixed per unit of output nor equal to the current market price per unit of output.

(i) The Group as a lessee

In the comparative period, as a lessee, the Group classified leases that transferred substantially all of the risks and rewards of ownership as finance leases. When this was the case, the leased assets were measured initially at an amount equal to the lower of their fair value and the present value of the minimum lease payments. Minimum lease payments were the payments over the lease term that the lessee was required to make, excluding any contingent rent. Subsequent to initial recognition, the assets were accounted for in accordance with the accounting policy applicable to that asset.

Assets held under other leases were classified as operating leases and were not recognized in the Group's consolidated statement of financial position. Payments made under operating leases were recognized in profit or loss on a straight-line basis over the term of the lease. Lease incentives received were recognized as an integral part of the total lease expense, over the term of the lease.

(ii) The Group as a lessor

When the Group acted as a lessor, it determined at lease inception whether each lease was a finance lease or an operating lease.

To classify each lease, the Group made an overall assessment of whether the lease transferred substantially all of the risks and rewards incidental to ownership of the underlying asset. If this was the case, then the lease was a finance lease; if not, then it was an operating lease. As part of this assessment, the Group considered certain indicators such as whether the lease was for the major part of the economic life of the asset.

3. Significant accounting policies (cont'd)

3.4 Foreign currencies

(i) Foreign currency transaction

Transactions in foreign currencies are translated to the respective functional currencies of 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.

Both the foreign currency differences arising at the time of settlement of monetary items and the foreign currency differences arising from the conversion of monetary items are recognized in profit or loss. If gains or losses arising from non-monetary items are recognized in other comprehensive income, the exchange rate fluctuation effects included in the gains and losses are also recognized in other comprehensive income, and if they are recognized in profit or loss, the exchange rate fluctuation effect is also recognized in profit or loss.

(ii) Overseas business establishment

If the functional currency of a foreign operation is different from the presentation currency of the group, the management performance and financial status are converted into the presentation currency according to the following methods. If the functional currency of a foreign operation is not the currency of the hyperinflationary economy, the assets and liabilities in the consolidated statement of financial position (including the comparative consolidated statement of financial position) are converted to the closing exchange rate at the end of the relevant reporting period, and the income and expenses of the consolidated statement of comprehensive income (including the comparative consolidated statement of comprehensive income) are converted to the exchange rate at the date of the transaction, and the foreign exchange differences arising from the currency are recognized in other comprehensive income.

The fair value adjustment for the carrying amount of goodwill and assets and liabilities arising from the acquisition of a foreign operation is regarded as assets and liabilities of a foreign operation and is presented in the functional currency of a foreign operation, and the closing exchange rate is applied to the Won along with other assets and liabilities of a foreign operation.

When disposing of a foreign operation, the accumulated foreign exchange differences related to a foreign operation recognized as a separate capital item from other comprehensive income are reclassified from equity to profit or loss at the time of recognition of the foreign operation's disposal gains or losses. When a subsidiary, including a foreign operation, is partially disposed of, its proportionate share of the accumulated foreign exchange differences recognized in other comprehensive income is reverted to the non-controlling interest of the foreign operation, and in other cases, only its proportionate share is reclassified to profit or loss among the accumulated foreign exchange differences recognized in other comprehensive income when the foreign operation is partially disposed of.

3. Significant accounting policies (cont'd)

3.5 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.

3.6 Government grants

Government grants are not recognized unless there is reasonable assurance that the Group will comply with the grant's conditions and that the grant will be received.

Government grants whose primary condition is that the Group purchase, construct or otherwise acquire long-term assets are deducted in calculating the carrying amount of the asset. The grant is recognized in profit or loss over the life of a depreciable asset as a reduction to depreciation expense.

Government grants which are intended to compensate the Group for expenses incurred are recognized as other income (government grants) in profit or loss over the periods in which the Group recognizes the related costs as 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 income or loss in the period in which they become receivable.

3.7 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 as profit or loss.

(ii) Other long-term employee benefits

Other long-term employee benefits include employee benefits that are settled beyond 12 months after the end of the period in which the employees render the related service, and are calculated at the present value of the amount of future benefit that employees have earned in return for their service in the current and prior periods, less the fair value of any related assets. Remeasurements are recognized in profit or loss in the period in which they arise.

3. Significant accounting policies (cont'd)

3.7 Employee benefits (cont'd)

(iii) 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 an accrued expense, after deducting any contributions already paid. If the contributions already paid exceed 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.

(iv) Retirement benefits: Defined benefit plans

The Group's net obligation in respect of defined benefit plans is calculated separately for each plan by estimating the amount of future benefit that employees have earned in the current and prior periods, discounting that amount and deducting the fair value of any plan assets.

The calculation is performed annually by an independent actuary using the projected unit credit method. Any asset resulting from this calculation is limited to unrecognized actuarial losses and past service cost, plus the present value of available refunds and reductions in future contributions to the plan.

Remeasurements 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.

3.8 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.

The interest and fines related to income taxes are applied to KIFRS 1012 *Income Taxes* if they are determined to income tax and applied to KIFRS 1037 *Provisions, Contingent Liabilities and Contingent Assets* if they are not.

(i) Current income tax

Current income tax is the expected income 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 year since the taxable profit is calculated excluding the temporary differences, which will be taxable or deductible in determining taxable profit of future periods, and non-taxable or non-deductible items from the accounting profit.

3. Significant accounting policies (cont'd)

3.8 Income taxes (cont'd)

(ii) Deferred tax

The measurement of deferred tax liabilities and deferred tax assets reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period to recover or settle the carrying amount of its assets and liabilities. 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. The Group recognizes a deferred tax asset for all deductible temporary differences arising from investments in subsidiaries and associates, 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 is reduced to the extent that it is no longer probable that sufficient taxable profit will be available to allow the benefit of part or all of that deferred tax asset to be utilized.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply to the period when the asset is realized or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted by the end of the reporting period. The measurement of deferred tax liabilities and deferred tax assets reflects the tax consequences that would follow from the manner in which the Group expects, at the end of the reporting period to recover or settle the carrying amount of its assets and liabilities.

Deferred tax assets and liabilities are offset only if there is a legally enforceable right to offset the related current income tax liabilities and assets, and they relate to income taxes levied by the same tax authority and they intend to settle current income tax liabilities and assets on a net basis.

3.9 Property, plant and equipment

Property, plant and equipment are initially measured at cost and after initial recognition, are carried at cost less accumulated depreciation and any accumulated impairment losses. 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, when the Group has an obligation to remove the asset or restore the site, an estimate of the costs of dismantling and removing the item and restoring the site on which it is located.

Subsequent to initial recognition, an item of property, plant and equipment shall be carried at its cost less any accumulated depreciation and any accumulated impairment losses.

Property, plant and equipment, except for land, are depreciated over estimated useful lives that appropriately reflect the pattern in which the asset's future economic benefits are expected to be consumed, either on a straight-line basis or on a Unit-of-production basis.

A component that is significant compared to the total cost of property, plant and equipment is depreciated over its separate useful life.

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.

3. Significant accounting policies (cont'd)

3.9 Property, plant and equipment (cont'd)

The estimated useful lives and depreciation methods of the Group's property, plant and equipment are as follows:

	Method	Useful lives (years)
Buildings	Straight-line	8 ~ 32
Structures	Straight-line	8 ~ 50
Machinery	Straight-line	6 ~ 32
Vehicles	Straight-line	4
Loaded nuclear fuel	Unit-of-production	-
Loaded heavy water	Straight-line	30
Asset retirement costs of nuclear power plants	Straight-line	30, 40, 60
Asset retirement costs of spent fuel	Unit-of-production	-
Others	Straight-line	4 ~ 9

The estimated residual value, useful lives and the depreciation method are reviewed at least at the end of each reporting period and, if expectations differ from previous estimates, the changes are accounted for as changes in accounting estimates.

3.10 Intangible assets

Intangible assets are measured initially at cost and, subsequently, are carried at cost less accumulated amortization and accumulated impairment losses.

Amortization of intangible assets except for goodwill is calculated on a straight-line basis over the estimated useful lives of intangible assets from the date that they are available for use. The residual value of intangible assets is zero. However, as there are no foreseeable limits to the periods over which some of other intangible assets are expected to be available for use, this intangible asset is determined as having an indefinite useful life and not amortized.

The estimated useful lives and amortization methods of the Group's intangible assets with finite useful lives are as follows:

	Method	Useful lives (years)
Development cost	Straight-line	5
Industrial rights	Straight-line	5, 10
Loading and unloading facilities rights	Straight-line	20
Software	Straight-line	4
Others	Straight-line	5 ~ 50

Amortization periods and the amortization methods for intangible assets with finite useful lives are reviewed at the end of each reporting period. The useful lives of intangible assets that are not being amortized are reviewed at the end of each reporting period to determine whether events and circumstances continue to support indefinite useful life assessments for those assets. Changes are accounted for as changes in accounting estimates.

3. Significant accounting policies (cont'd)

3.10 Intangible assets (cont'd)

(i) Research and development

Expenditures on research activities, undertaken with the prospect of gaining new scientific or technical knowledge and understanding, are recognized in profit or loss as incurred. Development expenditures are capitalized only if development costs can be measured reliably, the product or process is technically and commercially feasible, future economic benefits are probable, and the Group intends to and has sufficient resources to complete development and to use or sell the asset. Other development expenditures are recognized in profit or loss as incurred.

On the other hand, the cost of development recognized as an asset is directly deducted from the acquisition cost by applying the cost model, and the accumulated amortization and accumulated impairment losses are amortized over the expected duration of economic benefits from the time the development is completed to be used and calculated as cost of sales. The Group conducts an annual impairment test for the development cost recognized as an asset during the development period.

(ii) Subsequent expenditures

Subsequent expenditures are capitalized only when they increase the future economic benefits embodied in the specific asset to which they relate. All other expenditures, including expenditures on internally generated goodwill and brands, are recognized in profit or loss as incurred.

3.11 Impairment of non-financial assets

The carrying amounts of the Group's non-financial assets, other than assets arising from construction contracts, 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. Goodwill and intangible assets 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.

Management estimates the recoverable amount of an individual asset. If it is impossible to measure the individual recoverable amount of an asset, then management estimates the recoverable amount of cash-generating unit ("CGU"). 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. 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 Group determined that individual operating entities are CGUs. The value-in-use is estimated by applying a pre-tax discount rate that reflects 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.

An impairment loss is recognized in profit or loss if the carrying amount of an asset or a CGU exceeds its recoverable amount.

3.12 Inventories

The cost of inventories is based on the weighted average principle, and includes expenditures for acquiring the inventories, conversion costs and other costs incurred in bringing them to their existing location and condition.

Inventories are measured at the lower of cost and net realizable value. 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 is recognized as a reduction in the amount of inventories recognized as a cost of goods sold in the period in which the reversal occurs.

3. Significant accounting policies (cont'd)

3.13 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 separate 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.

A provision is used only for expenditures for which the provision was originally recognized.

(i) Provision for decommissioning costs of nuclear power plants

The Group recognizes provisions for the estimated cost of removing, dismantling, or restoring the site to its original state after the end of economic use of the nuclear power plant.

(ii) Provision for decommissioning costs of disposal of spent nuclear fuel

Under the Radioactive Waste Management Act, the Group is levied to pay the spent nuclear fuel fund for the management of spent nuclear fuel. The Group recognizes the provision at the present value of the payments.

(iii)Provision for decommissioning costs of low and intermediate radioactive wastes

Under the Radioactive Waste Management Act, the Group recognizes the provision for the disposal of low and intermediate radioactive wastes in best estimate of the expenditure required to settle the present obligation.

(iv)Provisions for power plant regional support program

Power plant regional support programs consist of scholarship programs to local students, local economy support programs, local culture support programs, environment development programs, and local welfare programs. The Group recognizes the provision in relation to power plant regional support program at the estimated cash outflows as required by related laws and regulations.

3.14 Cash and cash equivalents

Cash and cash equivalents comprise cash balances and call deposits with maturities of three months or less from the acquisition date that are subject to an insignificant risk of changes in their fair value, and are used by the Group in the management of its short-term commitments. Equity investments are excluded from 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.

3. Significant accounting policies (cont'd)

3.15 Non-derivative financial assets

(i) Recognition and initial measurement

Trade receivables and debt securities issued are initially recognized when they are originated. All other financial assets or financial liabilities are initially recognized when the Group becomes a party to the contractual provisions of the instrument.

Except for trade receivables that do not contain a significant financing component, financial assets or financial liabilities are initially measured at fair value plus, for an item not at FVTPL, transaction costs that are directly attributable to its acquisition or issue. A trade receivable without a significant financing component is initially measured at the transaction price.

(ii) Classification and subsequent measurement

On initial recognition, financial assets are classified as measured at: amortized cost; debt instruments at fair value through other comprehensive income (FVOCI); equity instruments at FVOCI ; or fair value through profit or loss (FVTPL).

Financial assets are not reclassified subsequent to their initial recognition unless the Group changes its business model for managing financial assets, in which case all affected financial assets are reclassified on the first day of the first reporting period following the change in the business model.

A financial asset is measured at amortized cost if it meets both of the following conditions and is not designated as at FVTPL:

- It is held within a business model whose objective is to hold assets in order to collect contractual cash flows; and
- Its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

A debt instrument is measured at FVOCI if it meets both of the following conditions and is not designated as at FVTPL:

- It is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets; and
- Its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

On initial recognition of an equity instrument that is not held for trading, the Group may irrevocably elect to present subsequent changes in the instrument's fair value in OCI. This election is made on an investment-by-investment basis.

All financial assets not classified as measured at amortized cost or FVOCI as described above are measured at FVTPL. This includes all derivative financial assets. On initial recognition, the Group may irrevocably designate a financial asset that otherwise meets the requirements to be measured at amortized cost or at FVOCI as at FVTPL if so doing eliminates or significantly reduces an accounting mismatch that would otherwise arise.

3. Significant accounting policies (cont'd)

3.15 Non-derivative financial assets (cont'd)

The Group makes an assessment of the objective of the business model in which a financial asset is held at a portfolio level because this best reflects the way the business is managed and information is provided to management. The information considered includes:

- The stated policies and objectives for the portfolio and the operation of those policies in practice. These include whether management's strategy focuses on earning contractual interest income, maintaining a particular interest rate profile, matching the duration of the financial assets to the duration of any related liabilities of expected cash outflows or realizing cash flows through the sale of the assets;
- How the performance of the portfolio is evaluated and reported to the Group's management;
- The risk that affect the performance of the business model (and the financial assets held within that business model) and how those risks are managed;
- The frequency, volume and timing of sales of financial assets in prior periods, the reasons for such sales and expectations about future sales activity.

Financial assets that are held for trading or are managed and whose performance is evaluated on a fair value basis are measured at FVTPL.

For the purposes of this assessment, 'principal' is defined as the fair value of the financial asset on initial recognition. 'Interest' is defined as consideration for the time value of money and for the credit risk associated with the principal amount outstanding during a particular period of time and for other basic lending risks and costs (e.g., liquidity risk and administrative costs), as well as a profit margin.

In assessing whether the contractual cash flows are solely payments of principal and interest, the Group considers the contractual terms of the instrument. This includes assessing whether the financial asset contains a contractual term that could change the timing or amount of contractual cash flows such that it would not meet this condition. In making this assessment, the Group considers:

- Contingent events that would change the amount or timing of cash flows;
- Terms that may adjust the contractual coupon rate, including variable-rate features; and
- Prepayment and extension features.

A prepayment feature is consistent with the solely payments of principal and interest criterion if the prepayment amount substantially represents unpaid amounts of principal and interest on the principal amount outstanding, which may include reasonable compensation for early termination of the contract.

Additionally, for a financial asset acquired at a discount or premium to its contractual par amount, a feature that permits or requires prepayment at an amount that substantially represents the contractual par amount plus accrued (but unpaid) contractual interest (which may also include reasonable compensation for early termination) is treated as consistent with this criterion if the fair value of the prepayment feature is insignificant at initial recognition.

(iii) Derecognition of financial assets.

The Group derecognizes non-derivative financial assets when the contractual rights to the cash flows from the financial asset expire, or the Group transfers the rights to receive the contractual cash flows on the financial asset in a transaction in which substantially all the risks and rewards of ownership of the financial asset are transferred. Any interest in a transferred financial asset that is created or retained by the Group is recognized as a separate asset or liability.

If the Group retains substantially all the risks and rewards of ownership of the transferred financial assets, the Group continues to recognize the transferred financial assets and recognizes financial liabilities for the consideration received.

3. Significant accounting policies (cont'd)

3.15 Non-derivative financial assets (cont'd)

(iv)Offsetting a financial asset and a financial liability

Financial assets and financial liabilities are offset and the net amount is presented in the consolidated statement of financial position when, and only when, the Group currently has a legally enforceable right to offset the recognized amounts, and it intends to settle on a net basis or to realize the asset and settle the liability simultaneously.

3.16 Non-derivative financial liabilities

The Group classifies non-derivative financial liabilities into financial liabilities at FVTPL or as other financial liabilities in accordance with the substance of the contractual arrangement and the definition 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 instruments.

(i) Financial liabilities at FVTPL

Financial liabilities are classified as financial liabilities at FVTPL when the financial liability is either held for trading or it is designated as financial liabilities at FVTPL. Financial liabilities at FVTPL are measured at fair value, and changes therein are recognized in profit or loss. Upon initial recognition, transaction costs are recognized in profit or loss when incurred.

(ii) Other financial liabilities

Non-derivative financial liabilities other than financial liabilities at FVTPL are classified as other financial liabilities. At the date of initial recognition, other financial liabilities are measured at fair value minus transaction costs that are directly attributable to the acquisition. Subsequent to initial recognition, other financial liabilities are measured at amortized cost using the effective interest method, with interest expense recognized on an effective yield basis.

(iii) Elimination of financial liabilities

The Group eliminates financial liabilities only when the contractual obligation of the financial liability is fulfilled, canceled or expires. When the contractual terms of a financial liability change and the cash flows change substantially, the Group eliminates the existing liabilities and recognizes the new financial liabilities as fair value based on the new contract.

The difference between the book value and the value paid (including transferred non-cash assets and liabilities incurred) when removing financial liabilities is recognized as the profit and loss for the year.

3. Significant accounting policies (cont'd)

3.17 Derivative financial instruments

Derivatives are initially recognized at fair value. Subsequent to initial recognition, derivatives are measured at fair value, and changes therein are accounted for as described below.

(i) Hedge accounting

The Group holds currency forward contracts, interest rate swaps, currency swaps and other derivative contracts to manage interest rate risk and foreign exchange risk. The Group designated derivatives 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 instrument and the hedged item, along with its risk management objectives and its strategy for undertaking various hedge transactions, together with the methods that will be used to assess the effectiveness in offsetting changes in fair values or cash flows of the hedged item.

(ii) Other derivative financial instruments

Changes in the fair value of other derivative financial instrument not designated as a hedging instrument are recognized immediately in profit or loss.

3. Significant accounting policies (cont'd)

3.18 Emission rights

The Group accounts for greenhouse gases emission right and the relevant liability as below pursuant to the Act on Allocation and Trading of Greenhouse Gas Emission which became effective in 2015.

(i) Greenhouse gases emission right

Greenhouse gases emission right consists of emission allowances which are allocated from the government free of charge or purchased from the market. The cost includes any directly attributable costs incurred during the normal course of business.

Emission rights held for the purpose of performing the obligation is classified as intangible asset and is initially measured at cost and after initial recognition, are carried at cost less accumulated impairment losses.

The Group derecognizes an emission right asset when the emission allowance is unusable, disposed or submitted to government in which the future economic benefits are no longer expected to be probable.

(ii) Emission liability

Emission liability is a present obligation of submitting emission rights to the government with regard to emission of greenhouse gas. Emission liability is recognized when it is probable that outflows of resources will be required to settle the obligation and the costs required to perform the obligation are reliably estimable. Emission liability is an amount of estimated obligations for emission rights to be submitted to the government for the performing period. The emission liability is measured based on the expected quantity of emission for the performing period in excess of emission allowance in possession and the unit price for such emission rights in the market at the end of the reporting period.

3.19 Impairment of financial assets

The Group recognizes loss allowance for expected credit losses on the following assets.

- Financial assets measured at amortized cost
- Debt instruments measured at FVOCI
- Contract assets as defined in KIFRS 1115

The Group measures loss allowance at an amount equal to lifetime expected credit losses (ECLs), except for the following, which are measured at 12-month ECLs:

- Debt securities whose credit is determined to be at low risk at the end of the reporting period
- Other debt securities and bank deposits that do not have a significant increase in credit risk (i.e. default risk arising over the expected life of the financial asset)

Loss allowances for trade receivables and contract assets are always measured at an amount equal to lifetime ECLs.

When determining whether the credit risk of a financial asset has significantly increased since the initial recognition and when estimating ECLs, the Group considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both qualitative and quantitative information and analysis, based on the Group's past experience and informed credit assessment, that includes forward-looking information.

The Group assumes that the credit risk of a financial asset has significantly increased if it is more than 30 days past due.

3. Significant accounting policies (cont'd)

3.19 Impairment of financial assets (cont'd)

The Group considers a financial asset to be in default when:

- the debtor is unlikely to pay its credit obligations to the Group in full, without recourse by the Group to actions such as realizing security (if any is held)

The Group considers a debt security to have low credit risk when its credit risk rating is equivalent to the globally understood definition of "investment grade".

Lifetime ECLs are the ECLs that result from all possible default events over the expected life of a financial instrument. 12-month ECLs are the portion of ECLs that result from default events that are possible within the 12 months after the reporting date (or shorter period if the expected life of the instrument is less than 12 months).

The maximum period considered when estimating ECLs is the maximum contractual period over which the Group is exposed to credit risk.

(i) Measurement of ECLs

ECLs are a probability-weighted estimate of credit losses. Credit loss is measured as the present value of all cash deficiency (i.e. the difference between cash flows due to the entity in accordance with the contract and the cash flows that the Group expects to receive). ECLs are discounted at the effective interest rate of the financial asset.

(ii) Credit-impaired financial assets

At the end of each reporting period, the Group assesses the financial assets measured at amortized cost and debt securities at FVOCI are credit-impaired. If there is one or more events that have a detrimental impact on the estimated future cash flows of a financial asset, the financial asset is credit-impaired.

Evidence that a financial asset is credit-impaired includes the following observable information:

- Significant financial difficulties of issuer or borrower
- Breach of contract, such as default or delinquency over 90 days
- Inevitable mitigation of initial borrowing conditions for economic or contractual reasons related to the borrower's financial difficulties
- Possibility of bankruptcy of borrowers or other possibility of financial restructuring
- Due to financial difficulties, the active market for the financial assets is extinguished

(iii) Presentation of allowance for credit loss on consolidated statement of financial position

Loss allowance for financial assets measured at amortized cost is deducted from the gross carrying amount of the asset.

For debt securities at FVOCI, the loss allowance is recognized in OCI instead of reducing the carrying amount of the asset.

(iv) Write-off

If there is no reasonable expectation of recovery of all or part of the contract cash flows of a financial asset, the asset is removed. For individual customers, the Group derecognizes the carrying amount if the financial asset is overdue for more than 180 days based on historical experience with the recovery of similar assets For corporate customers, the Group individually makes an assessment with respect to the timing and amount of write-off based on whether there is a reasonable expectation of recovery. The Group expects no significant recovery from the amount written off. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the Group's procedures for recovery of amounts due.

3. Significant accounting policies (cont'd)

3.20 Contributed capital

Ordinary shares are classified as equity. Incremental costs directly attributable to the issuance of ordinary shares and share options are recognized as a deduction from equity, net of any tax effects.

3.21 Finance income and finance costs

Finance income comprises interest income on funds invested (including financial assets measured at fair value through other comprehensive income), dividend income, gains on the disposal of financial assets measured at fair value through other comprehensive income, changes in the fair value of financial assets at fair value through profit or loss, and gains on hedging instruments that are recognized in profit or loss. Interest income is recognized as it accrues in profit or loss, using the effective interest method. Dividend income is recognized in profit or loss on the date when the Group's right to receive payment is established, which in the case of quoted securities is the ex-dividend date.

Finance costs comprise interest expense on borrowings, unwinding of the discount on provisions, dividends on preference shares classified as liabilities, changes in the fair value of financial assets at fair value through profit or loss, impairment losses recognized on financial assets, and losses on hedging instruments that are recognized in profit or loss. Borrowing costs that are not directly attributable to the acquisition, construction or production of a qualifying asset are recognized in profit or loss using the effective interest method.

3.22 Earnings (loss) per share

The Group presents basic earnings (loss) per share data for its ordinary shares. Basic earnings (loss) per share is calculated by dividing profit (loss) for the year attributable to ordinary shareholder of the Controlling Company by the weighted average number of ordinary shares outstanding during the period, adjusted for own shares held.

3.23 Non-current assets held for sale

Non-current assets, or disposal groups comprising assets and liabilities, that are expected to be recovered primarily through sale rather than through continuing use, are classified as held for sale. In order to be classified as held for sale, the asset (or disposal group) must be available for immediate sale in its present condition and its sale must be highly probable. The assets or disposal group that are classified as non-current assets held for sale are measured at the lower of their carrying amount and fair value less cost to sell. The Group recognizes an impairment loss for any initial or subsequent write-down of an asset (or disposal group) to fair value less costs to sell, and a gain for any subsequent increase in fair value less costs to sell, up to the cumulative impairment loss previously recognized in accordance with KIFRS 1036, 'Impairment of Assets'.

In the case where a situation that was previously considered unlikely occurred during the first year and non-current assets that were previously scheduled to be sold were not sold until the end of the period, the period of sale is extended if necessary measures are taken during the first year to respond to the change in circumstances and active attempts to sell them to reasonable prices under the changed circumstances.

3.24 Standards issued but not yet effective

The new and amended standards and interpretations that are issued, but not yet effective, up to the date of issuance of the Group's consolidated financial statements are disclosed below.

3. Significant accounting policies (cont'd)

Amendments to KIFRS 1103: Definition of a Business

In October 2018, the IASB issued amendments to the definition of a business in KIFRS 1103 *Business Combinations* to help entities determine whether an acquired set of activities and assets is a business or not. They clarify the minimum requirements for a business, remove the assessment of whether market participants are capable of replacing any missing elements, add guidance to help entities assess whether an acquired process is substantive, narrow the definitions of a business and of outputs, and introduce an optional fair value concentration test. New illustrative examples were provided along with the amendments.

Amendments to KIFRS 1001 and KIFRS 1008: Definition of Material

In October 2018, the IASB issued amendments to KIFRS 1001 *Presentation of Financial Statements* and KIFRS 1008 *Accounting Policies, Changes in Accounting Estimates and Errors* to align the definition of 'material' across the standards and to clarify certain aspects of the definition. The new definition states that, 'Information is material if omitting, misstating or obscuring it could reasonably be expected to influence decisions that the primary users of general purpose financial statements make on the basis of those consolidated financial statements, which provide financial information about a specific reporting entity.'

4. Segment information

The Group's segments are determined based on components of the Group that are engaged in revenue generating activities and for which discrete financial information is available that is regularly reported to the Chief Operating Decision Maker ("CODM") for the purpose of resource allocation and assessment of performance. Under KIFRS 1108 *Operating Segments*, the Group's segment consists of electric power generation (nuclear power and others) and other business responsible for overseas. The price of transactions between reportable segments is determined based on the market transaction price applied to independent third-party transactions. Each segment is the basis for reporting the Group's primary segment information and the accounting policies for each reportable segment are the same as those described in the summary of significant accounting policies.

The following table presents revenue and operating profit from the reportable segments for the years ended December 31, 2019 and 2018 (Korean won in millions):

	2019			
	Electric power generation	Others	Consolidation adjustments	Consolidated totals
Revenue from external customers	₩ 8,982,533	₩ 94	₩ -	₩ 8,982,627
Intersegment revenue	256	27	(283)	-
Segment revenue	₩ 8,982,789	₩ 121	₩ (283)	₩ 8,982,627
Segment operating profit (loss)	785,860	(2,887)	88	783,061
Other income (expenses), net	(83,739)	(49,351)	(5)	(133,095)
Other profit (loss), net	11,424	24	-	11,448
Finance income	266,389	13	(19)	266,383
Finance costs	647,524	19	(18)	647,525
Gain (loss) on investments in associates and joint ventures, net	(73,508)	-	67,072	(6,436)
Income tax expense (benefit)	27,299	-	(10)	27,289

	2018			
	Electric power generation	Others	Consolidation adjustments	Consolidated totals
Revenue from external customers	₩ 8,955,159	₩ -	₩ -	₩ 8,955,159
Intersegment revenue	-	-	-	-
Segment revenue	₩ 8,955,159	₩ -	₩ -	₩ 8,955,159
Segment operating profit (loss)	1,145,576	(46)	85	1,145,615
Other income (expenses), net	(29,524)	(87,161)	-	(116,685)
Other profit (loss), net	(718,719)	1	-	(718,718)
Finance income	133,454	12	(3)	133,463
Finance costs	662,006	3	(3)	662,006
Gain (loss) on investments in associates and joint ventures, net	(91,047)	-	100,567	9,520
Income tax expense (benefit)	(109,573)	2,755	-	(106,818)

For the years ended December 31, 2019 and 2018, depreciation and amortization expenses for electric power generation projects (nuclear power and others) are ₩3,287,618 million and ₩3,102,310 million, respectively, and depreciation and amortization expenses for other business segments are ₩49 million for the year ended December 31, 2019.

4. Segment information (cont'd)

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

	2019			
	Electric power generation	Others	Consolidation adjustments	Consolidated totals
Total assets	₩ 59,787,314	₩ 82,743	₩ (127,335)	₩ 59,742,722
Total liabilities	34,076,828	3,351	(3,334)	34,076,845

	2018			
	Electric power generation	Others	Consolidation adjustments	Consolidated totals
Total assets	₩ 56,110,142	₩ 134,183	₩ (208,863)	₩ 56,035,462
Total liabilities	30,669,562	349	(16,897)	30,653,014

The Group is headquartered in Korea, with substantially all of its assets located in Korea and substantially all of its revenue is generated domestically.

For the years ended December 31, 2019 and 2018, the Group recognized total revenues from KEPCO, the Group's largest customer, of ₩8,880,264 million and ₩8,826,464 million, respectively. There is no other single customer that accounts for more than 10% of the total revenue of the Group for the year ended December 31, 2019 and 2018, respectively.

5. Categories of financial instruments

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

	2019			
	Financial assets at fair value through profit or loss	Financial assets at amortized cost	Financial assets at fair value through other comprehensive income	Total
Current financial assets:				
Cash and cash equivalents	₩ -	₩ 34,916	₩ -	₩ 34,916
Current financial assets				
Financial assets at fair value through profit or loss	29,520	-	-	29,520
Loans	-	5,349	-	5,349
Short-term financial instruments	-	210,626	-	210,626
	29,520	215,975	-	245,495
Trade and other receivables	-	1,302,267	-	1,302,267
Subtotal	29,520	1,553,158	-	1,582,678
Non-current financial assets:				
Non-current financial assets				
Financial assets at fair value through profit or loss	541,969	-	-	541,969
Financial assets at fair value through other comprehensive income	-	-	231,825	231,825
Loans	-	71,735	-	71,735
Long-term financial instruments	-	250,463	-	250,463
Derivative assets	120,133	-	-	120,133
	662,102	322,198	231,825	1,216,125
Trade and other receivables	-	50,023	-	50,023
Subtotal	662,102	372,221	231,825	1,266,148
Total	₩ 691,622	₩ 1,925,379	₩ 231,825	₩ 2,848,826

5. Categories of financial instruments (cont'd)

	2018			
	Financial assets at fair value through profit or loss	Financial assets at amortized cost	Financial assets at fair value through other comprehensive income	Total
Current financial assets:				
Cash and cash equivalents	₩ -	₩ 110,964	₩ -	₩ 110,964
Current financial assets				
Financial assets at fair value through profit or loss	245,692	-	-	245,692
Loans	-	4,870	-	4,870
Short-term financial instruments	-	205,790	-	205,790
Derivative assets	13,618	-	-	13,618
	259,310	210,660	-	469,970
Trade and other receivables	-	1,367,854	-	1,367,854
Subtotal	259,310	1,689,478	-	1,948,788
Non-current financial assets:				
Non-current financial assets				
Financial assets at fair value through profit or loss	510,598	-	-	510,598
Financial assets at fair value through other comprehensive income	-	-	229,964	229,964
Loans	-	70,824	-	70,824
Long-term financial instruments	-	245,896	-	245,896
Derivative assets	18,630	-	-	18,630
	529,228	316,720	229,964	1,075,912
Trade and other receivables	-	78,625	-	78,625
Subtotal	529,228	395,345	229,964	1,154,537
Total	₩ 788,538	₩ 2,084,823	₩ 229,964	₩ 3,103,325

5. Categories of financial instruments (cont'd)

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

	2019		
	Financial liabilities at fair value through profit or loss	Financial liabilities at amortized cost	Total
Current financial liabilities:			
Current financial liabilities			
Short-term borrowings	₩ -	₩ 210,000	₩ 210,000
Current portion of long-term borrowings	-	18,253	18,253
Bonds	-	499,811	499,811
Derivative liabilities	196	-	196
	196	728,064	728,260
Trade and other payables	-	1,037,572	1,037,572
Subtotal	196	1,765,636	1,765,832
Non-current financial liabilities:			
Non-current financial liabilities			
Long-term borrowings	-	147,917	147,917
Bonds	-	9,579,579	9,579,579
Derivative liabilities	7,286	-	7,286
	7,286	9,727,496	9,734,782
Trade and other payables	-	2,536,913	2,536,913
Subtotal	7,286	12,264,409	12,271,695
Total	₩ 7,482	₩ 14,030,045	₩ 14,037,527

	2018		
	Financial liabilities at fair value through profit or loss	Financial liabilities at amortized cost	Total
Current financial liabilities:			4
Current financial liabilities			
Current portion of long-term borrowings	₩ -	₩ 174,295	₩ 174,295
Bonds	-	624,925	624,925
	-	799,220	799,220
Trade and other payables	-	982,852	982,852
Subtotal	-	1,782,072	1,782,072
Non-current financial liabilities:			
Non-current financial liabilities			
Long-term borrowings	-	9,353	9,353
Bonds	-	8,868,800	8,868,800
Derivative liabilities	73,560	-	73,560
	73,560	8,878,153	8,951,713
Trade and other payables	-	2,582,330	2,582,330
Subtotal	73,560	11,460,483	11,534,043
Total	₩ 73,560	₩ 13,242,555	₩ 13,316,115

5. Categories of financial instruments (cont'd)

Gain (loss) by categories of financial instruments for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

Categories	Description		2019
Financial assets at amortized cost	Cash and cash equivalents-interest income	₩	3,431
	Financial instruments-interest income		10,837
	Loans-interest income		1,431
	Trade and other receivables- interest income		2,072
	Loss on fluctuation of exchange rate in foreign currency, net		(11,247)
Financial assets at fair value through profit or loss	Financial assets at fair value through profit or loss-valuation income		2,600
	Financial assets at fair value through profit or loss-interest income		19,835
	Loss on sale of financial assets, net		(400)
	Gain on valuation of derivative instruments, net		103,005
	Gain on transactions of derivative instruments, net		43,628
	Dividend income		6,984
Financial assets at fair value through other comprehensive income	Loss on valuation of fair value through other comprehensive income (before tax), net		(971)
	Dividend income		405
Financial liabilities measured at fair value through profit or loss	Gain on valuation of derivative instruments, net		66,274
	Loss on transactions of derivative instruments, net		(1,318)
Financial liabilities at amortized cost	Loss on fluctuation of exchange rate in foreign currency, net		(103,619)
	Amortization of present value discount on trade and other payables		(113,904)
	Interest expenses		(7,427)

5. Categories of financial instruments (cont'd)

Categories	Description		2018
Financial assets at amortized cost	Cash and cash equivalents-interest income	₩	6,259
	Financial instruments-interest income		7,848
	Loans-interest income		1,706
	Trade and other receivables- interest income		1,991
	Gain on fluctuation of exchange rate in foreign currency, net		412
Financial assets at fair value through profit or loss	Financial assets at fair value through profit or loss-valuation income		5,241
	Financial assets at fair value through profit or loss-interest income		12,767
	Gain on valuation of derivative instruments, net		31,830
	Gain on transactions of derivative instruments, net		23,186
	Dividend income		1,503
	Gain on sale of financial assets, net		1,831
Financial assets at fair value through other comprehensive income	Loss on valuation of fair value through other comprehensive income (before tax)		(10,008)
	Dividend income		616
Financial liabilities measured at fair value through profit or loss	Loss on valuation of derivative instruments, net		(1,946)
	Gain on transactions of derivative instruments, net		9,401
Financial liabilities at amortized cost	Loss on fluctuation of exchange rate in foreign currency, net		(121,406)
	Amortization of present value discount on trade and other payables		(120,040)
	Interest expenses		(391,140)

6. Cash and cash equivalents

Cash and cash equivalents as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Cash equivalents	₩	3,505	₩	10,985
Short-term investment assets classified as cash equivalents		31,411		99,979
	₩	34,916	₩	110,964

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

		2019		2018
Short-term investment assets classified as cash equivalents	₩	12,781	₩	35,920

7. Financial assets at fair value through profit or loss

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

	2019		2018	
	Current	Non-current (*)	Current	Non-current
Financial assets designated as at fair value through profit or loss:				
Financial assets designated as at fair value through profit or loss	₩ -	₩ 150,916	₩ -	₩ 178,753
Financial assets at fair value through profit or loss:				
Derivative assets	-	120,133	13,618	18,630
Beneficiary certificate	-	155,449	-	315,029
Other	29,520	235,604	245,692	16,816
Subtotal	29,520	511,186	259,310	350,475
Total	₩ 29,520	₩ 662,102	₩ 259,310	₩ 529,228

(*) As of December 31, 2019, the Group set aside ₩541,969 million for decommissioning costs of nuclear power plants. These are financial assets that cannot be used for any other purposes with a restricted access period exceeding 12 months subsequent to December 31, 2019. Therefore, these have been categorized as non-current assets.

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

	2019		2018	
	Current	Non-current	Current	Non-current
Derivative assets:				
Foreign currency forwards	₩ -	₩ 43,931	₩ -	₩ 12,606
Foreign currency swaps	-	76,202	13,618	6,024
	-	120,133	13,618	18,630
Derivative liabilities:				
Foreign currency forwards	196	-	-	-
Foreign currency swaps	-	7,286	-	73,560
	₩ 196	₩ 7,286	₩ -	₩ 73,560

Details of foreign currency forwards contracts as of December 31, 2019 are as follows (Korean won in millions, USD and EUR in thousands, KRW/USD, KRW/EUR)

	Counterparty	Period	Amount of contract				Contractual foreign exchange rate
			Pay		Receive		
Held for trading (*)	Hana Bank	2014.04.10~2021.07.12	KRW	55,120	USD	52,000	1,060.00
	Hana Bank	2014.04.28~2021.07.12	KRW	50,784	USD	48,000	1,058.00
	Bank of America	2014.04.29~2021.07.12	KRW	105,400	USD	100,000	1,054.00
	Hana Bank	2014.05.09~2021.07.12	KRW	104,600	USD	100,000	1,046.00
	Hana Bank	2017.12.22~2021.07.12	KRW	105,079	USD	100,000	1,050.79
	Korea Development Bank	2017.12.27~2021.07.12	KRW	104,849	USD	100,000	1,048.49
	Citibank	2019.12.30~2020.01.23	KRW	12,943	USD	11,167	1,159.10
	Standard Chartered	2019.12.17~2020.01.02	KRW	73,871	EUR	56,800	1,300.57

(*) The Group contracted derivative financial instruments for the purpose of hedging risk but classified them as derivative financial instruments held for trading, since those derivatives do not meet the applicable requirements of applying hedge accounting under KIFRS 1109 ‘Financial Instruments’.

7. Financial assets at fair value through profit or loss (cont'd)

Details of foreign currency swap contracts as of December 31, 2019 are as follows (Korean won in millions, USD, HKD, and CHF in thousands, KRW/USD, KRW/HKD, KRW/CHF):

	Counterparty	Period	Amount of contract		Interest rate of contract		Contractual foreign exchange rate
			Pay	Receive	Pay	Receive	
Held for trading (*)	Citibank	2012.09.12~2022.09.19	KRW 112,930	USD 100,000	2.79%	3.00%	1,129.30
	JP Morgan	2012.09.12~2022.09.19	KRW 112,930	USD 100,000	2.79%	3.00%	1,129.30
	Bank of America	2012.09.12~2022.09.19	KRW 112,930	USD 100,000	2.79%	3.00%	1,129.30
	Shinhan Bank	2016.12.21~2022.09.19	KRW 112,930	USD 100,000	2.79%	3.00%	1,129.30
	Hana Bank	2012.10.26~2022.09.19	KRW 111,770	USD 100,000	2.87%	3.00%	1,117.70
	Standard Chartered	2012.10.26~2022.09.19	KRW 111,770	USD 100,000	2.89%	3.00%	1,117.70
	HSBC	2012.11.01~2022.09.19	KRW 111,770	USD 100,000	2.89%	3.00%	1,117.70
	Deutsche Bank	2012.12.28~2022.09.19	KRW 55,885	USD 50,000	2.79%	3.00%	1,117.70
	Nomura Financial Investment (Korea) Co., Ltd.	2015.06.15~2025.06.15	KRW 111,190	USD 100,000	2.60%	3.25%	1,111.90
	Korea Development Bank	2015.06.15~2025.06.15	KRW 111,190	USD 100,000	2.62%	3.25%	1,111.90
	Woori Bank	2015.06.15~2025.06.15	KRW 55,595	USD 50,000	2.62%	3.25%	1,111.90
	Hana Bank	2015.06.15~2025.06.15	KRW 55,595	USD 50,000	2.62%	3.25%	1,111.90
	Woori Bank	2017.07.25~2027.07.25	KRW 111,610	USD 100,000	2.25%	3.13%	1,116.10
	Korea Development Bank	2017.07.25~2027.07.25	KRW 111,610	USD 100,000	2.31%	3.13%	1,116.10
	Hana Bank	2017.07.25~2027.07.25	KRW 111,610	USD 100,000	2.31%	3.13%	1,116.10
	Korea Development Bank	2018.04.03~2028.03.13	KRW 108,600	HKD 800,000	2.69%	3.35%	135.75
	Shinhan Bank	2018.04.16~2028.03.13	KRW 115,387	HKD 850,000	2.66%	3.35%	135.75
	Korea Development Bank	2018.07.25~2023.07.25	KRW 170,280	USD 150,000	2.15%	3.75%	1,135.20
	Woori Bank	2018.07.25~2023.07.25	KRW 170,280	USD 150,000	2.18%	3.75%	1,135.20
	Hana Bank	2018.07.25~2023.07.25	KRW 113,520	USD 100,000	2.17%	3.75%	1,135.20
	Shinhan Bank	2018.07.25~2023.07.25	KRW 227,040	USD 200,000	2.17%	3.75%	1,135.20
	Citibank	2019.07.19~2024.07.19	KRW 239,956	CHF 200,000	1.44%	0.00%	1,199.78
	Korea Development Bank	2019.07.19~2028.07.19	KRW 119,978	CHF 100,000	1.43%	0.05%	1,199.78

(*) The Group contracted derivative financial instruments for the purpose of hedging risk but classified them as derivative financial instruments held for trading, since those derivatives do not meet the applicable requirements of applying hedge accounting under KIFRS 1109 'Financial Instruments'.

7. Financial assets at fair value through profit or loss (cont'd)

Gain (loss) on valuation and transaction of derivatives (not designated as in hedging relationships) for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	Gain on valuation		Gain on transaction	
	2019	2018	2019	2018
Currency forwards	₩ 31,130	₩ 13,884	₩ 1,130	₩ -
Currency swaps	138,149	16,000	41,180	32,587
	₩ 169,279	₩ 29,884	₩ 42,310	₩ 32,587

8. Trade and other receivables

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

	2019				2018			
	Gross amount	Allowance for doubtful accounts	Amortization of present value discount	Carrying amount	Gross amount	Allowance for doubtful accounts	Amortization of present value discount	Carrying amount
Current assets:								
Trade receivables	₩ 1,087,325	₩ -	₩ -	₩ 1,087,325	₩ 1,003,165	₩ -	₩ -	₩ 1,003,165
Other receivables	218,597	(3,185)	(470)	214,942	368,324	(3,186)	(449)	364,689
	1,305,922	(3,185)	(470)	1,302,267	1,371,489	(3,186)	(449)	1,367,854
Non-current assets:								
Other receivables	50,925	-	(902)	50,023	80,280	-	(1,655)	78,625
	₩ 1,356,847	₩ (3,185)	₩ (1,372)	₩ 1,352,290	₩ 1,451,769	₩ (3,186)	₩ (2,104)	₩ 1,446,479

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

	2019				2018			
	Gross amount	Allowance for doubtful accounts	Amortization of present value discount	Carrying amount	Gross amount	Allowance for doubtful accounts	Amortization of present value discount	Carrying amount
Current assets:								
Non-trade receivables	₩ 80,721	₩ (3,185)	₩ -	₩ 77,536	₩ 160,202	₩ (3,186)	₩ -	₩ 157,016
Accrued income	74,618	-	-	74,618	152,406	-	-	152,406
Guarantee deposits	60,227	-	(470)	59,757	53,108	-	(449)	52,659
Other current receivables	3,031	-	-	3,031	2,608	-	-	2,608
	218,597	(3,185)	(470)	214,942	368,324	(3,186)	(449)	364,689
Non-current assets:								
Guarantee deposits	50,925	-	(902)	50,023	80,280	-	(1,655)	78,625
	₩ 269,522	₩ (3,185)	₩ (1,372)	₩ 264,965	₩ 448,604	₩ (3,186)	₩ (2,104)	₩ 443,314

Trade and other receivables are measured at amortized cost. For electricity sales revenue, the average trade receivables turnover is 2 business days from the date of the revenues generated. Interest is charged on trade receivables after 2 business days from due date based on interest rates of overdue open market loans.

8. Trade and other receivables (cont'd)

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

	2019	2018
Receivables (not overdue, not impaired)	₩ 1,087,325	₩ 1,003,165
Receivables (overdue, not impaired)	-	-
Receivables (other)	-	-
	1,087,325	1,003,165
Less: allowance for doubtful accounts	-	-
Less: present value discount	-	-
	₩ 1,087,325	₩ 1,003,165

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

	2019	2018
Receivables (not overdue, not impaired)	₩ 266,337	₩ 445,418
Receivables (overdue, not impaired)	-	-
Receivables (other)	3,185	3,186
0~60 days	-	-
60~90 days	-	-
90~120 days	-	-
120~365 days	-	-
Over 365 days	3,185	3,186
	269,522	448,603
Less: allowance for doubtful accounts	(3,185)	(3,186)
Less: present value discount	(1,372)	(2,104)
	₩ 264,965	₩ 443,314

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

	2019		2018	
	Trade receivables	Other Receivables	Trade receivables	Other receivables
Beginning balance	₩ -	₩ 3,185	₩ -	₩ 3,186
Bad debt expenses	-	51	-	-
Write-offs	-	(51)	-	-
Ending balance	₩ -	₩ 3,185	₩ -	₩ 3,186

9. Financial assets at fair value through other comprehensive income

Changes in financial assets at fair value through other comprehensive income for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019						
	Beginning balance	Acquisition	Disposals	Gain (loss) on valuation	Impairment loss	Others	Ending balance
Equity securities							
Listed equity securities	₩ 35,861	₩ -	₩ -	₩ (6,864)	₩ -	₩ 2,831	₩ 31,828
Unlisted equity securities	194,103	-	-	5,893	-	-	199,996
	₩ 229,964	₩ -	₩ -	₩ (971)	₩ -	₩ 2,831	₩ 231,824
Non-current financial assets at fair value through other comprehensive income	₩ 229,964	₩ -	₩ -	₩ (971)	₩ -	₩ 2,831	₩ 231,824

	2018							
	Beginning balance	Changes in accounting standards, etc.	Acquisition	Disposals	Loss on valuation	Impairment loss	Others	Ending balance
Equity securities								
Listed equity securities	₩ -	₩ 38,050	₩ -	₩ -	₩ (772)	₩ -	₩ (1,417)	₩ 35,861
Unlisted equity securities	-	295,467	-	-	(9,236)	-	(92,128)	194,103
	₩ -	₩ 333,517	₩ -	₩ -	₩ (10,008)	₩ -	₩ (93,545)	₩ 229,964
Current financial assets at fair value through other comprehensive income	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -	₩ -
Non-current financial assets at fair value through other comprehensive income	-	333,517	-	-	(10,008)	-	(93,545)	229,964

9. Financial assets at fair value through other comprehensive income (cont'd)

Details of financial assets at fair value through other comprehensive income as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019				
	Shares	Ownership	Acquisition cost	Carrying amount	Fair value
Listed securities:					
Fission Uranium Corp.	700,000	0.14%	₩ 325	₩ 174	₩ 174
Denison Mines Corp.	58,248,500	9.87%	36,799	27,885	27,885
Fission 3.0 Corp.	75,000	0.05%	36	5	5
Energy Fuel Inc.	1,711,814	1.79%	3,414	3,764	3,764
			40,574	31,828	31,828
Unlisted securities:					
Korea Power Exchange (*1)	-	14.28%	18,263	32,738	32,738
SET Holding(*1)	1,100,220	2.50%	229,255	166,865	166,865
HeeMang Sunlight Power Co., Ltd.(*2)	78,600	8.33%	393	393	393
			247,911	199,996	199,996
			₩ 288,485	₩ 231,824	₩ 231,824

(*1) The Group has estimated the fair value by using the discounted cash flow method and has recognized the difference between its fair value and book value as gain or loss on valuation of financial assets at fair value through other comprehensive income for the years ended December 31, 2019.

(*2) This financial asset at fair value through other comprehensive income does not have a quoted market price in an active market, and its fair value cannot be reliably measured, therefore it is measured at cost.

	2018				
	Shares	Ownership	Acquisition cost	Carrying amount	Fair value
Listed securities:					
Fission Uranium Corp.	700,000	0.14%	₩ 325	₩ 310	₩ 310
Denison Mines Corp.	58,248,500	10.42%	36,799	30,103	30,103
Fission 3.0 Corp.	75,000	0.14%	36	13	13
Energy Fuel Inc.	1,711,814	1.91%	3,414	5,435	5,435
			40,574	35,861	35,861
Unlisted securities:					
Korea Power Exchange (*1)	-	14.28%	18,263	31,727	31,727
SET Holding (*1)	1,100,220	2.50%	229,255	161,983	161,983
HeeMang Sunlight Power Co., Ltd. (*2)	78,600	8.33%	393	393	393
			247,911	194,103	194,103
			₩ 288,485	₩ 229,964	₩ 229,964

(*1) The Group has estimated the fair value by using the discounted cash flow method and has recognized the difference between its fair value and book value as gain or loss on valuation of financial assets at fair value through other comprehensive income for the year ended December 31, 2018.

(*2) This financial asset at fair value through other comprehensive income does not have a quoted market price in an active market, and its fair value cannot be reliably measured, therefore it is measured at cost.

10. Other financial assets

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

	2019		2018	
	Current	Non-current	Current	Non-current
Financial instruments	₩ 210,626	₩ 250,463	₩ 205,790	₩ 245,896
Loans	5,349	71,735	4,870	70,824
	₩ 215,975	₩ 322,198	₩ 210,660	₩ 316,720

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

	2019		2018	
	Current	Non-current(*)	Current	Non-current
Time deposit	₩ 626	₩ 100,463	₩ 790	₩ 60,896
Others	210,000	150,000	205,000	185,000
	₩ 210,626	₩ 250,463	₩ 205,790	₩ 245,896

(*) As of December 31, 2019, the Group set aside ₩250,463 million for decommissioning costs of nuclear power plants. These funds are financial assets that cannot be used for any other purposes with a restricted access period exceeding 12 months subsequent to December 31, 2019. Therefore, these have been categorized as non-current assets.

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

	2019		2018	
	Current	Non-current	Current	Non-current
Loans for tuition (*1)	₩ 4,375	₩ 73,725	₩ 3,834	₩ 72,290
Loans for housing (*2)	737	4,476	830	4,925
Other loans (*3)	320	320	320	640
Less: present value discount	(83)	(6,786)	(114)	(7,031)
	₩ 5,349	₩ 71,735	₩ 4,870	₩ 70,824

(*1) The annual interest rate on loans for tuition is 0%, under a condition for installment repayment for seven years with a three-year grace period.
(*2) The annual interest rate on loans for housing is 3.31%, under the condition of a 15 to 20-year installment repayment.
(*3) The annual interest rate on other loans is 0% to 4.68%, under a condition for installment repayment for five years with a five-year grace period.

10. Other financial assets (cont'd)

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

	2019			
	Par value	Present value	Allowance for doubtful accounts	Carrying amount
Loans for tuition	₩ 78,100	₩ (6,849)	₩ -	₩ 71,251
Loans for housing	5,213	-	-	5,213
Other loans	640	(20)	-	620
	₩ 83,953	₩ (6,869)	₩ -	₩ 77,084

	2018			
	Par value	Present value	Allowance for doubtful accounts	Carrying amount
Loans for tuition	₩ 76,124	₩ (7,092)	₩ -	₩ 69,032
Loans for housing	5,755	-	-	5,755
Other loans	960	(53)	-	907
	₩ 82,839	₩ (7,145)	₩ -	₩ 75,694

11. Inventories

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

	2019			2018		
	Acquisition cost	Valuation allowance	Carrying amount	Acquisition cost	Valuation allowance	Carrying amount
Raw materials	₩ 2,924,522	₩ -	₩ 2,924,522	₩ 2,993,467	₩ -	₩ 2,993,467
Supplies	1,647,320	-	1,647,320	1,299,897	-	1,299,897
Inventories-in-transit	255,681	-	255,681	223,718	-	223,718
	₩ 4,827,523	₩ -	₩ 4,827,523	₩ 4,517,082	₩ -	₩ 4,517,082

12. Non-financial assets

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

	2019		2018	
	Current	Non-current	Current	Non-current
Advanced payments	₩ 10,363	₩ 442,748	₩ 9,503	₩ 1,294,129
Prepaid expenses	73,285	7,742	118,879	8,597
Others (*)	45,772	13,289	43,450	62,490
	₩ 129,420	₩ 463,779	₩ 171,832	₩ 1,365,216

(*) The Group accounted for Orano Expansion's equity of ₩ 92,128 million as other non-current non-financial assets and recognized an impairment loss of ₩ 87,023 million for the year ended December 31, 2018 as there was an objective evidence of impairment on rights related to Orano Expansion's equity and loans. Furthermore, the Group converted loans to Orano Expansion into equity and recognized an impairment loss of ₩ 49,201 million for the year ended December 31, 2019 based on the determination of the objective evidence of impairment.

13. Investments in associates and joint ventures

Investments in associates and joint ventures as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019				
Company	Key operating activities	Location	Ownership	Acquisition cost	Carrying amount
<Associates>					
Korea Offshore Wind Power Co., Ltd. (*1)	Offshore wind resources development	Korea	12.50%	₩ 26,600	₩ 21,081
Noeul Green Energy Co., Ltd.	Electricity and heat generation	Korea	29.00%	1,740	6,611
Busan Green Energy Co., Ltd.	Electricity and heat generation	Korea	29.00%	5,243	10,636
Korea Nuclear Partners Co., Ltd.	Electric material agency	Korea	29.00%	290	-
Solar School Plant Co., Ltd. (*1)	Photovoltaic power generation electricity resources development	Korea	8.38%	16,750	17,207
KEPCO Energy Solution Co., Ltd. (*1)	Energy-efficient equipment investment services business	Korea	8.33%	25,000	25,504
Gwangyang Green Energy Co., Ltd.	Biomass generation	Korea	20.00%	2,000	948
Hanhwa Solar Power Private equity investment trust (*5)	Investment trust	Korea	49.00%	7,105	7,126
Go Deok Clean Energy Co., Ltd. (*2,5)	Electricity and heat generation	Korea	61.00%	1,830	1,830
				86,558	90,943
<Joint ventures>					
Waterbury Lake Uranium Limited Partnership (*3)	Uranium resources development	Canada	33.41%	20,753	20,562
Cheongsong Noraesan Wind Power Co., Ltd.	Wind power generation	Korea	29.01%	3,200	3,044
Saemangeum Solar Power Co., Ltd. (*4,5)	Solar power generation	Korea	81.00%	10,000	8,324
				33,953	31,930
				₩ 120,511	₩ 122,873

(*1) Although the Group holds less than 20% equity interest in the investee, the investee has been classified as an investment in associates as the Group determines that it could exercise significant influence over the investee.
(*2) Although the Group holds 61% equity interest in the investee, the Group does not have control because the Group has decision-making rights of less than 50%. The investee has been classified as an investment in associates as the Group determines that it could exercise significant influence over the investee through participation in the Board of Directors.
(*3) The acquisition cost is the book value at the time of the change in the consolidation scope. The initial acquisition cost of the Waterbury Lake Uranium Limited Partnership held by the Korea Waterbury Uranium Limited Partnership was ₩26,602 million.
(*4) The Group's voting right over the investee is 81% based on the shareholders' agreement, and it does not have sole control of the decision-making body for the relevant activities. Therefore, the investee has been classified as an investment in joint ventures.
(*5) This entity is newly included as a joint venture of the Group due to new investments during the year ended December 31, 2019.

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

	2018				
Company	Key operating activities	Location	Ownership	Acquisition cost	Carrying amount
<Associates>					
Korea Offshore Wind Power Co., Ltd. (*1)	Offshore wind resources development	Korea	12.50%	₩ 26,600	₩ 22,467
Noeul Green Energy Co., Ltd.	Electricity and heat generation	Korea	29.00%	1,740	8,016
Busan Green Energy Co., Ltd.	Electricity and heat generation	Korea	29.00%	5,243	12,537
Korea Nuclear Partners Co., Ltd.	Electric material agency	Korea	29.00%	290	175
Solar School Plant Co., Ltd. (*1)	Photovoltaic power generation electricity resources development	Korea	8.38%	16,750	16,994
KEPCO Energy Solution Co., Ltd. (*1)	Energy-efficient equipment investment services business	Korea	8.33%	25,000	25,271
Gwangyang Green Energy Co., Ltd.	Biomass generation	Korea	20.00%	2,000	1,206
				77,623	86,666
<Joint ventures>					
Waterbury Lake Uranium Limited Partnership (*2)	Uranium resources development	Canada	34.07%	20,753	19,032
Cheongsong Noraesan Wind Power Co., Ltd.	Wind power generation	Korea	24.76%	2,073	2,073
				22,826	21,105
				₩ 100,449	₩ 107,771

(*1) Although the Group holds less than 20% equity interest in the investee, the investee has been classified as an investment in associates, as the Group determines that it could exercise significant influence over the investee.
(*2) The acquisition cost is the book value at the time of the change in the consolidation scope. The initial acquisition cost of the Waterbury Lake Uranium Limited Partnership held by the Korea Waterbury Uranium Limited Partnership was ₩ 26,602 million.

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

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

	2019						
	Beginning balance	Acquisition	Share of profit (loss)	Changes in equity	Disposals	Others	Ending balance
<Associates>							
Korea Offshore Wind Power Co., Ltd.	₩ 22,467	₩ -	₩ (1,386)	₩ -	₩ -	₩ -	₩ 21,081
Noeul Green Energy Co., Ltd.	8,016	-	(1,395)	-	-	(10)	6,611
Busan Green Energy Co., Ltd.	12,537	-	(1,885)	-	-	(16)	10,636
Korea Nuclear Partners Co., Ltd.	175	-	(175)	-	-	-	-
Solar School Plant Co., Ltd.	16,994	-	214	-	-	(1)	17,207
KEPCO Energy Solution Co., Ltd.	25,271	-	234	-	-	(1)	25,504
Gwangyang Green Energy Co., Ltd.	1,206	-	(258)	-	-	-	948
Hanhwa Solar Power Private equity investment trust	-	7,105	21	-	-	-	7,126
Go Deok Clean Energy Co., Ltd.	-	1,830	-	-	-	-	1,830
	86,666	8,935	(4,630)	-	-	(28)	90,943
<Joint ventures>							
Waterbury Lake Uranium Limited Partnership	19,032	-	22	1,508	-	-	20,562
Cheongsong Noraesan Wind Power Co., Ltd.	2,073	1,127	(152)	(4)	-	-	3,044
Saemangeum Solar Power Co., Ltd.	-	10,000	(1,676)	-	-	-	8,324
	21,105	11,127	(1,806)	1,504	-	-	31,930
	₩ 107,771	₩ 20,062	₩ (6,436)	₩ 1,504	₩ -	₩ (28)	₩ 122,873

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

	2018						
	Beginning balance	Acquisition	Share of profit (loss)	Changes in equity	Disposals	Others	Ending balance
<Associates>							
Korea Offshore Wind Power Co., Ltd.	₩ 23,526	₩ -	₩ (1,059)	₩ -	₩ -	₩ -	₩ 22,467
Noeul Green Energy Co., Ltd.	2,068	-	5,687	-	-	261	8,016
Busan Green Energy Co., Ltd.	7,363	-	5,037	-	-	137	12,537
Korea Nuclear Partners Co., Ltd.	383	-	(208)	-	-	-	175
Solar School Plant Co., Ltd.	16,824	-	170	-	-	-	16,994
KEPCO Energy Solution Co., Ltd.	24,833	-	463	-	-	(25)	25,271
Gwangyang Green Energy Co., Ltd.	1,772	-	(566)	-	-	-	1,206
	76,769	-	9,524	-	-	373	86,666
<Joint ventures>							
Waterbury Lake Uranium Limited Partnership	19,780	-	(4)	(744)	-	-	19,032
Cheongsong Noraesan Wind Power Co., Ltd.	-	2,073	-	-	-	-	2,073
	19,780	2,073	(4)	(744)	-	-	21,105
	₩ 96,549	₩ 2,073	₩ 9,520	₩ (744)	₩ -	₩ 373	₩ 107,771

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

The summary financial information of investments accounted for using the equity method as of December 31, 2019 and 2018, and for the years then ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019			
	Total assets	Total liabilities	Sales	Net profit (loss)
<Associates>				
Korea Offshore Wind Power Co., Ltd.	₩ 283,774	₩ 115,128	₩ -	₩ (11,090)
Noeul Green Energy Co., Ltd.	137,370	114,578	36,435	(4,810)
Busan Green Energy Co., Ltd.	173,537	136,857	52,256	(6,496)
Korea Nuclear Partners Co., Ltd.	928	375	1,441	(50)
Solar School Plant Co., Ltd.	208,730	3,269	1,962	2,553
KEPCO Energy Solution Co., Ltd.	308,188	2,142	2,843	2,805
Gwangyang Green Energy Co., Ltd.	28,816	24,164	-	(1,007)
Hanhwa Solar Power Private equity investment trust	14,559	15	59	44
Go Deok Clean Energy Co., Ltd.	3,000	-	-	-
<Joint ventures>				
Waterbury Lake Uranium Limited Partnership	61,548	4	-	-
Cheongsong Noraesan Wind Power Co., Ltd.	51,247	40,969	-	(549)
Saemangeum Solar Power Co., Ltd.	13,740	3,270	-	(1,875)

	2018			
	Total assets	Total liabilities	Sales	Net profit (loss)
<Associates>				
Korea Offshore Wind Power Co., Ltd.	₩ 216,114	₩ 36,377	₩ -	₩ (8,473)
Noeul Green Energy Co., Ltd.	147,886	120,249	58,686	19,453
Busan Green Energy Co., Ltd.	195,227	151,995	77,011	17,370
Korea Nuclear Partners Co., Ltd.	615	12	80	(707)
Solar School Plant Co., Ltd.	204,282	1,366	1,149	2,033
KEPCO Energy Solution Co., Ltd.	304,103	849	5,584	2,532
Gwangyang Green Energy Co., Ltd.	29,234	23,293	-	(2,831)
<Joint ventures>				
Waterbury Lake Uranium Limited Partnership	55,933	64	-	-
Cheongsong Noraesan Wind Power Co., Ltd.	8,221	24	-	-

14. Property, plant and equipment

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

	2019				
	Acquisition cost	Government grants	Accumulated depreciation	Accumulated impairment loss	Carrying amount
Land	₩ 2,633,130	₩ -	₩ -	₩ -	₩ 2,633,130
Buildings	8,091,275	(603)	(3,082,141)	(1,896)	5,006,635
Structures	4,702,636	(9,473)	(2,128,509)	(360)	2,564,294
Machineries	25,540,726	(10,833)	(11,059,601)	(386,807)	14,083,485
Ships	1,444	-	(1,244)	-	200
Vehicles	55,503	(105)	(39,910)	-	15,488
Fixtures and furniture	497,837	(178)	(402,760)	(36)	94,863
Tools and equipment	416,515	(338)	(356,344)	(7)	59,826
Construction-in-progress	13,949,399	-	-	(154,729)	13,794,670
Right-of-use assets	2,169,766	-	(390,988)	-	1,778,778
Asset retirement costs	11,443,100	-	(3,985,450)	(146,422)	7,311,228
Others	13,275,414	-	(10,656,807)	-	2,618,607
	₩ 82,776,745	₩ (21,530)	₩ (32,103,754)	₩ (690,257)	₩ 49,961,204

	2018				
	Acquisition cost	Government grants	Accumulated depreciation	Accumulated impairment loss	Carrying amount
Land	₩ 2,598,422	₩ -	₩ -	₩ -	₩ 2,598,422
Buildings	7,430,463	(362)	(2,774,034)	(1,896)	4,654,171
Structures	4,623,632	(10,066)	(1,958,993)	(360)	2,654,213
Machineries	22,771,689	(12,922)	(9,912,889)	(386,807)	12,459,071
Ships	1,444	-	(1,145)	-	299
Vehicles	41,694	(182)	(34,268)	-	7,244
Fixtures and furniture	468,365	(180)	(361,884)	(36)	106,265
Tools and equipment	400,869	(527)	(331,178)	(6)	69,158
Construction-in-progress	14,706,582	-	-	(167,603)	14,538,979
Finance lease assets	980,321	-	(303,340)	-	676,981
Asset retirement costs	9,187,574	-	(3,525,601)	(146,423)	5,515,550
Others	12,146,039	-	(9,817,936)	-	2,328,103
	₩ 75,357,094	₩ (24,239)	₩ (29,021,268)	₩ (703,131)	₩ 45,608,456

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

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

	2019							
	Beginning balance	Effect of changes in accounting policy (Note 2)	Acquisitions/ capitalization	Disposals	Depreciation	Impairment loss, etc. (*1)	Others	Ending balance
Land (*2)	₩ 2,598,422	₩ -	₩ -	₩ (710)	₩ -	₩ -	₩ 35,418	₩ 2,633,130
Buildings	4,654,533	-	32	(5,555)	(313,365)	-	671,593	5,007,238
(Government grants)	(362)	-	-	-	59	-	(300)	(603)
Structures	2,664,279	-	5	(755)	(169,606)	-	79,845	2,573,768
(Government grants)	(10,066)	-	-	-	592	-	-	(9,474)
Machineries	12,471,993	-	4,595	(12,515)	(1,160,336)	-	2,790,581	14,094,318
(Government grants)	(12,922)	-	-	-	2,089	-	-	(10,833)
Ships	299	-	-	-	(99)	-	-	200
Vehicles	7,426	-	1,711	-	(6,303)	-	12,758	15,592
(Government grants)	(182)	-	-	-	81	-	(3)	(104)
Fixtures and furniture	106,445	-	33,684	(70)	(57,697)	-	12,678	95,040
(Government grants)	(180)	-	-	-	84	-	(81)	(177)
Tools and equipment	69,685	-	9,548	(17)	(32,957)	-	13,906	60,165
(Government grants)	(527)	-	-	-	197	-	(9)	(339)
Construction-in-progress (*3)	14,538,979	-	2,567,985	-	-	12,874	(3,325,168)	13,794,670
Finance lease Assets	676,981	(676,981)	-	-	-	-	-	-
Right-of-use assets	-	818,652	23,157	(773)	(88,860)	-	1,026,602	1,778,778
Asset retirement costs	5,515,550	-	-	-	(629,990)	-	2,425,668	7,311,228
Others (*4)	2,328,103	-	-	-	(838,870)	-	1,129,374	2,618,607
	₩ 45,608,456	₩ 141,671	₩ 2,640,717	₩ (20,395)	₩ (3,294,981)	₩ 12,874	₩ 4,872,862	₩49,961,204

(*1) The impairment losses of property, plant and equipment were primarily resulted from Wolsong unit 1 (₩1,808 million), Shin-Hanul units 3 and 4 (₩2,011 million), and reversal of impairment loss in relation to Wolsong unit 1 was ₩16,693 million as described in Note 2.
(*2) ₩23,002 million was transferred to assets held for sale for the year ended December 31, 2019.
(*3) Other increase or decrease in construction-in-progress include ₩324,459 million of borrowing costs capitalized.
(*4) Other increase or decrease in others represent the amounts transferred from inventories to stored nuclear fuel

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

	2018						
	Beginning balance	Acquisitions/ capitalization	Disposals	Depreciation	Impairment loss (*1)	Others(*2)	Ending balance
Land	₩ 2,528,803	₩ 23	₩ (2,616)	₩ -	₩ -	₩ 72,212	₩ 2,598,422
Buildings	4,723,360	64	(3,339)	(308,637)	(1,896)	244,981	4,654,533
(Government grants)	(102)	-	-	40	-	(300)	(362)
Structures	2,839,320	-	(2,791)	(183,441)	(360)	11,551	2,664,279
(Government grants)	(10,658)	-	-	592	-	-	(10,066)
Machineries	13,757,160	5,414	(27,138)	(1,163,979)	(386,807)	287,343	12,471,993
(Government grants)	(15,011)	-	-	2,089	-	-	(12,922)
Ships	399	-	-	(100)	-	-	299
Vehicles	7,003	634	-	(3,677)	-	3,466	7,426
(Government grants)	(249)	-	-	78	-	(11)	(182)
Fixtures and furniture	125,080	26,955	(22)	(56,994)	(36)	11,462	106,445
(Government grants)	(285)	-	-	127	-	(22)	(180)
Tools and equipment	65,299	1,177	(7)	(33,812)	(6)	37,034	69,685
(Government grants)	(784)	-	-	302	-	(45)	(527)
Construction-in-progress	12,973,467	2,141,467	-	-	(206,491)	(369,464)	14,538,979
Finance lease assets	696,061	-	-	(33,603)	-	14,523	676,981
Asset retirement costs	5,951,011	-	-	(599,310)	(146,423)	310,272	5,515,550
Others	2,421,515	-	-	(741,726)	-	648,314	2,328,103
	₩46,061,389	₩ 2,175,734	₩ (35,913)	₩ (3,122,051)	₩ (742,019)	₩ 1,271,316	₩45,608,456

(*1) The impairment losses of property, plant and equipment were primarily resulted from Wolsong unit 1 (₩570,408 million), Cheonji units 1, 2 and Daejin units 1, 2 (₩38,886 million) and Shin-Hanul units 3 and 4 (₩132,725 million).
(*2) Include transfer from raw materials to loaded nuclear fuels and increase in the costs related to provision for decommissioning cost.

15. Government grants

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

	2019	2018
Property, plant and equipment		
Buildings	₩ 603	₩ 362
Structures	9,474	10,066
Machineries	10,833	12,922
Vehicles	104	182
Fixtures and furniture	177	180
Tools and equipment	339	527
	21,530	24,239
Intangible assets		
Computer software	190	276
Development costs	15	20
	205	296
	₩ 21,735	₩ 24,535

15. Government grants (cont'd)

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

	2019							
	Beginning balance		Depreciation/ Amortization offset		Others		Ending balance	
Property, plant and equipment:								
Buildings	₩	362	₩	(59)	₩	300	₩	603
Structures		10,066		(592)		-		9,474
Machineries		12,922		(2,089)		-		10,833
Vehicles		182		(81)		3		104
Fixtures and furniture		180		(84)		81		177
Tools and equipment		527		(197)		9		339
		24,239		(3,102)		393		21,530
Intangible assets:								
Computer software		276		(98)		12		190
Development costs		20		(5)		-		15
		296		(103)		12		205
	₩	24,535	₩	(3,205)	₩	405	₩	21,735

	2018							
	Beginning balance		Depreciation/ Amortization offset		Others		Ending balance	
Property, plant and equipment:								
Buildings	₩	102	₩	(40)	₩	300	₩	362
Structures		10,658		(592)		-		10,066
Machineries		15,011		(2,089)		-		12,922
Vehicles		249		(78)		11		182
Fixtures and furniture		285		(127)		22		180
Tools and equipment		784		(302)		45		527
		27,089		(3,228)		378		24,239
Intangible assets:								
Computer software		206		(118)		188		276
Development costs		24		(4)		-		20
		230		(122)		188		296
	₩	27,319	₩	(3,350)	₩	566	₩	24,535

16. Construction contracts

The construction contracts for Chamelia Hydroelectric Power Plant with the Group was completed when the certificate of acceptance was received in 2018.

No gains or loss from on-going construction contracts were recognized for the years ended December 31, 2019, and the details as of December 31, 2018 are as follows (Korean won in millions):

	2018					
	Accumulative contracts revenue		Accumulative contracts cost		Accumulative profit	
Chameliya hydroelectric power plant construction	₩	16,137	₩	(14,282)	₩	1,855

17. Intangible assets

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

	2019				
	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment loss	Carrying amount
Computer software	₩ 102,623	₩ (190)	₩ (69,906)	₩ -	₩ 32,527
Industrial rights	2,358	-	(1,805)	-	553
Development cost	170,551	(15)	(140,950)	-	29,586
Intangible assets under development	13,007	-	-	-	13,007
Land use rights	2,706	-	(1,088)	-	1,618
Others					
Loading and unloading facilities rights	26,283	-	(4,613)	-	21,670
Dam use rights	6,274	-	(1,756)	-	4,518
Memberships	1,158	-	-	(359)	799
Others	45,841	-	(26,752)	-	19,089
	₩ 370,801	₩ (205)	₩ (246,870)	₩ (359)	₩ 123,367

	2018				
	Acquisition cost	Government grants	Accumulated amortization	Accumulated impairment loss	Carrying amount
Computer software	₩ 80,975	₩ (276)	₩ (57,063)	₩ -	₩ 23,636
Industrial rights	2,358	-	(1,579)	-	779
Development cost	162,748	(20)	(129,659)	-	33,069
Intangible assets under development	8,150	-	-	-	8,150
Land use rights	2,706	-	(830)	-	1,876
Others					
Loading and unloading facilities rights	26,283	-	(3,299)	-	22,984
Dam use rights	6,274	-	(1,611)	-	4,663
Memberships	1,158	-	-	(359)	799
Others	43,791	-	(24,173)	-	19,618
	₩ 334,443	₩ (296)	₩ (218,214)	₩ (359)	₩ 115,574

17. Intangible assets (cont'd)

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

	2019						
	Beginning balance	Acquisition/ capitalization	Disposals	Amortization	Impairment loss	Others	Ending balance
Computer software	₩ 23,912	₩ 16,372	₩ -	₩ (13,195)	₩ -	₩ 5,628	₩ 32,717
(government grants)	(276)	-	-	98	-	(12)	(190)
Industrial rights	779	-	-	(226)	-	-	553
Development cost	33,089	-	-	(11,290)	-	7,802	29,601
(government grants)	(20)	-	-	5	-	-	(15)
Intangible assets under development	8,150	14,593	-	-	-	(9,736)	13,007
Land use rights	1,876	-	-	(258)	-	-	1,618
Others							
Loading and unloading facilities rights	22,984	-	-	(1,314)	-	-	21,670
Dam use rights	4,663	-	-	(145)	-	-	4,518
Memberships	799	-	-	-	-	-	799
Others	19,618	-	-	(2,580)	-	2,051	19,089
	₩ 115,574	₩ 30,965	₩ -	₩ (28,905)	₩ -	₩ 5,733	₩ 123,367

	2018						
	Beginning balance	Acquisition/ capitalization	Disposals	Amortization	Impairment loss	Others	Ending balance
Computer software	₩ 22,989	₩ 5,677	₩ (1)	₩ (7,543)	₩ -	₩ 2,790	₩ 23,912
(government grants)	(206)	-	-	118	-	(188)	(276)
Industrial rights	1,014	-	-	(21)	-	(214)	779
Development cost	18,189	-	-	(4,114)	-	19,014	33,089
(government grants)	(24)	-	-	4	-	-	(20)
Intangible assets under development	23,189	9,850	-	-	-	(24,889)	8,150
Land use rights	2,135	-	-	(259)	-	-	1,876
Others							
Loading and unloading facilities rights	24,298	-	-	(43)	-	(1,271)	22,984
Dam use rights	4,808	-	-	(145)	-	-	4,663
Memberships	799	-	-	-	-	-	799
Others	21,890	-	(9)	(2,314)	-	51	19,618
	₩ 119,081	₩ 15,527	₩ (10)	₩ (14,317)	₩ -	₩ (4,707)	₩ 115,574

18. Borrowing costs

Borrowing costs capitalized for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Amount of capitalization:		
Construction-in-progress	₩ 346,992	₩ 335,275
Intangible assets under development and others	324,459	306,588
	₩ 22,533	₩ 28,687
Capitalization ratio	3.43%	3.63%

19. Financial liabilities at fair value through profit or loss

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

	2019		2018	
	Current	Non-current	Current	Non-current
Held for trading				
Derivative instruments	₩ 196	₩ 7,286	₩ -	₩ 73,560

20. Trade and other payables

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

	2019		2018	
	Current	Non-current	Current	Non-current
Trade payables	₩ 146,052	₩ -	₩ 124,401	₩ -
Other payables (*)	491,055	2,398,333	465,529	2,582,330
Accrued expenses	373,570	-	387,125	-
Leasehold deposits received	1,489	-	1,513	-
Other deposits received	5,183	-	4,284	-
Lease liabilities	20,223	138,580	-	-
	₩ 1,037,572	₩ 2,536,913	₩ 982,852	₩ 2,582,330

(*) ₩2,453,365 million and ₩2,612,076 million are other payables related to fuel management charges spent as of December 31, 2019 and 2018, respectively, which are to be paid out in installments over a 15-year period from 2014.

21. Borrowings and bonds

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

	2019	2018
Current liabilities:		
Short-term borrowings	₩ 210,000	₩ -
Current portion of long-term borrowings	18,253	174,295
Current portion of bonds	500,000	625,430
Less: discount on bonds	(189)	(505)
	728,064	799,220
Non-current liabilities:		
Long-term borrowings	147,917	9,353
Bonds	9,610,555	8,904,916
Add: premium on bonds	1,696	-
Less: discount on bonds	(32,672)	(36,116)
	9,727,496	8,878,153
	₩ 10,455,560	₩ 9,677,373

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

Financial institution	Type	Rate	Interest rate	Maturity	Amount
Korea Development Bank	Overdraft	Fixed	1.98%	2020.01.13	₩ 100,000
Nonghyup Bank	Overdraft	Fixed	2.17%	2020.01.07	100,000
Kookmin Bank	Overdraft	Fixed	2.41%	2020.01.07	10,000
					₩ 210,000

The Group does not have short-term borrowings as of December 31, 2018.

21. Borrowings and bonds (cont'd)

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

2019					
Financial institution	Type	Rate	Interest rate	Maturity	Amount
Korea Energy Agency	Resource development loan	Floating	Treasury notes (3M)-2.25%	2024.09.15	₩ 856
Korea Energy Agency	Resource development loan	Floating	Treasury notes (3M)-2.25%	2025.03.15	2,966
Korea Energy Agency	Resource development loan	Floating	Treasury notes (3M)-2.25%	2025.12.15	1,086
Korea Energy Agency	Resource development loan	Floating	Treasury notes (3M)-2.25%	-	4,445
Samsung Life Insurance Co., Ltd.	Facility loan (*)	Fixed	4.60%	2028.06.24	12,465
Samsung Fire & Marine Insurance Co., Ltd.	Facility loan (*)	Fixed	4.60%	2028.06.24	21,815
KB Insurance Co., Ltd.	Facility loan (*)	Fixed	4.60%	2028.06.24	20,568
Hyundai Marine & Fire Insurance Co., Ltd.	Facility loan (*)	Fixed	4.60%	2028.06.24	18,698
DB Insurance Co., Ltd.	Facility loan (*)	Fixed	4.60%	2028.06.24	12,466
Hana Bank	Facility loan (*)	Fixed	4.60%	2028.06.24	12,466
Korea Development Bank	Facility loan (*)	Fixed	4.60%	2028.06.24	27,175
Samsung Life Insurance Co., Ltd.	Facility loan (*)	Floating	Corporate bonds+1.1%	2028.06.24	12,466
Shinhan Bank	Facility loan (*)	Floating	Corporate bonds+1.1%	2028.06.24	18,698
					166,170
	Less: current portion				(18,253)
					₩ 147,917

(*) As described in Note 41, the Group reclassified these borrowings as non-current liabilities because the events of default have been resolved as of December 31, 2019.

21. Borrowings and bonds (cont'd)

		2018			
Financial institution	Type	Rate	Interest rate	Maturity	Amount
Korea Energy Agency	Resource development loan	Floating	Treasury notes (3M)-2.25%	2024.09.15	₩ 1,037
Korea Energy Agency	Resource development loan	Floating	Treasury notes (3M)-2.25%	2025.03.15	3,531
Korea Energy Agency	Resource development loan	Floating	Treasury notes (3M)-2.25%	2025.12.15	1,267
Korea Energy Agency	Resource development loan	Floating	Treasury notes (3M)-2.25%	-	4,445
Korea Development Bank	Facility loan (*)	Fixed	4.60%	2028.06.24	30,043
Samsung Life Insurance Co., Ltd.	Facility loan (*)	Fixed	4.60%	2028.06.24	13,781
Samsung Fire & Marine Insurance Co., Ltd.	Facility loan (*)	Fixed	4.60%	2028.06.24	24,117
KB Insurance Co., Ltd.	Facility loan (*)	Fixed	4.60%	2028.06.24	22,739
Hyundai Marine & Fire Insurance Co., Ltd.	Facility loan (*)	Fixed	4.60%	2028.06.24	20,672
DB Insurance Co., Ltd.	Facility loan (*)	Fixed	4.60%	2028.06.24	13,781
Hana Bank	Facility loan (*)	Fixed	4.60%	2028.06.24	13,781
Samsung Life Insurance Co., Ltd.	Facility loan (*)	Floating	Corporate bonds+1.1%	2028.06.24	13,781
Shinhan Bank	Facility loan (*)	Floating	Corporate bonds+1.1%	2028.06.24	20,673
					183,648
	Less: current portion				(174,295)
					₩ 9,353

(*) As described in Note 41, the Group classified these borrowings as current liabilities because the Group does not have the unconditional right to defer repayment for more than 12 months after the end of the reporting period as the Group is in the process of resolving the events of default as of December 31, 2018.

21. Borrowings and bonds (cont'd)

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

	Issued date	Maturity date	Rate	Interest rate	2019	2018
Corporate bond #8	2009.05.04	2019.05.04	Fixed	-	₩ -	₩ 120,000
Corporate bond #9-1	2009.10.16	2024.10.16	Fixed	5.72%	30,000	30,000
Corporate bond #9-2	2009.10.16	2029.10.16	Fixed	5.74%	70,000	70,000
Corporate bond #11	2009.11.06	2029.11.06	Fixed	5.84%	100,000	100,000
Corporate bond #14	2010.04.20	2020.04.20	Fixed	5.10%	100,000	100,000
Corporate bond #17-1	2010.12.10	2020.12.10	Fixed	4.60%	80,000	80,000
Corporate bond #17-2	2010.12.10	2040.12.10	Fixed	5.06%	100,000	100,000
Corporate bond #24	2009.07.07	2019.07.07	Fixed	-	-	100,000
Corporate bond #26-1	2011.03.25	2021.03.25	Fixed	4.66%	100,000	100,000
Corporate bond #26-2	2011.03.25	2031.03.25	Fixed	4.89%	100,000	100,000
Corporate bond #27-2	2011.04.15	2021.04.15	Fixed	4.68%	100,000	100,000
Corporate bond #27-3	2011.04.15	2031.04.15	Fixed	4.88%	100,000	100,000
Corporate bond #28	2011.07.01	2026.07.01	Fixed	4.56%	100,000	100,000
Corporate bond #29-2	2011.12.08	2021.12.08	Fixed	4.04%	100,000	100,000
Corporate bond #29-3	2011.12.08	2031.12.08	Fixed	4.26%	100,000	100,000
Corporate bond #30-2	2012.01.19	2022.01.19	Fixed	4.04%	120,000	120,000
Corporate bond #30-3	2012.01.19	2032.01.19	Fixed	4.24%	50,000	50,000
Corporate bond #31-2	2012.03.20	2022.03.20	Fixed	4.15%	100,000	100,000
Corporate bond #31-3	2012.03.20	2032.03.20	Fixed	4.32%	150,000	150,000
Corporate bond #32-2	2012.04.26	2022.04.26	Fixed	3.97%	90,000	90,000
Corporate bond #32-3	2012.04.26	2032.04.26	Fixed	4.14%	130,000	130,000
Corporate bond #33-1	2012.05.18	2022.05.18	Fixed	3.82%	100,000	100,000
Corporate bond #33-2	2012.05.18	2032.05.18	Fixed	4.01%	100,000	100,000
Corporate bond #34-1	2012.07.13	2022.07.13	Fixed	3.54%	90,000	90,000
Corporate bond #34-2	2012.07.13	2032.07.13	Fixed	3.71%	100,000	100,000
Corporate bond #35-2	2013.01.18	2023.01.18	Fixed	3.15%	90,000	90,000
Corporate bond #35-3	2013.01.18	2033.01.18	Fixed	3.32%	100,000	100,000
Corporate bond #36-2	2013.03.28	2023.03.28	Fixed	2.98%	100,000	100,000
Corporate bond #36-3	2013.03.28	2033.03.28	Fixed	3.19%	100,000	100,000
Corporate bond #37-2	2013.04.26	2023.04.26	Fixed	2.93%	100,000	100,000
Corporate bond #37-3	2013.04.26	2033.04.26	Fixed	3.12%	120,000	120,000
Corporate bond #38-2	2013.07.19	2023.07.19	Fixed	3.62%	100,000	100,000
Corporate bond #38-3	2013.07.19	2033.07.19	Fixed	3.88%	90,000	90,000
Corporate bond #39-2	2013.10.18	2023.10.18	Fixed	3.71%	90,000	90,000
Corporate bond #40-2	2013.11.22	2023.11.22	Fixed	3.92%	140,000	140,000
Corporate bond #41-2	2014.01.17	2024.01.17	Fixed	3.86%	130,000	130,000
Corporate bond #42-1	2014.04.25	2019.04.25	Fixed	-	-	10,000
Corporate bond #42-2	2014.04.25	2024.04.25	Fixed	3.68%	100,000	100,000
Corporate bond #42-3	2014.04.25	2034.04.25	Fixed	3.89%	100,000	100,000
Corporate bond #43-1	2014.12.18	2019.12.18	Fixed	-	-	60,000
Corporate bond #43-2	2014.12.18	2024.12.18	Fixed	2.80%	220,000	220,000
Corporate bond #43-3	2014.12.18	2034.12.18	Fixed	3.07%	90,000	90,000
Corporate bond #44-1	2015.06.29	2020.06.29	Fixed	2.31%	60,000	60,000
Corporate bond #44-2	2015.06.29	2025.06.29	Fixed	2.70%	40,000	40,000
Corporate bond #44-3	2015.06.29	2035.06.29	Fixed	2.94%	150,000	150,000
Corporate bond #45-1	2017.04.27	2020.04.27	Fixed	1.93%	140,000	140,000
Corporate bond #45-2	2017.04.27	2027.04.27	Fixed	2.44%	50,000	50,000
Corporate bond #45-3	2017.04.27	2037.04.27	Fixed	2.60%	110,000	110,000

21. Borrowings and bonds (cont'd)

	Issued date	Maturity date	Rate	Interest rate	2019	2018
Corporate bond #46-1	2017.09.18	2020.09.18	Fixed	1.86%	₩ 70,000	₩ 70,000
Corporate bond #46-2	2017.09.18	2027.09.18	Fixed	2.37%	80,000	80,000
Corporate bond #46-3	2017.09.18	2047.09.18	Fixed	2.41%	150,000	150,000
Corporate bond #47-1	2017.10.17	2020.10.17	Fixed	2.03%	50,000	50,000
Corporate bond #47-2	2017.10.17	2027.10.17	Fixed	2.50%	70,000	70,000
Corporate bond #47-3	2017.10.17	2047.10.17	Fixed	2.47%	80,000	80,000
Corporate bond #48-1	2018.03.13	2021.03.13	Fixed	2.40%	160,000	160,000
Corporate bond #48-2	2018.03.13	2023.03.13	Fixed	2.70%	20,000	20,000
Corporate bond #48-3	2018.03.13	2028.03.13	Fixed	2.86%	30,000	30,000
Corporate bond #48-4	2018.03.13	2048.03.13	Fixed	2.94%	90,000	90,000
Corporate bond #49-1	2018.05.11	2021.05.11	Fixed	2.37%	70,000	70,000
Corporate bond #49-2	2018.05.11	2038.05.11	Fixed	2.90%	170,000	170,000
Corporate bond #49-3	2018.05.11	2048.05.11	Fixed	2.88%	60,000	60,000
Corporate bond #50-1	2018.06.05	2021.06.05	Fixed	2.30%	30,000	30,000
Corporate bond #50-2	2018.06.05	2038.06.05	Fixed	2.84%	200,000	200,000
Corporate bond #50-3	2018.06.05	2048.06.05	Fixed	2.81%	70,000	70,000
Corporate bond #51-1	2018.10.26	2021.10.26	Fixed	2.01%	50,000	50,000
Corporate bond #51-2	2018.10.26	2048.10.26	Fixed	2.25%	50,000	50,000
Corporate bond #52-1	2019.06.05	2024.06.05	Fixed	1.74%	40,000	-
Corporate bond #52-2	2019.06.05	2039.06.05	Fixed	1.81%	120,000	-
Corporate bond #52-3	2019.06.05	2049.06.05	Fixed	1.82%	140,000	-
Corporate bond #53-1	2019.10.16	2024.10.16	Fixed	1.53%	60,000	-
Corporate bond #53-2	2019.10.16	2039.10.16	Fixed	1.59%	100,000	-
Corporate bond #53-3	2019.10.16	2049.10.16	Fixed	1.58%	90,000	-
Corporate bond #54-1	2019.11.27	2022.11.27	Fixed	1.60%	50,000	-
Corporate bond #54-2	2019.11.27	2039.11.27	Fixed	1.76%	70,000	-
Corporate bond #54-3	2019.11.27	2049.11.27	Fixed	1.70%	70,000	-
					6,670,000	6,220,000
Less: discount on bonds					(11,542)	(11,112)
Less: transfer to current portion					(499,811)	(289,910)
					₩ 6,158,647	₩ 5,918,978

Foreign bonds as of December 31, 2019 and 2018 are as follows (Korean won in millions, USD, HKD, and CHF in thousands):

					2019			2018		
	Issue date	Maturity date	Rate	Interest rate	Foreign currency		Won equivalents	Foreign currency		Won equivalents
Global bond #3	2011.07.13	2021.07.13	Fixed	4.75%	USD	500,000	₩ 578,900	USD	500,000	₩ 559,050
Global bond #4	2012.09.19	2022.09.19	Fixed	3.00%	USD	750,000	868,350	USD	750,000	838,575
Global bond #6	2014.10.28	2019.10.28	Fixed	-	USD	-	-	USD	300,000	335,430
Global bond #7	2015.06.15	2025.06.15	Fixed	3.25%	USD	300,000	347,340	USD	300,000	335,430
Global bond #8	2017.07.25	2027.07.25	Fixed	3.13%	USD	300,000	347,340	USD	300,000	335,430
Global bond #9	2018.07.25	2023.07.25	Fixed	3.75%	USD	600,000	694,680	USD	600,000	670,860
Foreign FRN 1	2018.03.13	2028.03.13	Fixed	3.35%	HKD	1,650,000	245,289	HKD	1,650,000	235,571
Swiss franc bond#1	2019.07.19	2024.07.19	Fixed	0.00%	CHF	200,000	239,104		-	-
Swiss franc bond #2	2019.07.19	2027.07.19	Fixed	0.05%	CHF	100,000	119,552		-	-
							3,440,555			3,310,346
Add: premium on bonds							1,696			-
Less: discount on bonds							(21,319)			(25,509)
Less: transfer to current portion							-			(335,015)
							₩ 3,420,932			₩ 2,949,822

21. Borrowings and bonds (cont'd)

As of December 31, 2019 and 2018, the plans to repay the borrowings and bonds are as follows (Korean won in millions):

	2019		
	Borrowings	Bonds	Total
Within 1 year	₩ 228,252	₩ 500,000	₩ 728,252
Within 1 ~ 5 years	81,462	4,761,034	4,842,496
Afterward	66,456	4,849,521	4,915,977
	₩ 376,170	₩ 10,110,555	₩ 10,486,725

	2018		
	Borrowings	Bonds	Total
Within 1 year	₩ 174,295	₩ 625,430	₩ 799,725
Within 1 ~ 5 years	3,705	4,318,485	4,322,190
Afterward	5,648	4,586,431	4,592,079
	₩ 183,648	₩ 9,530,346	₩ 9,713,994

22. Leases

Details of right-of-use assets as of December 31, 2019 are as follows (Korean won in millions):

	Acquisition cost	Accumulated depreciation	Carrying amount
Land	₩ 13,018	₩ (363)	₩ 12,655
Buildings	29,429	(14,429)	15,000
Structures	1,985,549	(366,831)	1,618,718
Vehicles	4,331	(1,783)	2,548
Machineries	19,878	(2,740)	17,138
Other right-of-use assets	117,561	(4,844)	112,717
	₩ 2,169,766	₩ (390,990)	₩ 1,778,776

Changes in right-of-use assets for the year ended December 31, 2019 are as follows (Korean won in millions):

	Beginning balance	Effect of changes in accounting policy	Increase	Decrease	Depreciation	Others	Ending balance
Land	₩ -	₩ 10,337	₩ 605	₩ -	₩ (208)	₩ 1,921	₩ 12,655
Buildings	-	25,711	3,867	-	(8,287)	(6,291)	15,000
Structures (*)	676,981	-	-	(773)	(64,701)	1,007,211	1,618,718
Vehicles	-	1,969	2,362	-	(1,028)	(755)	2,548
Machineries	-	3,838	15,970	-	(1,570)	(1,100)	17,138
Other right-of-use assets	-	99,817	353	-	(2,780)	15,327	112,717
	₩ 676,981	₩ 141,672	₩ 23,157	₩ (773)	₩ (78,574)	₩ 1,016,313	₩ 1,778,776

(*) Structures of ₩ 676,981 million was reclassified to right-of-use assets from finance lease assets due to changes in accounting policies.

22. Leases (cont'd)

The amount of lease liabilities as of December 31, 2019 is as follows (Korean won in millions):

	Minimum lease payments		Present value of minimum lease payments	
Within 1 year	₩	20,413	₩	20,223
Within 1 ~ 5 years		48,354		44,736
Afterward		145,645		93,845
	₩	214,412	₩	158,804

Change in liabilities related to lease contracts for the year ended December 31, 2019 is as follows (Korean won in millions):

	Beginning balance	Effect of changes in accounting policy	Increase	Decrease	Depreciation	Others	Ending balance
Lease liabilities	₩ -	₩ 139,593	₩ 22,316	₩ (26,276)	₩ 3,370	₩ 19,801	₩ 158,804

The amounts recognized in profit or loss by the Group in relation to the leases for the year ended December 31, 2019 are as follows (Korean won in millions):

	2019	
Depreciation of right-of-use assets	₩	78,574
Interest expenses on lease liabilities		3,370
Lease expenses - short-term leases		10,074
Lease expenses - leases of low-value assets		774
Gain on translation of lease liabilities		(5)
Loss on translation of lease liabilities		423
	₩	93,210

23. Retirement benefit plans

23.1 Defined contribution plans

For the years ended December 31, 2019 and 2018, retirement benefit expenses of ₩34,537 million and ₩34,977 million, respectively, were recognized in the consolidated statements of comprehensive income (loss) and represent contribution amounts paid to retirement benefit plans in accordance with a ratio defined in retirement benefit plans. All the contribution amounts for the years ended December 31, 2019 have been paid.

Costs related to the defined contribution plans for the years ended December 31, 2019 and 2018 were recognized in profit or loss and others as follows (Korean won in millions):

	2019		2018	
Cost of sales	₩	23,196	₩	23,045
Selling and administrative expenses		1,369		1,389
Others (construction-in-progress, etc.)		9,972		10,543
	₩	34,537	₩	34,977

23. Retirement benefit plans (cont'd)

23.2 Defined benefit plans

The principal assumptions as of December 31, 2019 and 2018 are as follows:

	2019	2018
Discount rate	1.95% ~ 2.72%	2.24% ~ 2.33%
Future salary increasing rate	2.00% ~ 5.95%	2.00% ~ 6.67%

Details of the Group's expenses relating to its defined benefit plan for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Current service cost	₩	93,689	₩	81,003
Past service cost		49,830		(181)
Interest expenses on liabilities		18,355		18,620
Expected return on plan assets		(9,911)		(9,469)
Transfer to others (*)		(35,816)		(27,956)
	₩	116,147	₩	62,017

(*) It represents transfers to ordinary development costs and others amounting to ₩16,242 million and to construction-in-progress amounting to ₩19,573 million for the year ended December 31, 2019.

Costs related to the defined benefit plans recognized in profit or loss for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Cost of goods sold	₩	108,925	₩	57,751
Selling and administrative expenses		7,222		4,266
	₩	116,147	₩	62,017

The amounts recognized in the consolidated statements of financial position related to defined retirement benefit plan as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Present value of defined benefit obligations	₩	833,435	₩	743,258
Fair value of plan assets		(513,937)		(416,280)
Net liabilities arising from defined benefit obligations	₩	319,498	₩	326,978

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

		2019		2018
Beginning balance	₩	743,258	₩	633,643
Current service cost		93,689		81,003
Interest expenses		18,355		18,620
Remeasurement		(49,006)		29,521
Actual payments		(22,691)		(19,348)
Past service costs		49,830		(181)
Ending balance	₩	833,435	₩	743,258

23. Retirement benefit plans (cont'd)

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

	2019		2018	
Beginning balance	₩	416,280	₩	321,721
Expected return on plan assets		9,911		9,469
Remeasurement		(1,844)		(3,789)
Contribution from the employer		100,000		100,000
Actual payments		(10,410)		(11,121)
Ending balance	₩	513,937	₩	416,280

In addition, accumulated remeasurement loss amounting to ₩1,273 million and ₩35,494 million was recognized in accumulated other comprehensive income as of December 31, 2019 and 2018, respectively.

Types of plan assets and fair value of plan assets as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
Equity instruments	₩	185,881	₩	93,456
Debt instruments		48,521		102,125
Bank deposits		24,248		31,049
Others		255,287		189,650
	₩	513,937	₩	416,280

Actual return on plan assets for the years ended December 31, 2019 and 2018 are ₩8,067 million and ₩5,680 million, respectively.

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

	2019		2018	
Actuarial gain arising from changes in demographic assumptions	₩	(101,826)	₩	-
Actuarial loss (gain) arising from changes in financial assumptions		1,800		(44,268)
Experience adjustments		51,020		14,747
Return on plan assets		1,844		(3,789)
	₩	(47,162)	₩	(33,310)

The amounts recognized in the consolidated statements of financial position related to employee benefits obligations other than retirement benefit obligation as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
Other employee benefit obligation				
Long-term employee paid annual leave	₩	1,717	₩	1,796

24. Provisions

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

	2019		2018	
	Current	Non-current	Current	Non-current
Provisions for employee benefits	₩ 189,426	₩ -	₩ 193,367	₩ -
Provisions for litigation	-	5,430	-	5,900
Provisions for decommissioning cost	477,844	18,618,802	-	16,239,571
Nuclear plants	-	15,994,039	-	13,388,134
Fuel spent	401,741	953,539	-	1,291,354
Radioactive waste	76,103	1,671,224	-	1,560,083
Others	158,134	-	216,472	-
Provisions for power plant regional support program	140,133	-	137,668	-
Provisions for renewable energy portfolio standard	-	-	78,804	-
Others	18,001	-	-	-
	₩ 825,404	₩ 18,624,232	₩ 409,839	₩ 16,245,471

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

	2019						
	Beginning balance	Accrual	Transfers	Payments	Reversal	Others	Ending balance
Provisions for employee benefits	₩ 193,367	₩ 214,285	₩ -	₩ (218,226)	₩ -	₩ -	₩ 189,426
Provisions for litigation	5,900	-	10	-	(480)	-	5,430
Provisions for decommissioning cost	16,239,571	2,875,354	397,960	(416,547)	-	308	19,096,646
Nuclear plants	13,388,134	2,241,602	397,960	(33,657)	-	-	15,994,039
Fuel spent	1,291,354	440,029	-	(376,103)	-	-	1,355,280
Radioactive waste	1,560,083	193,723	-	(6,787)	-	308	1,747,327
Others	216,472	261,705	-	(329,557)	-	9,514	158,134
Provisions for power plant regional support program	137,668	41,341	-	(48,390)	-	9,514	140,133
Provisions for renewable energy portfolio standard	78,804	202,363	-	(281,167)	-	-	-
Others	-	18,001	-	-	-	-	18,001
	₩ 16,655,310	₩ 3,351,344	₩ 397,970	₩ (964,330)	₩ (480)	₩ 9,822	₩ 19,449,636

	2018						
	Beginning balance	Accrual	Transfers	Payments	Reversal	Others	Ending balance
Provisions for employee benefits	₩ 156,909	₩ 231,858	₩ -	₩ (195,400)	₩ -	₩ -	₩ 193,367
Provisions for litigation	5,703	490	-	-	(25)	(268)	5,900
Provisions for decommissioning cost	15,863,598	572,140	383,120	(579,287)	-	-	16,239,571
Nuclear plants	13,007,228	28,196	383,120	(30,410)	-	-	13,388,134
Fuel spent	1,339,046	435,007	-	(482,699)	-	-	1,291,354
Radioactive waste	1,517,324	108,937	-	(66,178)	-	-	1,560,083
Provisions for greenhouse gas emission	22,411	-	-	-	(22,411)	-	-
Others	321,244	322,876	-	(437,172)	-	9,524	216,472
Provisions for power plant regional support program	153,756	46,366	-	(71,978)	-	9,524	137,668
Provisions for renewable energy portfolio standard	90,227	276,510	-	(287,933)	-	-	78,804
Others	77,261	-	-	(77,261)	-	-	-
	₩ 16,369,865	₩ 1,127,364	₩ 383,120	₩ (1,211,859)	₩ (22,436)	₩ 9,256	₩ 16,655,310

Estimates of discount rates, inflation, etc. used by management to calculate provisions for decommissioning, restoration and cleanup costs are described in Note 38.

25. Non-financial liabilities

Non-financial liabilities as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019				2018			
	Current		Non-current		Current		Non-current	
Advances received	₩	2	₩	-	₩	2	₩	-
Unearned revenue		371		-		228		-
Withholdings		39,253		-		42,172		-
Others		19,492		5,065		92,456		5,065
	₩	59,118	₩	5,065	₩	134,858	₩	5,065

26. Contributed capital

Share capital as of December 31, 2019 and 2018 are as follows (Korean won in millions, except for number of shares and par value per share):

	Number of shares authorized	Number of shares issued	Par value per share		2019		2018	
Common shares	500,000,000	242,442,838	₩	5,000	₩	1,212,214	₩	1,212,214

Number of shares issued and outstanding as of December 31, 2019 and 2018 are as follows:

	2019	2018
Number of shares issued and outstanding	242,442,838	242,442,838

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

	2019		2018	
Paid-in capital in excess of par value	₩	9,492,301	₩	9,492,301

27. Retained earnings and dividends

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

	December 31, 2019		December 31, 2018	
Legal reserve (*)	₩	606,107	₩	606,107
Voluntary reserves		9,925,704		10,063,316
Unappropriated retained earnings		4,440,886		3,994,244
	₩	14,972,697	₩	14,663,667

(*) The Korean Commercial Code requires the Controlling Company to appropriate a legal reserve in an amount equal to at least 10% of cash dividends for each accounting period until the reserve equals 50% of share capital. The legal reserve may be used to reduce a deficit or may be transferred to share capital in connection with a free issue of shares.

27. Retained earnings and dividends (cont'd)

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

	2019	2018
Reserve for business expansion	₩ 5,053,715	₩ 5,191,328
Others	4,871,899	4,871,988
	₩ 9,925,704	₩ 10,063,316

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

	2019	2018
Beginning balance	₩ 14,663,667	₩ 15,084,381
Adjustment on initial application of KIFRS 1109, net of tax	-	(4,529)
Adjustment on initial application of KIFRS 1115, net of tax	-	256
Profit (loss) for the year attributable to owners of the parent	274,861	(111,435)
Dividends paid	-	(281,234)
Share of other comprehensive income (loss) of associates and joint ventures	(28)	373
Remeasurements of defined benefit plans, net of tax	20	(24,145)
Ending balance	₩ 14,972,697	₩ 14,663,667

Dividends paid for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions, except for number of share and dividends for share):

	2019				
	Number of shares issued	Treasury stocks	Number of dividend shares	Dividends per share	Dividends
Common stock	242,442,838	-	242,442,838	₩ -	₩ -

	2018				
	Number of shares issued	Treasury stocks	Number of dividend shares	Dividends per share	Dividends
Common stock	242,442,838	-	242,442,838	₩ 1,160	₩ 281,234

27. Retained earnings and dividends (cont'd)

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

		2019		2018
Beginning balance	₩	(35,477)	₩	(11,331)
Changes during the year		47,173		(33,306)
Tax effect		(12,977)		9,160
Ending balance	₩	(1,281)	₩	(35,477)

The statements of appropriation of retained earnings for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
I. Retained earnings before appropriations				
Unappropriated retained earnings	₩	4,111,285	₩	4,134,738
Profit (loss) for the year		306,007		(137,613)
Remeasurements of defined benefit plans, net of tax		34,218		(24,137)
Others		-		684
		4,451,510		3,973,672
II. Transfer from voluntary reserves				
Reserves for business expansion		-		137,613
		-		137,613
III. Total (I + II)		4,451,510		4,111,285
IV. Appropriation of retained earnings				
Dividends		106,675		-
Sinking fund reverses		199,332		-
		306,007		-
V. Unappropriated retained earnings to be carried over to subsequent year (III – IV)	₩	4,145,503	₩	4,111,285

The above statements of appropriation of retained earnings is based on the separate financial statements of the parent company.

28. Other components of equity

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

		2019		2018
Accumulated other comprehensive loss	₩	(39,598)	₩	(42,303)
Other capital adjustments		(302)		(302)
	₩	(39,900)	₩	(42,605)

Changes in accumulated other comprehensive loss for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019							
		Gain (loss) on valuation of fair value through other comprehensive income		Share of other comprehensive income (loss) of associates and joint ventures		Gain (loss) from translation of foreign operations		Total
Beginning balance	₩	(40,183)	₩	(2,012)	₩	(108)	₩	(42,303)
Change during the year		(971)		1,504		2,895		3,428
Tax effect		87		-		(810)		(723)
Ending balance	₩	(41,067)	₩	(508)	₩	1,977	₩	(39,598)

	2018							
		Gain (loss) on valuation of fair value through other comprehensive income		Share of other comprehensive loss of associates and joint ventures		Gain (loss) from translation of foreign operations		Total
Beginning balance	₩	(37,475)	₩	(1,268)	₩	(561)	₩	(39,304)
Change during the year		(10,008)		(744)		625		(10,127)
Tax effect		2,771		-		(172)		2,599
Effect of changes in accounting policy		4,529		-		-		4,529
Ending balance	₩	(40,183)	₩	(2,012)	₩	(108)	₩	(42,303)

Other capital adjustments as of December 31, 2019 and 2018 are as follows (Korea won in millions):

		2019		2018
Changes from paid-in capital increase of subsidiaries	₩	(302)	₩	(302)

29. Sales

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

	2019				2018			
	Domestic		Overseas		Domestic		Overseas	
Sales of electric power	₩	8,546,311	₩	-	₩	8,606,922	₩	-
Service revenue		345,576		90,740		294,938		52,558
Construction contracts revenue		-		-		-		740
	₩	8,891,887	₩	90,740	₩	8,901,860	₩	53,298

30. Selling and administrative expenses

Selling and administrative expenses for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Salaries	₩	48,697	₩	52,222
Retirement benefits		8,590		5,655
Employee welfare		9,967		9,060
Insurance premium		901		932
Depreciation		45,547		37,952
Amortization of intangible assets		12,089		8,761
Commissions		42,414		38,629
Advertisement		9,075		7,993
Training		100		78
Vehicle maintenance		143		136
Publication		380		395
Business operating expenses		142		131
Rent		10,720		16,307
Communication		515		1,051
Taxes and dues		1,543		1,616
Supplies		730		537
Utilities		1,284		999
Repairs		11,777		8,316
Ordinary development costs		1,196		1,071
Traveling		1,159		1,139
Clothing expenses		172		4
Labor welfare fund contribution		-		872
Subscription		82		85
Others		16,093		**17,569**
	₩	223,316	₩	211,510

Details of others of selling and administrative expenses for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Other wages	₩	11,419	₩	12,567
Compliance expenses		78		63
Award expenses		168		192
Registration expenses		270		399
Litigation expenses		2,698		3,013
Meeting expenses		1,460		1,335
	₩	16,093	₩	17,569

31. Other income and expenses

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

	2019	2018
Gain from assets contributed	₩ 115	₩ 197
Compensation and dividends income	16,106	27,565
Rental income	5,708	5,795
Others	22,844	20,060
	₩ 44,773	₩ 53,617

Details of others of other income for the years ended December 31, 2019 and 2018 are as follows:

	2019	2018
Grants of development of vocational skills	₩ 1,247	₩ 1,426
Gain on settlement of the grants	3,294	2,267
Rent management fee	153	176
Trustee training and technical support income	1,920	1,794
Contract deposit recovered from termination of contract	436	7
Gain on refund of tax claim for reassessments	1,969	713
Reversal of litigation-related expenses	9,926	-
Others	3,899	13,677
	₩ 22,844	₩ 20,060

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

	2019	2018
Depreciation of idle assets	₩ 6,542	₩ 6,547
Other bad debt expenses	49,252	87,024
Donations	18,843	24,435
Others	103,231	52,296
	₩ 177,868	₩ 170,302

Details of others of other expenses for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Operating expenses of the sports center	₩ 5,234	₩ 4,788
Technical support performance expenses and others	67	53
Differences on settlement of research and development grants	554	404
Maintenance expenses related to the idle assets	50	47
Others(*)	97,326	47,004
	₩ 103,231	₩ 52,296

(*) Others for the year ended December 31, 2018 include ₩38,886 million of impairment loss on construction-in-progress of Cheonji unit 1 and 2 and Daejin unit 1 and 2 as described in note 2.

32. Other profit and loss

Other profit and loss for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Gain on disposals of property plant and equipment	₩	2,114	₩	7,660
Gain on disposals of intangible assets		-		12
Gain on foreign currency translation (*)		1,831		512
Gain on foreign currency transactions (*)		13,924		8,445
Gain on insurance transactions		13,211		-
Other gains		3,086		4,470
Reversal of impairment loss on property, plant and equipment		16,692		-
Loss on disposals of property, plant and equipment		(17,294)		(25,363)
Loss on disposals of intangible assets		(773)		(9)
Impairment loss on property, plant and equipment		(3,819)		(703,131)
Loss on foreign currency translation (*)		(1,088)		(538)
Loss on foreign currency transactions (*)		(8,899)		(9,818)
Other losses		(7,537)		(958)
	₩	11,448	₩	(718,718)

(*) Gain (loss) on foreign currency translation and foreign currency transactions arising from operating activities.

Details of other gains of other profit for the years ended December 31, 2019 and 2018 are as follows:

		2019		2018
Gain on disposal of inventories	₩	105	₩	113
Gain on reversal of inventories		-		2,131
Gain on disposal of waste		2,935		2,217
Others		46		9
	₩	3,086	₩	4,470

Details of other losses of other loss for the years ended December 31, 2019 and 2018 are as follows:

		2019		2018
Loss on inventory obsolescence	₩	(56)	₩	(53)
Loss on disposal of inventories		(7,466)		(898)
Others		(15)		(7)
	₩	(7,537)	₩	(958)

33. Finance income

Finance income for the years ended December 31, 2019 and 2018 are as follows:

		2019		2018
Interest income	₩	37,606	₩	30,571
Dividend income		7,390		2,119
Gain on disposals of financial assets		1,212		1,831
Gain on valuation of financial assets at fair value through profit or loss		4,113		8,422
Gain on valuation of derivative financial instruments		169,279		44,356
Gain on transactions of derivative financial instruments		44,503		33,805
Gain on foreign currency translation (*)		1,974		11,062
Gain on foreign currency transactions (*)		307		1,297
	₩	266,384	₩	133,463

(*) Gain on foreign currency translations and foreign currency transactions arising from financing activities.

Details of interest income included in finance income for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Cash and cash equivalents	₩	3,431	₩	6,259
Financial assets at fair value through profit or loss		19,835		12,767
Short-term and long-term financial instruments		10,837		7,848
Loans		1,431		1,706
Trade other receivables		2,072		1,991
	₩	37,606	₩	30,571

34. Finance costs

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

		2019		2018
Interest expenses	₩	519,291	₩	511,180
Loss on disposals of financial assets		1,612		-
Loss on valuation of financial assets at fair value through profit or loss		1,513		3,181
Loss on valuation of derivative financial instruments		-		14,472
Loss on transactions of derivative financial instruments		2,193		1,218
Loss on foreign currency translation (*)		106,988		112,388
Loss on foreign currency transactions (*)		15,927		19,567
	₩	647,524	₩	662,006

(*) Loss on foreign currency translation and foreign currency transactions arising from financing activities.

34. Finance costs (cont'd)

Details of interest expenses included in finance costs for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Short-term borrowings	₩	19	₩	211
Long-term borrowings		7,336		8,067
Bonds		343,570		330,996
Other financial liabilities (*)		515,358		503,161
		866,283		842,435
Less: capitalization of borrowing costs		(346,992)		(331,255)
	₩	519,291	₩	511,180

(*) Interest expenses related to provision for decommissioning cost of nuclear power plants are included.

35. Income tax expense

The major components of income tax expense (benefit) for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Current income taxes:	₩	223,094	₩	200,712
Current income taxes		302,204		232,472
Adjustment recognized in the current period for the previous periods income tax		(65,410)		(43,519)
Income tax expense (benefit) recognized directly to equity		(13,700)		11,759
Deferred tax benefit:				
Arising from changes in temporary differences		(195,805)		(307,530)
Income tax expense (benefit)	₩	27,289	₩	(106,818)

The income taxes calculated using the statutory tax rates differs from the actual amount for the years ended December 31, 2019 and 2018 for the following reasons (Korean won in millions):

		2019		2018
Profit (loss) before income tax	₩	273,837	₩	(208,811)
Tax at the statutory tax rate of 27.5%		75,305		(57,423)
Adjustments:				
Effect of applying gradual tax rate		(10,373)		-
Non-taxable income		(15)		(7)
Non-deductible expenses		615		2,516
Tax credits and deduction		(28,779)		(19,997)
Effect from recognizing deferred tax liabilities not recognized before		31,389		-
Others		24,557		11,612
		17,394		(5,876)
Adjustment recognized in the current period for the income tax in previous periods		(65,410)		(43,519)
Income tax expense (benefit)	₩	27,289	₩	(106,818)
Effective tax rate (*)		9.97%		-

(*) The effective tax rate for the years ended December 31, 2018 has not been calculated as it is negative.

35. Income tax expense (cont'd)

Tax item recognized in other comprehensive income (loss) for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	, 2018
Income tax expense (benefit) recognized directly to equity		
Items recognized in other comprehensive income (loss)		
Gain on valuation of financial assets at FVOCI	₩ 87	₩ 2,772
Remeasurements of defined benefit plans	(12,977)	9,159
Loss on translation of foreign operations	(810)	(172)
	₩ (13,700)	₩ 11,759

Details of the deferred tax assets (liabilities) as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019			
	Beginning balance	Amounts recognized in profit or loss for the year	Amounts recognized in other comprehensive income (loss)	Ending balance
Deferred tax by temporary difference				
Long-term employee benefits	₩ 160,129	₩ (384)	₩ (12,977)	₩ 146,768
Property, plant and equipment	(3,736,508)	(278,020)	-	(4,014,528)
Intangible assets	(2,486)	2,719	-	233
Financial assets at fair value through profit or loss	(3)	-	-	(3)
Financial assets at fair value through other comprehensive income	14,784	186	87	15,057
Provisions	4,590,640	493,363	-	5,084,003
Accrued income	(1,544)	88	-	(1,456)
Others	21,193	(4,943)	(810)	15,440
Advanced depreciation provision	-	(3,807)	-	(3,807)
Tax loss carryforwards	-	303	-	303
	₩ 1,046,205	₩ 209,505	₩ (13,700)	₩ 1,242,010

35. Income tax expense (cont'd)

	2018							
	Beginning balance		Amounts recognized in profit or loss for the year		Amounts recognized in other comprehensive income (loss)		Ending balance	
Deferred tax by temporary difference								
Long-term employee benefits	₩	142,140	₩	8,830	₩	9,159	₩	160,129
Property, plant and equipment		(3,911,179)		174,671		-		(3,736,508)
Intangible assets		(1,469)		(1,017)		-		(2,486)
Financial assets at fair value through profit or loss		-		(3)		-		(3)
Financial assets at fair value through other comprehensive income		14,214		(2,202)		2,772		14,784
Provisions		4,479,580		111,060		-		4,590,640
Accrued income		(1,144)		(400)		-		(1,544)
Others		16,533		4,832		(172)		21,193
	₩	738,675	₩	295,771	₩	11,759	₩	1,046,205

Deferred tax assets as of December 31, 2019 and 2018 are as follows (Korean won in million):

	2019		2018	
Deferred tax assets	₩	1,242,010	₩	1,046,205

The deductible temporary difference not recognized as deferred tax assets is ₩ 277,050 million as of December 31, 2019.

36. Expenses classified by nature

Expenses classified by nature for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		
	Selling and administrative expenses	Cost of sales	Total
Raw materials used	₩ -	₩ 607,833	₩ 607,833
Salaries	48,697	755,040	803,737
Retirement benefits	8,590	132,121	140,711
Employee welfare	9,967	105,567	115,534
Insurance premium	901	42,211	43,112
Depreciation	45,547	2,111,249	2,156,796
Amortization of nuclear fuel	-	1,077,979	1,077,979
Amortization of intangible assets	12,089	5,079	17,168
Commissions	42,414	198,544	240,958
Provisions for decommissioning cost	-	449,326	449,326
Other provisions	-	5,596	5,596
Advertisement	9,075	3,151	12,226
Training	100	1,462	1,562
Vehicle maintenance	143	404	547
Publication	380	573	953
Business operating expenses	142	855	997
Rents	10,720	88,152	98,872
Communications	515	4,172	4,687
Freight	-	131	131
Taxes and dues	1,543	276,938	278,481
Supplies	730	1,875	2,605
Utilities	1,284	5,853	7,137
Repairs	11,777	1,199,315	1,211,092
Ordinary development costs	1,196	483,221	484,417
Traveling	1,159	5,460	6,619
Clothing expenses	172	2,000	2,172
Research and analysis expenses	-	992	992
Subscription	82	10,756	10,838
Others	16,093	400,395	416,488
	₩ 223,316	₩ 7,976,250	₩ 8,199,566

36. Expenses classified by nature (cont'd)

	2018		
	Selling and administrative expenses	Cost of sales	Total
Raw materials used	₩ -	₩ 695,665	₩ 695,665
Salaries	52,222	723,427	775,649
Retirement benefits	5,655	80,796	86,451
Employee welfare	9,060	99,156	108,216
Insurance premium	932	36,768	37,700
Depreciation	37,952	2,093,797	2,131,749
Amortization of nuclear fuel	-	956,290	956,290
Amortization of intangible assets	8,761	5,510	14,271
Commission	38,629	196,722	235,351
Provisions for decommissioning cost	-	261,868	261,868
Other provisions	-	26,466	26,466
Advertisement	7,993	3,078	11,071
Training	78	1,566	1,644
Vehicle maintenance	136	451	587
Publication	395	538	933
Business operating expenses	131	990	1,121
Rents	16,307	78,434	94,741
Communications	1,051	6,962	8,013
Freight	-	102	102
Taxes and dues	1,616	261,808	263,424
Supplies	537	2,852	3,389
Utilities	999	5,955	6,954
Repairs	8,316	1,203,983	1,212,299
Ordinary development costs	1,071	477,747	478,818
Traveling	1,139	4,556	5,695
Clothing expenses	4	762	766
Research and analysis expenses	-	1,101	1,101
Labor welfare fund contribution	872	14,293	15,165
Subscription	85	10,029	10,114
Others	17,569	346,361	363,930
	₩ 211,510	₩ 7,598,033	₩ 7,809,543

37. Earnings (loss) per share

Basic earnings (loss) per share for the years ended December 31, 2019 and 2018 are as follow (Korean won):

	2019		2018	
Basic earnings (loss) per share	₩	1,134	₩	(460)

Profit (loss) for the year attributable to owners of the parent and weighted average number of common shares outstanding for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
Profit (loss) for the year attributable to owners of the parent	₩	274,861	₩	(111,435)
Weighted average number of common shares		242,442,838		242,442,838

38. Risk management

38.1 Capital risk management

The Group manages its capital to ensure that entities in the Group will be able to continue while maximizing the return to shareholder through the optimization of the debt and equity balance. the management of the Group reviews the capital structure of the Group periodically, and maintains optimized capital structure through long-term and short-term borrowings and issuance of bonds.

The capital structure of the Group consists of net debt (offset by cash and cash equivalents form bonds and borrowings) and equity, and the Group's overall capital risk management policies remains consistent with prior year.

Details of the Group's capital risk management items as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
Total borrowings and bonds	₩	10,455,560	₩	9,677,373
Cash and cash equivalents, etc. (*)		245,543		316,754
Net borrowings		10,210,017		9,360,619
Total equity	₩	25,665,877	₩	25,382,448
Ratio of net borrowings to total equity		39.78 %		36.88%

(*) It consists of cash and cash equivalents and short-term financial instruments.

38. Risk management (cont'd)

38.2 Financial risk management

The Group is exposed to various risks related to its financial instruments, such as, market risk (currency risk, interest rate risk, price risk) and credit risk. The Group monitors and manages the financial risks relating to the operations of the Group through internal risk reports which analyse exposures by degree and magnitude of risks.

The Group uses derivative financial instruments to hedge certain risk exposures. The Group's overall financial risk management strategy remains consistent with prior year.

38.2.1 Risk management policy

The Group's management is responsible for the establishment and supervision of the financial risk management system. The goal of financial risk management is to reduce and eliminate the financial risks to acceptable levels by identifying sources of potential risks to the Group's financial performance. The Group is equipped with policies and procedures to control financial risks at the entity level. The Group continuously monitors the compliance with policies and procedures of risk management.

The Group's risk management policy is designed to identify and analyze the risks facing the Group, establish appropriate risk limits and controls, and ensure that the risks do not exceed the limits. Risk management policies and systems are regularly reviewed to reflect market conditions and changes in the activities of the Group.

38.2.2 Credit risk

Credit risk is the risk of finance loss to the Group if a customer or counterparty to a financial instrument fails to meet its contractual obligations. Exposure to the risk is mainly from the arises the Group's sales activities, as well as from derivatives and debt securities. For banks and financial institutions, the credit risk from them is limited as the Group makes transactions with reputable financial instituions. For general accounts, the Group evalutates the customer's credit based on the customer's financial position, past experience, and other factors.

Credit risk management

The Group uses publicly available information and its own internal data related to trade receivables, to rate its major customers and to measure the credit risk that a counter party will default on a contractual obligation. As the majority of the Group's trade receivables are due from governmental entities (i.e. KEPCO and others), the Group does not have significant credit risk exposure. Regarding its debt securities, the Group continuously monitors credit ratings issued by credit agencies, and the Group's working capital is deposited at financial institutions with a high credit rating.

Impairment & allowance account

In accordance with Group's policies, individual material financial assets are assessed on a regular basis, trade receivables that are assessed not to be impaired individually are, in addition, assessed for impairment on a collective basis. For such assessment, the Group considers the amount of collaterals obtained (including the recoverability) for the individual financial assets and the expected recoverable amounts.

38. Risk Management (cont'd)

38.2.2 Credit risk (cont'd)

The Group maximum exposure to credit risk as of December 31, 2019 and 2018 are as follows (Korean won in millions):

		2019		2018
Cash and cash equivalents	₩	34,916	₩	110,964
Long-term and short-term financial instruments		461,089		451,686
Financial assets at fair value through profit or loss		571,489		756,290
Derivative assets		120,133		32,248
Financial assets at fair value through other comprehensive income		231,825		229,964
Loans		77,084		75,694
Trade and other receivables		1,352,290		1,446,479

There were no financial assets (current or non-current) acquired or received as a result of exercise of rights to collaterals received or additionally obtained to adjust credit limits.

38.2.3 Market risk

Market risk is the risk that the Group's fair value of the financial instruments or future cashflows are effected by the changes in the market. Market risk consists of interest rate risk, currency risk and other price risk.

38.2.4 Sensitivity analysis

Major liabilities with uncertanties in underlying assumptions

(i) Defined benefit obligations

Changes in the Group's defined benefit obligations due to changes in underlying assumptions as of December 31, 2019 and 2018 are as follows:

		2019				2018			
Assumption	Accounts		1% points increase		1% points decrease		1% points increase		1% points decrease
Future salary increasing rate	Defined benefit obligations	₩	104,646	₩	(89,459)	₩	92,333	₩	(78,745)
Discount rate	Defined benefit obligations		(93,255)		111,917		(82,149)		98,770

(ii) Provisions

Details of underlying assumptions used to estimate provision for decommissioning cost as of December 31, 2019 and 2018 are as follows (Korean won in millions):

Accounts	Assumptions	2019	2018
Nuclear plants	Inflation rate	1.10%	1.21%
	Discount rate	2.43%	2.94%
Fuel spent	Inflation rate	2.93%	2.93%
	Discount rate	4.49%	4.49%

38. Risk Management (cont'd)

38.2.4 Sensitivity analysis (cont'd)

The following is a sensitivity analysis of provisions assuming 0.1% increase or decrease in the underlying assumptions as of December 31, 2019 and 2018 (Korean won in millions):

	2019		2018	
	0.1% points increase	0.1% points decrease	0.1% points increase	0.1% points decrease
Discount rate:				
Nuclear plants	₩ (316,184)	₩ 325,828	₩ (256,513)	₩ 263,595
Fuel spent	(51,607)	53,621	(49,182)	51,098
Inflation rate:				
Nuclear plants	346,082	(336,182)	294,984	(287,110)
Fuel spent	54,396	(52,424)	51,837	(49,961)

Impact of management's estimation on overall consolidated financial statements

(i) Foreign currency risk

The Group is exposed to exchange rate fluctuation risk because of transactions denominated in foreign currency. The carrying amounts of the Group's foreign currency denominated monetary assets and monetary liabilities, excluding the Group's foreign subsidiary, as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019						
	AED	USD	EUR	HKD	CHF	Others(*)	Total
Assets:							
Cash and cash equivalents	₩ 2,258	₩ -	₩ 177	₩ -	₩ -	₩ 225	₩ 2,660
Trade and other receivables	-	90,568	-	-	-	-	90,568
Loans	-	-	118	-	-	-	118
Total assets denominated in foreign currency	2,258	90,568	295	-	-	225	93,346
Liabilities:							
Trade and other payables	10,824	67,781	75,288	-	329	4,304	158,526
Bonds	-	2,816,593	-	245,113	359,226	-	3,420,932
Total liabilities denominated in foreign currency	10,824	2,884,374	75,288	245,113	359,555	4,304	3,579,458
Net exposure	₩ (8,566)	₩ (2,793,806)	₩ (74,993)	₩ (245,113)	₩ (359,555)	₩ (4,079)	₩ (3,486,112)

(*) Others include CAD, JPY, CZK, PHP and GBP.

38. Risk Management (cont'd)

38.2.4 Sensitivity analysis (cont'd)

	2018					
	USD	CAD	EUR	AED	HKD	Total
Assets:						
Cash and cash equivalents	₩ 16,059	₩ 59	₩ 1,227	₩ 1,513	₩ -	₩ 18,858
Short-term financial instruments	-	631	-	-	-	631
Trade and other receivables	87,306	3	52	-	-	87,361
Total assets denominated in foreign currency	103,365	693	1,279	1,513	-	106,850
Liabilities:						
Trade and other payables	49,572	67	59,999	-	-	109,638
Bonds	3,049,453	-	-	-	235,384	3,284,837
Total liabilities denominated in foreign currency	3,099,025	67	59,999	-	235,384	3,394,475
Net exposure	₩ (2,995,660)	₩ 626	₩ (58,720)	₩ 1,513	₩ (235,384)	₩ (3,287,625)

Currency exchange rates as of December 31, 2019 and 2018 are as follows (Korean won in each currency):

	2019		2018	
	Average exchange rate	Ending exchange rate	Average exchange rate	Ending exchange rate
USD	1,165.65	1,157.80	1,100.30	1,118.10
EUR	1,304.81	1,297.43	1,298.63	1,279.16
JPY	1,069.76	1,063.47	-	-
AED	317.35	315.21	299.56	304.40
HKD	148.78	148.66	140.38	142.77
CHF	1,173.43	1,195.52	-	-
CZK	50.84	51.05	-	-
GBP	1,487.83	1,518.69	-	-
PHP	22.52	22.80	-	-
CAD	878.54	886.56	848.95	820.35

A sensitivity analysis on the Group's profit for the year assuming 10% increase or decrease in currency exchange rates as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
	10% increase	10% decrease	10% increase	10% decrease
Increase (decrease) of profit for the year	₩ (348,611)	₩ 348,611	₩ (328,762)	₩ 328,762
Increase (decrease) in equity	(348,611)	348,611	(328,762)	328,762

Sensitivity analysis above is conducted for monetary assets and liabilities denominated in foreign currencies other than functional currency as of December 31, 2019 and 2018.

38. Risk management (cont'd)

38.2.4 Sensitivity analysis (cont'd)

(ii) Interest rate risk

The Group is exposed to interest rate risk due to its borrowings with floating interest rates. An 1% increase or decrease is used when reporting interest rate risk internally to key management personnel and represents management's assessment of the reasonably possible change in interest rates.

The Group's floating-rate long-term borrowings and bonds as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Long-term borrowings (including current portion)	₩ 40,517	₩ 44,734
Bonds (including current portion)	-	-
	₩ 40,517	₩ 44,734

A sensitivity analysis on the Group's long-term borrowings and bonds assuming 1% points increase or decrease in interest rates as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
	1% points increase	1% points decrease	1% points increase	1% points decrease
Increase (decrease) of profit for the year	₩ (405)	₩ 405	₩ (447)	₩ 447
Increase (decrease) in equity	(405)	405	(447)	447

To manage its interest rate risks, the Group maintains an appropriate balance of fixed and floating rate borrowings and enters into interest rate swap agreements, if needed.

38.2.5 Liquidity risk

The Group has established an appropriate liquidity risk management framework for the management of the Group's short, medium and long-term funding and liquidity management requirements. The Group manages liquidity risk by maintaining adequate reserves, banking facilities and reserve borrowing facilities, by continuously monitoring forecast and actual cash flows, and by matching the maturity profiles of financial assets and liabilities.

In addition, the Group has established credit lines on its trade finance and bank overdrafts, and through payment guarantees it has received, it maintains an adequate credit (borrowing) facility. Furthermore, in case of major construction investment, the Group has the ability to use reserve cash or utilize long-term borrowings.

Details of remaining maturities of the Group's non-derivative financial liabilities based on agreement terms are as follows. The amount disclosed below represents the undiscounted cash flows the Group is obligated to pay in the future on the earliest repayment date:

Remaining maturities of the Group's non-derivative financial liabilities including payments of interest expenses are as follows (Korean won in millions):

	2019				
	Under 1 year	1~2 years	2~5 years	Over 5 years	Total
Borrowings and bonds	₩ 1,063,385	₩ 1,519,449	₩ 4,271,971	₩ 6,372,221	₩ 13,227,026
Trade and other payables	1,037,761	312,023	1,003,704	1,276,601	3,630,089
	₩ 2,101,146	₩ 1,831,472	₩ 5,275,675	₩ 7,648,822	₩ 16,857,115

	2018				
	Under 1 year	1~2 years	2~5 years	Over 5 years	Total
Borrowings and bonds	₩ 1,129,670	₩ 809,142	₩ 4,547,846	₩ 4,831,656	₩ 11,318,314
Trade and other payables	994,240	284,481	929,942	5,400,003	7,608,666
	₩ 2,123,910	₩ 1,093,623	₩ 5,477,788	₩ 10,231,659	₩ 18,926,980

38. Risk management (cont'd)

38.2.5 Liquidity risk (cont'd)

As the Group manages its liquidity based on its net asset and net liability balances, the Group's liquidity risk management analysis includes its non-derivative financial assets.

Details of the Group's expected holding period of its non-derivative financial assets as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019				
	Under 1 year	1~5 years	Over 5 years	Others (*)	Total
Cash and cash equivalents	₩ 34,916	₩ -	₩ -	₩ -	₩ 34,916
Financial assets at fair value through profit or loss	29,520	-	-	541,969	571,489
Short-term and long-term financial instruments	210,625	-	-	250,464	461,089
Financial assets at fair value through other comprehensive income	-	-	-	231,825	231,825
Loans	5,433	5,477	73,044	-	83,954
Trade and other receivables	1,302,737	50,925	-	-	1,353,662
	₩ 1,583,231	₩ 56,402	₩ 73,044	₩ 1,024,258	₩ 2,736,935

	2018				
	Under 1 year	1~5 years	Over 5 years	Others (*)	Total
Cash and cash equivalents	₩ 110,964	₩ -	₩ -	₩ -	₩ 110,964
Financial assets at fair value through profit or loss	245,691	16,816	-	493,783	756,290
Short-term and long-term financial instruments	205,790	-	-	245,896	451,686
Financial assets at fair value through other comprehensive income	-	-	-	229,964	229,964
Loans	4,984	37,346	40,508	-	82,838
Trade and other receivables	1,368,303	80,280	-	-	1,448,583
	₩ 1,935,732	₩ 134,442	₩ 40,508	₩ 969,643	₩ 3,080,325

(*) Maturity period is not reasonably estimable.

Remaining maturities of Group's derivative financial liabilities are as follows (Korean won in millions):

	2019				
	Under 1 year	1~2 years	2~5 years	Over 5 years	Total
Cash inflow	₩ 86,670	₩ 60	₩ 244,293	₩ 122,064	₩ 453,087
Cash outflow	(92,009)	(5,190)	(246,497)	(116,873)	(460,569)
	₩ (5,339)	₩ (5,130)	₩ (2,204)	₩ 5,191	₩ (7,482)

	2018				
	Under 1 year	1~2 years	2~5 years	Over 5 years	Total
Cash inflow	₩ 70,877	₩ 69,024	₩ 1,534,660	₩ 600,459	₩ 2,275,020
Cash outflow	(54,635)	(54,219)	(1,592,763)	(649,049)	(2,350,666)
	₩ 16,242	₩ 14,805	₩ (58,103)	₩ (48,590)	₩ (75,646)

38. Risk management (cont'd)

38.3 Fair value estimate

The fair value of the Group's actively-traded financial instruments (i.e. financial assets at fair value through profit or loss and financial assets at fair value through other comprehensive income) is the based on the traded market-price as of the reporting period end. The fair value of the Group's financial assets is the amount which the asset could be exchanged for or the amount a liability could be settled for.

The fair values of financial instruments where no active market exists or where quoted prices are not otherwise available are determined by using valuation techniques. Valuation techniques include using recent arm's length market transactions between knowledgeable, willing parties, if available, reference to the current fair value of another instrument that is substantially the same, discounted cash flow analysis and option pricing models. If there is a valuation technique commonly used by market participants to price the instrument and that technique has been demonstrated to provide reliable estimates of prices obtained in actual market transactions, the Group uses that technique.

For trade receivable and payable, the Group considers the carrying value, net of impairment, as fair value. While for disclosure purposes, the fair value of non-current financial liabilities is estimated by discounting a financial instruments with similar contractual cashflows based on the effective interest method.

38.3.1 Fair value and carrying amount

The fair value of financial assets and financial liabilities as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
	Carrying amount	Fair value	Carrying amount	Fair value
Financial assets at fair value:				
Financial assets at fair value through other comprehensive income	₩ 231,825	₩ 231,825	₩ 229,964	₩ 229,964
Financial assets at fair value through profit or loss	571,489	571,489	756,290	756,290
Derivative financial instruments held for trading	120,133	120,133	32,248	32,248
	₩ 923,447	₩ 923,447	₩ 1,018,502	₩ 1,018,502
Financial assets at amortized cost:				
Loans	₩ 77,084	₩ 77,084	₩ 75,694	₩ 75,694
Trade and other receivables	1,352,290	1,352,290	1,446,479	1,446,479
Cash and cash equivalents	34,916	34,916	110,964	110,964
Short-term and long-term financial instruments	461,089	461,089	451,686	451,686
	₩ 1,925,379	₩ 1,925,379	₩ 2,084,823	₩ 2,084,823
Financial liabilities at fair value:				
Derivative financial instruments held for trading	₩ 7,482	₩ 7,482	₩ 73,560	₩ 73,560
Financial liabilities at amortized cost:				
Unsecured bonds	₩ 10,079,390	₩ 11,168,718	₩ 9,493,725	₩ 10,292,811
Borrowings	166,170	166,170	183,648	183,648
Trade and other payables	3,574,485	3,574,485	3,565,182	3,565,182
Short-term borrowings	210,000	210,000	-	-
	₩ 14,030,045	₩ 15,119,373	₩ 13,242,555	₩ 14,041,641

38. Risk management (cont'd)

38.3.2 Interest rates used in calculating fair values

Interest rates used to discount expected cash flows were determined by adding credit spreads to government bond yields at the end of the reporting period.

38.3.3 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.

	Useful life
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.
Level 3	Inputs that are not based on observable market data.

Fair values of financial instruments by hierarchy level as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value:				
Financial assets at fair value through profit or loss	₩ -	₩ 571,489	₩ -	₩ 571,489
Financial assets at fair value through other comprehensive income	31,829	-	199,996	231,825
Derivative financial instruments held for trading	-	120,133	-	120,133
Financial liabilities at fair value:				
Derivative liabilities	-	7,482	-	7,482

	2018			
	Level 1	Level 2	Level 3	Total
Financial assets at fair value:				
Financial assets at fair value through profit or loss	₩ -	₩ 756,290	₩ -	₩ 756,290
Financial assets at fair value through other comprehensive income	35,861	-	193,710	229,571
Derivative financial instruments held for trading	-	32,248	-	32,248
Financial liabilities at fair value:				
Derivative liabilities	-	73,560	-	73,560

The fair value of financial assets at fair value through other comprehensive income traded in the market is determined by the closing purchase price disclosed at the end of the reporting period, and the fair value of financial assets at fair value through other comprehensive income without marketability is determined by the fair value evaluation results from external assessment institutions. Financial assets measured at level 3 in the fair value hierarchy as of the end of the current term include investments in SET Holding and Korea Electric Power Exchange as described in Note 9. They were measured by estimating future cash flows in consideration of expected operating income and cost structure, and then were discounted by the weighted average capital costs considering capital structure, etc. In addition, the group measured the fair value of the derivative using a cash flow discount model that reflected credit risk and used the inputs (credit risk, interest rate, and exchange rate) considering the key economic indicators and economic environment of the derivative to be assessed.

38. Risk management (cont'd)

38.3.3 Fair value hierarchy (cont'd)

Changes in financial assets at fair value through other comprehensive income for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019				
	Beginning balance	Acquisition (disposals)	Loss on valuation	Others	Ending balance
Financial assets at fair value through other comprehensive income	₩ 229,964	₩ -	₩ (971)	₩ 2,832	₩ 231,825

	2018					
	Beginning balance	Effect of changes in accounting policies.	Acquisition (disposals)	Loss on valuation	Others	Ending balance
Financial assets at fair value through other comprehensive income	₩ 547,673	₩ (214,156)	₩ -	₩ (10,008)	₩ (93,545)	₩ 229,964

39. Related party disclosures

Details of related parties as of December 31, 2019 are as follows:

Relationship	Related party
Ultimate parent	Korea Electric Power Corporation
Subsidiaries	KHNP Canada Energy Ltd.
	Gyeonggi Green Energy Co., Ltd.
	Korea Imouraren Uranium Investment Corp.
	Korea Waterbury Uranium Limited Partnership
	Incheon Fuel Cell Co., Ltd.
	First Keepers Co., Ltd.
	Secutec Co., Ltd.
Associates	Korea Offshore Wind Power Co., Ltd.
	Noeul Green Energy Co., Ltd.
	Busan Green Energy Co., Ltd.
	Korea Nuclear Partners Co., Ltd.
	Solar School Plant Co., Ltd.
	KEPCO Energy Solution Co., Ltd.
	Gwangyang Green Energy Co., Ltd.
	Hanhwa Solar Power Private equity investment trust
	Go Deok Clean Energy Co., Ltd.
Joint ventures	Waterbury Lake Uranium Limited Partnership
	Cheongsong Noraesan Wind Power Co., Ltd.
	Saemangeum Solar Power Co., Ltd.
Other related parties	Korea Midland Power Co., Ltd.
	Korea East-West Power Co., Ltd.
	Korea South-East Power Co., Ltd.
	Korea Western Power Co., Ltd.
	Korea Southern Power Co., Ltd.
	KEPCO Engineering & Construction Inc.
	KEPCO Plant Service & Engineering Co., Ltd.
	KEPCO Nuclear Fuel Co., Ltd.
	KEPCO Knowledge, Data & Network Co., Ltd.
	Korea Power Exchange
	YTN Co., Ltd.
	Korea Development Bank
	HeeMang Sunlight Power Co., Ltd.
	Korea Gas Corporation
	Nawah Energy Company and others.

39. Related party disclosures (cont'd)

The transactions with related parties for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

Related party	Details of transactions	Sales and others 2019	Sales and others 2018	Purchases and others 2019	Purchases and others 2018
Korea Electric Power Corporation	Sales of electricity and others	₩ 9,199,363	₩ 9,113,008	₩ 637,688	₩ 706,301
	Dividends paid	-	-	-	281,234
Busan Green Energy Co., Ltd.	Service income /REC Purchases	-	-	13,811	25,123
Noeul Green Energy Co., Ltd.	Service income /REC Purchases.	-	-	22,767	18,282
Korea Offshore Wind Power Co., Ltd.	Service income	238	334	-	-
Saemangeum Solar Power Co., Ltd.	Service income	2,230	-	-	-
KEPCO Energy Solution Co., Ltd.	Service income	147	37	-	-
Gwangyang Green Energy Co., Ltd.	Service income	118	873	-	-
Solar School Plant Co., Ltd.	Service income	132	36	-	-
Korea South-East Power Co., Ltd.	Other sales, etc.	17	78	-	81
Korea East-West Power Co., Ltd.	Commission fees	-	-	56	-
Korea Midland Power Co., Ltd.	Other income	-	17	-	-
Korea Western Power Co., Ltd.	Other sales, etc.	25	79	-	-
Korea Southern Power Co., Ltd.	Other income	3	-	-	167
KEPCO Plant Service & Engineering Co., Ltd.	Rental and consignment education income/ Cost of construction services, etc.	4,111	2,080	495,985	478,255
KEPCO Engineering & Construction Inc.	Rental and consignment education income/ Cost of technique services, etc.	17,102	322	244,391	206,176
KEPCO Knowledge, Data & Network Co., Ltd.	Information and communication consigned service costs, etc.	-	-	45,978	42,709
KEPCO Nuclear Fuel Co., Ltd.	Consignment education income/ Nuclear power plant fuel purchase, etc.	798	-	309,738	179,730
Korea Power Exchange	Commission fees, etc.	-	7	14,688	13,668
Korea Development Bank	Interest income/Interest expenses	246	129	1,491	1,575
YTN Co., Ltd.	Advertisement expenses	-	-	98	87
Nawah Energy Company	Service income	90,434	50,891	-	-

39. Related party disclosures (cont'd)

Receivables and payables arising from related party transactions as of December 31, 2019 and 2018 are as follows (Korean won in millions):

Related party	Details of transactions	Trade receivables and others 2019	Trade receivables and others 2018	Trade payables and others 2019	Trade payables and others 2018
Korea Electric Power Corporation	Trade receivables	₩ 1,049,511	₩ 962,978	₩ -	₩ -
	Other receivables, and others	530,855	262,858	-	-
	Other payables and others	-	-	52,666	57,845
Saemangeum Solar Power Co., Ltd..	Other receivables	2,197	-	-	-
Gwangyang Green Energy Co., Ltd.	Other receivables	1,334	-	-	-
Solar School Plant Co., Ltd.	Other receivables	39	-	-	-
KEPCO Energy Solution Co., Ltd.	Other receivables	44	-	-	-
Noeul Green Energy Co., Ltd.	Other payables	-	-	1,855	8,774
Busan Green Energy Co., Ltd.	Advanced payment	-	1,691	-	-
	Other payables	-	-	606	10,882
Korea Offshore Wind Power Co., Ltd.	Trade receivables	177	161	-	-
Korea Western Power Co., Ltd.	Trade receivables	-	22	-	-
Korea Southern Power Co., Ltd.	Other payables and others	-	-	-	237
Korea East-West Power Co., Ltd.	Other payables	-	-	61	-
KEPCO Plant Service & Engineering Co., Ltd.	Other receivables and others	17	-	-	-
	Other payables and others	-	-	11,360	24,839
KEPCO Engineering & Construction Inc.	Other receivables	15,969	-	-	-
	Other payables and others	-	-	6,594	6,052
KEPCO Knowledge, Data & Network Co., Ltd.	Other payables and others	-	-	3,587	-
KEPCO Nuclear Fuel Co., Ltd.	Advanced payment and others	-	2,348	-	-
	Trade payables	-	-	4,737	12,053
Korea Power Exchange	Other payables and others	-	-	1,105	1,132
Korea Development Bank	Advanced payment	1,026	1,147	-	-
	Long and short-term borrowings	-	-	127,175	30,043
	Other payables	-	-	24	27
Nawah Energy Company	Trade receivables	37,677	29,614	-	-

39. Related party disclosures (cont'd)

Financial transactions with related parties for the years ended December 31, 2019 and 2018 are as follows: (Korean won in millions)

(i) Loans and capital investments

		2019		
		Transaction		Cash
	Company name	Borrowings	Repayments	contribution
Associates	Hanhwa Solar Power Private equity investment trust	₩ -	₩ -	₩ 7,105
	Go Deok Clean Energy Co., Ltd.	-	-	1,830
Joint ventures	Cheongsong Noraesan Wind Power Co., Ltd.	-	-	1,127
	Saemangeum Solar Power Co., Ltd.	-	-	10,000
Others	Loans to employees	10,634	(9,198)	-

(ii) Borrowings

Relationship	Company name	Classification	As of December 31, 2018	Borrowings	Repayments	Others	As of December 31, 2019
Other related parties	Korea Development Bank (*)	Facility funds	₩ 30,043	₩ -	₩ (2,868)	₩ -	₩ 27,175
		Operating funds	-	130,200	(30,200)	-	100,000

(*) Details of collaterals pledged for related parties are described in Note 41.

Compensations to key executives of the Controlling Company for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Salaries and incentives	₩ 939	₩ 998
Retirement benefits	37	31
	₩ 976	₩ 1,029

Housing and tuition loans to employees as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Short-term loans	₩ 5,028	₩ 4,935
Long-term loans	71,437	70,824
	₩ 76,465	₩ 75,759

39. Related party disclosures (cont'd)

Details of collateral provided to related parties as of December 31, 2019 are as follows (Korean won in millions):

Provided by	Provided to	Assets pledged (*1)		Amount	Financial institution
Korea Hydro & Nuclear Power Co., Ltd.	Korea Offshore Wind Power Co., Ltd. (*2)	Korea Offshore Wind Power Co., Ltd. Shares	₩	21,081	Woori Bank
	Noeul Green Energy Co., Ltd. (*2)	Noeul Green Energy Co., Ltd. Shares		6,611	Hana Bank and others
	Busan Green Energy Co., Ltd.	Busan Green Energy Co., Ltd. Shares		10,636	Shinhan Bank and others
	Cheongsong Noraesan Wind Power Co., Ltd. (*2)	Cheongsong Noraesan Wind Power Co., Ltd. Shares		3,044	Woori Bank and others

(*1) As of December 31, 2019, the entire shares in related associates held by the Group are pledged as collateral to the financial institutions.

(*2) The Group enters into an agreement to supplement funds for the excess project cost of the guaranteed company or the insufficient repayment of the loan.

Details of derivatives transactions with related parties as of December 31, 2019 are as follows: (USD, HKD, CHF in thousands, Korean won in millions, KRW/USD, KRW/HKD, KRW/CHF)

			Contract amount				Contract interest rate per annum			
	Counter party	Contract period	Sell price		Purchase price		Sell	Purchase	Contract exchange rate	
Currency swap	Korea Development Bank	2015.06.15~ 2025.06.15	KRW	111,190	USD	100,000	2.62%	3.25%	₩	1,111.90
		2017.07.25~ 2027.07.25	KRW	111,610	USD	100,000	2.31%	3.13%		1,116.10
		2018.04.03~ 2028.03.13	KRW	108,600	HKD	800,000	2.69%	3.35%		135.75
		2018.07.25~ 2023.07.25	KRW	170,280	USD	150,000	2.15%	3.75%		1,135.20
		2019.07.19~ 2027.07.19	KRW	119,978	CHF	100,000	1.43%	0.05%		1,199.78
Currency forward	Korea Development Bank	2017.12.27~ 2021.07.12	KRW	104,849	USD	100,000	-	-		1,048.49

40. Supplementary cash flow information

Significant non-cash transactions for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019	2018
Transfer from long-term borrowings and bonds to current portion	₩ 640,228	₩ 785,342
Transfer from provisions for decommissioning cost to current portion	477,844	-
Transfer from construction-in-progress to property, plant and equipment	3,261,888	369,467
Recognition of assets retirement costs based on provision for restoration	2,425,668	310,272
Transfer from spent fuel management charges to accrued expenses	376,103	482,698
Transfer from long-term advance payments to right-of-use assets	1,007,212	14,509
Transfer from inventories to stored nuclear power fuel	1,129,374	648,314
Transfer from finance lease assets to right-of-use assets	676,981	-

Changes in liabilities arising from financing activities for the years ended December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019						
		Cash flows		Non-cash change			
	Beginning balance	Decrease	Increase	Acquisition	Exchange rate fluctuation	Others	Ending balance
Current portion of lease liabilities	₩ -	₩ -	₩ -	₩ -	₩ -	₩ 20,223	₩ 20,223
Lease liabilities	-	(26,268)	-	184,605	418	(20,174)	138,581
Short-term borrowings	-	(111,338)	321,338	-	-	-	210,000
Current portion of long-term borrowings	174,295	(17,477)	-	-	-	(138,565)	18,253
Long-term borrowings	9,353	-	-	-	-	138,564	147,917
Current portion of bonds	624,925	(641,300)	-	-	15,870	500,316	499,811
Bonds	8,868,800	-	1,098,344	-	105,014	(492,579)	9,579,579

	2018					
		Cash flows		Non-cash change		
	Beginning balance	Decrease	Increase	Exchange rate fluctuation	Others	Ending balance
Short-term borrowings	₩ -	₩ (402,490)	₩ 402,490	₩ -	₩ -	₩ -
Current portion of long-term borrowings	16,737	(16,737)	-	-	174,295	174,295
Long-term borrowings	183,648	-	-	-	(174,295)	9,353
Current portion of bonds	1,106,065	(1,107,120)	-	13,993	611,987	624,925
Bonds	7,490,985	-	1,895,189	87,030	(604,404)	8,868,800
Dividends payable	-	(281,234)	-	-	281,234	-

41. Commitment and contingencies

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

	2019		2018	
	Litigation in progress	Litigation values	Litigation in progress	Litigation values
Pending lawsuits (*)	85 cases	₩ 124,620	85 cases	₩ 158,858

(*) Details of ongoing litigations as of December 31, 2019 are as follows (Korean won in millions):

Court	Complainant	The accused	Contents	Litigation amount	Progress situation
Seoul High Court	Individuals	Company	3 wages(*1)	₩ 52,353	The first trial / The second instance
Supreme Court	Individuals	Company	Wage(*1)	478	The third instance
Busan District Court	Individuals	Company	Wage(*1)	460	The first trial
Daegu District Court	Individuals	Company	Wage(*1)	225	The first trial
Daegu District Court and others	Individuals	Company	4 wages(*1)	650	The first trial
Seoul High Court and others	S&TC and others	Company	Cancellation of vendor's contract and others	5,530	The first trial / The second instance
Seoul High Court and others	Individuals	Company	72 cases, including compensation for damages	64,924	Lawsuit pending

(*1) As of December 31, 2019, the Group has a total of 10 ordinary wage-related lawsuits pending at the Seoul High Court. On February 3, 2017, 2 cases were judged at the court of the first instance and the court decided partially in favor of the plaintiffs. The Group has paid the liability related to ordinary wages in 2017 and determines that the contingent liability associated with this case will not be significant.

The Group has reserved ₩ 5,430 million of legal action provisions for current ongoing litigations. Although the final results cannot be predicted for case other than cases in which the legal action provisions are established, management expects that the outcome of the lawsuit will not have a significant impact on the Group's operations or financial status.

A group of plaintiffs (consisting 2,167 individuals) filed a lawsuit against Nuclear Safety and Security Commission ("NSSC") regarding NSSC's approval on May 18, 2015 of extending the operation of Wolsong Unit 1 nuclear power plant. The appeal was ongoing as of December 31, 2019. In addition, Greenpeace and others filed an administrative litigation against NSSC requesting cancellation of the construction permit of Shin-Kori Units 5 and 6, and the plaintiffs lost in the litigation based on the court trialing on February 14, 2019. The plaintiff filed an appeal on March 18, 2019. Meanwhile, the Group is participating in these litigations as a stakeholder with the permission of the Court.

41. Commitment and contingencies (cont'd)

Meanwhile, the Group determines that there is no present obligation regarding the payment of the periodic pre-work for main facilities by a particular client in relation to the Shin-Hanul Units 3 and 4 as of December 31, 2019. In addition, the Group determines that the probability of winning a lawsuit in the future is higher than the probability of losing it. Furthermore, the Group cannot reliably estimate the amount required to meet the obligations as of December 31, 2019.

The long-term service contract between Gyeonggi Green Energy Co., Ltd. (Gyeonggi Green Energy), a subsidiary of the Group and its fuel cell supplier expired during 2018. Accordingly, there had been a request for renewal of the contract by creditors, and the Gyeonggi Green Energy was in the process of negotiating with the fuel cell supplier. As a result of the negotiation, the Group renewed the contract with the supplier on August 30, 2019 and obtained approval from the creditor for a long-term service contract with the supplier.

Lines of credit provided by financial institutions as of December 31, 2019 are as follows (Korean won in millions, USD in thousands):

Description	Financial institution	Currency	Credit line	Exercised amount
Commitments on Bank-overdraft	Woori Bank	KRW	50,000	-
	Nonghyup Bank	KRW	100,000	100,000
	Hana Bank	KRW	50,000	-
	Kookmin Bank	KRW	100,000	10,000
	Korea Development Bank	KRW	100,000	100,000
Trade finance	SMBC	USD	100,000	-
	JP Morgan	USD	50,000	-
	BNP Paribas	USD	150,000	-
	DBS	USD	150,000	-
	Societe Generale	USD	100,000	-
	Standard Chartered	USD	150,000	-
Certification of payment on L/C	Nonghyup Bank	USD	50,000	7,608
Certification of performance guarantee on contract	National Bank of Pakistan	USD	302	302
Loan limit	Korea Development Bank	KRW	251,600	156,818
Others	Nonghyup Bank	KRW	13,004	3,386
	Woori Card Co., Ltd.	KRW	4,100	3,300
	KEB Hana Card Co., Ltd.	KRW	4,800	-
	Industrial Card of Korea	KRW	20	20
	Industrial Bank of Korea	KRW	20,000	4,251
	Shinhan Bank	KRW	10,000	135
	Hana Bank	KRW	10,000	-
	Nonghyup Bank	KRW	50,000	4,624
	Woori Bank	KRW	10,000	1,927
	Nonghyup Bank	USD	20,000	-
	Hana Bank	KRW	50,000	-

41. Commitment and contingencies (cont'd)

The Group voluntarily suspended operations of the Gangneung hydroelectric generating plant, with a carrying amount of ₩ 75,634 million as of December 31, 2019, to improve the quality of water used in generating electricity. The expenses related to the suspension of operations of ₩ 6,542 million and depreciation on the utility plant amounting to ₩ 49 million are charged to other expenses for the years ended December 31, 2019. Regarding the improvement of water quality, the results of damages compensation for the local residents cannot be reasonable estimated, and the Group is under negotiations with Gangneung City and related stakeholders to restart the Gangneung hydroelectric generating plant as of December 31, 2019.

Major contracts related to constructions:

Agreements on purchase of property, plant and equipment as of December 31, 2019 and 2018 are as follows (Korean won in millions)

	2019	2018
Agreements on purchase of property, plant and equipment (*)	₩ 24,430,487	₩ 23,971,243

(*) The above amount is the total business standard amount of the construction work.

Contractual amounts for power plants either completed or not executed as of December 31, 2019 and 2018 are as follows (Korean won in millions):

	2019		2018	
	Contractual amounts	Remaining balance	Contractual amounts	Remaining balance
Construction of Shin-Kori units (#3,4)(*)	₩ 7,498,951	₩ -	₩ 7,363,514	₩ 3,211
Construction of Shin-Kori units (#5,6)	8,625,387	4,479,956	8,625,387	5,930,099
Construction of Shin-Hanul units (#1,2)	8,306,149	-	7,982,342	355,704
	₩ 24,430,487	₩ 4,479,956	₩ 23,971,243	₩ 6,289,014

(*) Construction of Shin-Kori units (#3,4) was completed for the year ended December 31, 2019.

The Group has various purchase commitments for Uranium, and the details of the major contracts as of December 31, 2019 are as follows:

	Contract period	Total quantity
Concentrate	2019~2030	38,990 Ton U3O8
Transformation	2019~2030	21,969 Ton U
Enrichment	2019~2030	17,060 Ton SWU
Fabrication (light-water reactor)	2019~2020	756 Ton U
Fabrication (heavy-water reactor)	2019~2020	401 Ton U
Fabrication (initial core)	2019~2022	415 Ton U

41. Commitment and contingencies (cont'd)

Details of collateral provided by the Group for long-term borrowings as of December 31, 2019 are as follows (Korean won in millions):

Classification	Type	Loan amounts		Loan limit		Maximum amount guaranteed		Financial institution
Long-term borrowings (*)	Facility loan	₩	156,818	₩	251,600	₩	327,080	Korea Development Bank and others

(*) As of December 31, 2019, all shares of Gyeonggi Green Energy Co., Ltd., one of the Group's subsidiaries, were provided as collateral related to the long-term borrowings above by the shareholders of the Company and Gyeonggi Green Energy Co., Ltd. Additionally, pledge for transfer of rights of long-term borrowings, pledge for insurance claims, pledge for plants and other pledges were established.

42. Non-current assets held for sale

Property, plant and equipment classified as non-current assets held for sale as of December 31, 2019 and 2018 are as follows (Korean won in millions):

Type	2019		2018	
Property, plant and equipment	₩	23,002	₩	-

The Group reclassified lands for which it entered into sales contracts from property, plant and equipment to non-current assets held for sale for the year ended December 31, 2019.

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